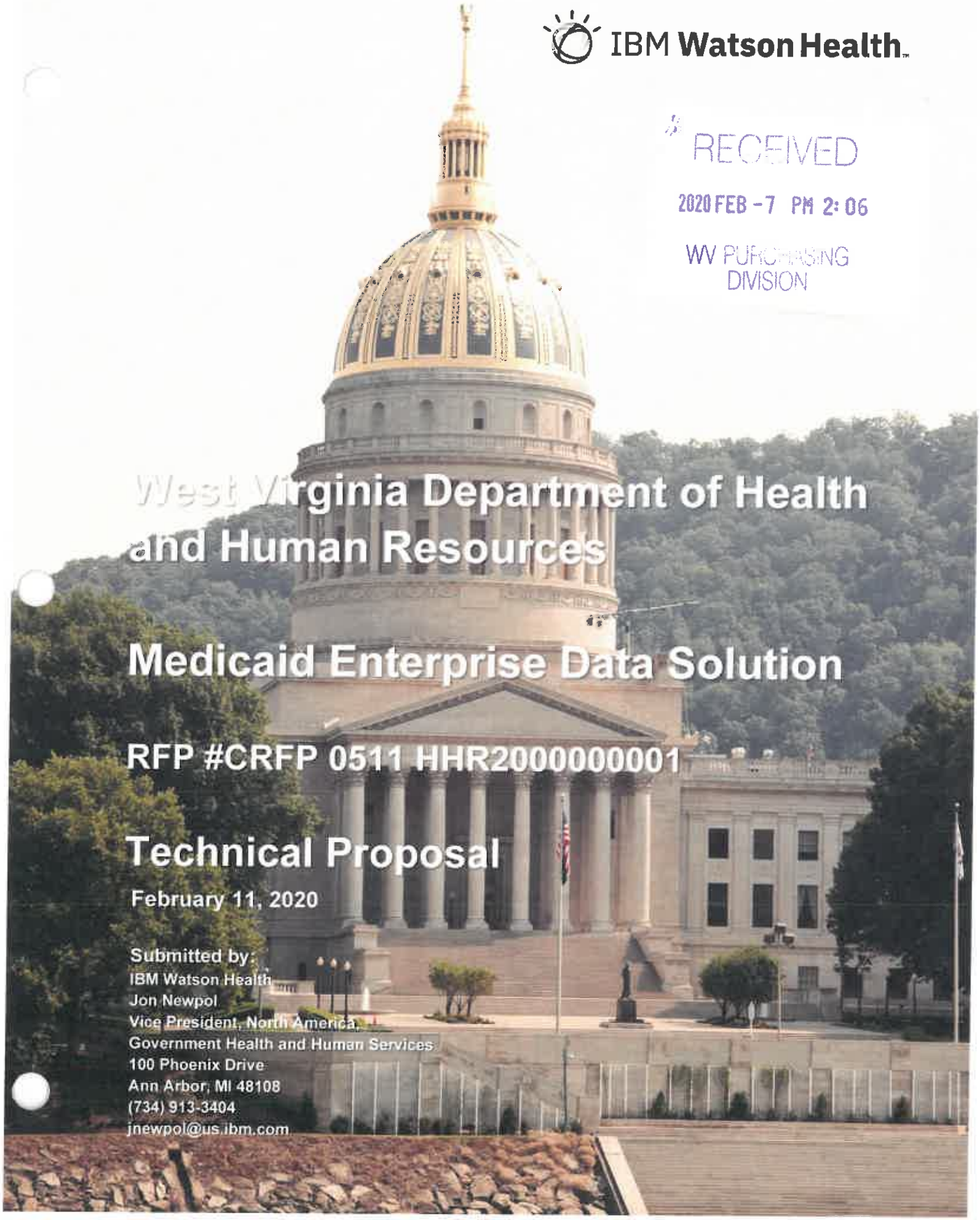
IBM Watson Health

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WV PURCHASING DIVISION



West Virginia Department of Health and Human Resources

Medicaid Enterprise Data Solution

RFP #CRFP 0511 HHR2000000001

Technical Proposal

February 11, 2020

Submitted by:
IBM Watson Health
Jon Newpol
Vice President, North America,
Government Health and Human Services
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IBM Watson Health agrees with all terms, conditions, and provisions included in the solicitation dated 10/9/2019, and as amended, and we agree to furnish any or all items upon which are offered at the price set opposite each item. This response is valid for 90 days from 2/11/2020.

ATTACHMENT B TITLE PAGE, EXECUTIVE SUMMARY AND SUBCONTRACTOR LETTERS

Title Page

February 6, 2020
Ms. Brittany Ingraham
Senior Buyer
Department of Administration, Purchasing Division
2019 Washington Street East
Charleston, WV 25305-0130

RE: Department of Health and Human Resources Contract – Request for Proposal

Dear Ms. Ingraham:

The West Virginia Department of Health and Human Resources (DHHR or the Department) is receiving a response from IBM Watson Health (Watson Health) for CRFP 0511 HHR2000000001, that will deliver a modernized solution and experienced team to deliver the Medicaid Enterprise Data Solution (EDS) to support your goals of better care, better outcomes, and lower cost. We look forward to expanding our partnership through improved services.

The point of contact for our response is:

John H. Johnson, Sales Executive
410-963-0460
jhjohnso@us.ibm.com

This proposal is valid for 90 days from the date of submission. I am legally authorized to make binding commitments related to the scope, terms, specifications, and pricing provided in our response on behalf of IBM Watson Health.

Sincerely,



Jon Newpol, Vice President
IBM Watson Health, Government Health and Human Services

Cover Letter

Name	Jon Newpol	Phone	(734) 913-3404
Address	100 Phoenix Drive	Fax	Not applicable
	Ann Arbor, MI 48108	E-mail	jnewpol@us.ibm.com

Subject to acceptance by the State, the Vendor acknowledges that by submitting a response AND signing in the space indicated below, the Vendor is submitting a formal offer to meet the requirements and intent of the RFP.

In addition to providing a signature to ***Section 6.8 – Availability of Information*** in the RFP, failure to sign the Submission Cover Sheet or signing it with a false statement shall void the submitted response or any resulting contracts.



_____ / 2/4/2020

Original signature of Signatory Authorized to Legally Bind the Company / Date

Name (Typed or Printed)	Jon Newpol
Title	Vice President IBM Watson Health, Government Health and Human Services
Company Name	International Business Machines Corporation (IBM)
Physical Address	100 Phoenix Drive, Ann Arbor, MI 48108
State of Incorporation	New York

By signature hereon, the Vendor certifies that:

1. All statements and information prepared and submitted in response to this RFP are current, complete, and accurate.
2. The proposed solution for the Project meets the requirements of this RFP.
3. The Vendor will comply with all federal and state laws, rules, and regulations that are in force currently or anytime during the term of a resulting contract.
4. The Vendor understands that proposal submissions become public and are available for review immediately after opening pursuant to West Virginia Code §5A-3-11(h). All other information associated with the RFP, including but not limited to, technical scores and reasons for disqualification, will not be available until after the contract has been awarded pursuant to West Virginia Code of State Rules §148-1-6.3.d.

5. The company represented here is an authorized dealer in good standing of the products and services included in this response.
6. The Vendor and its principals are eligible to participate in this transaction and have not been subjected to suspension, debarment, or similar ineligibility determined by any federal, state or local governmental entity; are in compliance with the State's statutes and rules relating to procurement; and are not listed on the federal government's terrorism watch list as described in Executive Order 13224. Entities ineligible for federal procurement are listed at https://www.sam.gov/portal/SAM/#1.
7. Prior to award, the Vendor affirms it will have all current approvals, licenses, or other qualifications needed to conduct business in West Virginia.

Vendor Information

Payment Address

Table 1. Payment Information

Payment Information:			
Name:	International Business Machines Corporation	Title:	Not applicable
Address:	PO Box 643600		
City, State and Zip Code:	Pittsburgh, PA 15264		
Phone:	Not applicable	Fax: Not applicable	Not applicable
Email:	necrsc@us.ibm.com		

Legal Notice Address

Table 2. Legal Notice Information

Legal Notice Information			
Name:	International Business Machines Corporation	Title:	Contracts Department
Address:	100 Phoenix Drive		
City, State and Zip Code:	Ann Arbor, MI 48108		
Phone:	410-476-1229	Fax:	Not applicable
Email:	horme@us.ibm.com		

Executive Summary

Watson Health's response to the West Virginia Department of Health and Human Resources (DHHR or the Department) Medicaid Enterprise Data Solution Request for Proposal (RFP), presents the State of West Virginia (State) with a *unique* proposition. While unique is often used to describe something that is merely somewhat different, its literal meaning is: being the only one or without like or equal. Indeed, unique falls into the category of overused terms that have become so nondescript and ubiquitous that you barely register their presence, let alone their intended meaning. The literal meaning of unique, however, properly describes our proposed solution for West Virginia.

As DHHR's current vendor for data warehouse and decision support services (DW/DSS), our proposal and West Virginia Enterprise Data Solution (WV EDS) offers DHHR several advantages and benefits that no other vendor can provide, including, but not limited to:

- Starting on Day One of the project, the ability to build on the data and analytic foundation established over the course of our eight-year partnership with DHHR.
- With our firsthand experience working with the Department and its dedicated staff, we know how to communicate and work effectively with DHHR personnel to timely meet project objectives.
- We have a proven track-record of collaboration working with DHHR's other key vendors, e.g., MMIS and IES, for the benefit of the Department.
- We will be singerly focused on delivering the Department's To-Be EDS vision and not distracted by the responsibilities of implementing or managing other DHHR mission critical systems.
- Our consistent national approach and architecture for EDW/DSS solutions provides DHHR the most efficient and timely path to CMS certification and MITA maturity.
- Based on our intimate knowledge of the State's Medicaid data and 35 + years of national experience, Watson Health is best positioned to deliver the WV EDS on time and on budget.

In addition to these unique benefits, following is a summary of our technical solution and delivery approach, which evidences our ability to deliver a WV EDS aligned with DHHR's To-Be vision that is also architected to scale and extend to meet the Department's future enterprise needs.

WV EDS Solution Overview

Our proposed WV EDS is a comprehensive set of integrated and interoperable COTS products, applied technologies and best practices centered around a single enterprise data store and portal. We implement these technologies and software components applying lessons learned and with pre-built accelerators to reduce risk and enhance value to DHHR. Our WV EDS solution is delivered as a cloud-hosted, software-as-a-service deployment, including the installation, configuration, implementation and deployment of all necessary infrastructure and software components. We will host the WV EDS solution on our Watson Health cloud platform that is compliant with all applicable state and federal regulations and offers WV DHHR the most cost-effective and flexible approach to hosting.

Data Sources, Integration and Governance

To-Be Vision: An EDS that supplies a modernized and comprehensive health information database and is capable of interfacing with a variety of potential source solution/entities.

We will initially integrate MMIS, PEIA, and WV HSC data into our Core Data Model (CDM), which stores and represents the data in a manner that supports intuitive and easy reporting and facilitates ad hoc queries and analytical processing. By starting with our CDM, a comprehensive, nationally consistent model, we provide an easier path to federally mandated reporting, CMS certification, and higher levels of MITA maturity by facilitating data sharing at the national level. Our CDM is designed with architectural flexibility in mind from the start. The data model and data integration components are designed to

accommodate your future data sources and expanding analytics needs by updating and extending schemas and model objects to incorporate new data fields as needed with minimal disruption to operations. The WV EDS will more easily integrate new data sources and support varying data load schedules than the current DW/DSS.

Our solution utilizes data exchange, transformation, integration and management software in a common framework of shared services that enable users to understand and collaborate about their data, cleanse data, monitor its quality, transform it and deliver it as trustworthy information. Our processes include analytic validity checks that are focused specifically on healthcare quality business rules. Our data quality testing is based on more than 35 years of experience transforming data for use in complex healthcare analytics.

Watson Health Advantage

Watson Health has implemented numerous large-scale data warehouses that conform to Enterprise Data Architecture Standards in large organizations, complying with the Federal Enterprise Architecture Framework (FEAF) and the Data Reference Model (DRM), including three (3) in the past five (5) years.

Good data governance and data management practices and capabilities make it easier to discover and understand what is really happening across the WV Medicaid data landscape. Our solution uses integrated components all sharing a common metadata repository to provide data understanding, governance, integration, and management capability.

Data Sharing and Interoperability

To-Be Vision: An EDS that maximizes the use and reuse of State resources across the enterprise.

Our WV EDS uses and exposes modular, reusable components and supports interoperability, integration, and an open architecture for integrating clinical and administrative data across the enterprise. Our WV EDS solution will acquire and share data from a variety of source systems through the IES Enterprise Service Bus (ESB) and via other technologies or services as required. We follow the standards defined by the Center for Medicaid & State Operations (CMSO) initiative for MITA and facilitate data sharing through open interfaces, industry-standard protocols and exposed APIs. Using these standards makes the solution's technical architecture scalable, extensible, and modular. The solution architecture is designed with flexibility to adjust to and accommodate any emerging interoperability standards as they evolve.

Reports and Analytics

To-Be Vision: An EDS that provides improved reporting, analytic capabilities, a variety of statistical techniques, and geographic analyses of data from across the enterprise.

Working Together for Continuous Improvement

Watson Health and DHHR have recently developed a new interactive dashboard to meet the specific needs of the Department and its executive leadership. Designed in collaboration with DHHR the dashboard has been well received by Department leadership and is awaiting final State approval for production.

Our solution's robust reporting functionality provides standard and ad hoc reporting capabilities and dashboards with state-of-the art visualization features. Our custom analytics engine puts powerful healthcare measures and methods into the hands of all users. Analytics are fundamentally data-driven processes with the goal of transforming data into information that will provide insight and aid DHHR in the decision-making required to manage the Medicaid business. The WV EDS solution includes methodologies and logic specifically designed to group and categorize Medicaid data and to calculate meaningful metrics on the data. We apply rich analytic content, such as evidence-based measures and clinically sound techniques for grouping, risk scoring, population health analysis and benchmarking. These enhancements make the data "analytically ready" for users of all types.

Compared to the current DW/DSS, the WV EDS includes a more powerful set of tools for users of all types – executives, business and policy analysts, data scientists, and other power users, both internal and external to DHHR. Interactive dashboards with dropdowns, sliders, and other visual cues are intuitive and provide highly graphical visualizations of your data to support executive oversight and program management.

Our WV EDS data mining and predictive modeling capabilities enable power users to apply their business expertise to quickly develop predictive models and deploy them into business operations to improve decision making. Our solution's data science and machine learning capabilities help simplify the evolving analysis process from experimentation to analytic model deployment, speed data exploration, streamline model development and training, and scale data science operations. Enabled by these capabilities, DHHR can inject predictions into business processes and then optimize business value with visual data science and decision optimization.

Our WV EDS data analysis capabilities will produce maps displaying geospatial data, include these in dashboards and perform geospatial analytics using geographic data. The built-in artificial intelligence (AI) assistant understands the intent of the question and intelligently presents the visualization using the most appropriate graphical display for the nature of the data and the user's perspective.

Quality Measures and Data Quality

To-Be Vision: An EDS that supplies DHHR with visibility, agility, and up-to-date monitoring of quality measure, assurance and control related activities, and supports HEDIS reporting requirements.

Our solution monitors complex industry-standard quality measures that reflect evidence-based medicine looking across eligibility, claims, condition-specific data, and the physicians providing services to a patient. The quality measures evaluate the completeness of care delivered, both at the patient level and across patients for a single provider. Our WV EDS' broad range of reporting and analysis metrics include CMS adult and child core measures and other evidence-based metrics of quality and gaps in care. Users will have enhanced ability to create custom quality measures as compared to the current DW/DSS.

Our approach to data quality begins with establishing quality thresholds and variances during requirements sessions, then applying the quality logic in the data profiling function to scrutinize the data, checking for completeness, validity, reasonableness, accuracy, and duplication via automated rules with defined thresholds and variances to easily gauge the quality of the data.

Program Integrity

To-Be Vision: An EDS that supports the State's SURS and FWA programs.



Our solution for surveillance and utilization review (SUR) includes powerful data mining capabilities and a robust report generator that uses health claims and encounter data to produce comprehensive profiles of service utilization by healthcare providers as well as profiles of services received by beneficiaries. The solution, which DHHR has trusted for more than 15 years, allows selection on virtually every field that is carried on a claim – placing the analyst in control, with immediate access to the critical information needed to target providers for review and audit. A new modern case management tool will enhance DHHR's ability to efficiently track FWA investigations.

WV EDS Portal

To-Be Vision: An EDS that allows for a single point of entry for DHHR and non-DHHR stakeholders.

Our WV EDS solution delivers a single portal as the point-of-entry for all authorized users to all applications within the WV EDS and enhances DHHR's ability to share reports and dashboards to

external users. Authorized users' capability to access reports and EDS related content is based on individual permissions, thus enabling DHHR to segregate access to content and reporting capabilities by an individual's role, e.g., provider or member.

Watson Health's Qualifications

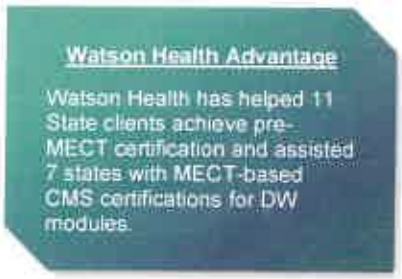
Watson Health provides a unique combination of hands-on DHHR and multiple state national experience. One of the aspects that makes our proposal unique is our experience working in partnership with DHHR as its DW/DSS vendor for the last eight years. During that time, we have been a trusted partner helping DHHR to acquire a better understanding of your data and gain new insights to your members' health, use of services, quality of care, and program costs. With this proposal, DHHR has the opportunity to consolidate the experience, knowledge, and hard-fought wins you have achieved. Watson Health provides DHHR the opportunity to build upon the strong foundation we have created together and move forward with alacrity to an evolved state of improved analytics and reporting capabilities, increased use and collaboration across the enterprise, and exploitation of all data sources relevant to improving the health and wellbeing of West Virginians:



Watson Health has been and will remain focused on delivering the capabilities and services DHHR requires to support *better care, better health, and lower cost* for the citizens of West Virginia because we care. Our focus, unburdened by the responsibilities associated with DHHR's other mission critical systems, enables us to deliver the subject matter expertise and nationally proven technology required by DHHR, without distraction. Indeed, as an independent party focused on the needs and goals of the WV EDS, DHHR is provided another view of its data, which, as in the past, can uncover and identify errors in its data ecosystem and lead to improve data quality across the enterprise.

National Experience

With our solution, DHHR not only has the opportunity to benefit from our West Virginia specific knowledge but our national experience as well. Over the last 35 years, Watson Health has served more than 40 Medicaid agencies with health and human services data warehousing, decision support, program integrity (PI), advanced analytics, and social program management. We are a recognized leader in Medicaid EDW and decision support systems. We have provided health data analytics to organizations across payers, providers, state and federal government agencies, and state employee public plan sponsors. Our clients benefit from a partner who brings experience with all aspects of the healthcare system and combines that experience with the technical innovation of IBM, who has led the industry in analyzing big data for commercial, federal, and state health and human services entities.



Delivery Approach

Our delivery approach is focused on speed to value while executing with excellence. The Watson Health System Development Life Cycle (SDLC) approach will follow and integrate seamlessly within the established DHHR project standards. Our SDLC aligns with the CMS Expedited Lifecycle (CMSXLC)

framework as well as the MES Project Life Cycle (MPLC) by aligning with CMS milestone review and project life cycle reviews as well as industry standard SDLC gate reviews.

Our iterative approach enhances collaboration, reduces downtime related to potential blockages, and informally allows DHHR to access work products and provide feedback prior to the User Acceptance Testing (UAT) phase using "iterative checkpoints." As a result, both Watson Health and DHHR can be confident that the development results released to UAT meet expectations.

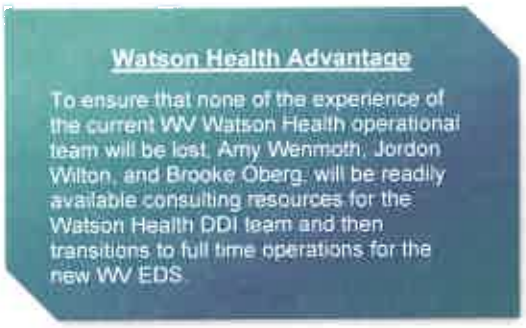
A key aspect of our solution is showing tangible value to DHHR early on. To that end, in parallel to the launch of the Watson Health WV EDS, we will build and test the EDS Platform & Data Mining Tools which establishes the infrastructure, BI, and project tools required to successfully deliver all phases of the project.

Watson Health Team and Organizational Structure for DDI and Operations

Watson Health assigns a team of highly skilled individuals with decades of experience in data warehousing and applied healthcare analytics and big data, supported by the Medicaid and Analytic Panel subject matter expertise in Medicaid fiscal sustainability and program integrity, value-based care, social determinants of health, and consumerism in healthcare. Our DHHR team understands the complexities of a multi-vendor implementation and our experience will accelerate problem solving and collaboration, driving focus to the priorities critical to DHHR.

Our proposed key staff have experience in Medicaid enterprise data warehousing and analytics, with specific experience in West Virginia. Our proposed DDI Account Manager, David Losin, is PMP-certified and his career in public healthcare IT spans over 22 years and 6 state Medicaid programs, including CA, CO, FL, GA, NY and WY. He has a successful track record of leadership roles from past experience supporting a wide variety of MMIS and DW/DSS projects across the country. Mr. Losin brings extensive knowledge of healthcare information system design, development, implementation, and operations management, as well as expertise in project management processes and MITA.

Our approach to staffing is optimized to have the right resources at the right time. This experience and optimal planning mean DHHR can be confident that our planning, estimating, sizing, and staffing projections are on target. It is critical as we move from the DDI phases that we retain necessary project staff through the transition from DDI to Operations. A consistent reporting structure with team leads and managers mindful of the overlapping skill set needs between DDI and Operations assures not just the right number of staff transition to Operations, but the right skills and experience for that phase of the project as well.



As set forth above and detailed in our proposal, Watson Health will provide DHHR with unique advantages in approach, technology, and experience. The combination of these attributes will provide DHHR the modern, scalable and extensible EDS it has envisioned. Supported by our experience staff and proven methodologies, Watson Health looks forward to continuing our trusted partnership with DHHR as it embarks on its journey to transform and modernize its exploitation of data to lower the cost of care and improve the health and well-being of all West Virginians.

Subcontractor Letters

Figure 1. i-Sight Subcontractor Letter

December 12, 2019

i-Sight by Customer Expressions Corporation
2255 Carling Ave, Suite 500
Ottawa, Ontario, K2B 7Z5
613-244-5111
genglish@i-sight.com

To whom it may concern,

Customer Expressions Corporation (DBA: i-Sight) is a privately held corporation with a FEIN# 82-0561408 and DUNS# 20-107-7480. The primary place of business is located at 2255 Carling Ave. Ottawa, Ontario, K2B 7Z5. Suite 500.

The authorized person who to legally bind the corporation to our contractual obligations is:

Geoff English, CFO
613-244-5111 x221
Genglish@i-Sight.com
Fax: 613-244-3333
2255 Carling Ave, Suite 500, Ottawa, Ontario, K2B 7Z5

i-Sight is an investigative case management software provider that currently provides the department with their case management system and looks to upgrade and migrate the currently leveraged solution to the newest version of i-Sight. i-Sight will be responsible for the configuration, deployment and maintenance of the solution in partnership with IBM Watson Health.

If re-selected, i-Sight is committed to perform the work.

i-Sight has read and understands the RFP, and will comply with the requirements of the RFP.

i-Sight will maintain any permits, licenses, and certifications requirements to perform its portion of the work.

We look forward to continuing and expanding pour partnership with the State of West Virginia.

Sincerely,

Geoff English
CFO

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ATTACHMENT C VENDOR QUALIFICATIONS & EXPERIENCE

Organization Overview

The last several years have seen extensive improvements in the integrity, transparency, and usefulness of data associated with West Virginia's Medicaid program. The Department of Health and Human Resources (DHHR) uses its data warehouse and decision support system (DW/DSS) to make program data more valuable as an active driver of informed decisions, better health outcomes, and efficient use of State resources. With the current procurement for a new Enterprise Data Solution (EDS), DHHR is building on this foundation with a focused Enterprise Integration and Modernization effort that will improve analytics and reporting, shared data, and program planning—along with services for West Virginians. To take full advantage of this next phase, DHHR needs a partner with a proven delivery record, deep understanding of your programs, and clear focus on transforming healthcare data into actionable insights. Watson Health is uniquely qualified to provide this for West Virginia.

Since 2004, Watson Health has helped DHHR establish its foundation and position its data environment for the next modernization step. As your partner for data warehouse and decision support system services and support since 2011, we have helped you apply detailed analysis to the Medicaid services your members depend on. Based on this knowledge, and on our extensive experience providing enterprise data warehouse solutions (EDW) to similar state agencies, we offer DHHR several advantages in a continued relationship.

Table 3. Watson Health Experience and Benefit to West Virginia

IBM Experience	Benefit to West Virginia
Completed four EDW/DSS implementations in the last seven years	Our skills, technology, and processes reflect the learnings of these implementations. Watson Health has already solved many of the challenges DHHR will face in this project, which enables us to bring solutions and drive success.
Supported six successful CMS MECT certifications	We helped DHHR establish CMS certification under MECT—along with Delaware, Colorado, Idaho, Maine, North Carolina, and South Carolina. We embed a focus on CMS certification from Day One, thus positioning DHHR to achieve and maintain certification and retain maximum federal funding. Our Project Management methodology support the Medicaid Enterprise Certification Lifecycle (MECL) reviews by clearly demonstrating tangible value being delivered at every phase of the project.
Understanding of your data environment	Watson Health implemented the solutions that ingest information from your MMIS, the Public Employees Insurance Agency, and West Virginia Health Statistics Center. We have worked with every major WV MMIS vendor to successfully intake and transform data for analytical reporting.
More than 40 current US state government clients	With techniques, processes, and analytics tailored to health and human services, Medicaid, and public plan sponsors Watson Health provides a proven set of out of the box capabilities to jump start the WV EDS project.
Support of every federal healthcare agency, including CMS	The State will be able to leverage Watson Health's knowledge of federal initiatives to deepen their understanding of changes in the healthcare environment and how DHHR can successfully manage such changes.
Continuing investment in Innovation	IBM has a corporate commitment to data, cloud, and augmented intelligence (AI). We are continually developing products and services in line with that commitment. The Watson Health team can help DHHR understand how these technologies can be used now and, in the future, to achieve program outcomes.

IBM specifically created Watson Health in 2015 to drive transformation across the healthcare ecosystem of state, local and federal governments, payors, providers, and consumers. Within Watson Health, the

Watson Health Government Health and Human Services (GHHS) organization is singularly focused on supporting government agencies, like West Virginia DHHR, as they use data to improve the value of health and human services, lower costs, and work to have meaningful impact on people's lives.

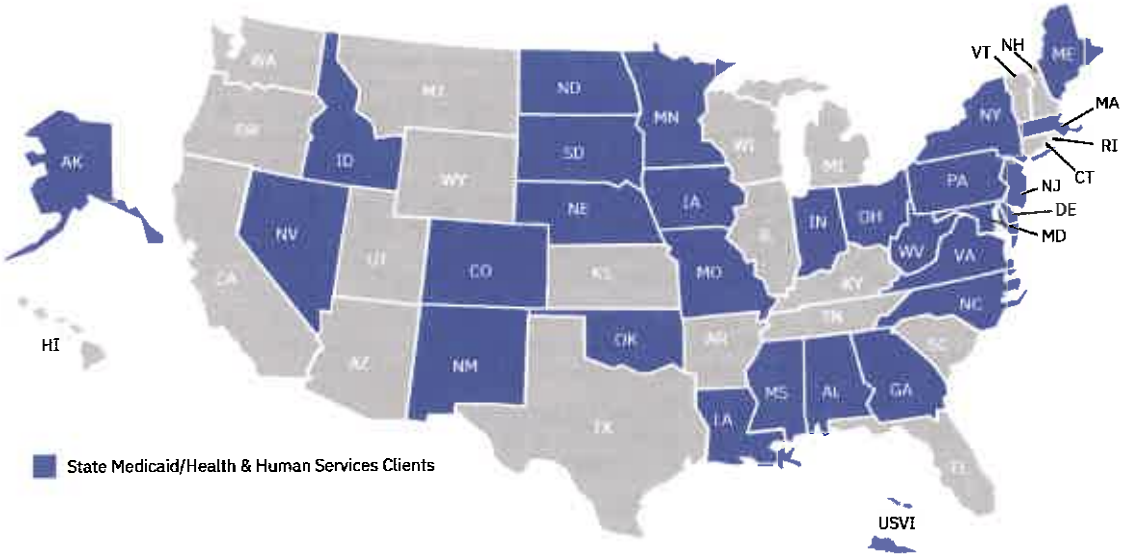
Watson Health provides enterprise data warehouse and decision support services capabilities, fraud waste and abuse (program integrity) services and solutions, analytic consulting, and social program management software, services, and solutions. We are an impartial and objective steward of the State's data, aligned to your vision and driven by your program needs.

Our work for DHHR is part of a long legacy of specialized healthcare solutions. Watson Health's healthcare data analytics group started in 1981 as Medstat Systems, Inc. Medstat (later Truven Health Analytics LLC) focused on delivering cost savings and benefit designs to payers through analytics, data management, and data warehousing.

Today, Watson Health supports 8,500 clients around the world and has supported every federal healthcare agency including CMS, Agency for Health Care Research and Quality (AHRQ), and Substance Abuse and Mental Health Services Administration (SAMHSA). We have helped to:

- Implement over 900 government programs
- Analyzed data for 44 percent of all Medicaid beneficiaries nationally
- Analyzed healthcare data for 32 million Americans, or nearly 10 percent of the U.S. population
- Performed analysis of 35 million inpatient stays
- 86 million emergency department visits
- Inpatient data from 4,000+ hospitals
- 96 percent of inpatient stays

Figure 2. Watson Health Medicaid Presence. *With over 35 years' experience, nearly 30 state Medicaid clients, and a deep understanding of healthcare data, Watson Health is uniquely qualified to help West Virginia use healthcare data to drive improved outcomes and streamlined operations.*



In regard to Program Integrity (PI), Watson Health has more than 25 years of program integrity experience, providing subject matter expertise, innovative fraud-fighting applications and technologies, and the industry's most extensive algorithm library to our state clients. We have helped more than two

dozen government clients and hundreds of private-sector clients detect fraud, waste, and abuse; our solutions and services have saved them hundreds of millions of dollars. Our J-SURS program integrity solution, currently used by DHHR and included in our proposed WV EDS solution, is discussed in detail in Attachment G.

Customer Expressions

Customer Expressions is our proposed subcontractor for case management software. Specializing in investigative case management solutions since 1999, Customer Expressions has come to be regarded as the leader in dynamic case management solutions Health and Human Services agencies across the U.S. Customer Expressions has been working with the State of West Virginia since 2005, helping combat fraud, waste and abuse through the Office of the Insurance Commissioner. The company has direct experience working with DHHR since 2013.

Customer Expressions has expanded its fraud, waste, and abuse practice and now supports state PI departments within Alaska, Indiana, Iowa, Michigan, Mississippi, Missouri, Nevada, and Washington DC. This includes multiple processes such as recoupments, recoveries, audits, claims, fair hearings, and add-on processes such as request for information.

The following sections use DHHR's required response fields to provide an overview of Watson Health, our current capabilities with Medicaid solutions for the public sector, and our recent history implementing and supporting EDS solutions similar to DHHR's To-Be vision. Our support for West Virginia's Medicaid data environment is an important part of our history in this field, a history that continues with more advanced capabilities for our clients.

Vendor Overview

Table 4. Vendor Overview

Vendor Overview	
Company Name	International Business Machines Corporation (IBM)
Name of Parent Company (If Applicable)	Not applicable
Industry (North American Industry Classification System [NAICS])	Custom Computer Programming Services (NAICS 541511) Computer Systems Design Services (NAICS 541512)
Type of Legal Entity	Corporation
Company Ownership (e g , Private/Public, Joint Venture)	IBM is a publicly owned company (NYSE:IBM).
Number of Full-Time Employees	IBM has approximately 400,000 employees worldwide, of which approximately 5,300 are a part of Watson Health.
Last Fiscal Year Company Revenue	2018: $79.5B (2019 revenue will be released in the 2019 annual report)
Last Fiscal Year Company Net Income	2018: $8.7B (2019 net income will be released in the 2019 annual report)
% of Revenue From State and Local Government Clients in the United States	Within the Government Health and Human Services (GHHS) organization of Watson Health, over 90 percent of our revenues are related to state and local government.
% of Revenue From IT Design and Implementation Services	Within the GHHS organization of Watson Health, all of our revenues are from services related to IT Design and Implementation
Number of Years in Business	Incorporated in the State of New York on June 16, 1911, IBM has been in business for more than 108 years.

Vendor Overview	
Number of Years Vendor has been Providing the Type of Services Specified in the RFP	35+ years of experience in data-driven health and human services enterprise transformation (since 1981)
Number of Employees Providing the Type of Services Specified in the RFP	Watson Health's approximately 5,300 employees all support services similar to those specified in the RFP – solutions, services, and research related to advanced systems for health and social services.
Headquarters in the United States	IBM's US headquarters are located at 1 New Orchard Road, Armonk, New York Watson Health's headquarters are located at 75 Binney Street, Cambridge, Massachusetts
Locations in the United States	IBM has more than 300 office locations in the U.S., with large Watson Health regional offices in locations that include Ann Arbor, Michigan; Atlanta, Georgia; Chicago, Illinois; Durham, North Carolina; Greenwood Village, Colorado; Wayne, Pennsylvania; Sacramento and Santa Barbara, California; and Washington DC.

Subcontractor Overview

Table 5. Subcontractor Overview

Subcontractor Overview	
Company Name	Customer Expressions Corporation
Name of Parent Company (If Applicable)	Not Applicable
Industry (North American Industry Classification System [NAICS])	Software Publishers 511210
Type of Legal Entity	Corporation
Company Ownership (e.g., Private/Public, Joint Venture)	Private
Number of Full-Time Employees	150
Last Fiscal Year Company Revenue	$21M
Last Fiscal Year Company Net Income	$2.5M
% of Revenue From State and Local Government Clients in the United States	50%
% of Revenue From IT Design and Implementation Services	20%
Number of Years in Business	20
Number of Years Vendor has been Providing the Type of Services Specified in the RFP	15
Number of Employees Providing the Type of Services Specified in the RFP	100
Headquarters in the United States	Customer Expressions' company headquarters is in Ottawa, Ontario, but their main U.S. office is in Lewes, Delaware
Locations in the United States	Lewes, Delaware

Mandatory Qualifications

Table 6. Mandatory Qualifications

Mandatory Qualification Item(s)	Vendor Meets?	Provide A Brief Narrative To Demonstrate Fulfillment Of Requirement
The Vendor must demonstrate experience within the last three (3) years as the prime contractor for at least three (3) federal, state, local government or private healthcare entities where a Medicaid Enterprise DW is currently being or has been implemented.	YES	Watson Health provides electronic data warehouse solutions of similar size and scope requested under this RFP for the following state healthcare agency projects: • **Covered California, California Health Insurance Exchange.** DDI and operation of a DW, DSS, reporting tools, BI tools, hosting. 3 million lives. • **Colorado Business Intelligence and Data Management Services.** DDI and operation of a DW, DSS, BI tools, Provider Web Portal, Program Integrity (PI), T-MSIS, hosting. 1.3 million lives. • **Delaware Data Warehouse & Decision Support System.** DDI and operation of a DW, DSS, BI tools, HEDIS Reporting, hosting. 240,000 lives. • **Idaho DSS, DW & PI Analytics.** DDI and operation of a DW, DSS, and BI tools, T-MSIS, data extracts (PERM, HMS), a custom Current Eligibility table (updated daily), custom Cognos reporting, hosting. 320,000 lives. • **Maine DW, DSS and Federal Reporting & PI.** Operation of a DW, DSS and Federal Reporting, PI, data system extracts (PERM, MSIS, CHIPRA), T-MSIS, hosting. 320,000 lives • **Mississippi DW & PI System.** Assumed responsibility for operating the EDW, PI, T-MSIS. 700,000 lives. • **Nebraska DSS with Management and Reporting Subsystem, T-MSIS, MARS & SURS.** DSS, Federal Reporting (MARS, SURS), T-MSIS, integrates data from N-FOCUS (a separate payment system) as well as MMIS. 245,000 lives. • **New York State Health Insurance Program (NYSHIP).** DDI and operation of a DW and DSS, reporting tools, hosting. 1 million lives • **North Carolina MMIS + Program Reporting & Analytics.** DDI and operation of a DW, DSS, BI tools, PI, HEDIS Reporting, T- MSIS, hosting. 2 million lives. • **North Dakota DSS, DW & Transformed Medicaid Statistical Information System (T- MSIS).** DDI and operation of a DW, DSS, BI tools, T-MSIS. 78,000 lives • **Ohio Medicaid Quality Decision Support System (QDSS).** Ongoing maintenance and support of a DSS, HEDIS reporting, extract files for Auditor of State. 3 million lives. State agencies continue to select Watson Health solutions; in the last three years, Hawaii, Missouri, and New Mexico have selected us to deliver EDS/DSS solutions that will help them turn data into actionable information.
The Vendor must demonstrate at least three (3) years' experience in Medicaid and Health and Human Services.	YES	Our expertise in this field comes from our experience delivering solutions to hundreds of clients for over 35 years, including 40 state Health and Human Services agencies. Watson Health's current Health and Human Services agency clients for our broad range of solutions include the following: • **APCD DSS/DA:** MA • **Decision Support Systems:** AL, CO, GA, ME, MO, NE, NV, NY, OH, WI, WV, DE • **Data Warehouse:** CO, ID, ME, MS, NM, NC, ND, OH, DE, WV • **Payment Integrity (PI):** AK, CO, IA, ID, IN, LA, ME, MD, MS, NC, NJ, NV, NY, OH, OK, SD, USVI, VA, WV • **Consulting Services:** IA, NC

Mandatory Qualification Item(s)	Vendor Meets?	Provide A Brief Narrative To Demonstrate Fulfillment Of Requirement
		• **Public Employer:** AL, CA, KY, MI, MS, MO, NY, OH, OK, SD, TN, TX, WA, WI, DE • **HIX Analytics:** CA • **Watson Care Manager:** CA, OH • **Integrated Eligibility Systems:** DC, NC, PR • **Medicaid Eligibility:** MO, NC, SC • **HIX Eligibility:** DC, MN • **Child Welfare:** NC • **Social Assistance:** CA, NV, NC • **Multiprogram Screening:** IN, NC • **Appeals:** CA, IN
The Vendor must include at least three (3) references from projects performed within the last three (3) years that demonstrate the Vendor's ability to perform the scope of work described in the RFP. Vendors may only use one (1) reference per project performed. The State strongly prefers three (3) references from different state engagements where a Medicaid Enterprise DW is currently being or has been implemented. Please note, because this item is a mandatory requirement, it will not be scorable.	YES	Watson Health is providing three references for projects performed in the last three years that show our ability to perform the scope of work DHHR requires. Full reference details are provided in the Vendor Reference Form later in this section. Our references are: • Idaho Department of Health and Welfare (IDHW), Division of Medicaid • Delaware Department of Health and Human Services Division of Medicaid & Medical Assistance (DHSS-DMMA) • North Dakota Department of Human Services (DHS)
The Vendor must have at least three (3) years' experience in operation of a Medicaid Enterprise DW similar to the State's in compliance with all Federal and State regulations.	YES	Watson Health has 10 years' experience building and operating Medicaid enterprise data warehouses similar to the one we are proposing for West Virginia. We have more than 35 years' experience building and operating decision support systems and data marts. Our EDS and DSS implementations comply with all applicable federal and state regulations. Our project teams continually collaborate with client agency staff to meet new or changing regulations. West Virginia is one of six states we have helped achieve CMS certification under the Medicaid Enterprise Certification Toolkit (MECT). The other states are Delaware, Idaho, Maine, North Carolina, and South Carolina.

Existing Business Relationships with the State

Watson Health has been a trusted partner working with DHHR for last eight years, supporting their objectives to perform sophisticated analyses of data in order to make better decisions, improve health outcomes, and make the best use of State and federal financial resources.

SURS, DSS, and DW. Since 2011, our primary relationship with the State has been our data warehouse and decision support services contract with DHHR. Our solution in this engagement includes Advantage Suite and DataProbe for reporting and analytics, J-SURS for beneficiary and provider profiling and fraud

investigation, and Customer Expressions' i-Sight case management system for DHHR's PI unit. West Virginia has been using our solutions since 2004, when we began supporting DHHR as a subcontractor for its Surveillance and Utilization Review Subsystem (SURS).

The project's successes, which include West Virginia's 2016 certification under the MECT, are the foundation for the WV EDS solution we present in this proposal.

PEIA Audit Services. We have provided audit services for the West Virginia Public Employees Insurance Agency (over 225,000 participants) that include a Pharmacy Benefit Manager Exit Audit in 2016, and Third Party Administrator Auditing Services in 2012 and again in 2017.

Customer Expressions

Our subcontractor, Customer Expressions, has provided the investigative case management solutions for West Virginia's Offices of the Insurance Commissioner since 2005 and as a subcontract to Watson Health for DHHR's Program Integrity Case Management solution since 2013.

Business Disputes

As a company with a substantial employee population and with clients in more than 170 countries, IBM is involved in a variety of ongoing claims, demands, suits, investigations and proceedings that arise from time to time in the ordinary course of business. These actions may be commenced by a number of different parties, including competitors, partners, clients, current or former employees, government and regulatory agencies, and stockholders. To the best of IBM's knowledge and belief, IBM is not aware of any such activity that would materially affect its ability to deliver the services outlined in this RFP response. In accordance with applicable laws and regulations, on a quarterly basis, IBM discloses to the Securities and Exchange Commission (SEC) information about the more significant legal matters involving the company. To the extent that any matter is considered a reportable event under the SEC regulations, it would be disclosed in IBM's Form 10-K, Form 10-Q, Form 8-K, or other required SEC filings. In addition, an explanation of the material litigation to which IBM is a party is contained in IBM's Annual Report, a copy of which is available online at http://www.ibm.com/annualreport/. Scroll to the bottom of the page and the most recent annual report can be downloaded for viewing.

References

Vendor (Prime) Reference Form

Table 7. Vendor Reference 1

Vendor Information		
Vendor Name: **Watson Health**	Contact Name:	Darren Burbank
	Contact Phone:	208.863.3505
Customer Information		
Customer Organization: **Idaho Department of Health and Welfare (DHW), Division of Medicaid**	Contact Name:	Curtis Loveless
	Contact Title:	Bureau Chief, MSST
Customer Address: 3232 Elder Street, Boise, ID 83705	Contact Phone:	208.364.1914
	Contact Email:	curtis.loveless@dhw.idaho.gov
Project Information		
Total Vendor Staff:	Approx. 7 FTEs (operations staff)	

Project Objectives:

Provide a central data warehouse and decision support system (DW/DSS) for the State of Idaho Department of Health and Welfare (DHW) that can store Medicaid data from MMIS, PBM, and MCO vendors, as well as files from other government agencies and CMS.

Project Description:

As part of the state's efforts to modernize its MMIS, the Idaho Department of Health and Welfare (DHW) worked with Watson Health to design, develop, and implement a comprehensive healthcare data warehouse and decision support services solution. The DW/DSS system improves DHW's ability to manage and mine data from the nine million healthcare claims submitted to the state Medicaid program each year.

The DSS generates information that supports program planning and evaluation, financial reporting, healthcare utilization management, disease management, Medicaid eligibility analysis, actuarial rate setting, and other functions. It also serves as DHW's Surveillance and Utilization Review Subsystem (SURS). DHW relies on the analytic and reporting capabilities of the DSS to:

- Strengthen its management of Medicaid programs
- Measure the cost effectiveness and quality of care
- Forecast budgets
- Fulfill federal reporting requirements

Vendor's Involvement:

Watson Health built and maintains the DW/DSS, which we host in a private cloud in our secure, SSAE-18 certified Data Center. We supported DHW in achieving CMS certification of the system. We also support a variety of projects, including PERM, HMS, T-MSIS, and custom Cognos reporting. We update the data warehouse daily and the DSS weekly.

The DSS is an integrated and customizable database that incorporates diverse data feeds: Medical claims, prescription drug claims, financial claims, provider files, eligibility data, and prior authorization. Our DW/DSS solution stores DHW's most recent 10 years of MMIS data (as well as data from a variety of other sources), totaling more than 8.5 billion rows of data and requiring up to 9 TB of disk space. The DSS has data going back to May 2002.

When Idaho identified a need for daily information to manage their Healthy Connections program (PCCM), we enhanced the DW. We developed a custom Current Eligibility table containing a record for each member currently eligible for Medicaid. The table includes every member's status in the different programs related to Medicaid. The Current Eligibility table is refreshed with data from the MMIS loaded into the DW each morning. This is one of the tables most frequently accessed by State users.

To support good encounter data for the State's business and reporting needs, Watson Health created a Managed Care Onboarding Manual that helps new managed care vendors prepare data for submission to the DHW DW/DSS. After rolling out the process to vendors, we monitored data quality through formal and informal assessments, communicated feedback to the MCOs through the State for the sake of corrective action planning, and maintaining proper controls over changes that might impact the integrity of the encounter data collection, submission, processing, and reporting environment.

Watson Health's onsite analytic consultant provides standard monthly and quarterly reports, as well as executive dashboard reports. DHW uses our analytic consultant to support reports such as the Healthy Connections PCP Assignment Report, which is run daily and is used to enroll members into the Healthy Connections (Idaho PCCM) program. This report also supports the identification of members who may be eligible for a case management program. In addition, the analyst has performed extensive DW-to-DSS data comparisons to demonstrate data reconciliation and promote users' trust in DSS reporting.

Communication is facilitated with weekly status meetings. We also meet bi-weekly with the Finance Director and monthly with the Executive Steering Committee.

Project Benefits:

By working with Watson Health, the state was able to create a central data repository of all the department Medicaid data and develop a common data model for accurate federal reporting. The DW/DSS also supports reporting for performance management, financial management, operations management, and MITA business processes across the state Medicaid agency. Watson Health worked with the state data team to design query subjects and analytic models with Medicaid-specific metrics and measures to report medical claims, member eligibility and enrollment, and program financial information timely and accurately.

Key Personnel

Name: Tom Weatherup	Role: Client Services Lead - Northwest Region
Name: Darren Burbank	Role: Client Account Executive

Project Measurements:				
Estimated one-time costs: Approx. $11 million		Actual one-time costs: Approx. $13 million		
Reason(s) for change in one-time cost: Changes to data retention period and scope of services impacted DDI costs.				
Original Value of Vendor's Contract: Approx. $12.6 million		Actual Total Contract Value: Approx. $19.6 million		
Reason(s) for change in value: Added to the scope of work, such as adding T-MSIS file submission; added user licenses; added pools of enhancement hours to accommodate DHW's changing business needs over time.				
Estimated Start & Completion Dates:	From:	Nov. 2007 (contract dates)	To:	2023
Actual Start & Completion Dates:	From:	July 2010	To:	n/a
Reason(s) for difference between Estimated and Actual dates: The DDI for the combined projects was 2007–2010, completed in accordance with the timeframes agreed upon with the State.				
If the Vendor performed the work as a Subcontractor, the Vendor should describe the scope of subcontracted activities: N/A				

Table 8. Vendor Reference 2

Vendor Information		
Vendor Name: **Watson Health**	Contact Name:	Robert Rodriguez
	Contact Phone:	443.991.0062
Customer Information		
Customer Organization: **Delaware Department of Health and Human Services Division of Medicaid & Medical Assistance (DHSS-DMMA)**	Contact Name:	Troy McDaniel
	Contact Title:	Chief Administrator - Information Systems Unit
Customer Address: Lewis Building, 102 Tarumianz Dr., New Castle, DE 19720	Contact Phone:	302.255.9775
	Contact Email:	troy.mcdaniel@state.de.us
Project Information		
Total Vendor Staff:	Approx.: 5.5 FTEs (operations staff)	
Project Objectives: Implement an Enterprise Data Warehouse and Decision Support Services solution for the Division of Medicaid and Medical Assistance (DMMA) to support data driven decision making, federal and state reporting requirements as well as provide greater insight and understanding of the needs of Delawareans receiving benefits.		
Project Description: Watson Health built a data warehouse and healthcare decision support system (DW/DSS) for DMMA, which achieved CMS Certification in 2019. The data warehouse integrates data from both the state's Medicaid program and its employee insurance program, including fee-for-service (FFS) claims and managed care encounter data. Updated weekly, it contains 12 years of data. The State uses the DSS and SURS/PI solution to improve oversight of the managed care program, especially Medical Management Quality Analytics. Our Encounter Data Optimization services thoroughly analyze the quality and completeness of the encounter data reported by the State's MCOs. DMMA uses the DSS for: • Management, financial, and budget reporting		

- Managed care oversight
- Surveillance and utilization review
- Pharmacy reporting
- Eligibility reporting
- Medicaid management quality analytics

Vendor's Involvement:

Watson Health built and maintains the DW/DSS, which we host in a private cloud in our secure, SSAE-18 certified Data Center. We supported DMMA in achieving CMS certification of the system.

Our analyst provides onsite support for State users and assists DMMA with, among other things, custom fraud detection algorithms and the development of custom predictive models.

Project Benefits:

With our solution, DMMA has an integrated, accurate view of the data, with an emphasis on SURS and fraud detection, financial reporting, drug reporting, and improving the quality of the encounter data.

The Watson Health data warehouse supports the enterprise as the complete source of data for analytic requests. Its benefit is demonstrated by a recent example, where DMMA was looking for 2018 drug claim data, however, not all of the fields needed were present in the BI application supported by their fiscal agent. Since the data did exist in the Operational Data Store layer of our data warehouse, DMMA was able to retrieve the necessary information and generate the reports needed to support the State's initiative.

Key Personnel	
Name: Tom Jewart	Role: Northeast Region State & Local Government Executive
Name: Robert Rodriguez	Role: Account Director - Delaware

Project Measurements:	
Estimated one-time costs: Approx. $1.8 million	Actual one-time costs: Approx. $8.5 million

Reason(s) for change in one-time cost:

DDI costs increased due to additional contract scope for upgrading EDW/DSS to support new DE MMIS (2015) and extending EDW/DSS DDI due to delays in implementing the new DE MMIS.

Original Value of Vendor's Contract: Approx. $3 million	Actual Total Contract Value: Approx. $10.8 million

Reason(s) for change in value:

The state extended the contract end date from June 30, 2015 to June 30, 2021; EDW/DSS upgrade and additional functional capability to support the new MMIS were implemented beginning August 2015; there was an increase to annual operational cost related to the new DE MMIS; and the EDW/DSS implementation was extended due to MMIS DDI delays.

Estimated Start & Completion Dates:	From:	July 2013 (contract dates)	To:	June 2015
Actual Start & Completion Dates:	From:	July 2013	To:	June 2021

Reason(s) for difference between Estimated and Actual dates:

Implementation was planned to begin in July 2013 and be completed in June 2015. Actual implementation began in July 2013 and ended in June 2017. Delay was due to MMIS DDI delays.

If the Vendor performed the work as a Subcontractor, the Vendor should describe the scope of subcontracted activities: N/A

Table 9. Vendor Reference 3

Vendor Information		
Vendor Name: **Watson Health**	Contact Name:	Mary Steiner
	Contact Phone:	720.528.3629
Customer Information		
Customer Organization: **North Dakota Department of Human Services (DHS)**	Contact Name:	Erik Elkins
	Contact Title:	Assistant Director, Policy
Customer Address: 600 East Boulevard Ave., Dept. 32, Bismarck, ND 58505	Contact Phone:	701.328.4011
	Contact Email:	eelkins@nd.gov
Project Information		
Total Vendor Staff:	Approx. 5.5 FTEs (operations staff)	
Project Objectives: Implement a state-of-the-art, user-friendly enterprise-wide data warehouse and decision support system that supports the full range of DHS data mining, reporting and decision-making needs, and empowers DHS staff to make data-driven decisions that improve business results.		
Project Description: North Dakota retained Watson Health in 1996 to develop a DSS that integrated data from the State's healthcare payers. In 2007, we began implementing a full Medicaid EDW, which we currently maintain, to support DHS in its administration of the Medicaid program. North Dakota uses our software for analysis and reporting and relies on our ongoing analytic consultation support. DHS uses the EDW to: • Provide management and federal reporting • Project the cost of proposed benefit changes for the State's Medicaid beneficiaries • Track the impact of previous plan and program changes • Detect fraud, waste, and abuse, and satisfy other program integrity initiatives • Monitor prescription drug utilization and costs • Support legislative sessions • Support coordinated services lock-in determination		
Vendor's Involvement: Watson Health built and maintained the legacy Medicaid DSS database, which grew to hold approximately 17 years of data and was updated monthly. We then designed and implemented a full EDW, which we update weekly, and DSS, which we update monthly. Our EDW contains 10+ years of data and the DSS is expanding to 10 years. We are supporting DHS in the CMS certification process. Our analytic consultants support the State's users and their reporting needs and responding to legislative requests. Examples of analytic projects include: • Medicaid Access Monitoring Plan analysis • CMS 64 variance analysis • Claims extracts for the healthcare review organization and actuary • Data for Office of Attorney General investigations • Data for lien settlements • Data extracts to assist with Upper Payment Limit (UPL) determination • PERM extracts		

• Development of CMS quality health measures • Volume measurements for provider attestation incentive payments Watson Health designed, developed, and submits T-MSIS monthly extracts. We worked closely with DHS to prepare all required federal specification documents. Extracts were coded from the EDW and we have implemented the T-MSIS with CMS ongoing requirement updates. T-MSIS has been in operation since July 2017.
Project Benefits: The implementation and operation of a full Medicaid EDW supports DHS in administering the Medicaid program. The EDW and software tools are used for analysis and reporting, including T-MSIS.

Key Personnel	
The following are key personnel for the current Operations and Maintenance contract	
Name: Mary Steiner	Role: Account Director
Name: Carrie Odenbach	Role: Client/Consulting Manager
Name: Cherie Tieppo	Role: Project Manager
Name: Shobha Shashikumar	Role: Technical Delivery Lead

Project Measurements:	
Estimated one-time costs: Approx. $5 million	Actual one-time costs: Approx. $5.6 million
Reason(s) for change in one-time cost: Implementation of the full data warehouse was delayed due to MMIS implementation delays. As an interim solution, we implemented the non-MMIS sources and a legacy feed of Medicaid eligibility, providers, and claims.	
Original Value of Vendor's Contract: Approx. $1M annually	Actual Total Contract Value: Approx. $1.5M annually
Reason(s) for change in value: T-MSIS was a separate contract and was moved (added) to the EDW contract for operations. Additionally, 1 FTE for analytics and system enhancements was added to the operations team.	

Estimated Start & Completion Dates:	From:	1996 (contract dates)	To:	2021
Actual Start & Completion Dates:	From:	1996	To:	2021

Reason(s) for difference between Estimated and Actual dates: Implementation of the EDW began in August 2007 with an estimated completion date of June 2012. The project's actual start date was August 2007 with an actual completion date of January 2016. The State's new MMIS was delayed; it did not go live until October 2015. Because the EDW implementation was dependent on the MMIS go-live, our implementation was affected by its delays. Our system went live 3 months after the MMIS go-live.
If the Vendor performed the work as a Subcontractor, the Vendor should describe the scope of subcontracted activities: N/A

Subcontractor Reference Form

Table 10. Subcontractor Reference 1

Subcontractor Information		
Vendor Name: Customer Expressions Corporation (i-Sight)	Contact Name:	Jakub Ficner
	Contact Phone:	613-244-5111 x 260
Customer Information		

Customer Organization: **Michigan DHHS-Inspector General**		Contact Name:	David M. Russell
		Contact Title:	Director
Customer Address: 235 S Grand Ave #1115, Lansing, MI 48933, USA		Contact Phone:	517-284-4010
		Contact Email:	RussellD3@michigan.gov
Project Information			
Total Vendor Staff:	12		
Project Objectives: Develop and deploy case management solution for Office of Inspector General.			
Project Description: i-Sight is leveraged to track, manage, and report all complaints and investigation for the department. This process includes recoupments, recoveries, and prosecution tracking.			
Vendor's Involvement: Analysis, configuration, testing, deployment, and ongoing technical support and maintenance			
Project Benefits: Comprehensive case management solution with increased caseloads and decreased time to resolution.			
Key Personnel			
Name: Jason Victor		Role: CTO	
Name: Jakub Ficner		Role: Account Manager	
Project Measurements:			
Estimated one-time costs: $341,000		Actual one-time costs: $341,000	
Reason(s) for change in one-time cost: N/A			
Original Value of Vendor's Contract: $1,221,000		Actual Total Contract Value: $1,221,000	
Reason(s) for change in value: N/A			
Estimated Start & Completion Dates:	From:	08/31/2012	To: 02/31/2013
Actual Start & Completion Dates:	From:	08/31/2012	To: 02/31/2013
Reason(s) for difference between Estimated and Actual dates:			
If the Vendor performed the work as a Subcontractor, the Vendor should describe the scope of subcontracted activities:			

Table 11. Subcontractor Reference 2

Subcontractor Information		
Vendor Name: Customer Expressions Corporation (i-Sight)	Contact Name:	Jakub Ficner
	Contact Phone:	613-244-5111 x 260
Customer Information		
Customer Organization: **West Virginia Offices of the Insurance Commissioner**	Contact Name:	Chris Bailes
	Contact Title:	Fraud Investigation Unit Manager

Customer Address: One Players Club Drive, Charleston, WV 25330-2901		Contact Phone:	304-558-1966 x 5003
		Contact Email:	chris.a.bailes@wv.gov
Project Information			
Total Vendor Staff:	6		
Project Objectives: The Offices of the Insurance Commissioner (OIC) offers a variety of services for both the consumer and the insurance industry to ensure that quality coverage exists throughout the state. OIC staff monitor, regulate, and license agents, as well as agencies and insurance companies. Assistance is also provided for consumers who have problems and questions.			
Project Description: i-Sight is used to track and manage insurance and worker compensation fraud cases within the State of West Virginia. Cases are managed all the way to prosecution. Customer Expressions was used for all aspects of the delivery of the project, including hosting and support.			
Vendor's Involvement: Analysis, Configuration, Testing, Deployment and ongoing Technical Support and Maintenance			
Project Benefits: Investigative case management solution to track, manage, and report on fraud, waste, and abuse cases. Worked with DHHR to design a configured solution to meet the specific requirements of the OIC. Since the deployment of the system, Customer Expressions has hosted and provided all technical support and maintenance on the application. Since launch, the OIC has seen several mandate changes, which Customer Expressions has addressed by adapting i-Sight to meet all new requirements and grow with the Department.			
Key Personnel			
Name: Jason Victor		Role: CTO	
Name: Jakub Ficner		Role: Account Manager	
Project Measurements:			
Estimated one-time costs: $5000 (Pilot)		Actual one-time costs: $5000 (Pilot)	
Reason(s) for change in one-time cost:			
Original Value of Vendor's Contract: $149,310		Actual Total Contract Value: $149,310	
Reason(s) for change in value: N/A			
Estimated Start & Completion Dates:	From:	1/2004	To: 11/2004
Actual Start & Completion Dates:	From:	1/2004	To: 11/2004
Reason(s) for difference between Estimated and Actual dates: N/A			
If the Vendor performed the work as a Subcontractor, the Vendor should describe the scope of subcontracted activities:			

Table 12. Subcontractor Reference 3

Subcontractor Information		
Vendor Name: Customer Expressions Corporation (i-Sight)	Contact Name:	Jakub Ficner
	Contact Phone:	613-244-5111 x 260
Customer Information		
Customer Organization:	Contact Name:	Tracie Dablemont

Alaska Department of Health and Social Services		Contact Title:	Chief, Program Integrity and Analysis	
Customer Address: 3601 C Street, Suite 200, Anchorage, AK 99503		Contact Phone:	(907) 269-7873	
		Contact Email:	tracie.dablemont@alaska.gov	
Project Information				
Total Vendor Staff:	16			
Project Objectives: Comprehensive case management solution to track, manage, and report cases for the Program Integrity and Analysis department.				
Project Description: Track and manage complaints, claims, investigations, and fair hearings for Program Integrity and Analysis for all 13 State Social Service programs.				
Vendor's Involvement: Analysis, Configuration, Testing, Deployment, and ongoing Technical Support and Maintenance				
Project Benefits: Investigative case management solution to track, manage, and report on fraud, waste, and abuse cases. Worked with the Department to design a configured solution to meet its specific requirements. Since the deployment of the system, Customer Expressions has hosted and provided all technical support and maintenance on the application.				
Key Personnel				
Name: Jason Victor		Role: CTO		
Name: Jakub Fichet		Role: Account Manager		
Project Measurements:				
Estimated one-time costs: $844,000		Actual one-time costs: $844,000		
Reason(s) for change in one-time cost: N/A				
Original Value of Vendor's Contract: $1,144,000		Actual Total Contract Value: $1,144,000		
Reason(s) for change in value: N/A				
Estimated Start & Completion Dates:	From:	09/31/2018	To:	01/30/2019
Actual Start & Completion Dates:	From:	09/31/2022	To:	01/30/2019
Reason(s) for difference between Estimated and Actual dates:				
If the Vendor performed the work as a Subcontractor, the Vendor should describe the scope of subcontracted activities:				

Financial Stability

Dun & Bradstreet (D&B) Rating

The IBM Dun and Bradstreet (D&B) number is 00-136-8083 and D&B Rating: is 5A3.

Financial Capacity

IBM does business with a number of banks, including the banks named below.

Table 13. Credit References

Institution	Address	Phone Number
JPMorgan Chase Bank	One Chase Manhattan Plaza, New York, NY 100005	Ms. Jeannie Ng, Vice President - (212) 552-1359
Citibank	One Penn's Way, Operations 1/ 1, New Castle, DE 19720	Mr. Robert Blake, Vice President - (302) 323.5024
Deutsche Bank AG	60 Wall Street, New York, NY 10005	Ms. Carol Ng, Vice President - (212) 250-4565

Figure 3. Bank Credit Letter

J.P.Morgan

JPMorgan Chase Bank, N.A.
383 Madison Avenue
New York, NY 10179

November 12th, 2019

Department of Administration
Purchasing Division
2019 Washington Street East
Charleston, West Virginia 25305-0130

Attn: Ms. April Battle

RE: International Business Machines Corporation

Dear Ladies and Gentlemen:

We, JPMorgan Chase Bank, N.A. (the "Bank"), are writing you at the request of our client, International Business Machines Corporation ("IBM") in connection with your request for a summary of our banking relationship with IBM.

We are pleased to confirm that as of date hereof, (i) IBM has been a client of the Bank for approximately 71 years and (ii) the Bank's dealings with IBM have been satisfactory.

The information herein is provided as an accommodation to the inquirer. The information provided herein is furnished on the condition that it is strictly confidential, that no liability or responsibility whatsoever in connection herewith shall attach to the Bank or any of its officers, employees, agents, or affiliates, that this report makes no representation regarding the present condition of IBM, its management, or its future ability to meet its obligations, and that any information provided is subject to change without notice.

Sincerely,

JPMorgan Chase Bank, N.A.

By: _____
Name: Indrajeet Arora
Title: Vice President
Phone: +1 212-270-2548
Email: indrajeet.x.arora@jpmorgan.com

ATTACHMENT D PROJECT ORGANIZATION AND STAFFING APPROACH

Watson Health provides a staffing plan with a combination of required key staff and support staff that not only meets or exceeds DHHR requirements, but also shows our commitment to provide a stable team that is dedicated through all contract phases. Because successful implementation is so critical, our key staff will work in our Charleston, West Virginia office. This provides efficiency and optimum collaboration between our team and the DHHR team.

Our staffing approach includes a mix of onsite supported by offsite resources, including a core WV EDS onsite account team throughout the life of the project that is comprised of a mix of key staff and support staff onsite during critical project phases.

When developing the staffing plan for DHHR, we evaluated the key staff requirements and applied our industry expertise along with our knowledge gained as your DW/DSS Partner over the last 8+ years. The majority of our team has over 10 years' experience in system implementation projects with Medicaid clients. Three of our team members have direct experience working with WV and are familiar with your unique environment.

Our team from the current WV DW/DSS project will continue to maintain your current operations. During the implementation of the WV EDS they will be available to provide their knowledge of your environment to our project team and they will be informed of project progress. Upon completion of the Implementation phase, Amy Wenmoth and Jordon Wilton will continue to support DHHR and the new WV EDS.

Brooke Oberg, who currently supports DHHR as a project manager, will fulfill the role of Operations Manager for the Implementation and Operations phases of the WV EDS project. This approach brings DHHR an experienced implementation team while supporting your current operations, resulting in a smooth transition to the new solution.

The Watson Health team adheres to three principles from day one that have proven effective for successful execution when managing similar projects:

- Build a trusted partnership with DHHR
- Align to DHHR goals and objectives
- Proactively manage, control, measure, and report program progress with checks and balances across the organization

Initial Staffing Plan

Meet Our Account Team

To achieve DHHR's goals and to accomplish the scope of work in this RFP we have assembled a team of experienced staff members with a track record of success implementing enterprise data solutions similar to WV EDS. To maintain consistency and to ensure a smooth transition from implementation to operations, our staffing strategy retains many of the same staff through both phases, while incorporating experienced leadership and staff from the current WV DW/DSS. Dave Losin, an experienced implementation leader with 22 years supporting six different Medicaid agencies, will be your Account Manager during DDI. Amy Wenmoth who has worked with you since 2013 will be your Account Manager during Operations. Dave and Amy will work collaboratively during implementation to provide the support needed to maintain the current WV DSS and migrate you to the new WV EDS. Upon the successful transition to the new solution, Dave and Amy will work together with DHHR to ensure a smooth transition of their responsibilities.

Cheryl Gentsch will join Dave as the Project Manager for the WV EDS implementation. Cheryl has Medicaid, data warehousing and MMIS experience. Together Dave and Cheryl will lead our Watson Health team through the implementation of the WV EDS.

Sandi Hutch, an experienced Business Lead, will join the WV team for the implementation activities. Sandi brings experience working on Medicaid and data reporting projects. Jordon Wilton, who has worked with DHHR since 2015 will be your Business Lead upon completion of implementation. Jordon will continue to support your current operations activities and will work with Sandi to transition into operations. Sandi and Jordon will work together with you to ensure a smooth transition of their responsibilities.

The Watson Health Account Team includes a mix of named key and support staff that work directly with DHHR on a day to day basis. This team is supported throughout the life of the project by other experienced Watson Health teams.

Table 14. Your Watson Health Account Team

Key Staff	Experience Relevant to West Virginia EDS Project
Account Manager - Implementation David Losin  David is responsible for the overall delivery of the WV EDS project during the Implementation phase and is the primary Watson Health liaison to DHHR.	David is a senior leader in the state healthcare IT industry, with over 22 years supporting six different state Medicaid agencies. His experience ranges from development, implementation and operation of large, complex healthcare information systems, to account management, client engagement, and solution development. David was responsible for the successful takeover and operation of the California MMIS in 2011, one of the largest Medicaid systems in the country. As a certified Project Management Professional since 2005, David embraces project management process and methodologies (PMBOK) as vital components of successful information system implementations. He has been an integral part of developing and implementing these processes on his past projects and is poised to lead the Watson Health team to a successful WV EDS implementation. BBA, Management Information Systems / Finance
Account Manager – Operations Amy Wenmoth  Amy will transition into the role of Account Manager upon completion of the Implementation phase. She has a deep knowledge of DHHR goals and brings that experience to support you and the new solution. She is responsible for the overall delivery of our solution during Operations.	Amy has 15 years' experience working for and in support of the State of West Virginia. She began her career as a Public Health epidemiologist and then managed data collection and analysis as the Director of Clinical Analysis at the Health Care Authority. Amy has worked on the West Virginia DW/DSS since 2013, serving as Account Director since 2016. She will continue to bring her experience with West Virginia to the Watson Health WV EDS team. MA, Sociology

Key Staff	Experience Relevant to West Virginia EDS Project
Project Manager /Deputy Account Manager Cheryl Gentsch  Cheryl brings an extensive understanding of both the business and technical aspects of a healthcare EDW project, with a track record of successful implementations. She will lead tall day to day project activities.	Cheryl has worked in Information Technology since 1986 in both the private and public sectors. Her 18 years of experience in Medicaid, MMIS and data warehousing includes project management and subject matter expertise in financial and Federal reporting. Cheryl has participated in two MITA State Self-Assessments (SS-A), three state procurement/modular strategy developments, and three state CMS certifications. Her experience in 13 different state/territory Medicaid programs provides a broad prospective and understanding to the DHHR Medicaid Enterprise. PMP Certificate BS, Business/Systems
Business Lead - DDI Sandyhai (Sandi) Hutch  Sandi will work closely with DHHR to ensure that the WV EDS policy and business rules are implemented as designed, and serves as an expert on business policy with the Watson Health solution.	Sandi has 12 years of experience in healthcare analysis and solutions development, with most of her career focused on Medicaid data and reporting. She is experienced in the best practices required to guide state health and human services agencies through a successful EDW implementation. Sandi has championed state leadership adoption of business intelligence solutions by demonstrating how raw data can be transformed into meaningful information and provide insight into high-risk populations. She has created training materials and coordinated lunch-and-learns for state reporting analysts to recreate reports and queries in their new EDW environment. Experience managing project controls MBA, Healthcare Administration
Business Lead – Operations Jordon Wilton  Jordan will transition to the operations team after implementation to ensure that the policy and business rules are implemented as designed and to serve as the Watson Health expert on business policy and the WV EDS functionality.	Jordan is a detail-oriented, meticulous Senior Analytic Consultant skilled in data analytics and health informatics. He has a strong understanding of business intelligence applications, is well versed in healthcare policy and processes, particularly Medicaid policies and transactional claims data, and is experienced in supporting analytical applications and associated interfaces. Jordan has a history of delivering precise, superior solutions to end users using a strong comprehension of project management and understanding the importance of stakeholder involvement. He operates with a strong sense of urgency and thrives in a fast-paced setting. MS, Health Informatics

Key Staff	Experience Relevant to West Virginia EDS Project
Technical Lead Mark Hein  Mark brings implementation planning, staffing, technical and testing experience to WV EDS. He will be the primary point of contact for our technical team with DHHR.	Mark has more than two decades of IT experience, including 14 years in enterprise data warehouse (DW), business intelligence(BI), and decision support systems(DSSs). He also has some 10 years of experience establishing DW platforms and architecture, and extensive product management experience with a diverse healthcare and insurance product portfolio. Domain knowledge includes data modeling, application design, infrastructure, security, and providing analytic support to government customers, healthcare payer units, and internal staff. BS, Electrical Engineering
Implementation Manager Tom Reese  Tom is responsible for the implementation of the WV EDS and coordinates activities with DHHR. He monitors project deliverables and communicates status for all implementation activities.	Tom has 20+ years' success leading healthcare information technology transformational change, business process improvement, creation of enterprise data warehouse architectures, and data management initiatives for high-growth organizations. He is a leader with repeated success architecting and implementing data warehouse and data governance strategies for managed care and Medicaid organizations. MA, Statistics
Operations Manager Brooke Oberg  Brooke will support the project activities to transition smoothly from the Implementation to Operations phase and will manage the overall solution operations going forward.	Brooke has 9 years' experience with Watson Health working in product, data and project management. She has created plans to manage both implementation projects and solution operations for our clients. Brooke currently serves as the Operations Project Manager for the West Virginia DW/DSS project and will transition to Operations Manager after implementation of the WV EDS. Brooke's experience working with DHHR and the current solution adds great value to the WV EDS as she facilitates the transition to the new operation. PMP Certification BS, Mathematics, Statistics
Certification Lead Jennifer Palow	Jennifer's extensive experience in Maine Medicaid began in the pharmacy unit as a data analyst, where she excelled and was eventually promoted to Director of Operations. As the Director,

Key Staff	Experience Relevant to West Virginia EDS Project
 Jennifer will manage the CMS certification process working with our team and DHHR to validate that the business operations fulfill the Medicaid certification checklist criteria and artifact requirements.	Jennifer worked to stabilize the new MMIS fiscal agent operation, pharmacy benefit manager, and data warehouse, and managed the CMS certification. Jennifer has spent the last four years as an independent validation & verification (IV&V) project manager, directing two IV&V teams overseeing the MMIS and eligibility modular implementation for the state of Vermont. Assisted Vermont in preparing three modular systems for CMS certification; two are fully certified, with on schedule. PMP Certification MPA, Policy & Government
Documentation Management Lead Tara Keezer  Tara will work with DHHR to manage all tasks related to project documentation processes, including creation, review and approval.	Tara has 20 years of experience in technical and corporate communication and more than 5 years of experience as a project manager. Tara leads a team of remote technical writers who support multiple Watson Health clients and projects to develop documentation methods and tools to produce and maintain project documentation. MA, Written Communication
Quality Assurance Manager Padma Venkatrangan  Padma brings experience establishing and maintaining quality processes. She will develop, execute and maintain the quality management plan for implementation and operations activities for DHHR.	Padma is an Information Technology Leader with 22+ years of professional experience in Process Excellence, Quality, Delivery, Architecture with strong analytics background. She has led Quality and Process Improvement initiatives and driven Business Process Standardization. She is Lean Sigma Green Belt, PMP certified, Certified IBM Design Thinking Practitioner, IBM Badges in Big Data, Data Science and Watson Analytics foundations and Bluemix applications, Agile Practitioner, CMMI Dev1.3 Trained, extensive ISO:9001 Experience MS, Computer Science
Testing Manager Moh Hussain	Moh has 15 years of Quality Assurance and Test Management experience in Medicaid and Healthcare projects. He has led testing efforts for Data Warehouse projects where he was responsible for the overall test approach. He has created test strategies, test plans and estimates for similar projects. MS, Computer Science

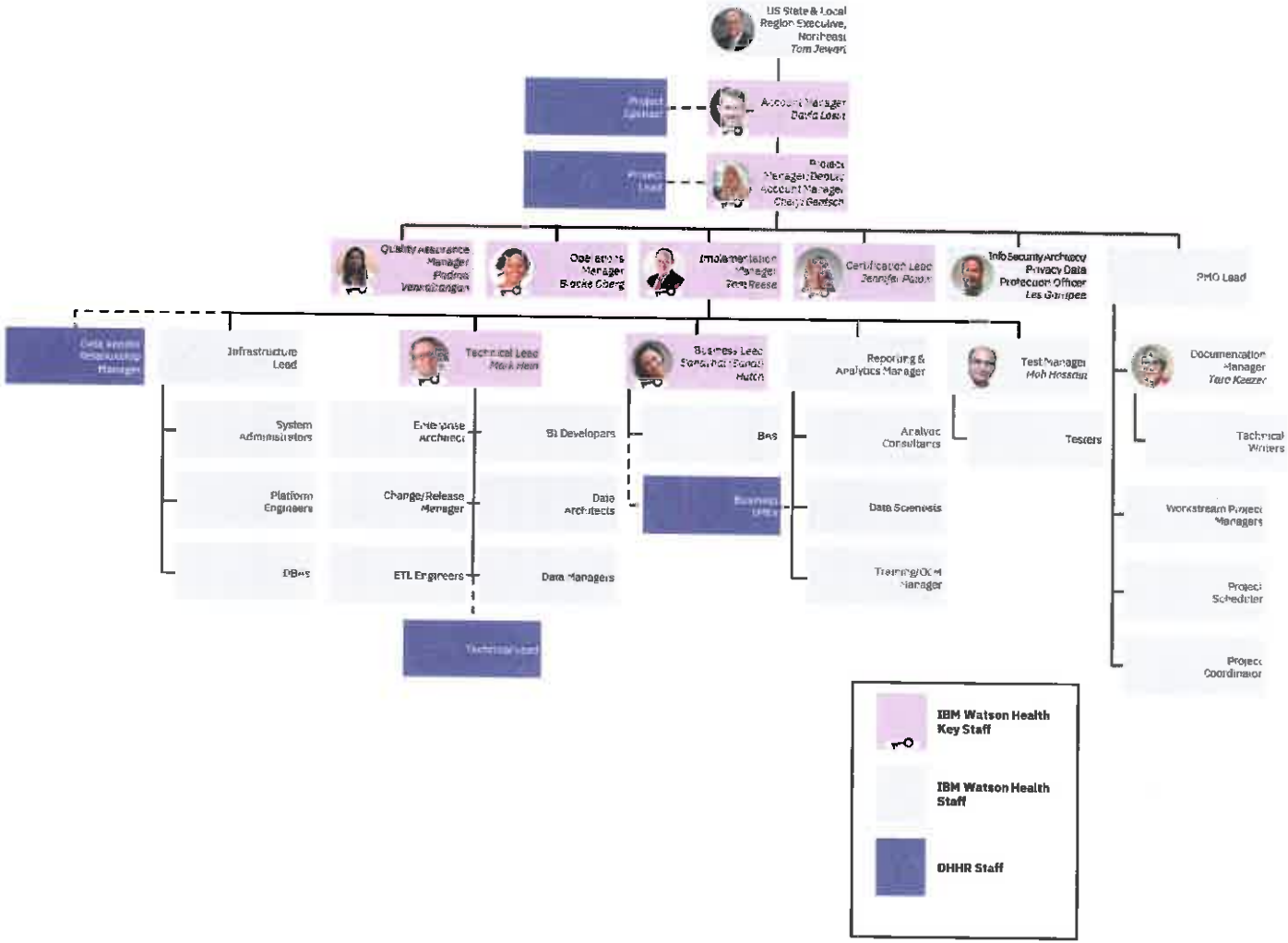
Key Staff	Experience Relevant to West Virginia EDS Project
 Moh is a highly experienced testing resource responsible for leading the testing efforts for the WV EDS project throughout the Implementation and Operations phases.	
Information Security Architect/Privacy Protection Officer Les Garripee  Les will be your single point of contact for information security and privacy activities and audits from solution planning throughout the life of the project.	Les has 24 years of Healthcare IT experience and has worked 6 years as a compliance and security manager for Watson Health. He is currently our Security Practice Lead and is a proven leader managing analytic data warehouse solutions for State Medicaid customers in all aspects of information security, privacy and compliance subject areas. He is a key member of our Watson Health WV EDS team and will be engaged in the implementation and throughout the life of the project. Experience with Federal security requirements CISSP will be completed prior to contract start

Approach to Staffing During the Implementation Phase

For the Implementation phase we provide a highly skilled and experienced team led by the Account Team described in the previous section. The Account Team will be supported by a team of experienced staff that will work both onsite with the key staff and in a remote model, an approach that has been successful for previous Watson Health data warehouse projects. The WV EDS team is staffed and supported through our Watson Health Centers of Excellence (CoEs) in the areas of data warehouse services, solution infrastructure, analytics, and project management. The team uses proven processes and methods developed by the CoEs for data warehouse projects, tailored to the specific needs of the WV EDS project.

The following organization chart depicts the Watson Health implementation team, denoting key staff and relationships to State staff required to support the project.

Figure 4. DDI Organizational Chart



During implementation, required key staff and identified support staff are located onsite at the local Watson Health facility in Charleston. This model provides focused support and leadership to DHHR in Charleston as needed, while also giving flexibility to Watson Health to assign the appropriate resources to the project at the right time quickly. The Account Manager is on site at least 50% of the time and additionally as needed by DHHR, while the Project Manager is 100% onsite running the day to day activities and coordinating with the DHHR Project Lead. Watson Health will work closely with DHHR during implementation to finalize the Staffing Management Plan, using the initial staffing plan as the baseline.

Comprehensive Watson Health Team Support

As shown in the organization chart, Watson Health has created a team for the West Virginia EDS project that covers all areas of the scope of work. This section describes the different project teams in more detail.

Current West Virginia DW/DSS Team

Responsible to support the WV EDS project team as needed during the Implementation phase.

As the current WV DW/DSS vendor, we greatly value our relationship and experience with DHHR and the support and services we have provided since 2011. We also strongly believe this knowledge and experience allows Watson Health to implement and operate the WV EDS more effectively and efficiently. Our staffing strategy incorporates the current Watson Health DW/DSS team's knowledge by thoughtfully including team members in the implementation process without impacting the current operation. This interaction further strengthens our understanding of the EDS requirements and allows for successful implementation of the scope of work, reducing the need for rework and limiting the need for DHHR resource involvement. Both Watson Health account leaders, Amy and David, will work closely together to ensure the right amount of support is provided during the Implementation phase.

Project Management Office

Responsible for the delivery of all components of the WV EDS, project management processes, deliverables management, SLA adherence, and day to day management of all project activities.

The Watson Health Project Management Office (PMO) is responsible for the oversight of the delivery of the WV EDS, all project management requirements, deliverables and managing the day to day activities of the project. The PMO is comprises a PMO Lead, and a team of project managers, a project scheduler, a project coordinator, and documentation resources during the Implementation phase. During Operations, we maintain documentation resources, while shifting operational PMO responsibilities to the Project Manager. PMO resources are onboarded through change management as needed to support enhancement projects through the Operations phase.

Our Documentation Manager, Tara Keezer, manages the deliverable creation and review process, and directly leads the team of technical writers responsible for writing and customizing WV EDS specific deliverables.

Based on our successful delivery of previous projects of similar size and scope, we will assign our staff and project managers to multiple workstreams aligning to the Project Work Plan during implementation. The PMO is responsible for managing the tasks, deliverables and milestones within each workstream on a daily basis, and to report progress, manage issues and risks, process change requests, and perform other required project management activities within each workstream. Our initial WV EDS workplan includes the following workstreams to cover the entire scope of work:

- Enterprise Data Solution (EDS) / Data Warehouse (DW)
- Platform and Tools (Infrastructure)
- Analytics / BI / Reporting
- i-Sight Upgrade
- J-SURS

During Operations, the PMO will manage routine changes as part of ongoing operations, create and maintain project management deliverables, and assure DHHR that proper processes are followed through metrics and status reporting defined during initiation and planning and operations.

Data Warehouse Team

Responsible for the design, development, delivery and operation of the WV EDS solution components.

Our onsite Technical Lead Tom Reese, and our onsite Business Lead, Sandi Hutch, manage the Watson Health Data Warehouse (DW) team to design, develop, implement and reliably operate, support, and maintain the EDS and associated data marts. This experienced team consists of an enterprise architect; data architects; data managers; extract, transform, and load (ETL) engineers; BI developers; change/release manager; and business analysts.

Our Test Manger, Moh Hossain leads a team of testers during implementation responsible for the planning and execution of all testing.

In operations, the Data Warehouse team continually validates that data loads, system environments, and reporting tools are available to users during required uptime, and that processes are running as scheduled.

Analytics Team

Responsible for WV EDS reporting, user support, and analytic consultation

The Analytic Team plays a vital role in data quality review, analytic reporting, data visualization, and user support. Analytic Consultants will collaborate with DHHR to develop an Analytic Agenda that outlines your business needs and analytic priorities and work side-by-side with WV EDS users to help them maximize their use of the system.

During Implementation, this team provides input to data architects to ensure the data model supports DHHR analytic goals, establish data quality thresholds, and investigate and resolve data quality issues. Analytic Consultants perform DDI testing to confirm analytic methodologies and outputs are of sufficient quality to support healthcare analysis. Data Scientists and BI Developers collaborate with DHHR to produce actionable dashboards, reports, and statistical models to support Medicaid program, policy, and financial management.

Throughout Operations, the dedicated Analytic Team will provide ongoing reporting support and analytic tool training, as well as data, methods, and policy consultation. They will design and facilitate complex reports and studies, produce dashboards, and provide actionable recommendations in alignment with DHHR priorities and Analytic Agenda. The Analytic Team is focused on knowing your data, programs, and priorities and how best to leverage the WV EDS to support DHHR efforts to improve healthcare services and population health.

Infrastructure Team

Responsible for the WV EDS infrastructure, disaster recovery, business continuity, and system availability/performance.

The Infrastructure team uses system administrators, application administrations, platform engineers, and database administrators to provision and install the necessary hardware and software to support the EDS during implementation. This team will also perform ongoing maintenance and performance monitoring to validate compliance with required Service Level Agreements (SLAs). As needed, we make configuration changes to improve performance and review results to validate continual improvement within the EDS. Our hosted solution allows us to scale the WV EDS as DHHR business needs evolve, to securely and privately store data, and to protect DHHR data and assets in the event of a disaster.

Training Team

Responsible for developing, implementing a training plan

Our training team is responsible for developing, implementing, and evaluating the approved plan. We will create milestones throughout the process with the appropriate checkpoints to continually solicit feedback from DHHR WV EDS project leads to confirm that our visions align. This approach has proven to help us stay on schedule and reduce the need for unnecessary rework—and it also keeps the end users at the heart of our decisions. Following each training session, we conduct an evaluation survey. We use the feedback to support continuous quality improvement in training conduct and instructor expertise and performance.

Our team will continue to provide training with each new system enhancement or upgrade throughout the life of the contract to help DHHR fully maximize use the WV EDS capabilities. Depending on the extent of changes, we may hold user group meetings to introduce new features and functionality, or we may deliver this information through formal instructor-led sessions. We also provide train-the-trainer training, which will give DHHR staff the knowledge and education necessary to train peers on the various parts of the solution. To encourage continual learning, we provide internet-accessible content with analytical guides, job aids, tips and tricks, and frequently asked questions.

Approach to Staffing During the Operations Phase

Continuity in Our Staffing Approach During Operations

As we transition from implementation to the operations phase, we maintain a consistent reporting structure for the Watson Health team. As we've experienced on similar previous projects, we know that there is overlap between the skills required in successful implementation and operation. We will maintain the majority of our implementation team and leverage the current DW/DSS team with the skills, experience, and knowledge of West Virginia and the EDS solution to provide a smooth transition to operations.

This is a major benefit of our staffing solution—many team members responsible for project operations will have been involved in DDI, giving them in-depth knowledge of DHHR programs, policies, providers, and data. Unlike the typical approach to implementation in which one set of staff works on DDI and a separate group assumes responsibility for system maintenance and administration, our proposed staffing solution limits the possibility of knowledge gaps and creates a seamless transition to the management of ongoing operations.

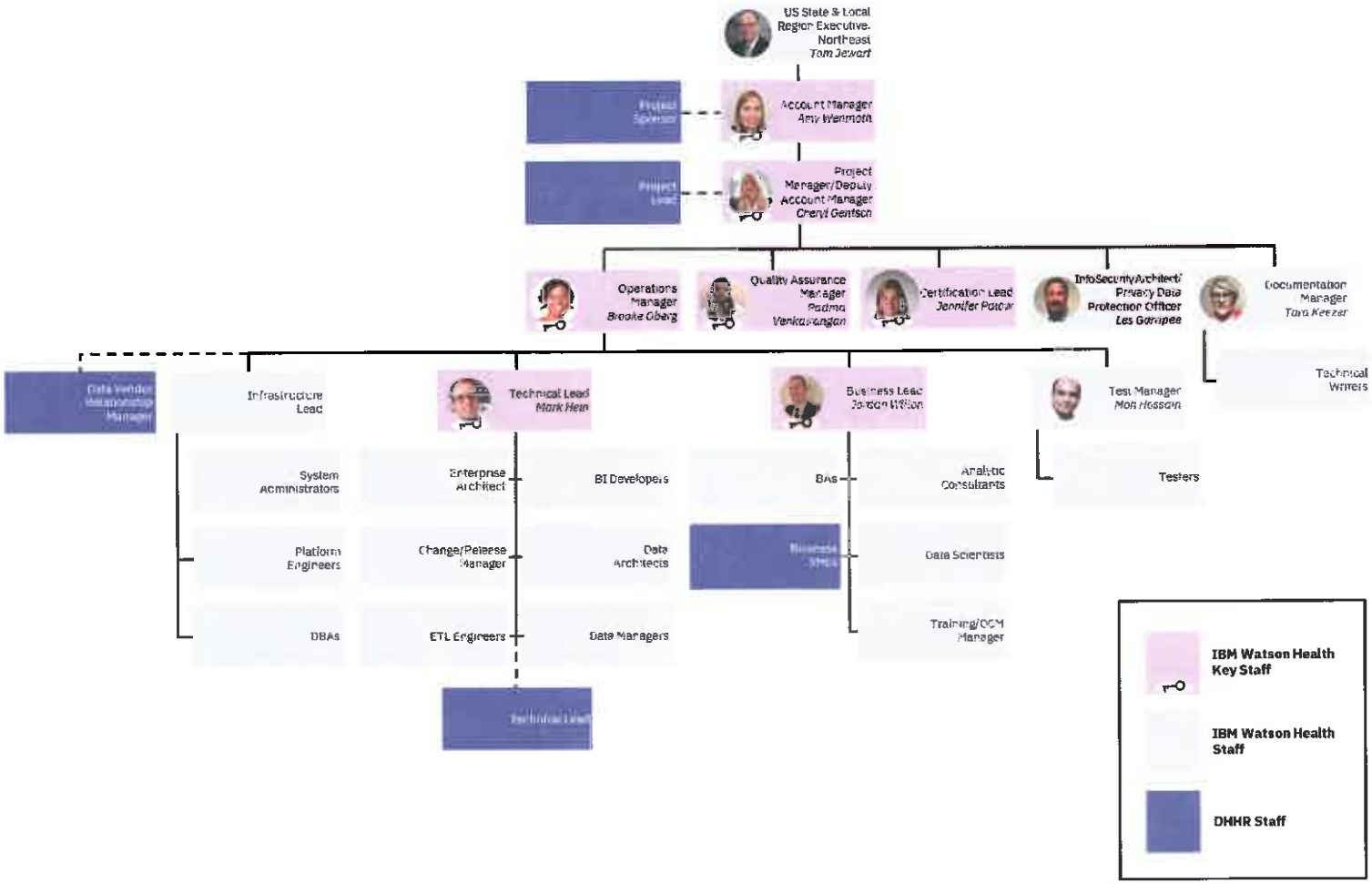
During operations, as during implementation, required key staff and support staff are located onsite at the local Watson Health facility in Charleston.

- The Project Manager, Operations Manager, and Business Lead continue to be 100% onsite running the day to day activities and coordinating with the DHHR project leads and SMEs, providing DHHR access to three senior level Watson Health leaders in Charleston for the life of the project.
- Our Business Lead in operations, Jordan Wilton, is a seasoned analyst and will lead the Analytics team. We will staff another Analytic Consultant onsite 100% in Charleston to provide premier support to DHHR analysts and end users.
- The Account Manager works remotely at a 70% capacity on average and is onsite 25% to 50% of the time during operations, and as needed by DHHR for in person interactions with DHHR and other governmental bodies.
- Consistent with the Watson Health operating model that has proven successful on data warehouse projects of similar size and scope, our Technical Lead and Quality Assurance Manager will support the operation remotely at a 50% capacity on average, coming onsite to the local facility as needed to meet with DHHR and the local project team.

This operational approach allows us to be flexible with our staffing to provide the best talent to DHHR regardless of location within the USA, while at the same time ensuring DHHR that senior leadership and

business SMEs are available to DHHR at all times in Charleston. The benefit of this model to DHHR is consistent hands on partnership with Watson Health experts, allowing you to realize the full benefits of the WV EDS solution to improve healthcare in your state.

Figure 5. Operations Organizational Chart



Skilled Team and Efficiencies to Support DHHR During Operations

The Watson Health team that collaborates with DHHR during Operations brings a partnering mindset, focused on today's issues with an eye toward DHHR's future needs and plans. Working as a cohesive unit, our team will provide the support needed for DHHR to gain the most value from the WV EDS. Many of the offsite support resources will continue to support DHHR in operations to enable consistent support of DHHR requirements.

Our account team and leadership continue to provide open and effective communication to DHHR and other stakeholders, while effectively managing change and enhancements to the WV EDS using the Software Modifications and Enhancements Pool.

Our technical staff keeps the solution components fully operational, secure, and available to users, and ensures our data transfer and encryption processes operate as designed and on schedule. Our analytic consultants and data scientists support users in reporting, analysis, and decision-making, with the capability to pull additional support as needed from SMEs within Watson Health as approved by DHHR through change management.

Medicaid & Analytic Advisory Panel

DHHR will be invited to join our newly created Medicaid & Analytic Advisory Panel. The panel will be composed of individuals with a unique set of skills that include, but are not limited to Medicaid policy and operations, quality requirements and monitoring for MCOs, HHS/CMS federal regulatory compliance. . Our team includes members with experience in health and human services, government operations, and system implementations.

Our Account Manager will coordinate a yearly meeting with our Advisory Panel to provide DHHR with access to our Watson Health industry experts. The agenda and timing of the meetings will be based on DHHR needs. We will structure the meeting based on your DHHR goals and objectives for ongoing improvement to WV EDS.

Our panel consists of experienced Watson Health team members who have special subject matter expertise in the field of Medicaid and Health and Human Services (HHS) programs, analysis, and reporting, including—

- State Medicaid policy and operations
- Medicaid waiver design and operation
- Quality requirements and monitoring for Medicaid managed care organizations (MCOs)
- HHS/CMS federal regulatory compliance
- Medicaid service delivery and payment system reform
- Clinical data analysis and Data Visualization

Members of our Medicaid & Analytic Advisory Panel include:

Beth Schneider, Analytic Consultant and Research Practice Lead

Beth Schneider, MBA, has more than 25 years of experience providing healthcare decision support systems and related consulting services to state Medicaid agencies and large employers, helping them make informed policy decisions that improve quality and outcomes and reduce costs.

Dennis Garvey, MCO Oversight Practice Lead

Dennis Garvey, JD, brings to Watson Health 30+ years of legal experience, including prosecuting and defending healthcare cases. He currently develops consulting packages that improve our clients' Medicaid

program integrity (PI) programs by enhancing oversight and preventing and detecting fraud, waste, and abuse (FWA).

Walt Sedlazek, Analytic Consultant and Cognitive Innovation Lead for HHS

Walt Sedlazek helps define product and innovation initiatives for analytics, social program management, care management, and cognitive solutions in Watson Health's Government Health and Human Services solution area.

Mark Goodhart, Director of Applied Analytics

Mark Goodhart has healthcare experience in fraud-related predictive analytics including developing rules-based algorithms, anomaly models, advanced data mining techniques, and social network models.

Use of Subcontractor Staff

Watson Health has stablished a long-standing relationship with i-sight, a leading software developer of enterprise case management systems. Over the course of the relationship, the two companies have built collaborative processes and case management tools designed to help program integrity investigators improve the speed and productivity of their work, supporting detection and prevention of a higher percentage of inappropriate claims payments. Powered by i-Sight, Watson Health offers the industry's most flexible Program Integrity Case Management Solution.

Staffing Levels – Estimation Model

To support the WV EDS, we are providing a fully staffed and optimally functional project team during both the Implementation and Operations phases. We use a formal, structured approach to project planning and evaluation as it relates to determining staffing levels. Our staff members are experienced in large data warehouse projects and implementing those technologies in our solutions. We leverage those experiences in developing our staffing models. Using project management software, we build models that predict durations, identify critical paths, isolate bottlenecks, and highlight conflicts. When estimating the resources and effort required for the WV EDS initial staffing plan, we used the following methods to develop our schedule, resource, and cost projections, and will use these methods to estimate throughout the project.

Bottom-up calculations. We use bottom-up calculations to create working estimates. First, we break down the scope into definable tasks and assign an estimated time to each. Then, we roll up the tasks to determine the total amount of effort needed to complete the entire project.

Similar projects. We use analogous estimating to determine the duration of decomposed work tasks. Our extensive project experience has taught us to use the corresponding periods from previous, similar projects to more accurately estimate the timing for new projects. Lessons learned are applied in conjunction with productivity initiatives and training that are conducted to streamline our Implementation and Operations activities to be quality focused while remaining price competitive.

We will continually review and refine our estimates at key checkpoints throughout the project. As part of our time management process, we perform trending against the work plan to determine the accuracy of our estimates. Our estimating experience enables us to build plans and assemble staff loads with great accuracy, thus reducing risk and improving the client experience.

Staff Management Plan. During the project planning phase, we will work with DHHR to refine the initial staffing plan and create the Staff Management Plan we will use to govern our staffing levels throughout the project.

The following charts show the initial staffing levels for both the Implementation and Operations phases:

Figure 6. DDI Staff Loading Chart

DDI														
Team	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9	Month 10	Month 11	Month 12	Month 13	Month 14
Acct Team	3.8	3.8	3.8	4.0	3.8	3.8	3.8	3.8	3.5	4.0	4.0	4.0	4.0	4.0
Analytics	1.3	1.3	1.3	2.0	3.0	3.0	4.5	4.5	4.5	4.5	4.5	4.5	3.0	3.0
Data warehouse	7.5	9.8	13.1	17.6	20.6	20.6	22.1	23.1	22.9	21.0	19.0	18.5	14.0	14.0
Infrastructure	9.0	8.3	8.8	4.8	4.8	4.8	4.2	4.2	4.2	4.2	2.8	2.8	1.8	1.8
PMO	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	9.0	9.0	7.0	6.5	6.5
Training	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Total	**31.8**	**33.3**	**37.1**	**38.7**	**42.4**	**42.4**	**44.8**	**45.8**	**45.3**	**42.9**	**39.5**	**37.0**	**29.5**	**29.5**

Figure 7. Operations Staff Loading Chart

	Operations			
Team	**Yr-1**	**Yr-2**	**Yr-3**	**Yr-4 (10 mos)**
Acct Team	43.9	33.6	33.6	28.0
Analytics	36.8	36.0	36.0	30.0
Data warehouse	55.5	35.4	35.4	29.5
Infrastructure	17.6	16.2	16.2	13.5
PMO	22.8	14.4	14.4	12.0
Training	3.0	1.5	1.2	1.0
Total	**179.5**	**137.1**	**136.8**	**114.0**

Staffing Processes and Tools

Staff Replacement

To identify the WV EDS team that we are proposing we reviewed your requirements and reviewed our staff to identify potential team members who have a combination of experience in their subject area, Medicaid projects of similar size and scope and experience with West Virginia. We identified resources for implementation that are senior resources in their areas of expertise.

Our Watson Health Account Manager will work with DHHR to review and discuss staffing throughout the duration of our contract establishing plans to make staffing adjustments if they are required.

If a staff member needs to be replaced throughout the life of our contract, we will review our available internal staff. These are typically resources who have completed projects and are looking for a new opportunity. We maintain a candidate pipeline and staff list, including qualifications, certifications and clearance information using IBM's Professional Marketplace tool and vendor candidate lists. If we are unable to identify a candidate within Watson Health we will identify potential external candidates using our recruiting process to hire directly or through a contract-to-hire process with established staffing firms. We will provide DHHR a copy of candidate resume for review and provide DHHR an opportunity to meet the new potential candidate.

Once a candidate is confirmed , we begin the personnel security clearance process and new staff members are provided IBM orientation and appropriate training and mentoring in project-specific methodology, approaches, program policy and customized processes so they are productive day one on their start date.

The following approaches help us effect seamless transitions.

- Our organizational structure supports knowledge sharing and encourages cross-training of team members. If a staffing change is necessary on short notice, other team members and management can maintain service delivery while a permanent replacement is found.
- Our document repository enables our team to access client-specific documentation as needed. We apply intuitive formats that quickly relay our understanding of client business policies and requirements; update our ongoing data, analytic, and reporting activities; summarize key data quality issues; track performance against contract SLAs, and so forth. Having information readily available in a single repository speeds up the learning process for new team members and allows for existing staff to get up to speed quickly when they undertake a new role.
- We cross-train new staff with existing departing staff so that appropriate knowledge transfer can take place and fosters the gradual assumption of full responsibilities of the replacement team member.
- We manage a rolling 30-60-90-day horizon of staffing needs, evaluating upcoming positions against staff that are scheduled to roll off the project, or rotate to another area. When changes are introduced, part of the assessment process is to identify a possible impact on existing staff, so we can either shift existing resources or quickly identify new ones to address an identified need.

As requirements and priorities change throughout the life of project, we promote currency of technical skills, establishment of backups for critical positions, cross-training of personnel to enable workload redistribution, institutionalizing program knowledge.

Staff Recruitment

Watson Health commits to developing and maintaining the necessary staffing levels throughout the project as agreed upon in the Staff Management Plan. Because we understand the need for a fully staffed and optimally functional project team during both implementation and Operations,

Watson Health hires and develops talent in our industry through a variety of recruiting sources, such as employee referral programs, career fairs, university campus recruitment, intern and student programs, diversity recruitment programs, internal job posting tools, and coordination with state and local government employment transition centers. We have many advantages in meeting the expectations of technical professionals that include challenging work on exciting new products and services, state of the art technologies and innovative applications, generous educational and training programs, as well as attractive quality of life options.

The Watson Health recruiting process uses a variety of tools to identify qualified candidates both within and outside of IBM.

- The Global Opportunity Marketplace (GOM) is an integrated solution that provides IBM managers, recruiters, internal and external candidates with a suite of tools that support the full cycle of recruitment, from job requisition creation, to job posting, to searching and applying for positions, to reviewing, tracking and processing candidate applications.
- Blue Matching, an AI-powered job recommendation solution, makes potential job opportunities within Watson Health and IBM more visible to qualified employees. This tool provides IBMers with potential job matches based on job postings available through GOM. The process of matching participant with job requirements from GOM is based upon work location, job role, experience and performance.

- We also use a range of social tools to find the most talented resources external to our team, including Monster's mobile application, along with Monster's TalentBin passive candidate search tool, LinkedIn (including mobile), Facebook, Twitter, Glassdoor, and Google+. Job links posted through these sites link to IBM's applicant tracking system.

Initial screening of resumes for potential new WV EDS team members is done by our recruiters and managers as needed. The responsible manager decides to move the candidate further along in the process, and schedules meeting with the appropriate managers, leads and other team members based on the position being filled. After all interviews are conducted, including any required DHHR interviews, the responsible Watson Health manager proceeds to the offer process.

Watson Health obtains DHHR approval for all key staff assigned to the WV EDS project and ensures that key staff positions are filled within 30 days of contract award. Each key staff position is filled by only one person, and staff members are not assigned to multiple roles.

Use of State Staff

Our depth of experience has taught us that the most successful implementations are those in which our chosen team is closely aligned in partnership with your chosen team as one cohesive "Team West Virginia."

Although we lead the implementation effort, our experience has proven that successful implementation of the WV EDS is a result of direct support and close collaboration with our client. We recommend that DHHR provide resources who have content knowledge, the organizational authority, and schedule-availability to make the decisions necessary to keep the project on schedule to ensuring the right decisions are made for DHHR. Specific supporting activities include the following:

- Facilitating the timely and accurate delivery of usable source data
- Reviewing and approving contract deliverables within the time frames listed in the approved work plan and schedule
- Supporting user-focused requirements validation and testing
- Participating in requirements analysis sessions (RAS) for each workstream

To ensure the successful training of DHHR resources and implementation of the WV EDS solution, we will work closely with your designated staff throughout the project to ensure that our collective project team is unified in the process and apprised of the goals and deliverables for the project. For planning purposes, it benefits DHHR for resources to be more engaged during the implementation phase. We recommend the DHHR roles to be available 25% of the time during implementation—up to 50% during peak times—and 10% to 15% during operations.

We ask that you designate a DHHR Project Sponsor to be the main point of contact to our Watson Health Account Manager, a Project Lead as the point of contact to our Project manager, as well as SMEs who can represent your requirements. We will work with the DHHR team during project planning to finalize the recommended roles, responsibilities and level of effort based on your resource availability and organization for the WV EDS implementation.

Based on projects of similar size and scope, we are providing recommended DHHR roles in Table 1 below, and a mapping to the Watson Health roles. The DHHR roles may be combined or changed based we collaborate on the staffing plan during the Implementation phase.

Table 15. DHHR and Watson Health Resources, Sample Mapping

DHHR Role	Watson Health Role
Project Sponsor tasked with overall accountability for ensuring that DHHR resources are available to meet project deadlines and that has the authority to sign off on milestones and deliverables.	**Account Manager** responsible for the overall delivery of the implementation of the WV EDS Solution. Will act as a point of escalation for issue resolution.
Project Lead authorized to resolve issues, coordinate availability of other DHHR staff, and accept and approve Watson Health deliverables, coordinate DHHR resources	**Project Manager** responsible for the day to day delivery of the project working with DHHR leadership to communicate status and resolve issues.
Technical Lead to provide your prioritized input for the database design and to obtain consensus from stakeholders on data sources, database enhancements, and user needs.	**Technical lead** works with DHHR technical team to validate that requirements are addressed in the EDS and will conduct formal technical reviews of the solution components.
Business SMEs from the Bureau for Medical Services and other bureaus and offices who are knowledgeable to represent their respective requirements, business objectives, and business processes that the solution will address. Support user testing during implementation and work closely with our analytical staff to ensure that end user needs are effectively met by the approved solution specifications. Provide ongoing business and end user support in operations.	**Business Lead** works with DHHR business contacts to coordinate activities and validate that requirements are addressed. **Analytic Consultants** will work with DHHR analytic users to validate requirements and configure reports and measures in the BI tools.
Data Vendor Relationship Manager to communicate your expectation for data delivery to Watson Health and to work with data vendors to resolve data issues. Ensures that data is delivered on time from 3rd party vendors as defined in the project work plan and schedule.	**Implementation Manager** responsible for the DDI and transition of the WV EDS, and to coordinate implementation activities with DHHR.

Key Staff, Resumes and References

The following Key Staff resumes and references demonstrate our commitment to an experienced team of key staff who will provide leadership and accountability for all phases of the project. Each resume will describe their experience and relevance to the WV EDS project. All key staff can be available for in-person interviews if requested by DHHR.

Resumes

Table 16. Resumes for Proposed Key Staff

Name	Proposed Role	Experience in Proposed Role
David Losin (Implementation)	Account Manager	18+ years
Amy Wenmoth (Operations)		15 years
Cheryl Gentsch	Project Manager	18 years
Sandi Hutch (Implementation)	Business Lead	12 years
Jordan Wilton (Operations)		
Mark Hein	Technical Lead	20 years
Tom Reese	Implementation Manager	20 years
Brooke Oberg	Operations Manager	10 years
Jennifer Palow	Certification Lead	15 years

Name	Proposed Role	Experience in Proposed Role
Padma Venkatrangan	Quality Assurance Lead	14 years
Tara Keezer	Documentation Management Lead	20+ years
Moh Hossain	Testing Manager	15+ years
Les Garripee	Information Security Architect/Privacy Data Protection Officer	6+ years

David Losin, BBA, PMP, Account Manager



"I am excited to be a part of such an important project for the state of West Virginia and its mission to improve the health and well-being of all West Virginians. There is nothing more rewarding and motivating than knowing each hour we dedicate to this project directly benefits the lives of others."

PROFESSIONAL SUMMARY

- 22+ years of experience working in support of state Medicaid agencies.
- 18+ years of experience managing healthcare IT projects that support Medicaid functions
- 15+ years of experience in project management.
- Supported multiple state Medicaid agencies and large-scale healthcare information system implementations
- Responsible for projects ranging from $12 million to over $100 million.
- Certified PMI Project Management Professional (PMP)®
- Experienced in PMBOK®-aligned project management best practices

BIOGRAPHY

David is a senior leader in the healthcare IT industry, with over 22 years supporting six different state Medicaid agencies. His unique experience ranges from development, implementation and operation of large, complex healthcare information systems, to account management, client engagement, and solution development. David was responsible for the successful takeover and operation of the California MMIS in 2011 for Medi-Cal, one of the largest Medicaid programs in the country. As a certified Project Management Professional since 2005, David embraces project management process and methodologies as vital components of successful information system implementations.

PROFESSIONAL EXPERIENCE

IBM Watson Health, Atlanta, Georgia
ACCOUNT EXECUTIVE, U.S. STATE & LOCAL, GOVERNMENT HEALTH & HUMAN SERVICES
From September 2018 to Present

- Responsible to lead, coordinate, and direct the long-term, consultative, client relationships for U.S. State and Local clients
- Accountable for client satisfaction, contract performance, end-to-end service delivery, providing leadership and strategic direction to the project, managing client communication and expectations, managing internal and external risks, and overall service excellence

Conduent, Inc., Atlanta, Georgia
Information Mangement Director
From March 2016 to September 2018

- Planned and managed operational readiness activities, development of operational policies and procedures, knowledge transfer from the DDI teams, operational readiness testing, and transition/cutover activities at go-live for the State of New York MMIS (NYMMIS) DDI project
- Served as the Enterprise Application Architect for the State of California MMIS (CA-MMIS) fiscal intermediary operation, responsible for oversight of application upgrade projects, leadership in the planning and implementation of system upgrades and enhancements, and providing innovative strategic direction and leadership for CA-MMIS

Xerox State Healthcare (formerly ACS, Inc.), Sacramento, California
Systems Group Director
From May 2010 to March 2016

- Managed the takeover, transition, maintenance, operation, and enhancement of the California MMIS (CA-MMIS). CA-MMIS is a complex healthcare information system that integrates 30+ software applications over multiple platforms and technologies
- Managed the Systems Group cross-functional organization of 200+ professional employees and subcontractors including directors, managers, developers, business analysts, QA/test analysts, systems analysts, architects, DBAs, consultants, project managers, and technical writers
- Fostered strong working relationships with the California Department of Healthcare Services (DHCS) CA-MMIS Division executive and mid-level management, actively participating in executive steering committees and project management activities that provided oversight, status, and program direction as part of the project governance structure
- Oversaw the successful implementation of large enhancements, including HIPAA X12 5010 and NCPDP D.0 processing, ICD-10 conversion, Affordable Care Act (ACA) Medicaid expansion

Affiliated Computer Services (ACS), Inc., Atlanta, Georgia
Systems Development Director / Senior Manager
From April 2004 to May 2010

- Georgia MMIS Fiscal Agent Account from April 2004 to August 2008
  - Managed the maintenance, operation, and enhancement of the Georgia MMIS, directing a systems development group of 40-50 professional employees including developers, business analysts, supervisors, and managers
  - Oversaw successful implementation of major system enhancements including: National Provider Identifier, Medicaid managed care and encounter data processing, disease management

MEMBERSHIPS/ASSOCIATIONS/CERTIFICATIONS

- Certified Project Management Professional® (PMP[redacted]), Project Management Institute
- MLC Certified Medicaid Professional (MCMP-II[redacted]), Medicaid Learning Center
- Certified IBM Cognitive Services Practitioner

EDUCATION

- BBA, Management Information Systems, University of Georgia, Athens, Georgia
- BBA, Finance, University of Georgia, Athens, Georgia

Amy Wenmoth, MA



PROFESSIONAL SUMMARY

- 15+ years of experience in health data in various roles with the State of West Virginia.
- 7+ years of experience in managing healthcare information technology projects that support Medicaid functions.
- Supported state Medicaid agencies.
- Master's Degree, Sociology (Applied Demography)

BIOGRAPHY

15 years' experience working for and in support of the State of West Virginia. Began my career as an epidemiologist for the State and became the Director of the Division of Clinical Analysis. Since 2016, I have been the Account Director for the West Virginia DW/DSS. I will continue to bring my experience with West Virginia to the Watson Health DDI team.

PROFESSIONAL EXPERIENCE

IBM Watson Health, Ann Arbor, Michigan
ACCOUNT DIRECTOR
From August 2016 to Present

- Serve as the General Manager of accounts in West Virginia.
- Directed the implementation of 40+ DW/DSS change orders during operations, including the MMIS 5.0 upgrade, CMS certification, and the PEIA data implementation.
- Collaborate with the client, data vendors, and internal teams to ensure successful end-to-end service delivery, service excellence, contract performance, operational business planning, financial performance, and business development
- Manage the overall relationship with the client to solve business challenges, resolve issues, and ensure overall satisfaction with our customer service

CONSULTING MANAGER
From August 2013 to July 2016

- Managed the analytic requirements and deliverables during the final stages of DW/DSS implementation and directed the creation and delivery of artifacts for CMS certification, including presentations to CMS at gate reviews.
- Coordinated with the client, data vendors, and internal teams to ensure data quality through ongoing analytic testing, reconciliation, investigation of issues, and implementation of resolutions
- Collaborated with the client to identify business needs and provided guidance to the data and operations teams regarding client and account priorities

West Virginia Health Care Authority, Charleston, West Virginia
DIRECTOR, DIVISION OF CLINICAL ANALYSIS
From May 2009 to July 2013

- Directed and managed the Division of Clinical Analysis, which is responsible for developing and implementing health services research activities and creating, managing, and enhancing health

data and analytic systems, including the Hospital Inpatient Data System, the All-Payer Claims Database, and the Healthcare-Associated Infection Public Reporting Program

- Developed Division priorities, provided direction and oversight to staff, collaborated with state and national partners, and facilitated stakeholder advisory groups to coordinate efforts and ensure that programs are aligned with state and agency healthcare priorities
- Directed and managed the release of data, reports, and analytic tools to guide the healthcare decisions of consumers, providers, and policymakers
- Managed data collection vendor contracts, including ensuring adherence to requirements and budget, prioritization of tasks, and management of the Request for Proposal process

West Virginia Department of Health and Human Resources, Bureau for Public Health, Health Statistics Center, Charleston, West Virginia
MANAGER, CHRONIC DISEASE EPIDEMIOLOGY UNIT
From May 2008 to May 2009
EPIDEMIOLOGIST
From January 2005 to April 2008

- Responsible for coordinating and integrating chronic disease surveillance and evaluation activities for public health programs within the Division of Health Promotion and Chronic Disease, the Division of Tobacco Prevention, and the Office of Minority Health
- Collaborated with program managers to ensure achievement of Centers for Disease Control and Prevention surveillance and evaluation grant requirements; provided training and technical assistance to partners and stakeholders on accessing, interpreting, and using health data for program planning purposes
- Conducted analyses of health data sources to track performance indicators, monitor trends, and identify priority populations for health promotion intervention
- Prepared and approved major surveillance and evaluation reports for public distribution

PUBLICATIONS

- Primary author of three Health Care Authority reports: Healthcare-Associated Infection Public Reporting Program: *2011 Annual Report* (January 2011), *2012 Annual Report* (April 2012), *2013 Annual Report* (February 2013)
- Primary author of three major Health Statistics Center reports: *2003 West Virginia Behavioral Risk Factor Survey Report* (September 2005), *The Burden of Asthma in West Virginia* (August 2007), *2005 West Virginia Youth Tobacco Survey Report* (September 2007)
- Primary author of seven Health Statistics Center Statistical Briefs: *Asthma Among West Virginia Children* (February 2006), *Asthma Among West Virginia Elderly* (August 2006), *Asthma Surveillance in the West Virginia Medicaid Population – Year 2003* (Revised August 2007), *Asthma Surveillance in the West Virginia Medicaid Population, 2001-2003* (Revised September 2007), *Asthma Surveillance in the West Virginia CHIP Population – Year 2005* (August 2007), *Racial Disparities in Cigarette Smoking Among West Virginia Adults* (October 2007), *Asthma Hospitalizations, 1996-2006* (February 2008)

EDUCATION

- MA, Sociology (Applied Demography), Bowling Green State University, Bowling Green, Ohio
- BS, Behavioral Science (Basic and Applied Psychology), Glenville State College, Glenville, West Virginia

Cheryl L Gentsch, PMP



PROFESSIONAL SUMMARY

- 20+ years of experience in project management.
- 17+ years of experience in managing healthcare IT projects that support Medicaid functions.
- 12+ years of working in PMOs training other project managers.
- Supported state Medicaid agencies.
- Certification in project management.
- Knowledge of project management standards and best practices, including the PMBOK®

BIOGRAPHY

Cheryl has worked in Information Technology since 1986 in both the private and public sectors. Her 18 years of experience in Medicaid, MMIS and Data Warehousing includes Project Management and Subject Matter Expertise in Financial and Federal Reporting. She has participated in two MITA State Self-Assessments (SS-A), three state procurement/modular strategies, and three state certifications. Her experience in 13 different state/territory Medicaid programs allows her to bring prospective and understanding to the Medicaid Enterprise.

PROFESSIONAL EXPERIENCE

IBM WATSON HEALTH, ATLANTA, GEORGIA
PROJECT MANAGER
May 2019 to September 2019

- Developed an Integrated Master Schedule for the DDI, Operations & Maintenance, Project Administration and Certification in first six weeks.
- Provided oversight of management of Issues, Risks, Action Items and Key Decisions.
- Oversaw completion of ten approved deliverables in ten weeks; 200% increase from prior quarter.
- Managed and directed Senior PM, six workstream PMs and Master Scheduler.
- Responsible for weekly status reporting and improvement for incorporation of CMMI metrics.
- Performed continued process and product assurance reviews to assure CMMI 1.3 maturity level.
- Provided DDI team guidance in MECT requirements and MITA framework.

INTERVOICE, HATO REY, PUERTO RICO
PROJECT MANAGER
June 2017 to Arpil 2019

- PMO DDI Project Manager for Puerto Rico's first MMIS implementation March 26, 2018.
- Developed presentations, communications and status reporting for CMS and Steering Committee.
- Provided oversight and direction for data conversion, interfaces, development and testing.
- Managed project schedule, risks, issues, key decisions and action items across the project.
- Facilitated business process modeling sessions to develop standard operating procedures.

- Developed an Operational Readiness Plan and conducted an Operations Readiness Assessment.
- Developed a PRMP Modular Strategy approach for future phases of the MMIS and EDW.

CONDUENT
PROJECT MANAGER
Febraury 2015 to May 2017

- Project Manager for implementation of Provider Screening and Monitoring, Fingerprint-based Criminal Background Checks, Reporting Task Force, and other New Hampshire MMIS projects.
- Project Manager for the Rate Code team for the New York Health Enterprise Medicaid Management Information System.
- Project Manager for implementation of Care Management system for the California Health Enterprise Medicaid Management Information System.

CSG GOVERNMENT SOLUTIONS
BUSINESS & TECHNICAL STRATEGY ANALYST
February 2013 to January 2015

- Developed Medicaid Enterprise modernization strategy for Missouri and Wisconsin MMIS Procurement. Provided strategies for healthcare reform with quality outcomes.
- Assessed state Medicaid programs technical architectures for alignment with MITA guidelines.
- Assessed technical architectures for alignment with CMS guidelines and best practices.

OPTUMINSIGHT
MAR IMPLEMENTATION LEAD/SUBJECT MATTER EXPERT
March 2009 to January 2013

- Implementation lead of Management and Administrative Reporting (MAR) for Alaska DDI.
- Federal Reporting SME for CMS64, CMS372 and MSIS reporting for District of Columbia (DC). Participated in planning and participation for DC CMS certification utilizing the MECT Toolkit.

TECHNICAL EXPERIENCE

- MS Office tools, including MS Project Online, Word, Excel, PowerPoint, Visio

EDUCATION/ASSOCIATIONS

- Taylor University, Bachelor of Science, Business/Systems
- Project Management Professional Certification, Project Management Institute
- Microsoft Project Certification, University of New Mexico
- Project Management Institute, member since 2008

Sandyhai Hutch, MBA, BS, CBIP



PROFESSIONAL SUMMARY

- 12+ years of experience in healthcare analysis and solutions development.
- 10+ years of experience in leading healthcare IT projects, specializing in Medicaid data warehousing and business intelligence adoption.
- 10+ years of providing consulting services in multiple Medicaid sectors: managed care, state health and human services agencies, Medicaid Management Information System (MMIS), and enterprise data warehouse (EDW) solutions.
- Supported state Medicaid reporting that provided data driven interventions and policy creation.
- Responsible for creating and executing the requirements management process.
- Knowledge of project management standards and best practices, including the PMBOK®

BIOGRAPHY

12 years of experience in healthcare analysis and solutions development, with most of my career focused on Medicaid data and reporting. Acquired the best practices required to guide state health and human services agencies through a successful EDW implementation. Championed state leadership adoption of business intelligence solutions by demonstrating how raw data can be transformed into meaningful information and provide insight into high-risk populations. Created training materials and coordinated lunch-and-learns for state reporting analysts to recreate reports and queries in their new EDW environment.

PROFESSIONAL EXPERIENCE

IBM Watson Health, Austin, Texas
LEAD HEALTHCARE BUSINESS ANALYST
From April 2019 to Present

- Led a team of senior business analysts and junior business analysts through the requirements management process to support solution implementations for the State of Missouri
- Owned the requirements life-cycle starting from the facilitation of requirements analysis sessions to generating the Requirements Analysis Document (RAD) and supporting the Requirements Traceability Matrix (RTM)
- Supported Software development life cycle (SDLC) phase transitions focused specifically on the approved requirements flowing through the process into user acceptance testing
- Created strong collaborative relationships with Medicaid programs to design and develop meaningful solutions
- Easily translated business requirements into technical specifications, serving as a liaison between technical and business teams
- Created and presented project status dashboards to report various metrics:
  - Team achievements
  - Upcoming activities

- Deliverables completed and in process
- Any potential risks

OptumInsight, Austin, TX
SENIOR BUSINESS ANALYST/SYSTEMS ANALYST
From September 2014 to April 2019

- Clients were State of Indiana and State of Arkansas
- Managed the design and development of data models that supported reporting requirements
- Served as project manager for the creation or modification of data solutions including issue, risk, requirements, scope and schedule management
- Penetrated highly matrixed environments to gather requirements from a multitude of perspectives and build a useful solution across a state's health and human services agency
- Influenced Medicaid program executives drive a culture of business intelligence adoption from the top down
- Customized Episode Treatment Groups (ETGs) to target specific metrics for various state Medicaid programs
  - Symmetry® Episode Treatment Groups

TECHNICAL EXPERIENCE

- IBM Cognos Analytics, SAP Business Objects, SPSS, Teradata SQL Assistant, Oracle SQL Developer, IBM InfoSphere FastTrack, MS Office 2016

MEMBERSHIPS/ASSOCIATIONS

- The Data Warehouse Institute – Certified Business Intelligence Professional

EDUCATION

- MBA, Healthcare Administration, Western Governor's University, Austin, Texas
- BS, Human Biology & Health Science, Purdue University, West Lafayette, Indiana

Jordan Wilton, MS



PROFESSIONAL SUMMARY

- 4+ years of experience supporting the West Virginia Bureau for Medical Services (BMS) as an on-site consultant, analyst, and training resource.
- 4+ years of experience as a key Data Warehouse/Decision Support System (DW/DSS) contact for BMS leadership and end users.
- Expert on BMS policy and data specifics.
- Experience supporting multiple BMS programs (Program Integrity, Quality, Finance, Substance Use Disorder) in using the DW/DSS to meet their data needs.
- Designed and delivered hundreds of analytic reports to the BMS client.
- Knowledge of project management standards and best practices, including the PMBOK®

BIOGRAPHY

Detail-oriented, meticulous Senior Analytic Consultant skilled in data analytics and health informatics. Strong understanding of Business Intelligence applications, including IBM® Cognos, Tableau®, Advantage Suite®, and DataProbe®. Well versed in healthcare policy and processes, particularly Medicaid policies and transactional claims data. Experienced in supporting analytical applications and associated interfaces. History of delivering precise, superior solutions to end users. Strong comprehension of project management and importance of stakeholder involvement. Operates with a strong sense of urgency and thrives in a fast-paced setting. Core competencies include data analytics, business intelligence applications, healthcare policy, project management, application training, workflow analysis, and end user support.

PROFESSIONAL EXPERIENCE

IBM Watson Health, Ann Arbor, Michigan
SENIOR ANALYTIC CONSULTANT
From March 2015 to Present

- West Virginia BMS DW/DSS
  - Manage analytic project efforts by directing internal resources, monitoring risks, communicating with client, maintaining scope, surveying potential issues, and defining and adhering to project schedule
  - Manage data testing and analytic validation for DW/DSS data loads
  - Support new source data integration and implementation – including CHIP, PEIA, MMIS 5.0, MCO Blue Box, Birth Certificate, and Mortality data
  - Perform hundreds of complex analyses on Medicaid and related healthcare data
  - Lead client-facing meetings
  - Discover data quality issues, investigate user-reported problems, document progression on solutions, and ensure issue resolution is acheived
  - Conduct IBM Watson Health product trainings and demonstrations for the client
  - Design, modify, and run reporting templates
  - Provide on-site analytic and healthcare expertise

- Support multiple client functional units in using data to meet business needs

Huntington Internal Medicine Group, Huntington, West Virginia
Information Systems Intern
From July 2014 to March 2015

- Performed data extraction, analysis, and reporting from large clinical database (Structured Query Language)
- Supported clinical applications and interfaces (electronic health records, laboratory, radiology, transcription, etc.)
- Streamlined and redesigned workflows
- Updated key software documentation
- Conducted Meaningful Use Initiatives research
- General information technology/information systems support for administrative and clinical staff

TECHNICAL EXPERIENCE

- Business intelligence tools
  - IBM Cognos
  - Tableau
  - IBM Advantage Suite
  - IBM DataProbe
- IBM Big Data Foundations—Level 1 Badge
- IBM Cognitive Practitioner Badge

MEMBERSHIPS/ASSOCIATIONS

- West Virginia Healthcare Information and Management Systems Society Chapter Member (2013 to Present)
  - Board Member At-Large (2016 through 2018)
- Marshall University Health Informatics Graduate Program Advisory Committee (2017 to Present)

EDUCATION

- MS, Health Informatics, Marshall University, Huntington, West Virginia
- BS, Biomedical Science, Minor in Chemistry, Marshall University, Huntington, West Virginia

Mark T. Hein, BS



PROFESSIONAL SUMMARY

- 25+ years of experience in Information Technology.
- 15+ years of experience on Enterprise Data Warehouse and Business Intelligence initiatives.
- 10+ years of experience establishing Data Warehouse platforms and architecture.
- Thorough product management experience with a diverse healthcare and insurance product portfolio.
- Strategic and tactical management of up to 20 people.
- Experience in data modeling, application design, infrastructure, and security.
- Provides analytic support and guidance to government customers, healthcare payer units, and internal staff.

BIOGRAPHY

Technically diverse front-line manager with over 25 years of information systems experience. Continually noted to be a problem-solver and to facilitate process improvement, with a reputation as a leader and motivator. Mentored all levels of IT staff while continuing to learn new technology and getting involved at the most detailed level. Provides the highest level of quality to clients, while meeting timeframes necessary to be at the forefront of the industry. Looking to become a project leader in solution development by managing state of the art information systems with highly technical staff.

PROFESSIONAL EXPERIENCE

IBM Watson Health, Ann Arbor, Michigan
TECHNICAL DELIVERY MANAGER, GHHS IMPLEMENTATIONS
From February 2008 to Present

- Establish the strategic direction for implementation of healthcare data warehouses
- Coordinate the design and development of data warehouse (DW) components for healthcare clients
- Provide operational support for data warehouse and business intelligence (BI) implementations
- Construct and present demonstrations on capabilities in data modeling, user interface, and information flow
- Assist Medicaid businesses with proposal responses, pricing, and timing
- Clarify project scope and design issues and develop appropriate deliverable documentation

Blue Cross Blue Shield of Michigan, Detroit, Michigan
ENTERPRISE IT ARCHITECT, CORPORATE PROJECT SOLUTIONS
From November 2000 To January 2008

- Evaluated, purchased, and implemented DW and BI solutions and applications
- Designed and developed applications and databases to integrate financial systems with the Corporate PM
- Constructed Enterprise Data Warehouses utilizing ETL tools to provide real-time reporting of production statistic
- Delivered DW governance processes to manage disparate systems across the organization
- Provided technical direction and mentoring to team members and project manager
- Operationalized common practices, methods, and metrics to advance the Project Management Office

Jawood Management Associates, Troy, Michigan
TECHNICAL CONSULTANT, BCBSM CLAIMS INFORMATION TECHNOLOGY
From February 2000 To October 2008

- Coordinated the integration of the Project Management Office with the Software Development Areas
- Performed both management and development tasks concurrently
- Refined the budget tracking and estimation processes within the Information Systems division
- Designed and developed applications to provide project and resource tracking and data warehousing
- Developed and managed infrastructure teams to improve efficiency and track metrics
- Provided training to all staff on procedures and software used within the division

The Medstat Group, Ann Arbor, Michigan
MANAGER, CUSTOM PROGRAM DEVELOPMENT, MANAGED CARE AND INSURANCE
From July 1992 to January 2000

- Developed departmental budgets including compensation, expenses, training, and growth allowance
- Managed resource allocation for over 30 clients and 100 projects
- Led design, programming, and testing phases of software installation for Business Intelligence/Decision-Support products in four top healthcare insurance providers

Complete Business Solutions, Incorporated, Farmington Hills, Michigan
SOFTWARE CONSULTANT
From July 1990 to July 1992

MEMBERSHIPS/ASSOCIATIONS

- The Data Warehouse Institute, member
- Data Management Association – Michigan Chapter, member

EDUCATION

BS, Electrical Engineering, Michigan State University, East Lansing, Michigan

Thomas F. Reese, MA



PROFESSIONAL SUMMARY

- 20+ years of experience leading healthcare information technology transformational change, business process improvement, creation of enterprise data warehouse architectures, and data management initiatives for high-growth organizations.
- 17+. Years of experience managing healthcare IT projects that support Medicaid functions.
- 12+ years of working in PMOs training other project managers.
- Supported state Medicaid agencies
- Supported state employer organizations
- Responsible for projects ranging from $200,000 to $20 million.
- Proactive management style that resolves risks and issues.

BIOGRAPHY

I have 20+ years' success leading healthcare information technology transformational change, business process improvement, creation of enterprise data warehouse architectures, and data management initiatives for high-growth organizations. I am a leader with repeated success architecting and implementing data warehouse and data governance strategies including managed care and Medicaid organizations.

PROFESSIONAL EXPERIENCE

IBM Watson Health, Ann Arbor, Michigan
SERVICE DELIVERY LEADER, GHHS
From November 2019 to Present

Provide key leadership and strategic technical oversight of EDW, BI and analytic design, development, implementation (DDI) and operations in support of IBM WH GHHS client agencies, including Medicaid.

- Prepare implementation planning, staffing and overseeing the business, technical and testing teams building and delivering IBM WH solutions.
- Deliver IBM Watson Health operationally ready solutions as defined by the scope of work and operating the solution by meeting agreed upon service level agreements.
- Enforce organizational and technical delivery excellence best practices.

Nebraska Department of Health and Human Services (DHHS), Lincoln, Nebraska
DMA STATE IMPLEMENTATION LEAD
From September 2016 to March 2019

Provided executive Data Management and Analytics (DMA) implementation leadership for modular replacement of the State's current Medicaid Management Information System (MMIS).

- Led contract delivery of DMA functionalities at a contract price of $20M for vendor DDI.
- Oversaw vendor implementation of new State Medicaid EDW, DSS, 837 encounter platform, PI case management system, FADS, SURS, TMSIS, MARS and financial reporting suites.
- Crafted certification strategies for State adherence to CMS MECT and MITA requirements.

Aetna, Phoenix, Arizona
SENIOR DIRECTOR, AETNA MEDICAID
From September 2014 to August 2016
Directed technological development and program portfolios supporting Aetna Medicaid's EDW, BI, and Informatics platforms to monitor and control health care costs.

- Provided overall leadership for multiple departments; established and executed strategic roadmaps, business goals, technical plans, policies, and procedures to allow the smooth operation of Aetna Medicaid information delivery and management.
- Managed and controlled $10M budget; oversaw 60+ FTEs, four directors, and ten managers, providing team development and coaching to maximize matrixed organizational performance.

EDW HEAD, AETNA MEDICAID
From January 2011 to August 2016
Provided technical leadership and defined information architecture, data security, data governance and quality assurance roadmaps, building upon Aetna's existing information management strategy and expanding corporate best practices to Aetna Medicaid's SQL Server EDW and operational data factory.

- Ensured availability of high-quality, secure production data with appropriate HIPAA/PII/PHI data protections, optimized data architecture, and precise data reconciliation.
- Directed offshore / onshore contractor and full-time employee EDW development departments managing 20 health plans and 10 subject areas with 48 / 84 month analytical / operational history.

DIRECTOR APPLICATION DEVELOPMENT, AETNA MEDICAID
From March 2008 to August 2014
Chief architect, modeler and developer of Aetna Medicaid's overall EDW mainline and BI web portal.

- Directed multiple EDW and BI teams responsible for SQL Server, Hadoop/Hive, .Net development, and production operational support.

TECHNICAL EXPERIENCE

- MS SQL Server 2000/2005/2008/2012, TSQL, DTS, SSIS, SSRS, SSAS, Oracle, DB2, Hadoop / Hive, UNIX and Mainframes, SAS, SPSS, Python, Cognos, Business Objects, Tableau, .Net, VB, VBA, C, Agile, Scrum, Structured Iterative, MS Visual Studio, MS Office, MS Visio, MS Project
- Applications/Code Sets: QNXT, FACETS, AMYSIS, HIPAA 5010, ICD-9, ICD-10, CPT, HCPCS

EDUCATION

- MA, Statistics, University of California, Berkeley
- BS, Mathematics, University of California, Irvine

Brooke Oberg, BS, PMP



PROFESSIONAL SUMMARY

- 10+ years of experience in project management.
- 8+ years of experience in managing healthcare information technology projects that support Medicaid functions.
- 5+ years of working in project management offices training other project managers.
- Supported state Medicaid agencies.
- Project management certification
- Knowledge of Project Management standards and best practices, including the PMBOK®

BIOGRAPHY

I have 9 years of experience with Watson Health working in product, data and project management. I manage both implementation projects and operational contracts for our Watson Health clients. Currently, I am the Operational Project Manager for the WV DW/DSS and will transition to Operations Manager for the WV EDS once the implementation is completed. I have come to understand West Virginia and will provide my expertise throughout the transition to the new environment.

PROFESSIONAL EXPERIENCE

IBM Watson Health, Ann Arbor, Michigan
SENIOR PROJECT MANAGER
From April 2013 to Present

- Manage implementations of data warehouse, cognitive solution, and program integrity platforms for government, employer, and hospital clients
- Create and maintain detailed work plans; manage multiple priorities and daily project activities
- Identify opportunities for value-added revenue with current and previously installed clients
- Review final reports/deliverables to ensure that they meet client expectations
- Complete implementations for customers with databases storing millions of records
- Communicate directly with hospitals to implement interfaces that meet state mandates
- Work with Fortune 500 companies to implement products to assist them and their customers with healthcare management and vendor relations
- Ensure integrity and quality for historical and ongoing data feeds
- Monitor Health Level Seven (HL7) messages, understand JavaScript Object Notation (JSON) translations, and validate data element mappings
- Train other Project Managers on products and tasks
- Develop applications to automate workflow and tasks using Perl and Visual Basic for Applications for Microsoft® Office

DATA MANAGER
From March 2012 to April 2013

- Worked with data suppliers to ensure accuracy of data and followed up on quality issues and customer concerns; ensured integrity and quality for data feeds
- Ensured customers received high-quality reporting that met Watson Health and Health Insurance Portability and Accountability Act standards

PRODUCT SUPPORT REPRESENTATIVE
From December 2010 to March 2012

- Researched and supported tax, accounting, and payroll software concerns from customers
- Consistently exceeded department standards
- Led software development for several states

The Caring Source, Detroit, Michigan
OPERATIONS DIRECTOR/BUSINESS ANALYST
From January 2008 to December 2010

- Conducted analyses to create strategies supporting projects, budgets, and goals
- Worked with marketing and communications directors to create project plans; ensured projects were completed on time and in line with organization's mission
- Directed Read Away! Write Away! initiative in Detroit Public Schools; coordinated fundraisers and events with principals, staff, and students

TECHNICAL EXPERIENCE

- Microsoft Office Suite, including Microsoft Project and Visio

MEMBERSHIPS/ASSOCIATIONS

- University of Michigan, Lifetime Alumni

EDUCATION

- BS, Mathematics, Statistics, University of Michigan, Ann Arbor

Jennifer Palow, MPA, PMP



PROFESSIONAL SUMMARY

- 12+ years of experience in Medicaid and Federal certification.
- 10+ years of experience in managing healthcare IT projects that support Medicaid functions.
- 5+ years of project management experience.
- Supported state employer organizations.
- Project management certification.

BIOGRAPHY

After graduating with my bachelor's degree in business administration, I began working with Maine Medicaid, starting in the pharmacy unit as a data analyst and eventually being promoted to Director of Operations—overseeing 65 employees; working to stabilize a new Medicaid Management Information System (MMIS) fiscal agent, pharmacy benefit manager, and data warehouse; as well as preparing the teams and systems for certification. After receiving Federal certification for the MMIS, Data Warehouse and PBM systems, I received my Project Management Professional (PMP®) certification and began a career in consulting. As a principal consultant, I spent the past 4 years as an independent validation & verification (IV&V) project manager, managing two IV&V teams overseeing the MMIS and eligibility modular implementation for the State of Vermont. I have since received my master's degree in public administration with a concentration in policy and government and become a certified Agile practitioner. I assisted Vermont in preparing three modular systems for certification; two are now fully certified, and the third will be certified by the end of this year.

PROFESSIONAL EXPERIENCE

IBM Watson Health, Augusta, Maine
CERTIFICATION LEAD, PROJECT MANAGER
From November 2019 to Present

- Iowa Certification Project Manager
  - Finalize certification deliverables (required artifacts, evidence packets)
- Create certification templates and tools
- Create certification training for all teams

CSG Government Solutions, Chicago, Illinois
PRINCIPAL CONSULTANT
From July 2014 to November 2019

- IV&V Project Manager (Vermont)
  - Managed two IV&V teams (MMIS and Integrated Eligibility)
  - Assisted the state in reaching federal certification on three modular systems
  - Provided risk management
  - Developed three monthly and one quarterly report
  - Validated testing and system requirements
  - Provided reviews on project deliverables, change requests, Advance Planning Documents, and Requests for Proposal
- Consultant—performance management contracting (Texas)

State of West Virginia, Charleston, West Virginia
INDEPENDENT CONSULTANT
From February 2013 to July 2014

- Consultant (Project Management Office subject matter expert)—West Virginia Medicaid
  - Develop tracking tools and dashboard reports
  - Provide education on federal policy and process for certification
  - Participate in Joint Application Design sessions
  - Participate in testing

State of Maine, Augusta, Maine
From March 2007 – February 2013

- Director of Operations
- Pharmacy Director
- Buisiness Analyst

MEMBERSHIPS/ASSOCIATIONS

- Project Management Institute® Member
  - PMP Certified Project Manager
  - Agile Certified Practitioner

EDUCATION

- MPA, Policy & Government, Capella University of Minneapolis, Minnesota
- BA, Business, Thomas College of Waterville, Maine

Padma Venkatrangan, MS



PROFESSIONAL SUMMARY

- 20+ years of experience in project management.
- 7+ years of experience managing healthcare IT projects that support Medicaid functions.
- 20+ years of working in PMOs training other project managers.
- Supported state Medicaid agencies.
- Supported state employer organizations.
- Responsible for projects ranging from $200,000 to $2 million.
- Proactive management style that resolves risks and issues.

BIOGRAPHY

An Information Technology Leader with 22+ years of professional experience in Process Excellence, Quality, Delivery, Architecture with strong analytics background

- Lean Sigma Green Belt, PMP certified, Certified IBM Design Thinking Practitioner, IBM Badges in Big Data, Data Science and Watson Analytics foundations and Bluemix applications, Agile Practitioner, CMMI Dev1.3 Trained, extensive ISO:9001 Experience
- Headed Quality and Process Improvement initiatives for solid results driven Business Process Standardization

PROFESSIONAL EXPERIENCE

IBM Watson Health, Ann Arbor, Michigan
PROCESS GOVERNANCE AND QUALITY PROGRAM MANAGER
From February 2016 to Present

- Program Manager – Process Governance and Quality
  - Responsible for Rolling out Standardized and CMMI level III Compliant Delivery process across projects in the Government Human Health Services sector
  - Responsible for Quality Assurance Program across various GHHS State, Federal and Social Program Management Data Analytics solution implementation projects
- Sr Business Transformation Consultant
  - Headed improvement project achieving better efficiency and up to 35% cycle-time reduction in sales contracting process
  - Perform Statistical Regression analysis for determining relationships and patterns for large sets of patient data with over 1/2 million PHI sensitive transactions for better response to trend impacted by code changes
  - Improved implementation cycle time for Watson Care Manager from over 52 weeks to under 96 days and developed a robust and repeatable process by cutting wastes and improving efficiency in the data process cycle

Satrangi LLC, Boston, MA
Proprietor
From April 2014 to June 2015

- Establish Quality Standards to the new Retail Brand and define QC Processes in production cycle

- Sourced hundreds of Eco-friendly Hand-made products from Rural India, up-keeping the western market-sensitive quality standards
- Execution of clear Product Cataloging, GS1 Coding, online inventory tracking, Point-of-sale and launch of online-store
- Develop IT strategies for e-commerce, digital marketing and sales capabilities, Vendor Management and Evaluation Proven track record of smooth negotiation skills

Switzer Instrument
Director, Systems and Operations
From October 2006 to March 2014

- Improved business processes and conducted regular Kaizen exercises to simplify and streamline manual, repetitive tasks
- Streamlined efficient use of MIS reports and business data points for alignment with ISO compliance and track Quality Variance and Corrective Action Records
- Managed all PMs reports by introducing uniform progress parameter measurement and tracking
- Executing clear QC processes for all value-streams like order-cash cycle and Idea – Solution Cycle
- Infrastructure and Construction directions for enabling growing needs of the company to meet with standards & lean operations achieving modular assembly line

TECHNICAL EXPERIENCE

Enterprise Web applications in Java with Oracle, node.js, NoSql, MS and MySql back-end, Jira, Confluence, Embedded Device and IoT technologies, Handheld and wireless platforms - .NET and Java, Exposure to Bluemix and cloud technologies, Data Science with R and Python

EDUCATION

- M.S. Computer Science, SUNY, Binghamton, NY
- B.E. Electronics & Communication, University of Madras, Chennai, India

Tara Keezer, MA



PROFESSIONAL SUMMARY

- 20+ years of experience in corporate and technical communications
- 7+ years of experience specific to managing documentation for healthcare IT projects.
- 5+ years of experience in project management.
- Extensive knowledge of the Vendor's overall implementation processes.

BIOGRAPHY

I am a professional with more than 20 years of experience in technical and corporate communication and more than 5 years of experience as a project manager. As Manager of the IBM Watson Health Technical Writing Center of Excellence, I work with eight remote writers who support six projects. We meet as a group to share lessons learned and best practices, and I meet with the writers individually. At an organizational level, I am trained as a Capability Maturity Model Integration (CMMI) appraiser and am helping our governance team maintain and build on our documentation standards.

PROFESSIONAL EXPERIENCE

IBM Watson Health, Ann Arbor, Michigan
MANAGER, TECHNICAL WRITING CENTER OF EXCELLENCE
From June 2010 to Present

- Manager, Technical Writing Center of Excellence
  - Create a comprehensive document strategy for GHHS by establishing baseline processes for effective documentation
  - Work with the technical writers and the broader project management office (PMO) to define documentation requirements by project type, from proposal through implementation to operations
  - Maintain appropriate staffing levels across multiple projects
  - Develop metrics and tracking methodologies to support process improvement within the Technical Writing Center of Excellence, the GHHS PMO, and individual projects
  - Evaluate the performance of individual technical writers
  - Create overall goals for the individual technical writers and for the team as a whole
  - Support the organization's implementation of best practices that align to CMMI
  - Serve on the organization's CMMI appraisal team
  - Support the request for proposal response process by providing insight on documentation requirements
  - Track technical writers' available bandwidth in order to allocate resources for short-term projects
  - Develop and maintain multiple SharePoint sites for internal and external use
  - Provide direct support of a project if needed
- Project Manager

- Managed project deliverables and timelines
- Scheduled and facilitated meetings between internal and external stakeholders
- Worked with external and internal stakeholders to review and communicate detailed status updates, including risks, issues, and actual versus planned effort
- Developed and maintained multiple project schedules
- Proactively identified and facilitated resolution of issues that affected project timelines

- Senior Technical Writer
  - Worked with internal subject matter experts to define and document new and existing processes in support of corporate strategic initiatives to reach CMMI Maturity Level 3 compliance
  - Maintained version control for online documentation repository
  - Developed, reviewed, and managed external documentation deliverables
  - Developed new process documentation
  - Conducted reviews to confirm that processes conformed to organizational requirements and best practices
  - Conducted usability studies as part of documentation development
  - Developed and maintained online user help
  - Developed new training material

XPO Logistics (Formerly Con-way, Inc.), Ann Arbor, Michigan
SUPERVISOR, ADMINISTRATION
FROM AUGUST 1994 TO DECEMBER 2008

- Managing editor of quarterly employee magazine
- Designed and managed employee communication poster program

TECHNICAL EXPERIENCE

- Microsoft Office, Microsoft Project, Microsoft Visio, SharePoint 365, SharePoint Designer, InfoPath, Adobe Acrobat Pro, Adobe Illustrator, Adobe Photoshop, Adobe InDesign, Madcap Flare, QuarkXPress

EDUCATION

- MA, Written Communication, Eastern Michigan University, Ypsilanti, Michigan
- BS, English Language and Literature, Eastern Michigan University, Ypsilanti, Michigan

Mohammad (Moh) Hossain, MS



PROFESSIONAL SUMMARY

- 15+ years of quality control/assurance and test management experience
- 7+ years of healthcare testing experience and proficient in healthcare functionalities (Medicaid, claims, eligibility and benefits, provider portal, etc.)
- Testing experience in data warehouse, ETL, data cleansing, data profiling, data mart
- Testing experience with business intelligence tools such as IBM Advantage Suite, Dataprobe, IBM Cognos Analytics
- Proficient in Software Development Life Cycle (SDLC) and Agile processes

BIOGRAPHY

15 years of quality control/assurance and test management experience. As a Senior Test Lead, responsible for delivering the right products and solutions on time and within budget, leveraging manual and automated test efforts and best practices in related fields. Proven record of delivering high-quality software in healthcare, insurance, telecom, retail supply-chain, and the financial industries adopting Waterfall, Agile, and Scrum framework methodology.

PROFESSIONAL EXPERIENCE

IBM Watson Health
ROLE: TESTING MANAGER / PROJECT: States of Georgia and Missouri, as EDW Senior Test Lead
From September 2018 to Present

- Lead a test team supporting testing of a new Enterprise Data Warehouse (EDW) solution exercising the following major components: ETL process, data cleansing, master data management, integrated data warehouse, data mart, reports produced from business intelligence tools, and data governance and data analytics
- Developed test strategy and oversee all testing activities, including unit testing, integration testing, performance testing, user acceptance testing, defect management, as well as postproduction maintenance releases and regression testing

Accenture
ROLE: INTEGRATION TEST MANAGER / PROJECT: BlueCross BlueShield of Tennessee
From January 2017 to September 2018

- Developed overall integration test approach document following the Scrum and Agile methodologies
- Created test strategy, test plan, and test estimates as per the project scope and requirements
- Worked as a subject matter expert, providing functional clarity on issues and proposed solutions
- Identified skills gaps and facilitated training to educate staff on complex integration between BlueCross BlueShield of Tennessee and Availity
- Collaborated with all stakeholders, agreeing on test strategy and negotiating entry/exit criteria for testing and production releases
- Managed automation resources and support with automation frame work creation

ROLE: UAT TEST PROJECT MANAGER / PROJECT: Kaiser Permanente
From September 2015 to December 2016

- Responsible for planning, managing and coordinating user acceptance Testing (UAT) activities for different Kaiser Permanente regions (Mid-Atlantic States, California, Colorado)
- Defined test strategy and execution planning for each region on the basis of project criteria
- Coordinated with the electronic data interchange (EDI) and data management team to make sure that all identified claims were loaded through an EDI gateway successfully ready for testing

- Worked closely with UAT and project team to take the project to closure
- Managed defects and test case execution process through HP Application LifeCycle Management (ALM)

TEST/Quality MANAGER – Multiple Roles as Test/Quality Manager

From November 2010 to September 2015

- Managed ALM/QC
- Created overall integration test approach and planning document
- Managed multiple test environments to support weekly production release and enhancements
- Created parallel test approach and strategy document that can be used for all releases
- Defined claim selections and coverage analysis procedures and detailed steps that can be followed easily to achieve complete coverage analysis
- Defined and managed test execution cycle schedules
- Analyzed Aflac capital market system and business requirements
- Created integrated and regression test plan and test cases based on the requirements defined
- Worked with project managers, developers, and technical analysts to ensure that testing covered all intended functional and business requirements
- Led a test team involved in integrating of AFS Commercial Loan Origination and BBVA Compass existing banking platform
- Strategically constructed test scenarios on the basis of product type, business segments, pricing, exposure, collateral type, commitment structure, and credit decision
- Managed JIRA and Customer 1st support systems to report and manage defects and metrics

TECHNICAL EXPERIENCE

MS Project, Visio, PowerPoint, HP ALM, JIRA, CA AGILE, JAMA, SDLC, Agile, Waterfall, Oracle, SQL Developer, MS XP Pro, XP Office, MS Office 2000, Office 97, MS OS (2000 Server, 2000, NT/Server, Windows95, Windows 3.1 1), XML, X12 EDI File, WSDL, SQL, DW, ETL, MOVEIT (FTP), SOAP UI, Selenium, Mark Logic; QTP; HP ALM; XML Spy, Callidus-Truecomp; Crystal Report; BPM; Toad; Oracle11g; Informatica; ETL, Quality Center; MVS Mainframe; JCL; COBOL; IMS Database; DB2 Database; MS Access; SPUFI; ISPF Utility, Golden Source DW; Bug Zapper; SQL Server; Oracle SQL Developer. QTP; Java; J2EE; Mainframe; HP Unix, MoveIT, ETL, Oracle DB,JMeter, CA Agile Defect Management

EDUCATION

- MS, Computer Science, City University of New York
- BS, Engineering, Bangladesh Institute of Technology, Bangladesh
- Oracle8i Database Administration (Oracle Certified)
- Oracle9i SQL (Oracle Certified)

Lester Garripee



PROFESSIONAL SUMMARY

- 24+ years of healthcare IT experience.
- 6+ years as Compliance and Security Manager
- 1+ year as Watson Health GHHS Security Practice Lead.
- Security/Privacy lead for state analytic data warehouse solutions.
- Responsible for projects ranging from $500,000 to $85 million.
- Proactive management style that resolves risks and issues.

BIOGRAPHY

Proven leader managing analytic data warehouse solutions for State Medicaid customers in Security, Privacy and Compliance areas. From proposal, design and implementation to CMS certification, is a key member of the Watson Health team with customer focus that builds relationships for successful client solutions.

PROFESSIONAL EXPERIENCE

IBM Watson Health, Ann Arbor, Michigan
SECURITY PRACTICE LEAD – GOVERNMENT HEALTH AND HUMAN SERVICES (GHHS)
December 2018 to Present

- Responsible for Security and Privacy oversight of the entire portfolio of IBM Watson Health solutions within the Government Health and Human Services (GHHS) section
- Leads team of Security and Compliance Managers providing direction and guidance for a consistent strategy and implementation of cybersecurity framework
- Provide oversight for data warehouse solutions currently in design, development and implementation (DDI)

IBM Watson Health, Ann Arbor, Michigan
COMPLIANCE AND SECURITY MANAGER
April 2013 to December 2018

- Served as Compliance and Security Manager for Colorado Department of Health Care Policy & Financing Business Intelligence and Data Management (BIDM) System, from proposal through operational stages
  - Planned and led security requirements gathering sessions with client
  - Facilitated Joint Application Development (JAD) sessions further defining security requirements
  - Provided oversight during solution design, ensuring compliance with all laws, regulations, and system requirements
  - Provided security package deliverables to Colorado Office of Information Technology (OIT) for review and Authorization to Operate (ATO); included System Security Plan (SSP), host and application vulnerability reports, and network penetration report

  - Developed overall provisioning policy and procedures, including documentation, forms, and training
- Continue oversight for all security and privacy matters in operational phase
- Served as Compliance and Security Manager for multiple state systems under IBM Watson Health Government Health and Human Services (GHHS)
- Recruited to lead security implementation for Ohio Healthcare EDW project, working with State security and IT teams defining scope of work, planning, and design
  - Write and submit security deliverables, including System Security Plan (SSP) and accompanying workbook for CMS authority-to-connect
- Review and revise security documents for Advantage Suite and Health Information Exchange (HIE) implementations at several state agencies
- Monitor and manage security alerts within Truven Health network, using forensic skill set to analyze events and escalate when necessary
- Served as administrator for vulnerability scanning on Truven Health infrastructure, managing remediation with various technology teams

Truven Health, Ann Arbor, Michigan
SENIOR SOFTWARE ENGINEER – TEAM LEAD
April 2008 to March 2013

- Managed Java, Informatica, Cognos, and quality assurance (QA) engineers on Hospital Data Factory (HDF) platform for Care Comparison analytics product
- Worked with state hospital associations on submitter implementations, providing troubleshooting analysis and support
- Served as subject matter expert (SME) on workgroup with New York Presbyterian Hospital Association dealing with ASC X12N format implementations; presented instructional and help sessions to clients struggling to pass production certification
- Designed and developed process enhancements to streamline and automate data integration tasks using Perl, Javascript, and Applications Manager (job automation)
  - Maintained and enhanced process for secure automated data transfer from FTP servers in network DMZ to HDF platform

TECHNICAL EXPERIENCE

- QualysGuard, Nessus, Veracode, Oracle Database Security, Splunk, FireEye, IBM InfoSphere Guardium, SecureWorks, TripWire, Carbon Black, ForcePoint

EDUCATION

- Undergraduate study, Chemical Engineering, Michigan Technological University, Houghton

References

Table 17: Key Staff References

Key Personnel Reference Form							
Key Personnel Name:	David Losin			**Proposed Role:**	Account Manager		
Reference 1							
Client Name:	California Department of Healthcare Services, CA-MMIS Division	**Client Address:**	830 Stillwater Rd West Sacramento, CA 95605				
Contact Name:	Don Sherman	**Contact Title:**	Chief, Contract & Vendor Management Branch				
Contact Phone:	916-617-5420	**Contact E-mail:**	don.sherman@dhcs.ca.gov				
Project Name: California Medicaid Management Information System (CA-MMIS) Fiscal Intermediary				**Start Date:**	05/2010	**End Date:**	09/2018
Project Description: Fiscal Intermediary for Medi-Cal, the State of California's Medicaid Program. Responsible for MMIS operations and maintenance, and business operations in support of the Medi-Cal program.							
Project Role and Responsibilities: Total time is 7 years, not continuous. **Systems Group Director, from May 2010 to March 2016** Key staff position responsible for the takeover, maintenance, operation, and enhancement of the California MMIS (CA-MMIS) production applications. Senior leadership role and single point of contact to the client for all matters related to the operation of the MMIS and other technology solutions in support of the California Medicaid program (Medi-Cal). **Enterprise Application Architect, from May 2017 to September 2018** Key staff position responsible for providing oversight of application upgrade projects, and leadership in the planning and implementation of major system upgrades and enhancements.							
Reference 2							
Client Name:	Georgia Department of Community Health (DCH)	**Client Address:**	2 Peachtree Street, NW Atlanta, GA 30303				
Contact Name:	Ed Miller	**Contact Title:**	System Integration Test Manager				
Contact Phone:	404-513-0413	**Contact E-mail:**	ed.miller@ihcit.com				
Project Name: Georgia Medicaid Management Information System Fiscal Agent				**Start Date:**	04/2004	**End Date:**	04/2007
Project Description: Fiscal Agent for the State of Georgia's Medicaid Program. Responsible for MMIS DDI, operations and maintenance, and business operations in support of the Medi-Cal program.							
Project Role and Responsibilities: **Senior Systems Development Manager** Responsible for development, maintenance and operations for the GA MMIS claims processing systems. Managed major enhancements to the claims system, including implementation of Medicaid managed care, disease management, National Provider Identifier, and CMS certification of the claims and reference subsystems.							
Reference 3							
Client Name:	California Department of Healthcare Services, CA-MMIS Division	**Client Address:**	830 Stillwater Rd West Sacramento, CA 95605				
Contact Name:	David Kendall	**Contact Title:**	PMO Director				
Contact Phone:	916-296-9300	**Contact E-mail:**	dkendall@kaipartners.com				
Project Name: California Medicaid Management Information System (CA-MMIS) Fiscal Intermediary				**Start Date:**	5/2010	**End Date:**	9/2018

Project Description:

Fiscal Intermediary for Medi-Cal, the State of California's Medicaid Program. Responsible for MMIS operations and maintenance, and business operations in support of the Medi-Cal program.

Project Role and Responsibilities: Total time is 7 years, not continuous.

Systems Group Director, from May 2010 to March 2016

Key staff position responsible for the takeover, maintenance, operation, and enhancement of the California MMIS (CA-MMIS) production applications. Senior leadership role and single point of contact to the client for all matters related to the operation of the MMIS and other technology solutions in support of the California Medicaid program (Medi-Cal).

Enterprise Application Architect, from May 2017 to September 2018

Key staff position responsible for providing oversight of application upgrade projects, and leadership in the planning and implementation of major system upgrades and enhancements.

Key Personnel Reference Form

Key Personnel Name:	Amy Wenmoth	**Proposed Role:**	Operations Account Manager

Reference 1

Client Name:	WV Bureau for Medical Services	**Client Address:**	350 Capitol Street, Room 251 Charleston, WV 25301			
Contact Name:	Suzanne Lopez	**Contact Title:**	Director, Compliance and Reporting DHHR Office of Management Information Services			
Contact Phone:	304-356-5170	**Contact E-mail:**	suzanne.p.lopez@wv.gov			
Project Name: WV Medicaid Data Warehouse and Decision Support System (DW/DSS)		**Start Date:**	08/2013	**End Date:**	Ongoing	

Project Description: The project includes the support and maintenance of a Medicaid DW/DSS, which includes Medicaid, CHIP, and Public Employer claims and eligibility data. The account supports approximately sixty users in a variety of analytic tools (Advantage Suite, DataProbe), program integrity tools (J-SURS, i-Sight case management), and dashboards (Tableau sever.) The project incorporates the response to many ad-hoc analytic requests from the client, advising on analytic methods, conducting user training as needed, and providing client-site support for the customer. The project assists multiple Medicaid business units (PI, Quality Unit, Finance, SUD) in meeting their analytic and data needs.

Project Role and Responsibilities:

- Serves as the general manager of government health and human services accounts in West Virginia.
- Collaborates with the client, data vendors, and internal teams to ensure successful end-to-end service delivery, service excellence, contract performance, operational business planning, financial performance, and business development.
- Manages the overall relationship with the client to solve business challenges, resolve issues, and ensure overall satisfaction with our customer service and solutions.

Reference 2

Client Name:	WV Public Employees Insurance Agency	**Client Address:**	601 57th Street SE, Suite 2 Charleston, WV 25304			
Contact Name:	Karen Hall	**Contact Title:**	Compliance and Quality Assurance Manager			
Contact Phone:	304-558-7850, ext. 52670	**Contact E-mail:**	karen.a.hall@wv.gov			
Project Name: PEIA Pharmacy Benefit Manager Audit PEIA Third Party Administrator Audit		**Start Date:**	09/2016 12/2017	**End Date:**	01/2018 12/2018	

Project Description:

Conduct audits of the pharmacy and medical services administered by the PEIA PBM and TPA vendors to identify improper payments and opportunities for process improvement. The audits included a review of claim payment accuracy, compliance with benefit plan design and contractual provisions, attainment of key performance guarantees, and effective operational controls.

Project Role and Responsibilities:

- Managed the overall relationship with the client to ensure contract fulfillment and overall satisfaction with our service.
- Coordinated with the client, vendors, and internal teams to ensure successful end-to-end service delivery, service excellence, and contract performance.

Reference 3						
Client Name:	Employer: WV Health Care Authority	**Client Address:**	100 Dee Drive #201 Charleston, WV 25311			
Contact Name:	Harriett Fitzgerald	**Contact Title:**	Executive Director of HCA (at time of project)			
Contact Phone:	304-926-0480, ext. 1712	**Contact E-mail:**	harriett.m.fitzgerald@wv.gov			
Project Name: Division of Clinical Analysis			**Start Date:**	05/2009	**End Date:**	08/2013

Project Description:

The Division of Clinical Analysis was responsible for developing and implementing health services research activities aimed at: enhancing healthcare quality; improving population health; assessing healthcare utilization, access, and cost; and creating, managing, and enhancing health data and analytic systems, including the Hospital Inpatient Data System, All-Payer Claims Database, and Healthcare-associated Infection Public Reporting Program

Project Role and Responsibilities:

As Director of the Division on Clinical Analysis:

- Provided direction and oversight to staff, collaborated with state and national partners, and facilitated stakeholder advisory groups to coordinate efforts and ensure programs were aligned with state and agency healthcare priorities
- Managed data collection vendor contracts, including ensuring adherence to requirements and budget and prioritization of tasks, including the procurement of a new hospital discharge data collection vendor.
- Directed the DDI of a new hospital discharge data collection system, including system specifications, design, testing, and training.
- Directed and managed the release of data, reports, and analytic tools to guide the healthcare decisions of consumers, providers, and policy makers

Key Personnel Reference Form			
Key Personnel Name:	Cheryl Gentsch	**Proposed Role:**	Project Manager

Reference 1						
Client Name:	Commonwealth of Puerto Rico	**Client Address:**	268 Av. Luis Muñoz Rivera Ste 500 San Juan, Puerto Rico 00918			
Contact Name:	Carlos Carrasquillo	**Contact Title:**	Program Director			
Contact Phone:	787-528-1573	**Contact E-mail:**	carlos.carrasquillo@salud.pr.gov			
Project Name: PR MMIS			**Start Date:**	06/2017	**End Date:**	04/2019

Project Description: Design, development and Implementation of Puerto Rico's first MMIS, DSS and Program Integrity.

Project Role and Responsibilities:

- PMO DDI Project Manager for Puerto Rico's first MMIS implementation March 26, 2018.
- Developed presentations, communications and status reporting for CMS and Steering Committee.
- Responsible for oversight and management of PMs and SMEs to supplement Puerto Rico Medicaid Program (PRMP).
- Provided oversight and direction for data conversion, interfaces, development and testing.
- Managed project schedule, risks, issues, key decisions and action items across the project.
- Facilitated business process modeling sessions with PRMP to develop standard operating procedures.
- Developed an Operational Readiness Plan and conducted an Operations Readiness Assessment.
- Educated and mentored the PRMP MCOs/PBM on submission and testing of 837/NCDPD 4.2.
- Developed a PRMP Modular Strategy approach for future phases of the MMIS and EDW.
- Developed presentations, communications and status reporting for CMS and Steering Committee.

Reference 2						
Client Name:	State of New Hampshire	**Client Address:**	129 Pleasant Street Concord, NH 03301			
Contact Name:	Diane Delisle	**Contact Title:**	Information Technology Manager			
Contact Phone:	603-223-4744	**Contact E-mail:**	diane.delisle@dhha.nh.gov			
Project Name: NH Provider Screening & Monitoring			**Start Date:**	05/2016	**End Date:**	05/2017

Project Description: Implementation of a Provider Screening and Monitoring

Project Role and Responsibilities:

- Project Manager for implementation of third-party vendor Provider Screening and Monitoring module
- Project Manager for SSNRI project assessment and other change requests
- Member of the Reporting Task Force

Reference 3						
Client Name:	State of New Mexico	**Client Address:**	2009 S Pacheco St Santa Fe, NM 87505			
Contact Name:	Linda Gonzales	**Contact Title:**	NM Medicaid Deputy Director			
Contact Phone:	505-827-3100	**Contact E-mail:**	linda.gonzales@state.NM.us			
Project Name: NM MMIS & Data Warehouse Maintenance & Operations			**Start Date:**	02/2003	**End Date:**	09/2008

Project Description: New Mexico MMIS & Data Warehouse maintenance and operations

Project Role and Responsibilities:

- Deputy project manager for EDI HIPAA Transaction Translator for the State of New Mexico, including 837 and 835 transactions.
- SME for New Mexico Medicaid, OmniCaid, and HIPAA ASC X12 transactions interfacing with electronic submitters, MCOs and CMS COBA Medicare Crossovers.
- System architect and developer for Medicaid federal expenditure reporting system CMS-64 for the State of New Mexico and received "Hustle Award" for Team Excellence.
- Project lead for the Medicaid MMIS for electronic claims, financial interfaces, reporting, and data warehouse information.
- Lead developer and architect for Data Warehouse analytical reporting and desktop applications.
- Managed the development and implementation of state accounting interface.

Key Personnel Reference Form			
Key Personnel Name:	Sandyhai Hutch	**Proposed Role:**	DDI Business Lead

Reference 1						
Client Name:	State of Missouri	**Client Address:**	615 Howerton Court P.O. Box 6500 Jefferson City, MO 65102			
Contact Name:	Julie Creach	**Contact Title:**	U.S. State & Local Account Executive			
Contact Phone:	(573) 338-1193	**Contact E-mail:**	julie.creach@ibm.com			
Project Name: MO BIS-EDW Solution			**Start Date:**	04/2019	**End Date:**	Present

Project Description:

Watson Health was responsible for delivering an enterprise data warehouse, business intelligence, and reporting solution to the Missouri HealthNet Division (MHD) for the BIS-EDW project. The BIS-EDW Solution will provide a comprehensive, scalable, secure healthcare information system containing large, complex Big Data sets, and business intelligence tools.

Project Role and Responsibilities:

Lead Healthcare Business Analyst – I was responsible for leading a team of Sr. Business Analysts and Jr. Business Analysts through the requirements management process to support solution implementation for MHD. I facilitated requirements analysis sessions with the goal of reaching a common understanding of the contractual requirements and a mutual agreement of acceptance criteria. I was also responsible for producing a comprehensive Requirements Analysis Document with a Supporting Requirements Traceability Matrix.

Reference 2			
Client Name:	State of Indiana	**Client Address:**	402 W. Washington Street Room W160A Indianapolis, IN, 46204
Contact Name:	Ryan McCort	**Contact Title:**	PMO Lead
Contact Phone:	Available upon request	**Contact E-mail:**	ryan.mccort@optum.com

Project Name: Indiana EDW Solution				Start Date:	09/2014	End Date:	04/2019
Project Description: OptumInsight contracted with the State of Indiana to design and develop an EDW and business intelligence solution to bridge the gap between the MMIS and their Medicaid program.							
Project Role and Responsibilities: **Sr. Business Analyst/Systems Analyst** – I lead a team of developers and junior business analysts in the acquisition of data from disparate data sources and model it into an enterprise data warehouse that supported business needs.							
Reference 3							
Client Name:	State of Arkansas	**Client Address:**	425 W Capitol Ave. Suite 1620 Little Rock, AR, 72201				
Contact Name:	Ryan McCort	**Contact Title:**	PMO Lead				
Contact Phone:	Available upon request	**Contact E-mail:**	ryan.mccort@optum.com				
Project Name: Arkansas Independent Assessment Program				**Start Date:**	12/2015	**End Date:**	06/2016
Project Description: OptumInsight provided a comprehensive assessment tool that case managers/coordinators across the agency used for care coordination of high-risk Medicaid members. Optum was also responsible for supporting the technology platform used to collect data and report metrics specific to members with complex healthcare needs.							
Project Role and Responsibilities: **Sr. Business Analyst** – Gathered the business requirements and use cases needed to build a meaningful solution. I supported the design and development of an assessment tool that could be used by personnel with a more clinical background and/or business managers focused on the financial incentives received by enhanced inter-agency communication and care coordination.							

Key Personnel Reference Form							
Key Personnel Name:	Jordan Wilton		**Proposed Role:**	Operations Business Lead			
Reference 1							
Client Name:	WV Bureau for Medical Services	**Client Address:**	350 Capitol Street, Rm 251 Charleston, WV 25301				
Contact Name:	Tony Atkins	**Contact Title:**	Deputy Commissioner – Finance & Administration				
Contact Phone:	304.356.4838	**Contact E-mail:**	tony.e.atkins@wv.gov				
Project Name: West Virginia Bureau for Medical Services Data Warehouse/Decision Support System (DW/DSS)				**Start Date:**	03/2015	**End Date:**	Present
Project Description: The project includes the support and maintenance of a Medicaid DW/DSS, which includes Medicaid, CHIP, and Public Employer claims and eligibility data. The account supports approximately sixty users in a variety of analytic tools (Advantage Suite, DataProbe), program integrity tools (J-SURS, i-Sight case management), and dashboards (Tableau sever.) The project incorporates the response to many ad-hoc analytic requests from the client, advising on analytic methods, conducting user training as needed, and providing client-site support for the customer. The project assists multiple Medicaid business units (PI, Quality Unit, Finance, SUD) in meeting their analytic and data needs.							
Project Role and Responsibilities: Senior Analytic Consultant • Performing hundreds of complex analyses on Medicaid and related healthcare data • Providing on-site analytic and healthcare expertise • Leading client-facing meetings • Directing internal resources to accomplish client deliverables • Discovering data-quality issues, investigating user-reported problems, documenting progression on solutions, and ensuring issue resolution is achieved • Conducting Watson Health product trainings and demonstrations for the client • Designing, modifying, and running reporting templates • Supporting multiple client functional units in using data to meet business needs • Data testing and analytic validation							
Reference 2							
Client Name:	WV Bureau for Medical Services	**Client Address:**	350 Capitol Street, Rm 251 Charleston, WV 25301				
Contact Name:	Tim DeBarr	**Contact Title:**	Information Systems Manager, Office of Management Information Services				

Contact Phone:	304.356.4895	**Contact E-mail:**	timothy.r.debarr@wv.gov			
Project Name: West Virginia Bureau for Medical Services Data Warehouse/Decision Support System (DW/DSS)			**Start Date:**	03/2015	**End Date:**	Present

Project Description: The project includes the support and maintenance of a Medicaid DW/DSS, which includes Medicaid, CHIP, and Public Employer claims and eligibility data. The account supports approximately sixty users in a variety of analytic tools (Advantage Suite, DataProbe), program integrity tools (J-SURS, i-Sight case management), and dashboards (Tableau sever.) The project incorporates the response to many ad-hoc analytic requests from the client, advising on analytic methods, conducting user training as needed, and providing client-site support for the customer. The project assists multiple Medicaid business units (PI, Quality Unit, Finance, SUD) in meeting their analytic and data needs.

Project Role and Responsibilities: Senior Analytic Consultant

- Performing hundreds of complex analyses on Medicaid and related healthcare data
- Providing on-site analytic and healthcare expertise
- Leading client-facing meetings
- Directing internal resources to accomplish client deliverables
- Discovering data-quality issues, investigating user-reported problems, documenting progression on solutions, and ensuring issue resolution is achieved
- Conducting Watson Health product trainings and demonstrations for the client
- Designing, modifying, and running reporting templates
- Supporting multiple client functional units in using data to meet business needs
- Data testing and analytic validation

Reference 3

Client Name:	Huntington Internal Medicine Group (HIMG)	**Client Address:**	5170 U.S. Route 60 East Huntington, WV 25705			
Contact Name:	Wes Simpkins	**Contact Title:**	Director of Information Systems			
Contact Phone:	304.528.4600, ext. 4601	**Contact E-mail:**	wessimpkins@uhswv.com			
Project Name: M.S. in Health Informatics Internship/Practicum Experience			**Start Date:**	07/2014	**End Date:**	03/2015

Project Description: The project included working in the Information Systems Department at Huntington Internal Medicine Group (HIMG,) the largest private medical practice in the state of West Virginia. The project included IT/IS support for administrative staff, clinical staff, and the 70+ providers employed by the practice. This project included capturing, documenting, revising, and streamlining clinical systems workflows. The work on this project also involved supporting key clinical software applications, as well as interfaces between clinical sites and IT systems.

Project Role and Responsibilities: Information Systems Intern

- Data extraction, analysis, and reporting from large clinical database (SQL)
- Supporting clinical applications and interfaces (EHR, laboratory, radiology, transcription, etc.)
- Streamlining and re-designing workflows
- Updating key software documentation
- Meaningful Use Initiatives research
- General IT/IS support for administrative and clinical staff

Key Personnel Reference Form

Key Personnel Name:	Mark Hein	**Proposed Role:**	Technical Lead

Reference 1

Client Name:	State of North Carolina DHHS	**Client Address:**	820 S. Boylan Ave. 3 South Room 334 2501 Mail Service Center Raleigh, NC 27699-2501
Contact Name:	Travis Nobles	**Contact Title:**	Medicaid Analytics Data Warehouse Manager
Contact Phone:	919-527-7131	**Contact E-mail:**	travis.nobles@dhhs.nc.gov

Key Personnel Reference Form					
Project Name: NC Reporting and Analytics (R&A) Enterprise Data Warehouse Solution		**Start Date:**	07/2010	**End Date:**	02/2014
Project Description: Implementation of the NC DHHS Healthcare Analytics Data Warehouse.					
Project Role and Responsibilities: Technical Architect and ETL Lead performing Design, Development and Implementation activities.					
Reference 2					
Client Name:	State of North Carolina DHHS	**Client Address:**	McBryde South - Office #330 2501 Mail Service Center Raleigh, NC 27699-2501		
Contact Name:	Janice Norris	**Contact Title:**	Associate Director for Business Intelligence		
Contact Phone:	919-527-7106	**Contact E-mail:**	janice.norris@dhhs.nc.gov		
Project Name: Expansion of NC Analytics Reporting Solution		**Start Date:**	10/2015	**End Date:**	12/2019
Project Description: Adding Data Marts, Reporting Analytic Views and expansion into Cognos and Medicaid Transformation					
Project Role and Responsibilities: Delivery Manager responsible for technical architecture and development of solution components.					
Reference 3					
Client Name:	State of Ohio Department of Medicaid	**Client Address:**	50 West Town Street Columbus, OH 43215		
Contact Name:	Sundararajan Govindaraj	**Contact Title:**	Data Architect		
Contact Phone:	860-869-5266	**Contact E-mail:**	sundararajan.govindaraj@das.ohio.gov		
Project Name: Expansion of Ohio Enterprise Warehouse and Data Marts		**Start Date:**	10/2018	**End Date:**	12/2019
Project Description: Expanding the Data Architecture and generation of interfaces out of the Healthcare Enterprise Data Warehouse.					
Project Role and Responsibilities: Delivery Manager responsible for technical architecture and development of solution components.					

Key Personnel Reference Form					
Key Personnel Name:	Thomas F. Reese		**Proposed Role:**	Implementation Manager	
Reference 1					
Client Name:	Nebraska Department of Health and Human Services	**Client Address:**	301 Centennial Mall S Lincoln, Nebraska 68508		
Contact Name:	Ruth Vineyard	**Contact Title:**	Deputy Director, Medicaid & Long-Term Care		
Contact Phone:	(608) 354-6820	**Contact E-mail:**	rtviney@twc.com		
Project Name: Data Management & Analytics (DMA) Implementation		**Start Date:**	09/2016	**End Date:**	03/2016
Project Description: Vendor implementation of new State Medicaid EDW, DSS, 837 encounter platform, PI case management system, FADS, SURS, T-MSIS, MARS and financial reporting suites.					

Key Personnel Reference Form

Project Role and Responsibilities:

Provided executive Data Management and Analytics (DMA) implementation leadership and consultation for modular replacement of the State's current Medicaid Management Information System (MMIS). Led contract delivery of DMA functionalities at a contract price of $20M for vendor DDI.

Reference 2

Client Name:	Nebraska Department of Health and Human Services	**Client Address:**	301 Centennial Mall S Lincoln, Nebraska 68508			
Contact Name:	Kris Azimi	**Contact Title:**	Deputy Director, Medicaid & Long-Term Care			
Contact Phone:	(402) 499-9034	**Contact E-mail:**	krisazimi@aol.com			
Project Name: Data Management & Analytics (DMA) Implementation			**Start Date:**	09/2016	**End Date:**	03/2019

Project Description:

Vendor implementation of new State Medicaid EDW, DSS, 837 encounter platform, PI case management system, FADS, SURS, TMSIS, MARS and financial reporting suites.

Project Role and Responsibilities:

Provided executive Data Management and Analytics (DMA) implementation leadership and consultation for modular replacement of the State's current Medicaid Management Information System (MMIS). Led contract delivery of DMA functionalities at a contract price of $20M for vendor DDI.

Reference 3

Client Name:	Aetna Medicaid	**Client Address:**	4500 E. Cotton Center Blvd. Phoenix, AZ 85040			
Contact Name:	Terry Newman	**Contact Title:**	Senior Director, Systems Engineering			
Contact Phone:	(602) 615-0833	**Contact E-mail:**	tlnewman2@cox.net			
Project Name: Aetna Medicaid Enterprise Data Warehouse			**Start Date:**	03/2008	**End Date:**	08/2014

Project Description:

Chief architect, modeler and developer of Aetna Medicaid's overall EDW mainline and BI web portal. Directed EDW projects improving Medicaid operations through the utilization of analytical and operational data warehouse layers and BI web portal. Struck balance among various Aetna Corporate and Medicaid departments within the matrixed organizations to ensure both business goals and technical project success were achieved.

Project Role and Responsibilities:

Directed multiple EDW and BI teams responsible for SQL Server, Hadoop/Hive, .Net development, and production operational support.

Reference 4

Client Name:	Schaller Anderson LLC	**Client Address:**	4645 E. Cotton Center Blvd, Building 1 Phoenix, AZ 85040			
Contact Name:	Dr. Thomas Cheek	**Contact Title:**	Senior Medical Director			
Contact Phone:	(602) 615-0833	**Contact E-mail:**	trcheek@gmail.com			
Project Name: Schaller Anderson Analytic Data Warehouse & BI Web Portal			**Start Date:**	03/2003	**End Date:**	02/2008

Project Description:

Analytic Services Database (ASDB) & BI Web Portal

Project Role and Responsibilities:

Chief architect, modeler, developer, and implementation manager instituting Schaller Anderson's custom-built analytical data warehouse and business intelligence web portal.

Key Personnel Reference Form			
Key Personnel Name:	Brooke Oberg	**Proposed Role:**	Operations Manager

Reference 1			
Client Name:	WV Bureau for Medical Services	**Client Address:**	One Davis Square, Charleston, WV
Contact Name:	Suzanne Lopez	**Contact Title:**	Director, Compliance and Reporting
Contact Phone:	304.356.5170	**Contact E-mail:**	suzanne.p.lopez@wv.gov

Project Name: WV DW/DSS	**Start Date:**	04/2013	**End Date:**	Present

Project Description: The project includes the support and maintenance of a Medicaid DW/DSS, which includes Medicaid, CHIP, and Public Employer claims and eligibility data. The account supports approximately sixty users in a variety of analytic tools (Advantage Suite, DataProbe), program integrity tools (J-SURS, i-Sight case management), and dashboards (Tableau sever.) The project incorporates the response to many ad-hoc analytic requests from the client, advising on analytic methods, conducting user training as needed, and providing client-site support for the customer. The project assists multiple Medicaid business units (PI, Quality Unit, Finance, SUD) in meeting their analytic and data needs.

Project Role and Responsibilities:
Project Manager for the WV DW/DSS Operations and Change Requests

Reference 2			
Client Name:	WV Bureau for Medical Services	**Client Address:**	One Davis Square, Charleston, WV
Contact Name:	Michael Ebert	**Contact Title:**	Storage Team Lead
Contact Phone:	304.356.5120	**Contact E-mail:**	michael.ebert@wv.gov

Project Name: WV DW/DSS	**Start Date:**	04/2013	**End Date:**	Present

Project Description: The project includes the support and maintenance of a Medicaid DW/DSS, which includes Medicaid, CHIP, and Public Employer claims and eligibility data. The account supports approximately sixty users in a variety of analytic tools (Advantage Suite, DataProbe), program integrity tools (J-SURS, i-Sight case management), and dashboards (Tableau sever.) The project incorporates the response to many ad-hoc analytic requests from the client, advising on analytic methods, conducting user training as needed, and providing client-site support for the customer. The project assists multiple Medicaid business units (PI, Quality Unit, Finance, SUD) in meeting their analytic and data needs.

Project Role and Responsibilities:
Project Manager for the WV DW/DSS Operations and Change Requests

Reference 3			
Client Name:	NC DHHS	**Client Address:**	695 Palmer Drive, Raleigh, NC
Contact Name:	Mindy L. Yanick-Jager	**Contact Title:**	IT Contract Analyst
Contact Phone:	919.855.3134	**Contact E-mail:**	mindy.jager@dhhs.nc.gov

Project Name: NC Blue Skies	**Start Date:**	10/2017	**End Date:**	07/2018

Project Description: The Blue Skies J-SURS rebuild project incorporated 72 months of extracts from the Data Warehouse, field mapping changes, documentation updates, and retraining of J-SURS users. In addition, additional fields were added to J-SURS, such as Provider Location ID, to increase the usability and effectiveness of the tool.

Project Role and Responsibilities:
Project Manager: Completed the J-SURS implementation and created the monthly process for SLA reporting

Key Personnel Reference Form			
Key Personnel Name:	Jennifer Palow	**Proposed Role:**	Certification Lead

Reference 1			
Client Name:	Iowa Medicaid Enterprise	**Client Address:**	Program Integrity Unit 611 5th Avenue Des Moines, IA 50309

Key Personnel Reference Form							
Contact Name:	Rachael Danley	**Contact Title:**	Executive Officer II				
Contact Phone:	Available upon request	**Contact E-mail:**	rdanley@dhs.state.ia.us				
Project Name: Iowa Medicaid Enterprise Program Integrity (IMEPI)			**Start Date:**	11/2019	**End Date:**	Present	
Project Description: Program Integrity certification							
Project Role and Responsibilities: Certification Project Manager, maintain schedule and prepare artifacts for certification of the program integrity system.							
Reference 2							
Client Name:	Vermont Department of Health Services	**Client Address:**	280 State Drive Waterbury, VT 05676				
Contact Name:	Joseph Liscinsky	**Contact Title:**	Deputy Director - MMIS				
Contact Phone:	(802)233-6212	**Contact E-mail:**	joseph.liscinsky@vermont.gov				
Project Name: MMIS Modular implementation			**Start Date:**	04/2014	**End Date:**	11/2019	
Project Description: Implementation and replacement of MMIS fiscal agent in modular components. As the IV&V project manager I assisted the state in replacement and certification of the PBM, Provider Services and Care Management tool. Also being implemented is the integrated eligibility system, claims processing and a data warehouse.							
Project Role and Responsibilities: IV&V project manager over both the MMIS and IE&E IV&V teams. Managed two functional leads, two technical leads, a certification lead and a business analyst. Produced three reports per month, risk management and the quarterly certification progress report.							
Reference 3							
Client Name:	Vermont Department of Health Services	**Client Address:**	280 State Drive Waterbury, VT 05676				
Contact Name:	Kelly Gordon	**Contact Title:**	Care Management Lead and Operations Director				
Contact Phone:	(802)410-0146	**Contact E-mail:**	kelly.gordon@vermont.gov				
Project Name: Care Management Implementation, transition to operations			**Start Date:**	04/2014	**End Date:**	11/2019	
Project Description: Implementation of a Care Management Case Management tool and transition to operations of all modules							
Project Role and Responsibilities: Assisted with the implementation of a care management case management tool, identifying risks and making recommendation of changes and certification. Assisted in preparing an operational team, developing job descriptions and making recommendations on structure.							

Key Personnel Reference Form							
Key Personnel Name:	Padma Venkatrangan		**Proposed Role:**	Quality Assurance Manager			
Reference 1							
Client Name:	Activewave RFID	**Client Address:**	Boca Raton, FL				
Contact Name:	Touraj Ghaffari	**Contact Title:**	CEO				
Contact Phone:	Available upon request	**Contact E-mail:**	Available upon request				
Project Name: Container Freight Station Tracking System			**Start Date:**	08/2009	**End Date:**	06/2010	
Project Description: CFS are large warehouse stacking multi-tiered Shipping Containers. The solutions implements a 3-dimensional real time view of Containers for easy Placement and retrieval							
Project Role and Responsibilities: Involved in RFP, solution architecture, delivery and implementation							
Reference 2							
Client Name:	Switzer Instrument	**Client Address:**	Chennai, India				
Contact Name:	R Narayanan	**Contact Title:**	GM – Systems and Operations				

Key Personnel Reference Form						
Contact Phone:	Available upon request	**Contact E-mail:**	Available upon request			
Project Name: Patient tracking System			**Start Date:**	01/2008	**End Date:**	05/2008
Project Description: Patient Check-in and discharge system						
Project Role and Responsibilities: Involved as a sub-vendor for the solution and QC of the product.						
Reference 3						
Client Name:	IBM WH, Payer / Provider	**Client Address:**	Dallas, Texas			
Contact Name:	Kristy Sanders	**Contact Title:**	VP, Delivery			
Contact Phone:	Available upon request	**Contact E-mail:**	ksanders@us.ibm.com			
Project Name: Project Owen			**Start Date:**	03/2017	**End Date:**	01/2018
Project Description: The Data ingestion phase had multi-stage processes namely Discovery, Triage, Mapping, Extraction, Publishing, Data QA, and Release. The project involved mapping these processes, identifying re-work looks and wastes and streamlining the process						
Project Role and Responsibilities: Was a project lead for executing the process restructuring to identify and eliminate wastes and achieve process optimization by implementing automation tools and pod-like work groups for batch processing.						

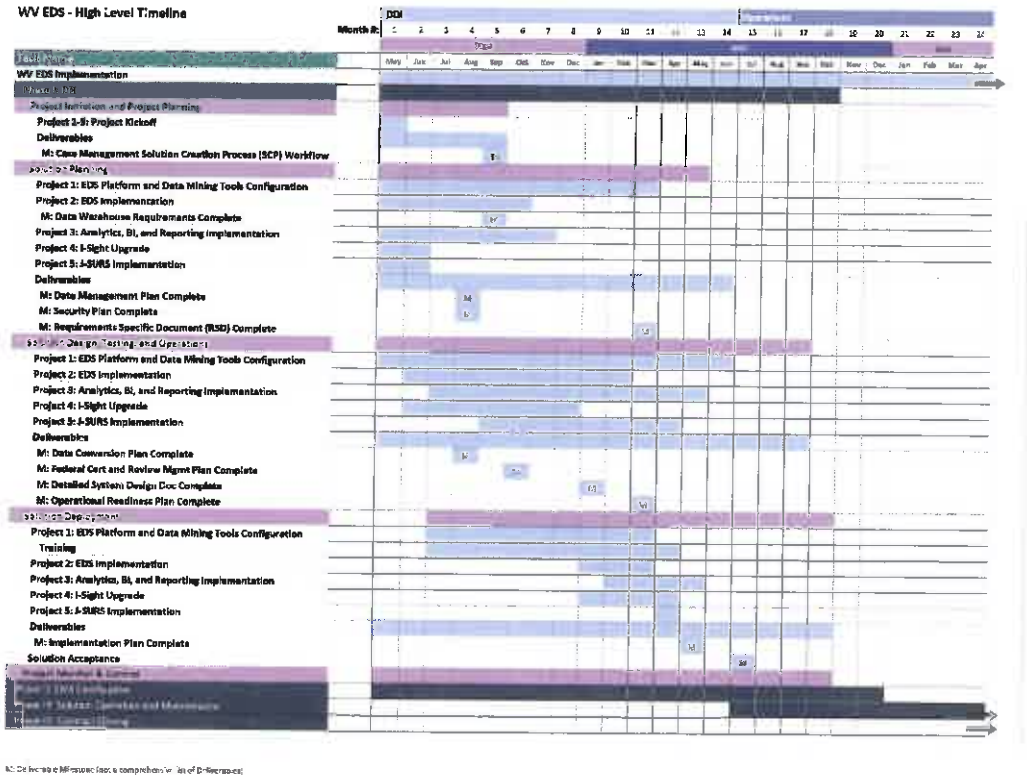
ATTACHMENT E INITIAL WORK PLAN

Watson Health has prepared a detailed Work Plan which includes all the tasks, deliverables and milestones for the project, organized into the phases requested for the deployment. The Work Plan, in a schedule in MS Project, and its related WBS will be provided as part of this response and are included in Appendix 2.

The Work Plan's schedule also includes resources on every task and deliverable. It outlines the standard review process for state reviews and acceptance for each deliverable, with specific tasks and timing for each deliverable.

Please see section Attachment I PM131 for more details about our standard methodology.

Figure 8. High Level Timeline



Assumptions

Table 18. Attachment E Assumptions

Assumptions
Requirements Gathering
a. The appropriate State and Supplier staff will be fully available to attend
i. the Kick-off on the 2nd week following contract signing
ii. the Requirements Sessions beginning the 2nd week following contract signing
iii. Data Summits begin within 2 weeks following contract signing
b. Existing data layouts, submission, and elements will be utilized for the historic data load for all existing vendors

Assumptions
c. The State confirms the J-SURS data model and field mapping within the first month of the implementation.
d. Additional data elements are added for ongoing data through the change request process.
Development
a. All Suppliers will continue to submit the existing data layouts by the existing agreed upon timeline.
b. Vendors will not need to submit replacement data. The plan assumes quality data is already in-house with the current DW/DSS.

ATTACHMENT F MANDATORY REQUIREMENTS

Attachment F Mandatory Requirements Disposition Responses

Mandatory Requirements			Vendor Response			
Req ID #	Specification Text	Type	Vendor's Disposition	Attachment	Section	Page #
MR001	The Vendor must provide facilities for the recovery of Design, Development, and Implementation (DDI) or operations activities in the event of a disaster that disrupts DDI or operations as described in the Vendor's Disaster Recovery and Business Continuity Management Plan which will be developed by the Vendor and approved by the Department. The Vendor must provide resources necessary to: - Recover critical services in accordance with the Recovery Time Objective (RTO) and Recovery Point Objectives (RPO) to be approved by the Department and documented in the Disaster Recovery and Business Continuity Management Plan - Meet the approved Service Level Agreements listed in Appendix 5: Service Level Agreements & Performance Standards	Disaster Recovery Facility	Will Meet	Attachment F - Mandatory Requirements	Attachment F Mandatory Requirements Narrative Responses	109
MR002	The Vendor must participate in the oral presentations to be scheduled during the proposal scoring period. The following proposed key staff must be present for orals in lieu of corporate or sales personnel being the primary participants. - Account Manager - Project Manager - Business Lead - Technical Lead - Implementation Manager - Operations Manager - Certification Lead - Quality Assurance Manager	Orals	Will Meet	Attachment F - Mandatory Requirements	Attachment F Mandatory Requirements Narrative Responses	109
MR003	The Vendor must comply with all current and future security and privacy policies and procedures of the Department and the West Virginia Office of Technology (WVOT), which can be found at the following link: http://www.wvdhhr.org/mis/policies.asp https://technology.wv.gov/security/Pages/policies-issued-by-the-cto.aspx	Security	Will Meet	Attachment F - Mandatory Requirements	Attachment F Mandatory Requirements Narrative Responses	109
MR004	The Vendor Technical Support Call Center, as described in Appendix 1 Detailed Specifications, must be located within the continental United States, as established in requirements related to handling of federal tax information (FTI) contained in Internal Revenue Service (IRS) Publication 1075, Section 5.3 Access to FTI via State Tax Files or through other agencies under the authority granted by United States Code §6013(p)(4)(C)	Technical Support Call Center Location	Will Meet	Attachment F - Mandatory Requirements	Attachment F Mandatory Requirements Narrative Responses	110
MR005	The Vendor, all business partners, subcontractors, independent contractors, and other entities supporting the Vendor in delivery of the services defined in this contract must perform all work associated with this contract within the continental United States or U.S. Territories, as established in requirements related to handling of federal tax information (FTI) contained in Internal Revenue Service (IRS) Publication 1075, Section 5.3 Access to FTI via State Tax Files or Through Other Agencies under the authority granted by United States Code §6013(p)(4)(C). At no time shall information governed by privacy laws and regulations be used, maintained, transmitted, or caused to be transmitted outside of the United States.	Locations	Will Meet	Attachment F - Mandatory Requirements	Attachment F Mandatory Requirements Narrative Responses	110
MR006	The Vendor must host the Enterprise Data Solution (EDS) and maintain a secure site(s) and secure secondary site(s) within the continental United States. Off-site is defined as a physically separate location based on current industry best practices. These facilities must be located in the continental United States, as established in requirements related to handling of federal tax information (FTI) contained in Internal Revenue Service (IRS) Publication 1075, Section 5.3 Access to FTI via State Tax Files or Through Other Agencies under the authority granted by United States Code §6013(p)(4)(C).	Locations	Will Meet	Attachment F - Mandatory Requirements	Attachment F Mandatory Requirements Narrative Responses	110
MR007	The Vendor must be responsible for any lost Federal Medical Assistance Percentages (FMAP) due to system deficiencies or deficiencies noted during federal reviews. The Vendor will be responsible for only the portion of FMAP lost that is determined by the Department to be the fault of the Vendor. The Enterprise Data Solution (EDS) Vendor will not be responsible for certification requirements that are not included in the scope of this RFP.	FMAP	Will Meet	Attachment F - Mandatory Requirements	Attachment F Mandatory Requirements Narrative Responses	110

MR00	Prior to contract execution, the Department will conduct a review of all hardware, software, and communi components. The Vendor must ensure compatibility with the most current West Virginia Office of Technology (WVOT) supported versions and standards.	Compatibility	Will Meet	Attachment F - Mandatory Requirements	Attachment F Mandatory Requirements Narrative Responses	111
MR009	The Vendor must agree to incorporate all applicable current and future coding standards and legislated or program necessary data requirements to ensure that the Enterprise Data Solution (EDS) is current in its ability to accept and appropriately employ new standards and requirements as they occur including, but not limited to: ICD-10, Health Insurance Portability and Accountability Act (HIPAA) v5010, the Patient Protection and Affordable Care Act (PPACA) and the Health Information Technology for Economic and Clinical Health Act (HITECH).	Compatibility	Will Meet	Attachment F - Mandatory Requirements	Attachment F Mandatory Requirements Narrative Responses	111
MR010	The solution must maintain full Health Insurance Portability and Accountability Act (HIPAA) compliance throughout the life of the contract at no additional cost to the Department.	HIPAA	Will Meet	Attachment F - Mandatory Requirements	Attachment F Mandatory Requirements Narrative Responses	111
MR011	The Vendor must comply with the baseline security controls for moderate impact information systems as recommended by the National Institute of Standards and Technology (NIST), Code of Federal Regulations, and CMS.	Federal Security Requirements	Will Meet	Attachment F - Mandatory Requirements	Attachment F Mandatory Requirements Narrative Responses	111
MR012	The Vendor must adhere to and support all security, risks, standards, policies, and procedures of the Department, State, and the WVOT, which can be found at the following link: http://www.wvdhhr.org/mis/policies.asp https://technology.wv.gov/security/Pages/policies-issued-by-the-cto.aspx	State Security Requirements	Will Meet	Attachment F - Mandatory Requirements	Attachment F Mandatory Requirements Narrative Responses	111
MR013	The Vendor must agree to incorporate all requirements mandated through federal and State regulations and legislation, including new reporting requirements. The Vendor must ensure that the Enterprise Data Solution (EDS) is current in its ability to accept and employ new standards and requirements as they occur. Formalized change control will be used for all such changes, during all phases of the project as defined in the Change Management Plan.	Federal and State Regulatory Changes	Will Meet	Attachment F - Mandatory Requirements	Attachment F Mandatory Requirements Narrative Responses	112
MR014	The Vendor must provide right of access to systems, source code, and facilities to the Department or its designee and federal personnel to conduct audits and inspections. The Vendor must provide access to data, systems, and documentation required by auditors and inspectors.	Right of Access	Will Meet	Attachment F - Mandatory Requirements	Attachment F Mandatory Requirements Narrative Responses	112
MR015	The Vendor will operate the Enterprise Data Solution (EDS), perform all functions described in the RFP, and continue all operations from the date of acceptance of each release until each function is turned over to a successor at the end of the contract, including any optional additional periods or extensions.	Turnover and Closeout Operations	Will Meet	Attachment F - Mandatory Requirements	Attachment F Mandatory Requirements Narrative Responses	112
MR016	The Vendor must perform according to approved Service Level Agreements (SLAs) and identified Key Performance Indicators (KPIs) with associated metrics in the areas listed in Appendix 5: Service Level Agreements & Performance Standards.	Compliance with Service Level Agreements	Will Meet	Attachment F - Mandatory Requirements	Attachment F Mandatory Requirements Narrative Responses	112
MR017	The Vendor must deduct any amount due from future payments if the agreed upon SLAs are not met. The Department reserves the right to seek any other remedies under the Contract.	Compliance with Service Level Agreements	Will Meet	Attachment F - Mandatory Requirements	Attachment F Mandatory Requirements Narrative Responses	113

MR018	The Vendor must use industry-standard professional project management standards, methodologies, and processes to ensure the project is delivered on time, within scope, within budget, and in accordance with the Department's quality expectations. The Department utilizes the Project Management Institute (PMI) PMBOK methodology.	Project Management	Will Meet	Attachment F - Mandatory Requirements	Attachment F Mandatory Requirements Narrative Responses	113
MR019	The Vendor must provide project status information to the Department and the Enterprise Data Solution (EDS) Project Management Office (PMO) within the required timeframes and in the agreed-upon format, as defined in the approved Project Management Plan.	Status Reporting	Will Meet	Attachment F - Mandatory Requirements	Attachment F Mandatory Requirements Narrative Responses	113
MR020	The Vendor must update deliverables at the request of the Department to align with changes in approach or methodology, or to include new or updated information that was not available at the time the deliverable was initially submitted and approved.	Deliverable Updates	Will Meet	Attachment F - Mandatory Requirements	Attachment F Mandatory Requirements Narrative Responses	113
MR021	The Vendor must submit updated deliverables for Department approval based on the Project Schedule approved by the Department.	Deliverable Updates	Will Meet	Attachment F - Mandatory Requirements	Attachment F Mandatory Requirements Narrative Responses	113
MR022	The Vendor must submit substantive changes to deliverables identified in Appendix 2: Deliverables and Milestones Dictionary to the Department for review and approval within thirty (30) calendar days of the proposed change.	Deliverable Updates	Will Meet	Attachment F - Mandatory Requirements	Attachment F Mandatory Requirements Narrative Responses	114
MR023	The Vendor must provide compliance support services to include providing up-to-date, accurate, and thorough documentation and reporting for regulatory and State compliance auditing.	Audit Compliance Support and Deliverables	Will Meet	Attachment F - Mandatory Requirements	Attachment F Mandatory Requirements Narrative Responses	114
MR024	The Vendor must provide a report outlining applicable NIST SP 800-53 security control responsibilities noting which security controls are inherited by the Vendor, implemented by the Department, or shared by both parties. This report must be maintained by the Vendor and outline the following: - Non-compliant and required security controls - Applied mitigations - Plan to correct deficiencies - Cyber security procedures and management plans	Security Compliance	Will Meet	Attachment F - Mandatory Requirements	Attachment F Mandatory Requirements Narrative Responses	114
MR025	The Vendor must coordinate with the Department to develop Centers for Medicare & Medicaid Services (CMS) Certification Checklist documentation for each Medicaid Enterprise Certification (MECT) Checklist the Department identifies as required for CMS certification of the EDS. Refer to the following link for more information: https://www.medicaid.gov/medicaid/data-and-systems/mect/index.html	CMS Certification	Will Meet	Attachment F - Mandatory Requirements	Attachment F Mandatory Requirements Narrative Responses	114
MR026	The Vendor must coordinate with the Department to develop Centers for Medicare & Medicaid Services (CMS) Certification checklists documentation evidence for all Medicaid Enterprise Certification Toolkit (MECT) criteria related to the Enterprise Data Solution (EDS) and be prepared to work from current and future releases of the MECT to ensure compliance to CMS Certification guidance and processes including, but not limited to, artifacts and deliverables described in Appendix B – Required Artifacts List of the MECT. Refer to: https://www.medicaid.gov/medicaid/data-and-systems/mect/index.html	CMS Certification	Will Meet	Attachment F - Mandatory Requirements	Attachment F Mandatory Requirements Narrative Responses	115

MR027	The Vendor must design the Enterprise Data Solution (EDS) to support the Medicaid Information Technology Architecture (MITA) goals for the State as defined in the State's MITA State Self-Assessment (SS-A) and other West Virginia MITA Artifacts provided in the Procurement Library.	MITA Alignment	Will Meet	Attachment F - Mandatory Requirements	Attachment F Mandatory Requirements Narrative Responses	115
MR028	The Vendor must agree that the Department retains ownership of all data, procedures, applications, licenses, and all materials developed during design, development, and implementation (DDI), and Operations, as well as the licensing for installed Commercial-off-the-shelf (COTS) software in alignment with 45 CFR §95.615 and 45 CFR §95.617. Manufacturers' support and maintenance for the COTS software licensing subsequent to the initial install must be provided only for the life of the contract. The Department will not issue change orders related to software cost increases.	State Ownership (45 CFR §95.615 and 45 CFR §95.617)	Will Meet	Attachment F - Mandatory Requirements	Attachment F Mandatory Requirements Narrative Responses	117
MR029	The Vendor must place the source code in a third-party escrow arrangement with a designated escrow agent who is acceptable to the Department, and who shall be directed to release the deposited source code in accordance with a standard escrow agreement approved by the Department. That agreement must, at minimum, provide for release of the source code to the Department when: a) The Vendor notifies the Department that support or maintenance of the Product will no longer be available b) If the Vendor fails to provide services pursuant to this contract for a continuous period c) Individual(s) from the Department have directed the escrow agent to release the deposited source code in accordance with the terms of escrow Source code, as well as any corrections or enhancements to such source code, shall be updated for each new release of the product within sixty calendar days of being made available in the production environment. The Escrow agent and the Vendor shall notify the Department in writing when new production versions have been escrowed. The Vendor shall identify the escrow agent upon commencement of the contract term and shall certify annually that the escrow remains in effect and in compliance with the contract. The Vendor shall be responsible for all costs associated with the third-party escrow arrangement. The Vendor shall document the escrow management approach in the Configuration Management Plan. The Vendor also must place in escrow one (1) paper copy and one (1) electronic copy of all maintenance manuals and additional documentation that are required for the proper maintenance of the software used to develop, test, and implement the Enterprise Data Solution (EDS). Revised copies of manuals and documentation must be placed in the escrow account within sixty calendar days of approval by the State. Such documentation must be the same documentation as that which the Vendor supplies to its maintenance personnel to maintain its software. When source code is provided, it must be provided in the language in which it was written and will include commentary that will allow a competent programmer proficient in the source language to readily interpret the source code and understand the purpose of the source code. In the event that this contract expires and is not renewed or extended, the Department maintains ownership of the source code and has the option to continue the escrow agreement until such time that the Department is no longer using the software or documentation covered by this escrow agreement.	Escrow	Will Meet	Attachment F - Mandatory Requirements	Attachment F Mandatory Requirements Narrative Responses	118
MR030	The Vendor must ensure that all applications inclusive of Internet, Intranet and extranet applications associated with this contract are compliant with Section 508 of the Rehabilitation Act of 1973, as amended by 29 U.S.C. §794d, and 36 Code of Federal Regulation (CFR) 1194.21 and 36 CFR 1194.22.	Compliance with Rehabilitation Act of 1973	Will Meet	Attachment F - Mandatory Requirements	Attachment F Mandatory Requirements Narrative Responses	118
MR031	The Vendor must ensure that data entered, maintained, or generated to meet the requirements of this Request for Proposal (RFP) is retained and/or accessible according to the federal requirements in 45 CFR Part 75 and/or applicable State and/or federal requirements.	Data Retention and Accessibility	Will Meet	Attachment F - Mandatory Requirements	Attachment F Mandatory Requirements Narrative Responses	119
MR032	The Vendor must obtain approval from the Department for all key staff hired under the contract and all personnel assigned to the West Virginia Medicaid Enterprise Data Solution (EDS) Project. In all circumstances, key staff shall be replaced only with persons of equal or greater experience and qualifications.	Staffing	Will Meet	Attachment F - Mandatory Requirements	Attachment F Mandatory Requirements Narrative Responses	119

MR033	Key Staff assigned to the project must be employed on full-time basis and required to be onsite. Onsite is defined as being in the Charleston, West Virginia-based facility between Monday and Friday from 8:00 a.m. Eastern Time to 5:00 p.m. Eastern Time. On-site time excludes the time required to travel to/from the Charleston, West Virginia facility. Each Key Staff role is a full-time position, to be filled by one staff member only. Key Staff roles may not be combined or filled by multiple staff members. All Key Staff members will enter the project within 30 calendar days of the contract award. The Vendor should propose the onsite key staff and ensure how the offsite staff will fulfill project requirements as defined within this RFP.	Staffing	Will Meet	Attachment F - Mandatory Requirements	Attachment F Mandatory Requirements Narrative Responses	119
MR034	The Vendor must provide the Department a minimum of 10 business days' notice for staffing changes.	Staffing	Will Meet	Attachment F - Mandatory Requirements	Attachment F Mandatory Requirements Narrative Responses	119
MR035	The Vendor must replace key staff within 30 business days after the position is vacant, unless a longer period is approved by the Department.	Staffing	Will Meet	Attachment F - Mandatory Requirements	Attachment F Mandatory Requirements Narrative Responses	119
MR036	The Department has an interest in ensuring that its operations are carried out in an efficient, professional, legal, and secure manner. The Vendor must remove any staff involved in the project, if the Department determines that any such staff has or may interfere with the Department's interests identified above.	Staffing	Will Meet	Attachment F - Mandatory Requirements	Attachment F Mandatory Requirements Narrative Responses	120
MR037	The Vendor must accept financial, legal, ethical, and all other forms of responsibility for the conduct of all business partners, independent contractors, subcontractors, and other entities supporting the Vendor or working with Vendor on the project.	Staffing	Will Meet	Attachment F - Mandatory Requirements	Attachment F Mandatory Requirements Narrative Responses	120
MR038	As a corrective action, the Vendor must provide increased staffing levels if requirements, timelines, quality, or other standards are not being met, based solely on the discretion of, and without additional cost to, the Department. In making this determination, the Department will evaluate whether the Vendor is meeting deliverable dates, producing quality materials, consistently maintaining high quality, and meeting request for proposal (RFP) and contract standards without significant rework or revision.	Staffing	Will Meet	Attachment F - Mandatory Requirements	Attachment F Mandatory Requirements Narrative Responses	120
MR039	The Vendor staff must not have the capability to access, edit, and share personal information data, including but not limited to Protected Health Information (PHI), Personally Identifiable Information (PII), Financial Transaction Information (FTI), and Social Security Administration (SSA) data (including but not limited to family, friends, and acquaintance information) with unauthorized users.	Viewing Human Services Program Information	Will Meet	Attachment F - Mandatory Requirements	Attachment F Mandatory Requirements Narrative Responses	120
MR040	The Vendor must ensure that all project staff have completed a Department Office of Management Information Services (OMIS) Vendor Employee Confidentiality Statement (VECS) before beginning work on the project.	West Virginia Department of Health and Human Resources (DHHR) OMIS Vendor Employee Confidentiality Statement (VECS)	Will Meet	Attachment F - Mandatory Requirements	Attachment F Mandatory Requirements Narrative Responses	120

MR04	The Vendor must comply with Federal Executive Order 11246 related to Equal Employment Opportunity, ...ean Air Act, and the Clean Water Act.	Equal Employment Opportunity, Clean Air Act, and Clean Water Act	Will Meet	Attachment F - Mandatory Requirements	Attachment F Mandatory Requirements Narrative Responses	121
MR042	The Vendor must provide a drug free workplace, and individuals shall not engage in the unlawful manufacture, distribution, dispensation, possession, abuse, or use of a controlled substance in the performance of the contract.	Drug Free Workplace Act of 1988	Will Meet	Attachment F - Mandatory Requirements	Attachment F Mandatory Requirements Narrative Responses	121
MR043	The Vendor must designate one named individual in their proposal as the Vendor organization's Health Insurance Portability and Accountability Act of 1996 (HIPAA) compliance officer.	HIPAA Compliance Officer	Will Meet	Attachment F - Mandatory Requirements	Attachment F Mandatory Requirements Narrative Responses	121
MR044	The Vendor may not publish or copyright any data using the Department's name without prior written approval by the Department for every instance. In this context, "data" shall mean all results, technical information and materials developed and/or obtained in the performance of the services hereunder, including but not limited to: all reports, surveys, plans, charts, recordings (video and/or sound), pictures, drawings, analyses, graphic representations, computer programs and printouts, notes and memoranda, and documents whether finished or unfinished, which result from or are prepared in connection with the services performed hereunder. Except with respect to any commercial software, the Department will be and remain the owner of all data provided to the Department by the Vendor or its agents, subcontractors, or representatives pursuant to the contract other than the Vendor's internal administrative procedure records.	Publication and Copyright of State Data	Will Meet	Attachment F - Mandatory Requirements	Attachment F Mandatory Requirements Narrative Responses	121
MR045	The Vendor must assume software and hardware licensing costs related to the legacy and modern solutions beginning upon execution of this contract and extending through completion of the contract. As each existing software and hardware license expires, the Vendor will renew the necessary licensing as agreed upon with the Department. It is the Department's intent to transfer allowable licenses. However, on a license-by-license basis, the Vendor should obtain the licenses necessary to operate the solution as existing licenses expire. Current Department license costs shall be used for reference only. The Vendor must not assume that the current Department cost is the lowest cost. The Vendor must assume the license cost for which the Vendor can acquire the license.	Software and Hardware Licensing Costs	Will Meet	Attachment F - Mandatory Requirements	Attachment F Mandatory Requirements Narrative Responses	121
MR046	The Vendor must procure the necessary licenses required to support its modernized solution. The Vendor is responsible for all licenses required at project initiation and can procure licenses as needed throughout the project, with no additional cost to the Department.	Software and Hardware Licensing Costs	Will Meet	Attachment F - Mandatory Requirements	Attachment F Mandatory Requirements Narrative Responses	122
MR047	The Vendor must assume that only 50 concurrent Department licenses are required for the User Acceptance Testing (UAT) Environment, and that only 50 concurrent Department licenses are required for the Training Environment.	Software and Hardware Licensing Costs	Will Meet	Attachment F - Mandatory Requirements	Attachment F Mandatory Requirements Narrative Responses	122
MR048	The Vendor must be responsible for all costs associated with solution updates or enhancements that are within the scope of the RFP.	Software and Hardware Licensing Costs	Will Meet	Attachment F - Mandatory Requirements	Attachment F Mandatory Requirements Narrative Responses	122

MR049	Vendors proposing commercial off-the-shelf (COTS) components must develop all documentation necessary to support the receipt of federal match related to the implementation of the component, upon request by the Department.	COTS Waiver Documentation	Will Meet	Attachment F - Mandatory Requirements	Attachment F Mandatory Requirements Narrative Responses	122
MR050	The Vendor must comply with 45 CFR 95.617 Software and ownership rights.	Federal Royalty-Free Rights to Use Software or Documentation Developed	Will Meet	Attachment F - Mandatory Requirements	Attachment F Mandatory Requirements Narrative Responses	123
MR051	The Vendor must provide a software and hardware solution that is upgradeable and expandable to meet the Department's current and future needs.	Adaptability to Current and Future Needs	Will Meet	Attachment F - Mandatory Requirements	Attachment F Mandatory Requirements Narrative Responses	123
MR052	The Vendor must adhere to the approved Change Management Plan and definitions of modifications and enhancements provided in Request for Proposal (RFP).	Adaptability to Current and Future Needs	Will Meet	Attachment F - Mandatory Requirements	Attachment F Mandatory Requirements Narrative Responses	123
MR053	The Vendor must be responsible for all expenses required to obtain and maintain access to the Department systems. Such expenses include, but are not limited to, hardware, software, network infrastructure, and any licensing costs.	Cost of Maintaining Access to State Systems	Will Meet	Attachment F - Mandatory Requirements	Attachment F Mandatory Requirements Narrative Responses	123
MR054	The Vendor must be responsible for all costs required for Department staff to access the solution. Such expenses include, but are not limited to, hardware and software necessary to support the solution.	Federal Risk and Authorization Management Program (FedRAMP) Certification	Will Meet	Attachment F - Mandatory Requirements	Attachment F Mandatory Requirements Narrative Responses	123
MR055	The Vendor must be fully responsible for all ongoing security monitoring of the solution for the life of the contract (or until such time that the Department and the Vendor come to an agreement to take a different approach to security monitoring), as described in the Security Requirements contained in the Business and Technical Requirements Appendix 1: Detailed Specifications of the RFP, independent of any other audits and inspections that take place.	Responsibility for Ongoing Security Monitoring	Will Meet	Attachment F - Mandatory Requirements	Attachment F Mandatory Requirements Narrative Responses	124
MR056	The Vendor must make available to the Department, the results of any third-party audit conducted, including, but not limited to the Service Organization Control (SOC) 2, on the Vendor's organization services within the scope of this contract.	Third Party Audit	Will Meet	Attachment F - Mandatory Requirements	Attachment F Mandatory Requirements Narrative Responses	124
MR057	The Vendor must provide Department stakeholders access to conference space at the Vendor's site with accommodations for twenty participants at a minimum. The conference space must be furnished with standard conference room furniture, and equipped to support the design development and implementation (DDI) review, planning, testing, and training sessions required of the Vendor. The conference space must have a computer and projector for displaying presentations and supporting presentation material, and a high-quality speakerphone, with extendable microphones, to allow multiple remote staff to attend meetings by telephone. Conference space must also accommodate video conferencing and web-based application sharing for attendees.	Facility	Will Meet	Attachment F - Mandatory Requirements	Attachment F Mandatory Requirements Narrative Responses	124

MR058	The Vendor must acquire and maintain office-space (henceforth, "Vendor Facility") available 24 hours per day, during 365 days of the year, including all holidays, to support contracted services. The Vendor Facility must be staffed with employees hired specifically to support the scope of services in this Request for Proposal (RFP). In addition, the Vendor Facility must be located in Charleston, West Virginia within five (5) miles of the Office of Management Information Services (OMIS) Office, located at One Davis Square, Charleston, West Virginia. All key staff members proposed in this RFP for both implementation and maintenance and operations must be located at the Vendor Facility. Included in the space shall be a minimum of two (2) private offices for Department staff, a reception area, a security barrier isolating the public entrance and reception area from the rest of the facility, and restroom facilities. The site will provide space for project team meetings and work sessions. The Vendor must assume all costs related to securing and maintaining the facility for the duration of the contract including but not limited to, hardware and software acquisition necessary to maintain approved service level agreements (SLAs) throughout the life of the contract, maintenance, lease hold improvements, utilities, office equipment, supplies, janitorial services, security, storage, transportation, and insurance.	Facility	Will Meet	Attachment F - Mandatory Requirements	Attachment F Mandatory Requirements Narrative Responses	125
MR059	The Vendor must obtain prior written approval from the State for the proposed layout of the facility, including specifications relating to location, space, leasehold improvements, and support equipment prior to execution of the office lease. The Vendor must seek and obtain the State's prior written approval for any relocation Vendor Facility at, from or through which the services are provided and shall mitigate any impact to the State. Any such relocation shall be without additional cost to the State.	Facility	Will Meet	Attachment F - Mandatory Requirements	Attachment F Mandatory Requirements Narrative Responses	126
MR060	The Vendor must be responsible for all costs related to the rental and operation of such facility, including, but not limited to: leasehold improvements, utilities, a minimum 100 megabyte per second (mbps) connection, office and building security, telephones with voice mail and caller ID, a toll-free line for the Help Desk telephones with roll over and messaging, office equipment (two fax machines and a networked color copier and scanner), general office supplies, storage, janitorial services and supplies, and any necessary facility insurance.	Facility	Will Meet	Attachment F - Mandatory Requirements	Attachment F Mandatory Requirements Narrative Responses	126
MR061	The Vendor must ensure that Department staff office space in the Vendor's Charleston facility can be individually locked. This office space must be fully equipped with furniture; telephone service, a minimum 100 megabytes per second (mbps) connection to the internet, and access to a color printer and copier. The following reserved or paid parking spaces must be provided to accommodate designated Department staff: two Department parking spaces and five general visitor parking spaces.	Facility	Will Meet	Attachment F - Mandatory Requirements	Attachment F Mandatory Requirements Narrative Responses	126
MR062	The Vendor must provide authorization from a parent, affiliate, or subsidiary organization for the State to have access to its records if such a relationship exists that impacts to the Vendor's performance under the proposed contract.	CMS RFP Checklist	Will Meet	Attachment F - Mandatory Requirements	Attachment F Mandatory Requirements Narrative Responses	127
MR063	The Vendor must supply documentation of components and procedures such that the solution could be operated by a variety of contractors or other users for any systems and modules developed, installed, or improved with ninety (90) percent federal funding participation (FFP) match.	CMS RFP Checklist	Will Meet	Attachment F - Mandatory Requirements	Attachment F Mandatory Requirements Narrative Responses	127
MR064	The Vendor must work with the State to define, integrate, and maintain all data sources deemed necessary to the Enterprise Data Solution (EDS). This includes those data sources identified throughout implementation and maintenance and operation.	Adaptability to Current and Future Needs	Will Meet	Attachment F - Mandatory Requirements	Attachment F Mandatory Requirements Narrative Responses	127

MR065	The Director reserves the right to require any Vendor that files a protest of an award to submit a litigation bond in the amount equal to one percent of the lowest bid submitted or $5,000, whichever is greater. The entire amount of the bond shall be forfeited if the hearing officer determines that the protest was filed for frivolous or improper purpose, including but not limited to, the purpose of harassing, causing unnecessary delay, or needless expense for the Agency. All litigation bonds shall be made payable to the Purchasing Division. In lieu of a bond, the protester may submit a cashier's check or certified check payable to the Purchasing Division. Cashier's or certified checks will be deposited with and held by the State Treasurer's office. If it is determined that the protest has not been filed for frivolous or improper purpose, the bond or deposit shall be returned in its entirety.	Litigation Bond	Will Meet	Attachment F - Mandatory Requirements	Attachment F Mandatory Requirements Narrative Responses	128

Attachment F Mandatory Requirements Narrative Responses

MR001	The Vendor must provide facilities for the recovery of Design, Development, and Implementation (DDI) or operations activities in the event of a disaster that disrupts DDI or operations as described in the Vendor's Disaster Recovery and Business Continuity Management Plan which will be developed by the Vendor and approved by the Department. The Vendor must provide resources necessary to - Recover critical services in accordance with the Recovery Time Objective (RTO) and Recovery Point Objectives (RPO) to be approved by the Department and documented in the Disaster Recovery and Business Continuity Management Plan - Meet the approved Service Level Agreements listed in Appendix 5 Service Level Agreements & Performance Standards

Watson Health will work with DHHR to provide facilities and tailor our Disaster Recovery and Business Continuity Management Plan, so we recover critical services related to the WV EDS in accordance with the agreed upon Recovery Time Objective (RTO) and Recovery Point Objectives (RPO) and meet the approved Service Level Agreements listed in Appendix 5 of the RFP.

Our detailed, comprehensive Disaster Recovery and Business Continuity Management Plan is focused on the immediate response and subsequent recovery of information systems and infrastructure from any unplanned business interruption. It documents the strategies, resources, and procedures required to restore service to our clients and internal users. The Plan provides guidelines for making sure the necessary personnel and resources are available for both disaster preparation and response, and that appropriate steps are carried out to facilitate the timely recovery of critical business functions and minimize the impact on our clients in the event of an unplanned incident. We keep our DR Plan current and test it annually to maintain preparedness. Our detailed response to Disaster Recovery is included in Attachment J DR001- DR050.

MR002	The Vendor must participate in the oral presentations to be scheduled during the proposal scoring period. The following proposed key staff must be present for orals in lieu of corporate or sales personnel being the primary participants - Account Manager - Project Manager - Business Lead - Technical Lead - Implementation Manager - Operations Manager - Certification Lead - Quality Assurance Manager

The Watson Health staff listed in MR002 will participate in oral presentations as scheduled by DHHR during the proposal scoring period.

MR003	The Vendor must comply with all current and future security and privacy policies and procedures of the Department and the West Virginia Office of Technology (WVOT), which can be found at the following link http //www wvdhhr org/mis/policies asp https //technology wv gov/security/Pages/policies-issued-by-the-cto aspx

Our established processes, procedures, and technology enable Watson Health to comply with the security and privacy policies and procedures of the Department and the West Virginia Office of Technology (WVOT). Our WV EDS solution is compliant with HIPAA and all other applicable federal and state laws, rules, regulations, standards, and guidelines. Our security approach will remain consistent across all

project phases. When state policies and procedures evolve, they will be addressed through the change management plan to keep the WV EDS compliant.

MR004	The Vendor Technical Support Call Center, as described in Appendix 1 Detailed Specifications, must be located within the continental United States, as established in requirements related to handling of federal tax information (FTI) contained in Internal Revenue Service (IRS) Publication 1075, Section 5 3 Access to FTI via State Tax Files or through other agencies under the authority granted by United States Code §6013(p)(4)(C)

The Watson Health Technical Support Call Center is a multi-channel help desk that supports users of our 30+ software and analytic products across federal, state, and commercial clients. Our staff are based out of a secure facility located within the continental US. As our staff commonly interact with Personally identifiable information (PII), we adhere to SSAE 18 security standards, which address physical security as well as electronic data security, and all team members must attend annual HIPAA compliance training.

MR005	The Vendor, all business partners, subcontractors, independent contractors, and other entities supporting the Vendor in delivery of the services defined in this contract must perform all work associated with this contract within the continental United States or U S Territories, as established in requirements related to handling of federal tax information (FTI) contained in Internal Revenue Service (IRS) Publication 1075, Section 5 3 Access to FTI via State Tax Files or Through Other Agencies under the authority granted by United States Code §6013(p)(4)(C) At no time shall information governed by privacy laws and regulations be used, maintained, transmitted, or caused to be transmitted outside of the United States

All work performed by Watson Health staff, business partners, contractors, and other entities supporting the delivery of the WV EDS solution and services will occur within the continental US or US Territories, including remote access to West Virginia data. In addition to our local office in Charleston, we provide data management, development, and other support services at our Ann Arbor, Michigan and other Watson Health locations in the US, and we receive and house client data at our data center in Texas. At no time shall West Virginia's data governed by privacy laws and regulations be used, maintained, transmitted, or caused to be transmitted to or stored on servers located outside of the US.

MR006	The Vendor must host the Enterprise Data Solution (EDS) and maintain a secure site(s) and secure secondary site(s) within the continental United States Off-site is defined as a physically separate location based on current industry best practices These facilities must be located in the continental United States, as established in requirements related to handling of federal tax information (FTI) contained in Internal Revenue Service (IRS) Publication 1075, Section 5 3 Access to FTI via State Tax Files or Through Other Agencies under the authority granted by United States Code §6013(p)(4)(C)

Watson Health will host the WV EDS at our secure primary and secondary sites within the continental US. Our primary data center facility is located in Dallas, Texas, and a secondary facility is in Sterling, Virginia. Both data centers are designed to meet the stringent demands of enterprise clients, as we provide Service Center support for a wide range of products and services for numerous clients.

MR007	The Vendor must be responsible for any lost Federal Medical Assistance Percentages (FMAP) due to system deficiencies or deficiencies noted during federal reviews The Vendor will be responsible for only the portion of FMAP lost that is determined by the Department to be the fault of the Vendor The Enterprise Data Solution (EDS) Vendor will not be responsible for certification requirements that are not included in the scope of this RFP

Watson Health will be responsible for any lost Federal Medical Assistance Percentages (FMAP) due to WV EDS system deficiencies or deficiencies noted during federal reviews, recognizing that we will be responsible for only the portion of FMAP lost that is determined by the Department to be the fault of Watson Health and will not be responsible for certification requirements outside the scope of this RFP. We are confident that West Virginia will achieve CMS Certification for the WV EDS, as have seven other states using a similar Watson Health EDW solution.

MR008	Prior to contract execution, the Department will conduct a review of all hardware, software, and communication components. The Vendor must ensure compatibility with the most current West Virginia Office of Technology (WVOT) supported versions and standards

Watson Health understands that prior to contract execution the Department will conduct a review of all hardware, software, and communication components. Upon notification from WVOT of changes or updates to the supported versions and standards, Watson Health will work with WV EDS to create a plan to address those changes.

MR009	The Vendor must agree to incorporate all applicable current and future coding standards and legislated or program necessary data requirements to ensure that the Enterprise Data Solution (EDS) is current in its ability to accept and appropriately employ new standards and requirements as they occur including, but not limited to: ICD-10, Health Insurance Portability and Accountability Act (HIPAA) v5010, the Patient Protection and Affordable Care Act (PPACA) and the Health Information Technology for Economic and Clinical Health Act (HITECH)

Watson Health will keep the WV EDS current in its ability to accept and appropriately employ new standards and requirements as they occur. Having been in healthcare for more than 35 years, we have seen numerous changes in the industry and have always kept our offerings current and compliant. In many cases, we proactively participate in and contribute to national standard-setting initiatives through our work with national organizations. We are committed to maintaining adherence in our products and solutions to federally adopted standards, and we invest our corporate research and development resources to keep our products current with all industry standards. We seek to leverage changes from our other clients where possible as changes are addressed through the change management plan.

MR010	The solution must maintain full Health Insurance Portability and Accountability Act (HIPAA) compliance throughout the life of the contract at no additional cost to the Department

Our WV EDS will maintain full HIPAA compliance throughout the life of the contract at no additional cost to the Department. As a Business Associate, Watson Health, is regulated by the HIPAA Privacy and Security Rules; these requirements are a foundation for our privacy and security policies and procedures. We fully comply with all HIPAA and HITECH requirements.

MR011	The Vendor must comply with the baseline security controls for moderate impact information systems as recommended by the National Institute of Standards and Technology (NIST), Code of Federal Regulations, and CMS

Watson Health's approach to security includes a strategy of Defense in Depth, applying layers of administrative, physical and technical controls, providing comprehensive protection of the WV EDS system. The controls are based on the National Institute of Standards and Technology (NIST) SP 800-53 rev 4 framework of controls for moderate systems. Implementation of these controls is in alignment with the Code of Federal Regulations, and CMS. Watson Health's security posture is continuously assessed and remains compliant with NIST as standards evolve over time.

MR012	The Vendor must adhere to and support all security, risks, standards, policies, and procedures of the Department, State, and the WVOT, which can be found at the following link: http //www wvdhhr org/mis/policies asp https //technology wv gov/security/Pages/policies-issued-by-the-cto aspx

Our WV EDS security practices will adhere to and support all security risks, standards, policies, and procedures of DHHR, the State, and the WVOT as currently implemented. Upon notification from WVOT of changes or updates to the standards, policies and procedures, Watson Health will work with WV EDS to create a plan to address those changes.

MR013	The Vendor must agree to incorporate all requirements mandated through federal and State regulations and legislation, including new reporting requirements The Vendor must ensure that the Enterprise Data Solution (EDS) is current in its ability to accept and employ new standards and requirements as they occur Formalized change control will be used for all such changes, during all phases of the project as defined in the Change Management Plan

Watson Health agrees to incorporate all requirements mandated through federal and state regulations and legislation, including new reporting requirements. The WV EDS will remain current in its ability to accept and employ new standards and requirements as they occur, utilizing the formalized change control process for all such changes, during all phases of the project as defined in the Change Management Plan. At Watson Health, we invest a significant amount of time analyzing regulations, CMS reporting requirements, and evolving legislation. We extend this analysis across our projects to make sure our clients are current and compliant.

MR014	The Vendor must provide right of access to systems, source code, and facilities to the Department or its designee and federal personnel to conduct audits and inspections The Vendor must provide access to data, systems, and documentation required by auditors and inspectors

DHHR or its designee and federal personnel may perform audits and inspections of Watson Health systems and facilities once a year with notification and an audit plan. We will work with DHHR to agree on a final audit plan. Our process requires the client to submit a detailed audit plan to Watson Health's Information Security Department. This plan is submitted at least four weeks (20 business days) in advance of the proposed audit date and describes the proposed scope, duration, documentation/evidence requirements, and proposed start date of the audit. Watson Health reviews the audit plan and responds with any concerns or questions; for example, any request for information that could compromise our security, privacy, employment, or other relevant policies.

In keeping with the standard approach for commercial off-the-shelf (COTS) software products that are licensed on a term basis, the source code for our solution is not available. If government regulations require access to the source code for fiduciary reasons, we are willing to discuss placing the source code in escrow for an additional fee.

MR015	The Vendor will operate the Enterprise Data Solution (EDS), perform all functions described in the RFP, and continue all operations from the date of acceptance of each release until each function is turned over to a successor at the end of the contract, including any optional additional periods or extensions

Watson Health will operate the WV EDS, perform all functions described in the RFP, and continue all operations from the date of acceptance of each release until each function is turned over to a successor at the end of the contract, including any optional additional periods or extensions.

MR016	The Vendor must perform according to approved Service Level Agreements (SLAs) and identified Key Performance Indicators (KPIs) with associated metrics in the areas listed in Appendix 5 Service Level Agreements & Performance Standards

As stated in Appendix 5 5. Periodic Reviews, prior to submission for acceptance of the solution, DHHR and the Vendor will review all KPIs and performance measures to determine if revision are needed. Thereafter, similar reviews will be held annually, upon the implementation of a change that impacts existing KPIs, and/or at the request of DHHR.

Watson Health agrees to perform according to approved SLAs and identified Key Performance Indicators (KPIs) with associated metrics in the areas listed in RFP Appendix 5. We have extensive experience working with state clients, their System Integrators, and their other business partners in support of ongoing operations and day-to-day activities. As a result, we have established procedures to meet SLAs

and KPIs and report on our performance. An Operational Performance Report succinctly provides information on our services and the solution's performance for the current phase of the project.

MR017	The Vendor must deduct any amount due from future payments if the agreed upon SLAs are not met. The Department reserves the right to seek any other remedies under the Contract

Watson Health agrees to deduct any amount due from future payments if the agreed upon SLAs are not met, and understands that DHHR may seek any other remedies under the contract.

MR018	The Vendor must use industry-standard professional project management standards, methodologies, and processes to ensure the project is delivered on time, within scope, within budget, and in accordance with the Department's quality expectations. The Department utilizes the Project Management Institute (PMI) PMBOK methodology

Our Project Management Methodology is based on industry principles and standards, as well as the knowledge we have gained from our extensive experience on other similar projects. When and where appropriate, Watson Health regularly employs the project management techniques set forth by the Project Management Body of Knowledge (PMBOK), CMMI, and Agile.

Project Management Methodology enables all teams to perform as planned; unexpected costs and delays are avoided when the project teams conform to schedule, cost, and staffing plans.

MR019	The Vendor must provide project status information to the Department and the Enterprise Data Solution (EDS) Project Management Office (PMO) within the required timeframes and in the agreed-upon format, as defined in the approved Project Management Plan

Accurate status reporting to our clients is a high priority for Watson Health. It provides transparency, key information, and awareness of critical issues. It also builds trust among the key stakeholders and provides DHHR with reliable, up-to-date information to manage the progress of the project. As part of our overall workplan, we integrate timely project status reporting (including risks and issues and mitigation plans) and project management reporting (including a focus on project staff performance and necessary executive oversight). We will provide our status reports to DHHR and the EDS PMO within the required timeframes and in the format defined in the approved Project Management Plan.

MR020	The Vendor must update deliverables at the request of the Department to align with changes in approach or methodology, or to include new or updated information that was not available at the time the deliverable was initially submitted and approved

The Watson Health standard Deliverable Management Plan is configured during the project planning based on the Documentation and Approval flow process. This plan covers the deliverable process and support procedures and addresses deliverable reviews, standard review checklists, deliverable repository access, updates, and backups. This approach benefits DHHR by ensuring timely delivery of high-quality documentation and deliverables throughout all phases of the SDLC while building key artifacts for CMS certification.

During the scheduled deliverable review for updates, or upon receipt of a change request, Watson Health will update deliverables to align with changes in approach or methodology, or to include new or updated information that was not available at the time the deliverable last approved.

MR021	The Vendor must submit updated deliverables for Department approval based on the Project Schedule approved by the Department

To be sure our deliverables meet your expectations, Watson Health will update and submit deliverables for DHHR approval based on the approved project schedule, including the deliverables scheduled for review and updates.

MR022	The Vendor must submit substantive changes to deliverables identified in Appendix 2 Deliverables and Milestones Dictionary to the Department for review and approval within thirty (30) calendar days of the proposed change

Watson Health will submit substantive changes to deliverables identified in RFP Appendix 2 for DHHR review and approval within 30 calendar days of the proposed change, or within a timeframe mutually agreed upon with DHHR. We submit all documents for DHHR review and approval into the review cycle process. In addition, we complete and store a change log. We follow a stringent product quality assurance practice for every deliverable throughout the deliverable cycle.

MR023	The Vendor must provide compliance support services to include providing up-to-date, accurate, and thorough documentation and reporting for regulatory and State compliance auditing

Watson Health will support DHHR by providing information and documentation for regulatory and compliance audits by oversight agencies, as required.

Our solution's audit trail capabilities will help DHHR pass CMS integrity audits. The Watson Health WV EDS supports audit activities, and we help prepare raw data extracts or summarized information as needed for other federal and state audits. For example, we created extract files from the Ohio EDW/BI solution for the Auditor of State. The Auditor of State needed the files to audit Department of Medicaid financials reported in the state financial system to the financials reported in the MMIS system.

Our solution accommodates storing data that is required under section 6041 of the Internal Revenue Code on amounts paid to providers, along with identifying information on these providers, based on the data provided by AHCA and other modules. We understand that DHHR and/or individual module vendors have fiscal responsibility for filing the annual reports with the IRS; our role as the EDS Module Vendor is to maintain and update the information as provided and make it available for reporting.

MR024	The Vendor must provide a report outlining applicable NIST SP 800-53 security control responsibilities noting which security controls are inherited by the Vendor, implemented by the Department, or shared by both parties. This report must be maintained by the Vendor and outline the following - Non-compliant and required security controls - Applied mitigations - Plan to correct deficiencies - Cyber security procedures and management plans

Watson Health will provide a report listing all applicable NIST SP 800-53 rev 4 controls for moderate systems. The report will include details of all controls and control enhancements including ownership (Watson Health, the Department, or shared by both), the descriptions of the control and implementation. Any control not fully implemented will be documented with either applied mitigations or plan to correct deficiencies. The report will also include cyber security procedures and management plans.

MR025	The Vendor must coordinate with the Department to develop Centers for Medicare & Medicaid Services (CMS) Certification Checklist documentation for each Medicaid Enterprise Certification (MECT) Checklist the Department identifies as required for CMS certification of the EDS. Refer to the following link for more information: https://www.medicaid.gov/medicaid/data-and-systems/mect/index.html

We will work with DHHR to provide all required artifacts and substantiating documentation for each MECT Checklist relevant to the WV EDS, in support of the CMS certification process. Our goal is to help West Virginia obtain optimal federal funding and enhanced matching funds through achieving CMS certification by providing timely and accurate documentation. Having successfully supported seven states

in achieving certification under the MECT Checklist, Watson Health will share our experience from these certifications so that West Virginia's certification proceeds as efficiently as possible.

MR026	The Vendor must coordinate with the Department to develop Centers for Medicare & Medicaid Services (CMS) Certification checklists documentation evidence for all Medicaid Enterprise Certification Toolkit (MECT) criteria related to the Enterprise Data Solution (EDS) and be prepared to work from current and future releases of the MECT to ensure compliance to CMS Certification guidance and processes including, but not limited to, artifacts and deliverables described in Appendix B – Required Artifacts List of the MECT. Refer to: https://www.medicaid.gov/medicaid/data-and-systems/mect/index.html

Our WV EDS solution will meet MMIS certification requirements, initially and throughout the life of the contract. Watson Health has extensive experience with CMS and will work with DHHR to provide the artifacts and deliverables needed to keep demonstrate our system's compliance with relevant criteria as future versions of the MECT Checklist are released. After the WV EDS receives CMS certification, future requirements would be addressed by the change management plan. We have recently assisted Colorado and Delaware with certification against the latest MECT Checklist.

MR027	The Vendor must design the Enterprise Data Solution (EDS) to support the Medicaid Information Technology Architecture (MITA) goals for the State as defined in the State's MITA State Self-Assessment (SS-A) and other West Virginia MITA Artifacts provided in the Procurement Library

Our WV EDS solution is designed in alignment with the MITA 3.0 principles and the Seven Conditions and Standards. With a focus on data quality and data integrity, it will deliver all functionality required of your EDS module. As the "single source of truth," the WV EDS will enable DHHR to effectively manage and use data across the Medicaid Enterprise and supply a greater range of analytical capabilities so you can better manage complex programs, assess health outcomes, and detect and prevent fraud and abuse.

Our solution is COTS-based to reduce customization and provides a cloud-based delivery approach for data management tools, reporting, and analytic methodologies. The WV EDS will be hosted in the Watson Health private gov-cloud, which lowers your long-term cost of ownership because we leverage shared managed IT services across multiple clients. The EDS module will help you achieve the MITA objectives defined in the MITA 3.0 State SS-A 2017 Annual Update Report.

Use of Standards: We have implemented numerous large-scale data warehouses that comply with the Federal Enterprise Architecture Framework (FEAF) and the Data Reference Model (DRM), including three in the past five years. We focus on data-naming standards; referential integrity constraints; primary, foreign, and unique key constraints; precise definitions; and thorough source-to-target mappings. This facilitates a common understanding of data, data lineage, and impact-analysis activities. We also invest in analyzing federal regulations, CMS reporting requirements, and changing legislation. We then extend this analysis across all of our projects to be sure our clients are current and compliant.

Use of Business Rules Engines: To align the EDS architecture with MITA' "Build Once, Reuse Often" strategy, the WV EDS supports reusable business logic. We accomplish modularity and reusability through the use of business rules and the separation of the rules from actual code. Flexible, configurable, rules-based logic will govern key functions of the WV EDS, such as data transformation, healthcare performance measurement, and other derived fields and formulas in the data warehouse layer of the architecture. Our modular, flexible approach to systems design and development uses standard, defined business rules that produce formats that both humans and machines can read. We maintain their integrity throughout the system lifecycle, no matter where the business rule is implemented.

Use of Analytics for Decision-Making and Reporting. Within the Business layer, the "plug-n-play" modular analytics capabilities of the WV EDS provide the flexibility to scale and grow analytics as your circumstances and budget dictate. The Business layer delivers the BI reporting and analytics tools to end users, empowering all types of users to make informed business decisions. The WV EDS is architected

for high performance of large data volumes at all processing levels. Data load and query performance is considered in the processing engines and tools, as well as the data constructs and processing designs.

You will be able to explore data and execute advanced analytics in ways exceeding your current capabilities. We configure the BI tools to provide you with:

- Graphical dashboards for online viewing by executives and external constituents
- Prompted querying for casual users
- Standard reports that are configurable by users for managers and all information consumers
- Ad hoc reporting for access to detail data by business analysts
- Advanced query development tools for power analysts and full-time report specialists
- Specialized tools for program integrity staff

Automation of Business Results. The WV EDS accommodates user preferences for communications by email, text, mobile devices, or phones. It provides flexibility to use various delivery methods for report output, including storage in a report repository, secure transfer, or email. During DDI, we will confirm with DHHR the best delivery method for the production reports that Watson Health develops and maintains. For users who need to access the data any time or place, the WV EDS has mobile-friendly applications that allow authorized users to obtain secure, real-time access to reports and dashboards, as defined by DHHR, on smart phones, tablets, and mobile operating systems. Access permissions are applied regardless of how users access the system.

Quality Improvement Efforts. Quality management is an operating philosophy for Watson Health, integrated throughout all phases of every project we manage. We continually monitor our overall operation for accuracy and completeness throughout the project life cycle; for example, we reconcile data between the various data warehouse layers to confirm the data is balancing as it moves from layer to layer. To further promote continuous quality improvement, we develop and initiate quality improvement recommendations and CAPs as needed. We will collaborate with DHHR and your stakeholders to maintain our system and services in accordance with approved performance metrics and benchmarks.

Beneficiary Focus. DHHR is seeking a comprehensive data warehouse solution that can be used to promote better care, better health, and lower costs for West Virginians. To achieve this aim, we will aggregate administrative, clinical, and social data for a single beneficiary-centric view of health and social expenditures. The WV EDS will enable you to view a member's experience over time and without organizational silos, giving you an integrated view of Medicaid eligibility, enrollment, and service authorization across agencies, programs, and modes of care.

Industry Standards Condition. The WV EDS complies with applicable standards, including those to protect Protected Health Information (PHI) and personally identifiable information (PII) and the standards and protocols adopted by the Secretary under sections 1104 and 1561 of the Affordable Care Act. Watson Health supports a number of industry standard methods for data retrieval, including electronic transfers (FTP, PGP, Connect:Direct, etc.), magnetic media (USB encrypted drives, magnetic tape, DVDs, CDs, etc.), and file transfer mechanisms (COBOL programs from mainframe systems, EDI/X12 feeds from provider systems, HL7/FHIR file formats). Our development (SDLC) processes incorporate standard software development best practices.

Leveraging Business Processes and Areas Across the WVME. The WV EDS solution is built around the principles of an open, standards-based Service-Oriented Architecture (SOA), enabling DHHR to share access to data across the enterprise. Following the MITA 3.0 framework, our framework is organized by functional area, each of which has individual modules that provide capabilities to create reports to support MITA business-process models. Data marts typically include specialty marts for supporting specific business process models (MITA functional areas) or operational tasks, such as stratifying the population

and selecting sub-populations for specific case or care management. The WV EDS will integrate data sets from MMIS, eligibility and enrollment systems, and other clinical and HHS data sources. With these data sets, the WV EDS has the capability to produce reports to support the MITA business process models and measures to understand, track, and report on the effectiveness of business results, processes, care delivery, and overall program effectiveness.

Modularity Standard. The WV EDS business architecture framework allows you to grow the EDS through additional analytical reporting modules and corresponding information architecture. It provides the flexibility to change the solution in response to new program requirements without having to rebuild the entire data warehouse. Our software components provide the capability to expose APIs and web services that accommodate data access and sharing from any of the supported interfaces. We configure our data model to meet your unique information needs while maintaining compliance with industry standards. We can add new data sources to the model by simply mapping the new data to existing entities or, when necessary, creating new entities, with little impact to the system and requiring minimal maintenance effort. Further, we have a roadmap dedicated to the progression of our data warehouse and analytic offerings to provide new capabilities as technology and standards evolve.

Interoperability Condition. The EDS information architecture supports standards-based interoperability, including clinical interfaces like immunization systems, state labs, vital stats, and state HIE solutions. Our data model maintains a flexible taxonomy structure to allow for the capture of multiple taxonomies.

Our solution's open interfaces support interoperability with internal state HHS agencies and external entities. As required in the CMS Seven Conditions and Standards, we provide an Interface Control Document (ICD) that documents interface standards and protocols. We are experts in dealing with healthcare information and standards, including ICD-10 and CPT. Many of our Medicaid clients have us integrate their MMIS data with data from other HHS programs such as income maintenance (TANF, SSI), food assistance (SNAP, WIC), child welfare, mental health and substance abuse, and others.

As we integrate disparate data sources, further enterprise subject areas can be added. Due to the modular design, adding subject areas does not add stress or interrupt existing functionality. The new functional areas will have their own fact tables and then be integrated into the existing conformed dimension structures. All new functionality will follow proper SDLC and be thoroughly tested before moving into production. This foundation is essential to the conversion and creation of reports.

MITA Condition. Our solution architecture provides the three architectural layers defined by MITA (business, information, and technical), which will be configured to your specific needs. Our enhancements make the data usable and meaningful for reporting and decision-making and also adds flexibility and durability to the model. This means we can more easily accommodate changes without changing the existing data model, for a truly modular approach to data model maintenance.

Reporting Condition. The WV EDS enables users to access and produce a wide range of reports. Capabilities include reports to assist DHHR with the oversight, administration, and day-to-day management of the West Virginia Medicaid program. Report types include, but are not limited to, claims reporting, financial reporting, pharmacy and medication therapy reporting, federal reporting, managed care reporting, provider and member reporting, outcome analysis, and fraud, waste, and abuse detection.

MR028	The Vendor must agree that the Department retains ownership of all data, procedures, applications, licenses, and all materials developed during design, development, and implementation (DDI), and Operations, as well as the licensing for installed Commercial-off- the-shelf (COTS) software in alignment with 45 CFR §95 615 and 45 CFR §95 617. Manufacturers' support and maintenance for the COTS software licensing subsequent to the initial install must be provided only for the life of the contract. The Department will not issue change orders related to software cost increases.

Additionally, DHHR retains ownership of all materials developed during DDI and Operations of the WV EDS, as well as the licensing for installed COTS software. In addition to the efficiency of using Software as a Service (SaaS), you will benefit from the regular enhancements and improvements of our COTS products with Medicaid-driven changes that support the changing nature of this program—for example, updates in healthcare methods, code sets, measures, and industry norms. We understand the Department will not issue change orders related to software cost increases.

MR029	The Vendor must place the source code in a third-party escrow arrangement with a designated escrow agent who is acceptable to the Department, and who shall be directed to release the deposited source code in accordance with a standard escrow agreement approved by the Department. That agreement must, at minimum, provide for release of the source code to the Department when: a) The Vendor notifies the Department that support or maintenance of the Product will no longer be available b) If the Vendor fails to provide services pursuant to this contract for a continuous period c) Individual(s) from the Department have directed the escrow agent to release the deposited source code in accordance with the terms of escrow Source code, as well as any corrections or enhancements to such source code, shall be updated for each new release of the product within sixty calendar days of being made available in the production environment. The Escrow agent and the Vendor shall notify the Department in writing when new production versions have been escrowed. The Vendor shall identify the escrow agent upon commencement of the contract term and shall certify annually that the escrow remains in effect and in compliance with the contract. The Vendor shall be responsible for all costs associated with the third-party escrow arrangement. The Vendor shall document the escrow management approach in the Configuration Management Plan. The Vendor also must place in escrow one (1) paper copy and one (1) electronic copy of all maintenance manuals and additional documentation that are required for the proper maintenance of the software used to develop, test, and implement the Enterprise Data Solution (EDS). Revised copies of manuals and documentation must be placed in the escrow account within sixty calendar days of approval by the State. Such documentation must be the same documentation as that which the Vendor supplies to its maintenance personnel to maintain its software. When source code is provided, it must be provided in the language in which it was written and will include commentary that will allow a competent programmer proficient in the source language to readily interpret the source code and understand the purpose of the source code. In the event that this contract expires and is not renewed or extended, the Department maintains ownership of the source code and has the option to continue the escrow agreement until such time that the Department is no longer using the software or documentation covered by this escrow agreement. In the case of a COTS product, the medium necessary to reinstall that version as part of the Enterprise Data Solution (EDS) platform must be kept in escrow. Any future versions of COTS products must also be kept and provided upon demand. The department will not issue change orders related to software cost increases.

Watson Health will place the source code for custom code created under this agreement for West Virginia in escrow following the procedures defined by this requirement.

MR030	The Vendor must ensure that all applications inclusive of Internet, intranet and extranet applications associated with this contract are compliant with Section 508 of the Rehabilitation Act of 1973, as amended by 29 U.S.C. §794d, and 36 Code of Federal Regulation (CFR) 1194.21 and 36 CFR 1194.22.

Watson Health is committed to supporting accessibility standards as defined by Section 508 of the Rehabilitation Act, and others such as the World Wide Web Consortium's (W3C) web application standards and the Web Content Accessibility Guidelines (WCAG 2.0). The applications inclusive of Internet, intranet, and extranet applications that we provide as part of the WV EDS will comply with Section 508 of the Rehabilitation Act. Because we take this commitment seriously, we have implemented several steps to ensure continued and aggressive progress against these standards:

- Comprehensive analysis of current product portfolio to meet the standards in Section 508
- Incorporation of Section 508 standards into all future development projects, as appropriate
- Incorporation of Section 508 process checks within our product development processes, with a focus on new interface development
- Continued investment in a dedicated group of user-experience professionals who are responsible for interpreting Section 508 requirements, designing all user interfaces, and strategically including Section 508 components within our software
- Selection of third-party technology partners who also demonstrate a commitment to Section 508 compliance

MR031	The Vendor must ensure that data entered, maintained, or generated to meet the requirements of this Request for Proposal (RFP) is retained and/or accessible according to the federal requirements in 45 CFR Part 75 and/or applicable State and/or federal requirements

Watson Health will ensure that data entered, maintained, or generated to meet the requirements of this RFP is retained and/or accessible according to the federal requirements in 45 CFR Part 75 and/or applicable state and/or federal requirements.

MR032	The Vendor must obtain approval from the Department for all key staff hired under the contract and all personnel assigned to the West Virginia Medicaid Enterprise Data Solution (EDS) Project In all circumstances, key staff shall be replaced only with persons of equal or greater experience and qualifications

We will obtain DHHR approval for all key staff hired under the contract and all personnel assigned to the WV EDS project as required. Because the people who interact with you every day are the foundation of our relationship with DHHR, and continuity is important in providing high-quality services to our clients, we will replace key staff only with persons of comparable or greater skillsets and experience.

MR033	Key Staff assigned to the project must be employed on full-time basis and required to be onsite Onsite is defined as being in the Charleston, West Virginia-based facility between Monday and Friday from 8 00 a m Eastern Time to 5 00 p m Eastern Time On-site time excludes the time required to travel to/from the Charleston, West Virginia facility Each Key Staff role is a full-time position, to be filled by one staff member only Key Staff roles may not be combined or filled by multiple staff members All Key Staff members will enter the project within 30 calendar days of the contract award The Vendor should propose the onsite key staff and ensure how the offsite staff will fulfill project requirements as defined within this RFP

Watson Health key staff dedicated 100% and assigned to the WV EDS project will be employed full-time, and each role will be filled by only one staff member as shown in the organizational chart. Our key staff will be closely integrated with DHHR staff and physically located on-site in our Charleston, West Virginia facility during both DDI and Operations, between Monday and Friday from 8:00 a.m. to 5:00 p.m. ET. We understand that the on-site time excludes the time required to travel to/from the Charleston facility. All key staff will enter the project within 30 calendar days of contract award.

MR034	The Vendor must provide the Department a minimum of 10 business days' notice for staffing changes

We will provide DHHR with 10 business days' or more advance notification prior to any changes to the Watson Health Account Team.

MR035	The Vendor must replace key staff within 30 business days after the position is vacant, unless a longer period is approved by the Department

Watson Health will replace key staff positions within 30 business days after the position becomes vacant, or we will obtain written approval from DHHR for extended vacancies.

MR036	The Department has an interest in ensuring that its operations are carried out in an efficient, professional, legal, and secure manner. The Vendor must remove any staff involved in the project, if the Department determines that any such staff has or may interfere with the Department's interests identified above.

Watson Health understands that DHHR may require the removal of our staff if operations are not carried out in an efficient, professional, legal, and secure manner. If DHHR should require the removal of one of our employees, agents, or subcontractors, upon written notice to Watson Health identifying the cause of your dissatisfaction, Watson Health will follow a DHHR-approved process to remove the person from work on the contract, and immediately remove all access to systems and facilities for that individual.

Since we have been providing a decision support system (DSS) and program integrity (PI) services to West Virginia since 2011, DHHR has experience with the quality of our team members and can be confident that the individuals working on the WV EDS project will be the same level of highly knowledgeable, qualified, and experienced personnel.

MR037	The Vendor must accept financial, legal, ethical, and all other forms of responsibility for the conduct of all business partners, independent contractors, subcontractors, and other entities supporting the Vendor or working with Vendor on the project.

Watson Health often works with subcontractors, so we understand that, as the prime contractor, we are solely responsible for the work performed under this contract, including the work of our subcontractors. We accept financial, legal, ethical, and all other forms of responsibility for the conduct of our business partners, independent contractors, subcontractors, and other entities supporting us or working with us on the WV EDS project.

MR038	As a corrective action, the Vendor must provide increased staffing levels if requirements, timelines, quality, or other standards are not being met, based solely on the discretion of, and without additional cost to, the Department. In making this determination, the Department will evaluate whether the Vendor is meeting deliverable dates, producing quality materials, consistently maintaining high quality, and meeting request for proposal (RFP) and contract standards without significant rework or revision.

Watson Health recognizes that DHHR may require, as an agreed upon corrective action, that we increase our staffing levels without additional cost to DHHR. Watson Health has a long history of meeting our deliverable dates, delivering high quality services and materials, and meeting contract standards. We have successfully implemented three complex EDW solutions in the past five years and will bring our best practices and lessons learned from those engagements to our work in West Virginia.

MR039	The Vendor staff must not have the capability to access, edit, and share personal information data, including but not limited to Protected Health Information (PHI), Personally Identifiable Information (PII), Financial Transaction Information (FTI), and Social Security Administration (SSA) data (including but not limited to family, friends, and acquaintance information) with unauthorized users.

Watson Health will insure that data access controls are implemented that protect sensitive regulated data including Protected Health Information (PHI), Personally Identifiable Information (PII), Financial Transaction Information (FTI), and Social Security Administration (SSA) elements from unauthorized access, edits and dissemination.

MR040	The Vendor must ensure that all project staff have completed a Department Office of Management Information Services (OMIS) Vendor Employee Confidentiality Statement (VECS) before beginning work on the project.

Watson Health will ensure that all members of the WV EDS project team have completed a Department Office of Management Information Services (OMIS) Vendor Employee Confidentiality Statement (VECS) before beginning work on the project.

MR041	The Vendor must comply with Federal Executive Order 11246 related to Equal Employment Opportunity, the Clean Air Act, and the Clean Water Act

Watson Health will comply with Federal Executive Order 11246 related to Equal Employment Opportunity, the Clean Air Act, and the Clean Water Act.

Equal opportunity information for IBM (our corporate parent) is available at the following website: http://www-03.ibm.com/employment/us/diverse/equal_opportunity.shtml. Effective management of our workforce diversity policy is an important strategic objective. Every IBM manager is expected to abide by this policy and uphold our commitment to workforce diversity.

IBM takes a thoughtful, comprehensive approach to corporate citizenship that we believe aligns with our values and maximizes the impact we can make as a global enterprise. We focus on specific societal issues, including the environment. The IBM Corporate Responsibility Report provides an integrated overview of the environmental, economic, and social dimensions of our business. Please visit: http://www.ibm.com/ibm/responsibility/reports/.

MR042	The Vendor must provide a drug free workplace, and individuals shall not engage in the unlawful manufacture, distribution, dispensation, possession, abuse, or use of a controlled substance in the performance of the contract

A drug free environment is vital to Watson Health, the safety of our workplace, the quality of our products, the productivity of our employees, and the interest of our clients and the general public. To achieve a drug free environment, we have adopted a policy that the manufacture, distribution, use, dispensation, sale, or possession of illegal drugs and/or non-medically prescribed controlled substances on Watson Health premises or any other Watson Health or IBM work environment, including but not limited to any client site, company owned or leased vehicle, or other locations where our business is being conducted is prohibited. Employees who violate this policy are subject to disciplinary action.

MR043	The Vendor must designate one named individual in their proposal as the Vendor organization's Health Insurance Portability and Accountability Act of 1996 (HIPAA) compliance officer

Watson Health will name our Privacy and Security Officer as the Health Insurance Portability and Accountability Act of 1996 (HIPAA) compliance officer for the WV EDS system.

MR044	The Vendor may not publish or copyright any data using the Department's name without prior written approval by the Department for every instance. In this context, "data" shall mean all results, technical information and materials developed and/or obtained in the performance of the services hereunder, including but not limited to all reports, surveys, plans, charts, recordings (video and/or sound), pictures, drawings, analyses, graphic representations, computer programs and printouts, notes and memoranda, and documents whether finished or unfinished, which result from or are prepared in connection with the services performed hereunder. Except with respect to any commercial software, the Department will be and remain the owner of all data provided to the Department by the Vendor or its agents, subcontractors, or representatives pursuant to the contract other than the Vendor's internal administrative procedure records

Watson Health agrees that we will not publish or copyright any data using the Department's name without prior written approval by DHHR for every instance.

MR045	The Vendor must assume software and hardware licensing costs related to the legacy and modern solutions beginning upon execution of this contract and extending through completion of the contract. As each existing software and hardware license expires, the Vendor will renew the necessary licensing as agreed upon with the Department. It is the Department's intent to transfer

	allowable licenses. However, on a license-by-license basis, the Vendor should obtain the licenses necessary to operate the solution as existing licenses expire. Current Department license costs shall be used for reference only. The Vendor must not assume that the current Department cost is the lowest cost. The Vendor must assume the license cost for which the Vendor can acquire the license.

Watson Health will procure, install, configure, host, operate, and maintain the WV EDS system infrastructure (environments, interfaces, and tools) and maintain all necessary end-user software, maintaining version consistency across all system components with our team delivering support. Because our model is a complete solution and not just a software offering, Watson Health provides software maintenance and support in operational years to all of our 16 state Medicaid clients for whom we currently provide software solutions.

Our services include the ongoing administration necessary for software updates, patches, data partitioning, indexes, statistics updates, file vacuuming, and scaling. Software upgrades and licenses will be maintained and renewed for all environments as agreed upon with DHHR. In doing so, we will acquire the license at our cost, and will not assume the current DHHR cost is the lowest cost.

MR046	The Vendor must procure the necessary licenses required to support its modernized solution. The Vendor is responsible for all licenses required at project initiation and can procure licenses as needed throughout the project, with no additional cost to the Department.

Watson Health will procure the necessary licenses required to support the WV EDS solution. We will assume responsibility for all licenses required at project initiation and will procure licenses as needed throughout the project, with no additional cost to the Department.

MR047	The Vendor must assume that only 50 concurrent Department licenses are required for the User Acceptance Testing (UAT) Environment, and that only 50 concurrent Department licenses are required for the Training Environment.

Our proposal incorporates the assumption that only 50 concurrent DHHR licenses are required for the User Acceptance Testing (UAT) Environment, and that only 50 concurrent DHHR licenses are required for the Training Environment.

MR048	The Vendor must be responsible for all costs associated with solution updates or enhancements that are within the scope of the RFP.

Watson Health will be responsible for all costs associated with WV EDS updates or enhancements that are within the scope of the RFP. It is our responsibility to install and manage software and hardware upgrades. We will continually upgrade to the latest compatible software version within six months of its release. Our solution's software will be kept consistent with your standard software. We protect DHHR against hardware obsolescence by deploying the solution a scalable architecture, where hardware components can be added for growth and old components replaced in the process.

As part of our process, we will inform DHHR about the potential benefits and pitfalls of an enhancement and provide our recommendation. In addition, we will work with you around the schedule and implementation of all software upgrades. Security patches are extremely important and are updated on a regular maintenance schedule. All patching will be handled via a strict change management process and DHHR will be notified accordingly.

MR049	Vendors proposing commercial off-the-shelf (COTS) components must develop all documentation necessary to support the receipt of federal match related to the implementation of the component, upon request by the Department.

Watson Health will provide on a timely basis the documentation and other support required to assist DHHR in achieving federal approval and/or certification for the WV EDS. We will maintain all

documentation necessary for West Virginia to receive your federal match. Using our rigorous, Capability Maturity Model Integration (CMMI) Level-3 appraised and repeatable processes, we deliver the pertinent documentation needed to meet federal requirements.

In addition to the system documentation and reports that we develop, both COTS and SaaS products will be deployed within the WV EDS. These products have built-in features and capabilities that provide a strong integrated repository of information and documents that cannot be replicated outside of the given tool. In addition, the COTS analytic and reporting tools are latest-generation software with industry-standard electronic documentation features.

Watson Health regularly collaborates with our state clients and their vendors to provide documentation and presentations to CMS regarding our processes and systems, helping states obtain CMS certification retroactive to day one and obtain their federal match.

MR050	The Vendor must comply with 45 CFR 95 617 Software and ownership rights

We are proposing COTS products designed to be implemented through customized parameter settings and data tables controlled by the COTS software. The WV EDS does not constitute a "work for hire" where we would develop custom software for West Virginia. Software licenses will be provided on a term license basis, in accordance with standard industry practice.

MR051	The Vendor must provide a software and hardware solution that is upgradeable and expandable to meet the Department's current and future needs

The WV EDS utilizes technologies that are rapidly upgradable, scalable, and expandable. Our infrastructure design can adapt to the Department's changing business requirements and business growth while taking advantage of the latest technology offerings.

MR052	The Vendor must adhere to the approved Change Management Plan and definitions of modifications and enhancements provided in Request for Proposal (RFP)

Watson Health will adhere to the approved Change Management Plan and definitions of modifications and enhancements provided in Request for Proposal (RFP). The Change Management Plan defines the protocols we follow to be sure we have fully analyzed and documented each change request, and that we have identified all potential impacts and obtained approval and funding, where appropriate, before we begin work on the change, as well as the roles and responsibilities within the change management process.

MR053	The Vendor must be responsible for all expenses required to obtain and maintain access to the Department systems. Such expenses include, but are not limited to, hardware, software, network infrastructure, and any licensing costs

Watson Health agrees that we are responsible for all expenses required to obtain and maintain access to the Department systems. Such expenses include, but are not limited to, hardware, software, network infrastructure, and any licensing costs. Watson Health is fully committed to and supportive of our proposed WV EDS. We will deliver and maintain all necessary hardware, software, and network infrastructure, maintaining version consistency across all system users and keeping licenses current for the duration of the contract. We anticipate that Watson Health staff will not need access to the state's infrastructure.

MR054	The Vendor must be responsible for all costs required for Department staff to access the solution Such expenses include, but are not limited to, hardware and software necessary to support the solution

Watson Health agrees that we are responsible for all costs required for Department staff to access the solution. Such expenses include, but are not limited to, hardware and software necessary to support the WV EDS. Because our WV EDS solution is based on a SaaS platform, users access the tools over an internet connection, which we assume is provided by the State to DHHR staff.

MR055	The Vendor must be fully responsible for all ongoing security monitoring of the solution for the life of the contract (or until such time that the Department and the Vendor come to an agreement to take a different approach to security monitoring), as described in the Security Requirements contained in the Business and Technical Requirements Appendix 1 Detailed Specifications of the RFP, independent of any other audits and inspections that take place

Watson Health implements monitoring of system events at infrastructure, application and database levels.

At the infrastructure level, our network perimeter traffic is captured with our Intrusion Protection System (IPS) where events are correlated, logged and monitored within our Security Operations Center (SOC). Our Security Information and Event Management (SIEM) solution collects machine event logs from servers and infrastructure devices that is also monitored within the Watson Health SOC.

At the application level, user access to applications is captured and logged with necessary attributes to determine who did what, how and when. Similarly, all access to data within databases are logged with sufficient information to identify what data an individual accessed.

All audit information will be continuously collected within the WV EDS system 24x7x365 for the life of the contract or as long as both the Department and Watson Health agree.

MR056	The Vendor must make available to the Department, the results of any third-party audit conducted, including, but not limited to the Service Organization Control (SOC) 2, on the Vendor's organization services within the scope of this contract

Watson Health will provide upon project kickoff, the current year's SSAE 18 SOC 1 & SOC 2 Type 2 audit reports for facilities and infrastructure hosting the WV EDS solution. Watson Health will continue to deliver the reports annually thereafter. Additionally, Watson Health will plan and pre-assess controls covering the WV EDS solution during the six month period after the system transitions to operations and maintenance and deliver a SSAE 18 SOC 1 Type 1 report followed by SSAE 18 SOC 1 Type 2 reports every 12 months thereafter for the life of the contract. All audits and reports will be executed and provided by third party auditing firms accredited by the AICPA.

MR057	The Vendor must provide Department stakeholders access to conference space at the Vendor's site with accommodations for twenty participants at a minimum. The conference space must be furnished with standard conference room furniture, and equipped to support the design development and implementation (DDI) review, planning, testing, and training sessions required of the Vendor. The conference space must have a computer and projector for displaying presentations and supporting presentation material, and a high-quality speakerphone, with extendable microphones, to allow multiple remote staff to attend meetings by telephone. Conference space must also accommodate video conferencing and web-based application sharing for attendees

The Watson Health facility in Charleston meets DHHR's requirements for conference space and the related furnishings and equipment. To support DDI, we want to facilitate both internal communication among the project team and external communication with stakeholders and therefore will provide all collaboration tools and unified communications technologies, including the capacity for video conferencing and webinars. Our facility includes a conference/training room that accommodates a minimum of 20 participants.

MR058	The Vendor must acquire and maintain office-space (henceforth, "Vendor Facility") available 24 hours per day, during 365 days of the year, including all holidays, to support contracted services. The Vendor Facility must be staffed with employees hired specifically to support the scope of services in this Request for Proposal (RFP). In addition, the Vendor Facility must be located in Charleston, West Virginia within five (5) miles of the Office of Management Information Services (OMIS) Office, located at One Davis Square, Charleston, West Virginia. All key staff members proposed in this RFP for both implementation and maintenance and operations must be located at the Vendor Facility. Included in the space shall be a minimum of two (2) private offices for Department staff, a reception area, a security barrier isolating the public entrance and reception area from the rest of the facility, and restroom facilities. The site will provide space for project team meetings and work sessions. The Vendor must assume all costs related to securing and maintaining the facility for the duration of the contract including but not limited to, hardware and software acquisition necessary to maintain approved service level agreements (SLAs) throughout the life of the contract, maintenance, lease hold improvements, utilities, office equipment, supplies, janitorial services, security, storage, transportation, and insurance.

Our Charleston facility will be a professional office building with the space, security, amenities, communications cabling, and other features required to support the WV EDS project. IBM's Global Real Estate Division has worked with a local broker surveying the current market and identified nine Class A office spaces that meet your and IBM's requirements. Upon contract award, another market search will be performed to evaluate then available spaces and upon contract signing, a lease will be executed. This space will be located within five miles of the Office of Management Information Services (OMIS) Office located at One Davis Square. Our office will be well located, professionally managed, and provide convenient access for DHHR personnel. Watson Health will assume all costs related to securing and maintaining the facility for the duration of the WV EDS contract.

Facility Specifications to Support Collaboration

Our facility is appropriately sized for our on-site Watson Health staff. Our key staff members will be based in this location during both DDI and Operations, in addition to other essential staff. This facilitates activities where team interaction is critical, such as requirements sessions, deliverable walk-throughs, user acceptance testing (UAT), help desk support, and training.

The space layout includes a conference/ training room that accommodates at least 20 individuals to provide space for project team meetings and work sessions, video conferencing and web-based application sharing. A second conference room, two enclosed offices for DHHR staff, a reception area, open collaboration seating areas, private phone rooms, work cubicles and a break room are planned. A secure key card access door separates the public entrance and reception area from the area where WV EDS project work will occur.

The facility supports secure Wi-Fi access for authorized Watson Health and DHHR staff and sufficient bandwidth for all staff to connect into a Virtual Private Network (VPN) from their laptops without encountering security limitations. The office space is climate controlled, with proper control over temperature, humidity, air movement, and air cleanliness, to make staff comfortable and protect equipment. Fire and smoke detection systems will be in place and periodically inspected.

Physical Security

Watson Health implements robust measures that are designed to secure our building, equipment, network components, and work and storage areas. A physical security system will be in place to regulate, monitor, and restrict access to authorized personnel only. Security measures will be in place at our Charleston facility to meet the requirements of the contract with DHHR.

Only those Watson Health staff who are officially dedicated to the WV EDS project will have access to the area, and authorized DHHR personal will have secure access 24 hours per day, 365 days of the year. Visitors request entry via a phone located immediately outside the secure office in the reception area.

The key card access system controls access and maintains an audit trail. The audit trail records are maintained by our Facilities department and are reviewed frequently.

When new Watson Health employees are hired, their access cards are granted access permissions. When employees transfer interdepartmentally, access levels are reviewed and reduced as necessary. Terminated employees are required to surrender their badges to their manager, and access is terminated immediately. A monthly review of all access to restricted areas is conducted by our internal audit team. In this review, managers approve all access for their employees, and changes are made as needed.

Occupants of any Watson Health premises must wear a visible ID badge imprinted with their name and photo. Visitors to the site must sign in at the reception area desk, where they are classified as guests, vendors, contractors, or other employees and given an appropriate badge and lanyard, which must be worn and visible to occupants for the entire visit. To quickly and easily identify office occupants, guest badges are conspicuously coded with a large letter G, vendor badges bear a large V, and contractor badges have a large C. When visitors leave, they must sign out and return their badges

Our WV EDS project office can easily and securely accommodate the workspace requirements of Watson Health staff, as well as provide the agreed-on and necessary workspace for DHHR staff. This facility meets or exceeds RFP requirements for proximity to State offices and security, and it meets all state and federal standards for health, safety, fire, and disabilities per presiding enforcement bodies and laws such as the Occupational Safety and Health Administration, Americans With Disabilities Act, and the U.S. Access Board. The facility requirements are well documented allowing for a faster time to complete the office buildout. A temporary site will be used in the interim. We look forward to working side-by-side with DHHR staff in a successful and collaborative partnership.

MR059	The Vendor must obtain prior written approval from the State for the proposed layout of the facility, including specifications relating to location, space, leasehold improvements, and support equipment prior to execution of the office lease The Vendor must seek and obtain the State's prior written approval for any relocation Vendor Facility at, from or through which the services are provided and shall mitigate any impact to the State Any such relocation shall be without additional cost to the State

Watson Health agrees to obtain prior written approval from DHHR for the proposed layout of our Charleston facility, as well as for any relocation of our Charleston office. Any relocation will occur without additional cost to the State, and we will work to mitigate any impact from such a move.

MR060	The Vendor must be responsible for all costs related to the rental and operation of such facility, including, but not limited to leasehold improvements, utilities, a minimum 100 megabyte per second (mbps) connection, office and building security, telephones with voice mail and caller ID, a toll-free line for the Help Desk telephones with roll over and messaging, office equipment (two fax machines and a networked color copier and scanner), general office supplies, storage, janitorial services and supplies, and any necessary facility insurance

Watson Health agrees to be responsible for all costs related to the rental and operation of our Charleston facility, including, but not limited to: leasehold improvements, utilities, a minimum 100 mbps connection, office and building security, telephones with voice mail and caller ID, a toll-free line for the Help Desk telephones with roll over and messaging, office equipment (two fax machines and a networked color copier and scanner), general office supplies, storage, janitorial services and supplies, and any necessary facility insurance.

MR061	The Vendor must ensure that Department staff office space in the Vendor's Charleston facility can be individually locked This office space must be fully equipped with furniture, telephone service, a minimum 100 megabytes per second (mbps) connection to the internet, and access to a color printer and copier The following reserved or paid parking spaces must be provided to accommodate designated Department staff two Department parking spaces and five general visitor parking spaces

Recognizing that DHHR staff need secure office space in our Charleston facility, the offices we provide for your staff will have the ability to be individually locked. These offices will be fully equipped with the required furniture, telephone service, a minimum 100 mbps internet connection, and access to a color printer and copier. Our facility also will provide two reserved or paid parking spaces to accommodate designated DHHR staff, as well as five general visitor parking spaces.

MR062	The Vendor must provide authorization from a parent, affiliate, or subsidiary organization for the State to have access to its records if such a relationship exists that impacts to the Vendor's performance under the proposed contract

No such relationship exists that will impact our performance under the contract.

MR063	The Vendor must supply documentation of components and procedures such that the solution could be operated by a variety of contractors or other users for any systems and modules developed, installed, or improved with ninety (90) percent federal funding participation (FFP) match

Watson Health proactively provides important system documentation to support the effective use of our products and to prevent unnecessary problems. Via the project's documentation repository, WV EDS users and authorized contractors will have ready access to the latest version of system and user documentation needed to support their work. In addition to comprehensive metadata that gives users access to consistently defined reference information, Watson Health compiles application system operation and management documentation as system documentation and stores it on the project website. During training, we work with users so they can locate and access the latest version of all reference and support documents.

Additionally, the COTS analytic and reporting tools integrated in the solution are latest-generation software with industry-standard electronic documentation features. Whether running prompted reports in Cognos or performing complex analyses with Flexible Analytics, users will have ready-access to Help functionality and documentation. We also maintain and deliver system documentation and training materials. We receive consistently positive reports from our current user base related to the effectiveness of our reference materials

As another option, users can search the Product Support Portal's knowledge base repository for all information contained on the site, including solutions to previously reported client issues of general interest. We continually maintain and expand the available articles and content to provide users with the latest information on our products, as well as up-to-date system information. DHHR users can quickly access the knowledge base for pertinent information regarding products deployed in the WV EDS.

MR064	The Vendor must work with the State to define, integrate, and maintain all data sources deemed necessary to the Enterprise Data Solution (EDS). This includes those data sources identified throughout implementation and maintenance and operation

Working with the State, Watson Health will apply our proven approach to defining, integrating, and maintaining all data sources deemed necessary for the WV EDS during implementation and operations of the WV EDS. We will begin with the initial data sources identified in the RFP. Additional data sources will be included using the agreed upon change management process.

We have learned a lot from our experience in architecting data warehouses; modeling, managing, and integrating data from disparate sources; and delivering reporting and analytics solutions for healthcare data. Most importantly, our experience has sharpened our expertise in up-front "Architectural Thinking". Based on our experience and lessons learned, we prescribe an architecture that supports data integration in a flexible and extensible way—making it easy to add new data sources and to change relationships within the model, with minimal impact to the operations already in place.

Traditional methods such as implementing a physical primary key can mean a lot of re-work is required to make a data model change, so we employ an architecture that makes integration a lot more efficient. We use the Data Vault (DV) architecture and methodology for physical data modeling. Because of the DV approach to key design, changes to the data model can be implemented without any change to the existing data model constructs.

Another aspect of our up-front Architectural Thinking discipline pertains to reporting and analytics, specifically for healthcare. Beyond just knowing how to integrate data in the WV EDS, we understand how to structure the data in an accessible and user-friendly manner within the data architecture, and we apply dimensional modeling techniques to do that. Our team is experienced with the WV EDS tool set and has the technical expertise to effectively access and integrate the data sources. Based on this knowledge and our decades of experience in Medicaid decision support, we can go beyond simply integrating the data. We can advise DHHR on how to best incorporate the data sources and data elements in your standard reports to yield better insights.

Watson Health has been building data models for over 35 years, and we have delivered two EDW and analytics solutions within the last few years that integrated data from a DXC MMIS, in both Colorado and Delaware. Consequently, we have a data model design ready to start with in West Virginia.

Finally, because one of the goals of data architecture is to deliver consistent data to all users, we put as many of the data integration rules as possible into the data layer, versus the tool layer. This mean that if you bring in another tool, users still get the same results.



The Director reserves the right to require any Vendor that files a protest of an award to submit a litigation bond in the amount equal to one percent of the lowest bid submitted or $5,000, whichever is greater. The entire amount of the bond shall be forfeited if the hearing officer determines that the protest was filed for frivolous or improper purpose, including but not limited to, the purpose of harassing, causing unnecessary delay, or needless expense for the Agency. All litigation bonds shall be made payable to the Purchasing Division. In lieu of a bond, the protester may submit a cashier's check or certified check payable to the Purchasing Division. Cashier's or certified checks will be deposited with and held by the State Treasurer's office. If it is determined that the protest has not been filed for frivolous or improper purpose, the bond or deposit shall be returned in its entirety.

Watson Health understands and agrees that the Director reserves the right to require any Vendor that files a protest of an award to submit a litigation bond in the amount equal to one percent of the lowest bid submitted or $5,000, whichever is greater. We will comply with this requirement as applicable.

ATTACHMENT G BUSINESS SPECIFICATIONS APPROACH

Proposed Solution

PM001	The solution should align with the Department's vision for the to-be Enterprise Data Solution (EDS) environment

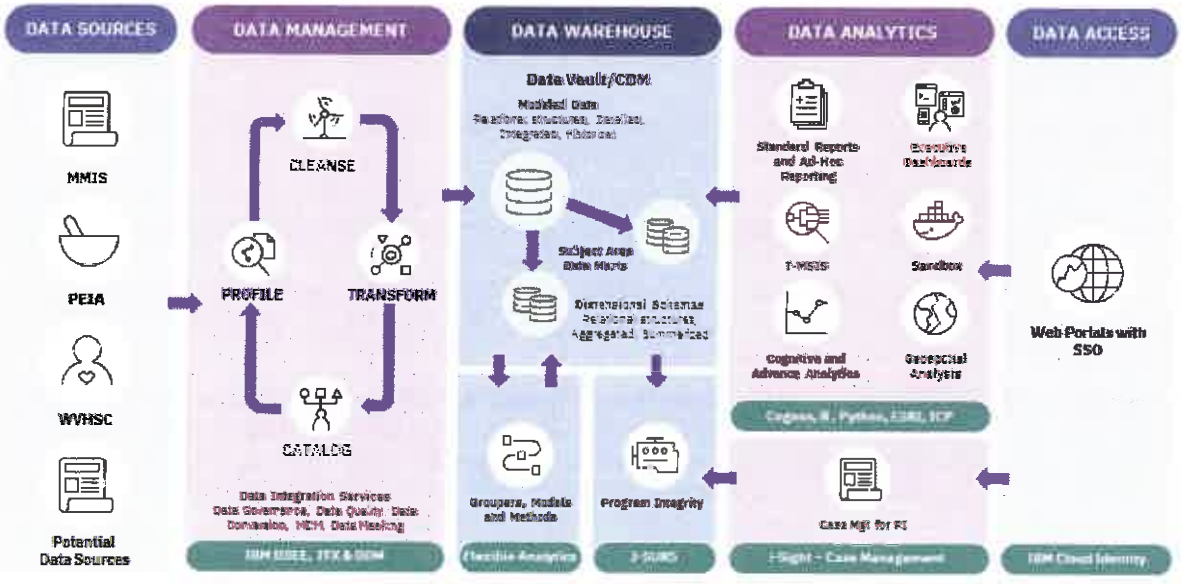
DHHR's To-Be Enterprise Data Solution (EDS) vision is a comprehensive data warehouse solution that can support the goals of better care, better health, and lower costs for West Virginians. To achieve this aim, DHHR requires a person-centric, analytically rich solution that integrates, organizes, and analyzes a broad array of data sets from diverse sources and is free from organizational boundaries and constraints. Watson Health will support DHHR in achieving its goal by delivering a WV Medicaid Enterprise Data Solution (WV EDS) that will aggregate administrative, clinical, and social data producing a single beneficiary-centric view of health and social expenditures—a flexible, integrated EDS and analytic solution that serves as a single source of truth.

WV EDS Solution Overview

Our proposed Watson Health solution for the WV EDS is a comprehensive set of integrated, interoperable commercial off-the-shelf (COTS) products, applied technologies, and best practices centered around a single enterprise data store and portal. Our proposed Watson Health solution for the WV EDS is a comprehensive set of integrated, interoperable commercial off-the-shelf (COTS) products, applied technologies, and best practices centered around a single enterprise data store and portal for a unified, cloud-based solution for Medicaid data collection, organization, and analysis.

We implement these technologies and software components applying lessons learned and with pre-built accelerators to reduce risk and enhance value to DHHR.

Figure 9. West Virginia Medical Enterprise Data Solution (WV EDS) Solution Architecture



Our WV EDS solution is delivered as a cloud-hosted, software-as-a-service (SaaS) deployment, including the installation, configuration, implementation, and deployment of all necessary infrastructure and software components. We will host the WV EDS solution on our Watson Health cloud platform, which is

compliant with all applicable state and federal regulations and offers WV DHHR the most cost-effective and flexible approach to hosting.

Our WV EDS leverages a balance of skillsets, industry-proven business intelligence (BI) and analytic capabilities, and finely tuned business processes to support DHHR's decision making. The solution components include user-friendly analytic and visualization capabilities, reports, dashboards, national analytics measures, and benchmark data; custom Medicaid data grouping methodologies, models, and analytics; and predictive modeling and geospatial analysis capabilities. The WV EDS will ingest, manage, and govern data from all relevant data sources as described in this RFP response, delivering the single source of truth for reporting and analytics for WV constituencies, both internal and external to DHHR.

Data Sources and Core Data Model

To-Be Vision: An EDS capable of interfacing with a variety of potential source solutions/entities.

The initial data sources incorporated into our WV EDS will be the data sources currently integrated in the WV DW/DSS—the MMIS operated by DXC Technology, the PEIA, and the WV HSC. We will integrate the data from these data sources into our Core Data Model (CDM), which is specifically designed to capture the data relevant to Medicaid and enterprise health and human services analytics. We leverage and apply rich analytic content, such as evidence-based measures and custom analytical methods for grouping, risk scoring, population health analysis, and benchmarking. Our CDM is designed with architectural flexibility in mind from the start. The data model and data integration components are designed to accommodate your future data sources and expanding analytic needs by supporting updates and extensions to schemas and model objects to incorporate new data fields as needed with minimal disruption to operations.

Our CDM stores and represents your data in a manner that supports intuitive, easy reporting and facilitates ad hoc queries and analytical processing. By starting with a comprehensive, nationally consistent model, we provide an easier path to federally mandated reporting, faster CMS certification, and higher levels of MITA maturity facilitated by data sharing at the national level. Furthermore, our CDM comes with a pre-populated data dictionary and business glossary of healthcare specific terminology and business terms describing the data elements within our model.

Data Integration and Governance

To-Be Vision: An EDS that supplies a modernized and comprehensive health information database for DHHR's use in promoting quality and cost-effective care.

Our solution utilizes data exchange, transformation, integration, and management software in a common framework of shared services that enable users to understand and collaborate about their data, cleanse the data, monitor its quality, transform it, and deliver it as trustworthy information. Our approach is rooted in sound data management practices and data standards, and policies and rules applied prior to the data entering the production database. We prioritize data integrity throughout the WV EDS data operations, so users trust the data with which they work.

Our processes include analytic validity checks that are focused specifically on healthcare quality business rules. Our data quality testing is based on more than 35 years of experience transforming data for use in complex healthcare analytics. While some solutions check quality by simply verifying counts, sums, and looking for blanks; our data quality checks utilize over 350 rules, such as edit standards that validate codes against your healthcare reference data, to provide an analytically ready set of data.

As the integrated data is moved into data marts, it is organized around the specific subject areas that are important to each business unit or persona and optimized for processing reports and queries efficiently within the environment. As part of our design process, we will work with DHHR to understand the types of analysis and significant dimensions, aggregations, and metrics that are important to the business units and will design the data marts to support them. We have extensive industry experience in designing data

marts for provider metrics, disease occurrence, treatment outcomes, population health drivers, and fraud investigations, among others. We will apply this expertise to the WV EDS data mart designs.

Good data governance and data management practices and capabilities make it easier to discover and understand what is really happening across the WV Medicaid data landscape. They also make it easier to determine what areas may be at risk or need focused attention from DHHR. Our solution uses integrated components sharing a common metadata repository to provide data understanding, governance, integration, and management capability. Watson Health's data integration engineers will work closely with the established DHHR Data Governance board/committee and data stewards to apply your data standards, business rules, and policies prior to the data entering the production database.

Data Sharing and Interoperability

To-Be Vision: An EDS that maximizes, promotes, and improves the use and reuse of State resources across the enterprise while minimizing duplicity of DHHR information databases.

Our WV EDS solution uses and exposes modular, reusable components and supports interoperability, integration, and an open architecture for integrating clinical and administrative data. Data management capabilities support both traditional and new data formats such as case notes, EHRs, JSON, XML, and other documents in unstructured and semi-structured data formats. Our WV EDS will acquire and share data from a variety of source systems through the Integrated Eligibility Solution (IES) vendor Enterprise Service Bus (ESB) and via any other technology or services, including publish/subscribe methods and message queues, as required. Our solution will interface with the ESB via web services that accommodate data access and sharing from any of the supported interfaces, including HL7, X12, SOAP, REST, SFTP, and message queues.

We follow the standards defined by the Center for Medicaid & State Operations (CMSO) initiative for MITA and facilitate data sharing through open interfaces, industry-standard protocols and exposed APIs. Using these standards makes the solution's technical architecture scalable, extensible, and modular. Because of this modular, MITA-aligned design, our solution can grow over time to meet the evolving needs of DHHR with minimal impact to the overall WV EDS operational solution, other vendor modules. or external partner systems. The solution architecture is also designed with the flexibility to adjust to and accommodate any emerging interoperability standards as they evolve.

Reports and Dashboards

To-Be Vision: An EDS that provides improved reporting capabilities.

Our solution's robust reporting functionality provides standard and ad hoc reporting capabilities and dashboards with state-of-the art visualization features. Our custom analytics engine puts powerful healthcare measures and methods into the hands of all users. For example, researchers can use episodes of care with disease staging to stratify patients to assess quality of care, analyze clinical outcomes and evaluate the effectiveness of alternative treatments. Our solution enables easy access by users of all types; executives, business and policy analysts, data scientists, and other power users; both internal and external to DHHR.

Authorized users can intuitively create ad hoc and parameter-based queries, design dashboards and scorecards from pre-defined templates, perform geospatial analyses and perform exploratory analysis with natural language queries, pattern detection and suggested visualizations, producing highly graphical visualizations of your data.

Report Inventory

To-Be Vision: An EDS containing various report inventories for authorized solution users to review.

WV EDS users will have a library of indexed and searchable folders for organizing reports so they can be located easily. Intuitive and fully featured search functions support user queries and search parameters.

Reports can be uploaded, downloaded, and "checked out" with document management controls that log users' activities and dates. Security functions enable protection of library contents throughout the project life cycle. In addition to recreating your current dashboards and reports, we will meet with DHHR staff to review your reporting needs and recommend a set of production standard reports based on the types of reports you currently request from our team and your evolving priorities. You may wish to preserve some of your current reports "as is;" for other reports, there may be gaps or opportunities to improve.

WV EDS Analytics

To-Be Vision: An EDS that provides improved analytics capabilities.

Analytics are fundamentally data-driven processes, with the goal of transforming data into information that will provide insight and aid DHHR in the decision making required to manage the Medicaid Enterprise. Our WV EDS includes custom methodologies and logic specifically designed to group and categorize Medicaid data and calculate meaningful metrics on the data. We will integrate information in different formats from diverse sources and systems, organizing it to support decision-making. We apply clinically sound techniques for grouping, risk scoring, population health analysis and benchmarking and derive rich analytic content including evidence-based measures. These enhancements make the data "analytically ready" for all types of users.

Quality Rating, Measures and Reports

To-Be Vision: An EDS that supplies DHHR with visibility, agility, and up-to-date monitoring of quality measures, quality ratings of both providers and their related services and HEDIS reporting requirements.

Our solution monitors complex industry-standard quality measures that reflect evidence-based medicine. We look across eligibility, claims, condition-specific data, and the physicians providing services to a patient. The quality measures evaluate the completeness of care delivered, both at the patient level and across patients for a single provider. The solution's components encompass clinical performance measures endorsed by nationally recognized entities and core quality measures for the adult and children's Medicaid populations. A broad range of reporting and analytic metrics include HEDIS key performance indicators (KPIs) and other evidence-based measures of quality and care gaps.

Data Quality Assurance and Control

To-Be Vision: An EDS that contains an analytics component that allows for quality assurance and control related activities of all data within the EDS.

Our approach to data quality begins with establishing quality thresholds and variances during requirements sessions, then applies the quality logic in the data profiling function to scrutinize the data via automated rules with defined thresholds and variances to easily gauge data quality. Our WV EDS solution applies quality rules and thresholds, evaluating the data quality across six primary dimensions: completeness, conformity, consistency, accuracy/validity, duplication and integrity.

Analytic Techniques

To-Be Vision: An EDS that supplies a variety of statistical techniques such as predictive modeling, machine learning, and data mining.

Our WV EDS solution's data mining and predictive modeling capabilities enable users to apply their business expertise to quickly develop predictive models and deploy them into business operations to improve decision making. Data science and machine learning capabilities help simplify the analysis process as it evolves from experimentation to analytic model deployment, speed data exploration, streamline model development and training, and scale data science operations. Enabled by these capabilities, DHHR can inject predictions into business processes and optimize business perspective with visual data science and decision optimization results. Our solution delivers reliable, consistent data to

mine for understanding and explanation of program trends and health conditions, and powerful analytic functionality for predicting future cost and usage.

Geographic Information System (GIS) and Geographic Data Analysis

To-Be Vision: An EDS that can assist in supplying geographic analyses of data from across the enterprise.

Our WV EDS capabilities enable users to produce maps displaying geospatial data in dashboards and perform geospatial analytics using geographic data. A built-in artificial intelligence (AI) assistant understands the intent of the user's question and intelligently presents the visualization using the most appropriate graphical display for the nature of the data and the user's perspective. For example, with geolocation (latitude/longitude) data, the system recognizes the most appropriate visualization as being a map and displays geospatial mapping of the entire globe, an individual neighborhood, or anything in between. Geographic analysis capabilities allow users to create "on the fly" drive-time analysis and geospatial reports on the data within the WV EDS.

Program Integrity

To-Be Vision: An EDS that that will support DHHR's Statewide surveillance and utilization (SUR) control program and help with identification of State programs' fraud, waste, and abuse.

Our solution for surveillance and utilization review (SUR) includes powerful data mining capabilities and a robust report generator that uses health claims and encounter data to produce comprehensive profiles of service utilization by healthcare providers, as well as profiles of services received by beneficiaries. The solution allows selection on virtually every field that is carried on a claim—placing the analyst in control, with immediate access to the critical information needed to target providers for review and audit.

WV EDS Portal

To-Be Vision: An EDS that allows for a single point of entry for DHHR and non-DHHR stakeholders.

Our solution delivers a single portal as the point of entry for all authorized users to all applications within the WV EDS. Authorized users access the system with their unique account and password, along with a unique two-factor code to validate their identity. Via this central access portal, users both internal and external to DHHR have ready access to all capabilities and applications within the WV EDS. Authorized users' capability to access reports and EDS-related content is based on individual permissions, thus enabling DHHR to segregate access to content and reports by an individual's role, (e.g., provider or member).

Care Management

CM001	The solution should have the ability to collect and maintain data necessary to support budget neutrality reporting requirements as specified by the Centers for Medicare & Medicaid Services (CMS) and the Department

Our WV EDS solution features a federal reporting data mart and processes configured to meet DHHR's unique program characteristics. Our solution has been certified under the Medicaid Enterprise Certification Toolkit (MECT) for Federal Reporting and also meets the reporting requirement specified by CMS. Budget neutrality reporting (i.e., for section 1915c waivers through the annual CMS 372 reports and through quarterly and annual reporting for the section 1115 waiver) is among the reporting types we have provided to other states to meet certification and other regulatory requirements.

To support DHHR in managing and overseeing the financial health of the program, as well as to support the quarterly reporting requirements, we will work closely with you to collect and report all data relevant to section 1115 waiver budget neutrality in the format required by the state and by CMS in accordance with the waiver requirements. Data reported includes allowable demonstration expenditures subject to the

budget neutrality limit, as well as member months for demonstration eligibles. We also can assist West Virginia on an ad hoc basis with analysis of data in addition to fulfilling ongoing reporting requirements.

Watson Health is very familiar with section 1115 waiver reporting requirements through a number of projects for CMS. As a subcontractor to CVP, we are developing a national database of Section 1115 Waiver Demonstrations based on the routine quarterly reports submitted by states. We are abstracting data from these reports to populate a standardized data reporting tool and developing recommendations on standardizing the reporting requirements for approved Demonstrations.

CM002	The solution should have the ability to generate fee-for-service (FFS) claims reporting for services furnished outside of a capitation agreement including, but not limited to services carved out of the managed care program

Watson Health understands the challenges of integrating traditional and nontraditional Medicaid data types. We have integrated both managed care and fee-for-service (FFS) data for many Medicaid agencies. Our WV EDS retains all the data needed to set, monitor, and report on utilization and expenditures for FFS providers and for capitated health plans, including claims and encounter data. Our proven extract, transform, and load (ETL) and data quality management processes let us maintain complete and accurate data for reporting, even when an FFS claim for a service is provided outside of a capitation agreement.

This means that when a member of a managed care program requires a carve-out service—one normally excluded from a capitation agreement with a managed care organization (MCO)—and payment for the service is processed through the Medicaid Management Information System (MMIS), this claim is available for FFS reporting. Moreover, this FFS claim can be integrated with encounter data and capitation data to enable you to understand total utilization and cost of care for that member, with aggregation by primary care physician and MCO.

Our Core Data Model standardizes data to support comparisons across health plans and across managed care and FFS experience. It also incorporates capitation, administrative fees, and any other nonclaims financials needed to capture the data needed to gain a complete picture of expenditures under managed care, including FFS carve-outs.

CM003	The solution should have the ability to capture and support analytics of data on member service utilization including, but not limited to
CM004	Behavioral health services
CM005	Medical services
CM006	Dental services
CM007	Pharmacy services
CM008	Others as defined by the Department

Service utilization is a basic factor of analysis for the WV EDS, a main component of healthcare analytics, reporting, and planning. Using our solution, DHHR can analyze claim, encounter, and demographic data to ascertain individual members' participation, investigate comparative utilization patterns (as with surveillance and utilization review functionality), perform predictive analysis to anticipate individual or program utilization trends, or conduct program-wide analysis of patterns and costs of care for better informed program, service, or budgetary planning.

As West Virginia's long-term vendor for SURS and DW/DSS, we bring well-established knowledge of DHHR's data environment for service utilization types and a proven analytic capability.

The WV EDS supports data management and analytics of service utilization for any type of service that members receive through

Medicaid, from any of the required data sources. Supported service utilization types include the following:

- **Behavioral Health Services.** The solution supports analysis of Medicaid behavioral health claims and encounters, including data for waiver programs. We also can leverage Watson Health's experience on projects for the Substance Abuse and Mental Health Services Administration (SAMHSA), CMS, and other states to expand additional behavioral health data sources. For example, we have experience with SAMHSA's Treatment Episode Data Set (TEDS), which compiles data on substance abuse treatment admissions and discharges from state agency data systems, including West Virginia. We propose to work with DHHR to identify utilization data sources for integration; for example, the RFP identifies the West Virginia Adult Behavioral Health Placement Network database as a target for integration with the Integrated Eligibility System.
- **Medical, Dental, and Pharmacy Services.** Designed specifically for Medicaid, our Core Data Model incorporates claims and encounters for medical, dental, and pharmacy services as a standard data dimension. The data model supports the incorporation of claims, clinical, and ancillary data sources to create a complete and transparent member and program view for DHHR. Our model easily supports the integration of traditional healthcare data, plus social determinants of health, to provide a 360-degree view of member health status.
- **Other Services Defined by DHHR.** The Core Data Model (CDM) we use as a starting point for the EDS is flexible and expandable; we have extended it over time to incorporate broader program data from programs such as mental health, public health, and aging, as well as clinical data from Health Information Exchanges (HIEs). As DHHR identifies new programs or services, we augment our CDM with new dimensions, attributes, or data fields that are specific to West Virginia's programs and data element requirements.

Out-of-the-box, the CDM supports many of your healthcare analytical needs, including ad hoc reporting, data mining, and statistical analysis. It provides the in-depth understanding of the data needed to support analysis of access to care, services delivery and payment, and health outcomes. The data model contains the following standard, reusable data dimensions such as Member, Provider, and Claim.

During Design, Development, and Implementation (DDI), we use the CDM to jumpstart the implementation and augment it with new dimensions, attributes, or data fields that are specific to West Virginia's programs, business practices, and policies. This proven technique lowers implementation effort and risks, while accelerating analysts' ability to derive insights from utilization data.

CM009	The solution should have the ability to track the number of members assigned to providers

Our solution associates providers with their patients by linking provider records to the records of members they have seen and member records to the records of providers they have seen. These associations include which members are assigned to specific providers, so the number of members assigned to a provider is tracked and can be queried.

CM010	The solution should have the ability to capture provider data including, but not limited to
CM011	Provider identification (ID) number
CM012	Provider type
CM013	Provider specialty
CM014	Provider affiliation
CM015	Provider physical address

CM016	Provider mailing address
CM017	Others as defined by the Department

As with our current DW/DSS solution, the new WV EDS collects provider enrollment and attribute data, such as identification numbers, type, specialty, affiliation, and addresses. Within the EDS, member, provider, and claim data are linked on the basis of date of service. This supports efficient reporting of members, services, and payments by provider characteristics, as well as more complex analyses like access to care and provider peer comparisons for program integrity review.

Our solution incorporates InfoSphere Information Server, which leverages the Master Client Index established by the System Integrator to establish and maintain "golden records" from disparate systems. Completely cleansed and standardized, this record becomes the source of truth for information about discrete entities such as providers, members, facilities, and locations. This tool prevents duplicate records, so an entity appearing in a report is the only instance of that entity.

CM018	The solution should have the ability to track a provider's capacity to accept additional members

Our WV EDS solution's Core Data Model and MPI approach allow a provider's capacity to be assigned as an attribute in its record. Your analysts can evaluate provider participation in light of a provider's overall capacity if the provider file contains capacity indicators. This allows users to track and query how many additional members a provider can accept given the current number of members assigned.

CM019	The solution should have the ability to identify providers based on provider type and/or specialty

Provider type and provider specialty are standard elements in Master Provider Index records, which allows our WV EDS solution to identify providers by these elements for provider search, analytics, and reporting functions.

CM020	The solution should have the ability to capture and support analytics of data for cost reporting and financial monitoring of waiver programs

West Virginia's Waiver 1915c Home and Community Based Services (HCBS) Waiver programs promote personalized, community-based, or innovative care for vulnerable populations—but CMS rules require that they cost less than institution-based equivalents. To maintain these programs, DHHR must demonstrate that, for example, members in the Aged/Disabled Waiver Program or Traumatic Brain Injury Waiver Program cost the federal government less than they would in nursing or long-term care facilities.

Our EDS solution provides extensive functionality for managing and evaluating HCBS waivers, including both performance and financial elements. For federal reporting requirements, our solution supports required budget neutrality analysis (as described in our response to CM001) through the CMS 372 and CMS 372(s) reports. We have helped several state clients configure, implement, and maintain CMS 372 and CMS 372(s) reports for their waivers. Watson Health has nationally recognized experts in long-term services and supports who can advise on ongoing changes in HCBS reporting requirements.

Our WV EDS provides the opportunity to advance in Medicaid Information Technology Architecture (MITA) maturity from a compliance mindset to a focus on continuous quality improvement. Static reports that previously were used to satisfy federal reporting requirements become dynamic tools to improve population and program health. For example, we worked with one state to help it leverage the annual 372 HCBS report logic to create new quarterly and ad hoc reports targeted to specific program needs. The new reports help the state outreach to participants to improve care, identify policy changes, review enrollment waiting lists, and initiate recoupments.

Our WV EDS also supports monitoring and cost reporting on the state's 1115 waiver. Our solution is scalable for adding data sources, so it can accommodate all of your waiver programs as they continue to

evolve. It provides full query and analysis capabilities to evaluate these programs, including requirements to demonstrate cost neutrality. The WV EDS solution enables DHHR to track each waiver's financial outcomes at both the individual and program level.

CM021	The solution should have the ability to capture current and historic utilization trends including, but not limited to
CM022	Inpatient specialty care
CM023	Inpatient substance use disorder (SUD) services
CM024	Others as defined by the Department

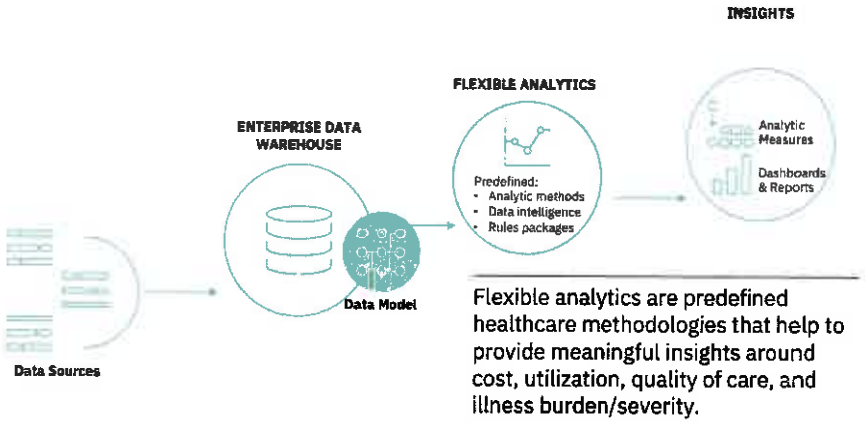
The WV EDS is designed to capture current and historic utilization trends for all services provided through Medicaid, including inpatient services. The solution includes IBM Flexible Analytics Engine, a set of predefined healthcare methodologies and measures for enriching the data in the EDS to support healthcare analytics and reporting. One of these analytical models is the Inpatient Admissions Grouper (IAG), which summarizes all services for a patient that occur during an acute inpatient confinement episode. The resulting admission serves as a proxy medical record for an inpatient stay, combining all the associated services and costs (hospital and physician) to assess cost and quality of hospital care.

The IAG admission build software enhances the data by assigning Major Diagnostic Categories (MDC) and diagnosis related groups (DRGs), admission type, procedure groups, and disease staging classifications. MDC information supports data comparisons that allow the solution to capture trends. It compares healthcare utilization and costs among populations for general medical conditions and provides an overview of the diagnosis mix of claims for members. DRG information provides a standard for comparing the cost and utilization of medical services for cases that are medically similar.

These clinical enhancements are critical for comparisons to normative data and making fair comparisons between providers. Classifications of inpatient admissions by admission type, which is determined by the case's MDC and DRG, also are available. Five broad admission types support trend analysis for inpatient specialty care, inpatient substance abuse disorder (SUD) services, and any others defined by DHHR: Surgical, Medical, Maternity/Newborn, Psychiatric, Substance Abuse, plus Other/Unknown.

Like the other analytical models in the Flexible Analytics Engine, the IAG uses predefined measures that save analysts time and improve consistency and clinical credibility of reporting and analysis across the enterprise. The models in the Flexible Analytics Engine are applied to all years of the data in the WV EDS, allowing for trend analysis.

Figure 10. The Watson Health Flexible Analytics Engine. *Provides advanced analytic modeling and methodologies to support profiling, risk scoring, and program management.*



Watson Health has extensive experience with hospital discharge data because we have been the prime contractor to the Agency for Healthcare Research and Quality (AHRQ) for the Healthcare Cost and Utilization Project (HCUP) for more than 30 years. For this project, we receive hospital discharge data from more than 45 states (including West Virginia) and incorporate data from more than 4,500 hospitals. We transformed these state-specific data layouts into uniform State Inpatient Databases and State Emergency Department Databases. HCUP contains the largest collection of longitudinal hospital care data in the US.

CM025	The solution should have the ability to develop metrics to support the evaluation and monitoring of substance use disorder (SUD) including, but not limited to
CM026	Using claims and/or encounter data
CM027	Using prescription data
CM028	Using Prescription Drug Monitoring Program data
CM029	Using public health registries
CM030	Using public health syndromic surveillance data
CM031	Using vital statistics data
CM032	Using enrollment data
CM033	Using data from West Virginia Health Information Network (WVHIN)
CM034	Using Emergency Department Information Exchange (EDIE), and/or event notification data
CM035	Using other data as defined by the Department

Our WV EDS solution is designed to aggregate large amounts of data from diverse data sources for detailed reporting, analytics, and dashboarding. It enables you to analyze and identify the most valuable metrics for evaluating and monitoring any aspect of DHHR's Medicaid programs, including SUD programs and trends. In developing metrics for analyzing SUD in West Virginia, DHHR can use any type of data available in the data warehouse and as specified by the department, including:

- Claims and/or encounter data
- Prescription data
- Prescription Drug Monitoring Program data
- Public health registries
- Public health syndromic surveillance data
- Vital statistics data
- Enrollment data
- Data from WVHIN
- Emergency Department Information Exchange and/or event notification data
- Vital statistics data

SUD services have become an increasingly important offering in state Medicaid programs with the widespread severity of the opioid problem. Watson Health has developed an intensive level of SUD expertise through our work on numerous projects for SAMHSA, CMS, and state clients, including initiatives related to preventing and treating opioid use disorders. This experience has deepened our understanding of the opioid epidemic, allowing us to help develop and disseminate strategies to address opioid use and evaluate the impact of interventions. In our role as CMS's lead contractor on the Medicaid Innovation Accelerator Program (IAP), Watson Health has worked with dozens of states to reduce SUD. Our subject matter experts in this area have developed, organized, or presented national seminars and workshops and provided direct technical support to states with 1115 SUD Waivers—including West Virginia. Our IAP team has provided data analytics support to help states develop dashboards and other reports on SUD/Opioid Use Disorders.

Under our current DW/DSS contract for West Virginia, we have conducted extensive analyses to inform Medicaid SUD monitoring and evaluation. We have supported the Bureau for Medical Services in multiple CMS SUD IAP efforts, including analytic projects to assess opioid use disorder and medication-assisted treatment, the development of an SUD dashboard, and an analysis of the impact of brief referrals to treatment after Naloxone administration by emergency medical services. Our current team also has developed metrics and intends to conduct analyses for the quarterly and annual CMS 1115 SUD Waiver Monitoring Report.

Watson Health has proven experience and expertise in SUD analyses in West Virginia and across the country. The addition of new data sources in the WV EDS will allow us to enhance the breadth and depth of SUD monitoring and evaluation in the future.

CM036	The solution should have the ability to generate reports on capitation payment by eligibility group and rate code

Like the current DW/DSS, the new WV EDS solution will collect capitation payment data and have the ability to report on those payments by member demographic and eligibility attributes. Cognos Analytics, included in WV EDS solution, provides query and reporting capabilities to support analysis and reporting on any subject for which data exists in the EDS data warehouse, including capitation payments to MCOs. Designed to support the most detailed, highly specific queries, Cognos Analytics allows DHHR to generate reports and dashboards for any data type, including eligibility group and rate code.

General payment reporting of course is essential for monitoring program costs. Capitation payment reporting extends this capability to tasks such as evaluating the appropriateness of capitation rates and generating reliable data that actuaries can use to calculate capitation rates. Moreover, MCOs may not always properly identify and recover suspected or known overpayments, which can lead to these overpayments being factored into future MCO capitation payments. By providing complete transparency and analysis for capitation payments, our WV EDS provides DHHR with a critical tool for MCO oversight and program integrity.

Capitation payment reviews are part of Watson Health's capability in this area. For example, we have helped a number of states identify and recover capitation payments made in error for members who were not eligible for managed care. We have supported states in performing reconciliations between the MCO Plan Paid amounts reported in the encounter data to capitation amounts and MCO self-reported financial expenditures. This helps identify opportunities to improve the completeness and accuracy of the managed care encounter data and to detect expenditure trends in the encounter data that could have a future impact on rates. We also implement data extracts for CMS's required Transformed Medicaid Statistical Information System (T-MSIS) reports, which include Medicaid expenditure data.

CM037	The solution should have the ability to capture information on contracted Managed Care Organizations (MCOs) including, but not limited to
CM038	Geographic areas served
CM039	Capitation rates

The WV EDS solution captures all available MCO data. Our current DW/DSS solution captures MCO data via an interface with the Medicaid Management Information System (MMIS). Although we are able to continue this practice, our new WV EDS solution has the capability to capture data through direct interfaces with the MCOs as DHHR has envisioned. We work with each of the MCOs contracted with the Mountain Health Trust to establish these interfaces to include all of the data elements required by DHHR, including but not limited to MCO geographic service area and capitation rates. The solution's IBM® InfoSphere® component will cleanse, standardize, and consolidate the MCO data, which then are available for the Cognos Analytics component's comprehensive reporting and analytics capability.

Cognos Analytics provides ad hoc reporting, dashboarding, and other visualization tools that let DHHR analyze any type of data in the system. And because data captured include geographic information such as street addresses, postal codes, and counties, the solution's geospatial capabilities allow DHHR to capture and analyze geographic areas served by the MCOs. The solution takes geospatial analytics even further, allowing you to visualize data in geospatial ways and quickly identify relationships, patterns, and trends—for example, drive time analysis, underserved areas, utilization hot spots, or geographic patterns of disease prevalence and outcomes.

Capitation rates are a standard data type associated with MCOs, so they are readily captured for reporting and analysis. We store the capitation rates at the most granular level available; that is, by rate cell and other relevant cuts. This enables you to model future rate changes and evaluate the impact of past rate adjustments. We also store capitation payments by member to help clients identify instances when capitation payments have been made in error for members who are ineligible for managed care.

CM040	The solution should have the ability to produce managed care program reports including, but not limited to
CM041	Category of service
CM042	Category of eligibility
CM043	Provider type and/or specialty
CM044	Other parameters as defined by the Department

With the reporting capabilities in Cognos Analytics, users can create ad hoc and parameter-based queries, access standard reports, and produce a range of visualizations focused on a highly specific range of data. DHHR can generate detailed reports on virtually any aspect of the managed care program, its members, and contracted MCOs. We predefine commonly used reporting dimensions and standardize these across MCOs to facilitate efficient, consistent reporting. Regardless of the type of report, users have flexibility to "slice and dice" the information by familiar parameters such as service category, eligibility category, provider type or specialty, MCO, region, year, or other groupings DHHR may define; for example:

- Dashboards and other standard reports can be designed with guided navigation features that allow viewers to interact with the data to answer their own questions on demand.
- Parameterized reports give users who often look at the same type of data a simple way to obtain an ad hoc report, even on detail-level data, with little effort. Although the report or dashboard fields remain the same, the information contained is refined by the parameter.
- Ad hoc report developers will have ready access to predefined reporting parameters and can drag and drop these onto reports. Cognos enables you to easily explore relationships in the data and recommends visualizations that might be appropriate for your data.

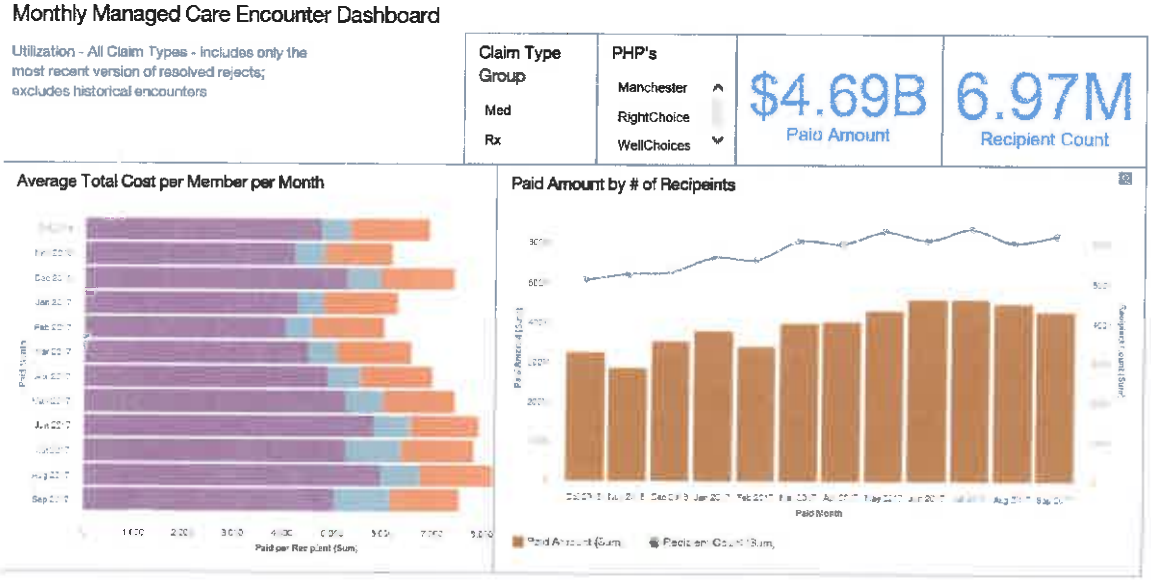
CM045	The solution should have the ability to process encounter data to detect overutilization and underutilization of services by managed care members

Identifying overutilization and underutilization of services is critical to maintaining West Virginia's managed care program integrity. Our WV EDS solution incorporates a surveillance and utilization review (SUR) capability that uses encounter data and other data elements to detect these conditions, which can indicate instances of fraud, waste, and abuse. Overutilization can indicate that a provider is delivering more services than necessary. If the services are FFS (i.e., a managed care carve-out), this could be an attempt to generate extra revenue. With underutilization, a provider receiving a capitated rate may be withholding services to reduce expenses. Either case may indicate unethical, fraudulent, or abusive practices, and both threaten the integrity of West Virginia's managed care programs.

To detect these conditions, our solution processes encounter and other data for statistical profiling of provider and member healthcare practices compared with peer groups for all categories of service authorized under the Medicaid program. We have developed a set of ranking and profile report templates that has proven successful in other states. We meet with you during DDI to confirm the reports we intend to implement to statistically compare the utilization of members and providers to relevant peer groups to identify outliers for further investigation. We also work with you to confirm the appropriate measures, weights, ranking methods, and so forth. Our system supports comprehensive profiling with flexibility to set parameters and criteria to meet DHHR analytic needs.

Providing this capability as part of WV EDS continues a history that began in 2004, when Watson Health (then Truven Analytics LLC) began providing SURS solutions for West Virginia. Watson Health brings deep experience with SURS. We support SURS solutions that passed full CMS certification in 11 states pre-MECT, and in seven states to date under the MECT.

Figure 11. Sample Managed Care Encounter Dashboard. *Showing utilization for the past month.*



Our EDS solution has a wealth of other capabilities that support utilization analysis, including a standard set of fraud algorithms, statistical data mining to identify outliers and aberrant patterns, episodes of care to study disease-specific treatment patterns, and geospatial "hot spot" analysis to identify areas with concentrations of over- or underutilization.

CM046	The solution should have the ability to collect and sort encounter data for use in setting capitation rates.

Our WV EDS solution collects, processes, standardizes, sorts, and retains all the data needed to set and monitor reimbursement rates for capitated health plans as well as FFS providers, including encounter and claims data, nonclaims financial data, provider enrollment data, reference data, MCO-reported financials, and member health risk scores. Our ETL and data quality management processes results in data that is complete and accurate for rate setting and other fiscal analysis.

The solution supports the full range of reporting and analytic needs in this important area, including modeling future rate changes, evaluating the impact of past rate adjustments, analyzing cost drivers under managed care, evaluating the appropriateness of capitation rates, and generating reliable data that actuaries can use to set capitation rates.

Watson Health has helped 15 state Medicaid agencies validate and improve the quality of their managed care encounter data for purposes such as rate setting, federal reporting, performance management, and quality improvement

For managed care programs, we have created extracts for actuarial consultants responsible for setting rates and collaborated with these programs on initiatives to improve the quality of encounter data for rate-setting. We have supported states in comparing plan-reported payments on claims to MCO expenditure reports and capitation.

CM047	The solution should have the ability to identify fee-for-service (FFS) claims submitted for members covered by managed care

The WV EDS provides capabilities to identify FFS claims submitted for managed care members and helps DHHR determine whether these claims are appropriate or require further investigation for potential billing errors or fraudulent practices. Our solution incorporates InfoSphere Information Server, which leverages the Master Client Index established by the System Integrator to create and maintain "golden records" from disparate systems. This enables the EDS to capture total use and costs for a member across managed care and FSS programs and across claims and nonclaims expenditures (capitation). This gives you a complete understanding of members who may have moved from FFS to managed care during the year, or members who use services that are "carved out" of managed care and/or covered and reimbursed as an FFS wraparound.

By organizing claims and encounter experience at the unique member level, the solution helps you detect duplicate FFS claims for services covered by managed care, on the basis of member enrollment data and the date and type of service. Watson Health has helped clients deploy algorithms to detect FFS claims that are duplicated in the encounter data or submitted during a managed care enrollment period. In the WV EDS, these algorithms can be configured and automated to run on a scheduled basis to support timely investigation and recoupment.

CM048	The solution should have the ability to use claims and encounter data to identify persons with special health care needs, as specified by the Department

WV EDS users will have extensive flexibility to apply any combination of data within the data warehouse (claims, encounters, eligibility/enrollment, and more) to identify persons with special healthcare needs; for example, children with chronic physical, developmental, behavioral, or emotional conditions. On the basis of criteria specified by DHHR, users can identify members with special healthcare needs using data elements like aid categories, waiver programs, diagnosis and procedure codes, health risk scores, utilization histories, demographic/social factors, and any available assessment data. This flexibility helps you design, monitor, and improve waiver programs and other care management initiatives, such as the recently approved section 1115 waiver provision for a single specialized managed care plan for children with serious emotional disorders.

Leveraging the solution's data mining, statistical analysis, predictive modeling, and data analytics capabilities, you can identify members with similar care management requirements, predict members with emerging health risks, and the like. Additionally, Flexible Analytics incorporates several advanced, healthcare-specific analytic capabilities that are helpful in grouping patients on the basis of their clinical needs. For example:

- **Disease Staging** is our solution's condition classification system and forms the basis of medical episode groups. First developed in 1983 by the organization that is now Watson Health, in partnership with Jefferson Medical College, Disease Staging now is in its fifth edition and has more than 570 disease categories. It uses clinical findings to describe a patient's condition and clinical severity. Patients with similar clinical characteristics are likely to require comparable treatments and have similar expected outcomes.
- **Cost of Care Model for Medicaid** calculates risk scores for members to estimate the expected healthcare costs of a population enrolled in a program, health plan, or primary care provider. Risk scores are assigned using age, sex, conditions, and severity levels from inpatient and outpatient claims. In addition to estimating a risk score, the cost model provides "reason codes" to help explain the score. Each of these reason codes describes a medical condition and quantifies its contribution to the risk score. This information can assist with understanding the drivers of underlying risk, as well as identifying actionable individuals for disease management.

CM049	The solution should have the ability to access and report on encounter data including, but not limited to
CM050	Monitor appropriateness of care
CM051	Determine shared member financial responsibility that includes true out-of-pocket costs
CM052	Profile Managed Care Organizations (MCOs) and compare utilization statistics
CM053	Other purposes as defined by the Department

Cognos Analytics offers a comprehensive array of query, reporting, and data visualization tools to support analytics for encounter data, or any other type of data that exists on the platform. Its ad hoc reporting, dashboards, statistical analysis, and data mining can be used to uncover any kind of trend, comparison, or relationship across West Virginia's Medicaid program. Flexible Analytics supports the evaluation of encounter and other program data not as a single occurrence, but in relationships that provide a broader perspective. These reporting and specialized analytics capabilities can be applied to any measure or data set, including encounter data. For example:

Monitoring Appropriateness of Care. Our industry-leading methods, measures, and benchmarking help you assess treatment practices and compare providers with their peers, which enables detailed monitoring for appropriateness of care provided to your members. The Medical Episode Grouper (MEG) builds episodes, assigning severity of illness within them, so that inconsistent or inappropriate care can be identified easily. The Quality Rules Engine helps you assess compliance with evidence-based guidelines.

The Watson Health WV EDS solution is optimized for reporting on managed care encounter data for analysis best practices such as:

- Track member and provider enrollment with MCO
- Capture MCO-denied and paid encounters
- Capture MCO-paid amounts and paid dates
- Capture member out-of-pocket payments
- Capture capitation, rate cells, incentive pay, and so forth
- Distinguish MCO versus FFS services
- Standardize data elements across programs
- Calculate Total Cost of Care
- Apply MDM to uniquely identify entities

Determining Shared Financial Responsibility. Comprehensive financial information is built into our Core Data Model (CDM), which is designed to accommodate financial data like submitted, allowed, coinsurance, copayments, deductibles (patient out-of-pocket), third-party amounts, and net payments. The CDM includes paid claims and encounters, denied claims and encounters (if submitted by the health plans), and claim/encounter adjustments. With this level of detail captured for

each member and service event, the WV EDS can provide an accurate picture of cost sharing, with reports and comparisons for estimated versus true out-of-pocket costs.

MCO Profiling. The solution lets DHHR create comprehensive profiles of West Virginia's MCOs that include any type of reportable or comparative data, including utilization statistics. For example, you can compare inpatient hospital utilization using a variety of measures produced by Flexible Analytics' Inpatient Admissions Grouper. Our reports, dashboards, or other visualization tools let you compare specific statistics or details between MCOs.

CM054	The solution should have the ability to support analytics of fee-for-service (FFS) claims statistics and encounter data including, but not limited to
CM055	Timeliness of care
CM056	Quality of care
CM057	Patient outcomes

Our solution supports broad analysis of cross-program data—including FFS, managed care encounter data, social programs, and health programs—to enable DHHR to assess the quality and timeliness of care and to measure improvements in patient outcomes.

Timeliness of Care. Many of the Quality Rules Engine (QRE) measures assess whether recommended preventive and chronic care management services have been provided within guideline-specified time frames (e.g., follow-up after hospitalization for mental illness with 7 or 30 days). The stages of clinical severity within Disease Staging enable clinical reviewers to assess disease progression as it may relate to timeliness and effectiveness of care.

Quality of Care. The QRE calculates complex industry-standard quality measures that reflect evidence-based medicine. QRE handles sophisticated logic to look across eligibility, claims, condition-specific data, and the physicians providing services to a patient. Users of QRE can evaluate the completeness of care delivered, both at the patient level and across patients for a single provider. The WV EDS includes two measure packages within QRE:

- **Physician / Health Plan.** The Physician/Health Plan Focus Package includes clinical performance measures endorsed by nationally recognized entities, such as the National Quality Forum. Most of these measures are based on criteria defined by the National Committee for Quality Assurance, the American Medical Association-convened Physician Consortium for Performance Improvement, and others.
- **Medicaid.** The Medicaid Focus Package includes core quality measures for the adult and children's Medicaid populations that can be created based on administrative data. These rules assist our state clients with reporting to CMS and provide insight into the quality of healthcare that Medicaid patients receive.

Patient Outcomes. The WV EDS loads Vital Statistics birth records that are critical to understanding outcomes such as rates of low birthweight babies, as well as hospital discharge data that can provide a view of trends in potentially avoidable admissions and readmissions across West Virginia payers. Our Core Data Model accommodates other clinical data sources, such as data from the Health Industry Number (HIN) or lab data, to measure improvements in control of conditions like high blood pressure and diabetes, or Minimum Data Set nursing facility assessment data to assess changes in functional status.

CM058	The solution should have the ability to receive population health data from various external entities including, but not limited to
CM059	Public health surveillance data
CM060	Census data

CM061	Vital statistics data
CM062	Others as defined by the Department

The WV EDS can receive population health data from a wide array of external sources. Public health surveillance data from the Centers for Disease Control and Prevention (CDC) and other sources is a helpful reference for clinical decisions. Census data is useful for demographic analysis and social determinants of health, and our solution incorporates it for geographic analysis. Vital statistics data, such as birth and death records, are valuable for measuring quality of care and conducting fraud and abuse analysis. Other external data sources we integrate include All Payer Claims Database (APCD) data, Administrative Discharge data, Cancer Registry data, Public University Health Plan data, HIE data, Supplemental Nutrition Assistance Program (SNAP) and Temporary Assistance for Needy Families (TANF) data, and behavioral health and intellectual disability data. The solution can receive and report on data from any external source defined by DHHR.

Watson Health has experience loading and analyzing disparate data sources for our clients. In Colorado, for example, our Business Intelligence and Data Management system includes data from disparate sources such as CORHIO (HIE), Connect for Health Colorado (HIX), CBMS (Eligibility), financial and nutritional assistance programs, as well as the state's new Medicaid Management Information System/ Pharmacy Benefit Management systems. The system supports real-time interfaces and bidirectional data sharing and can integrate data from over 50 data feeds in a single location for reporting and business process analysis.

CM063	The solution should have the ability to interface with data sources necessary to support analytics and report on social determinants of health

Our solution can help DHHR make connections with respect to social determinants of health, which are most often identified through cross-disciplinary analytics. Our Core Data Model supports analytics for claims, encounter, clinical, and other traditional healthcare data alongside data sources relevant to social determinants of health, for a 360-degree view of member health status.

The diverse data sets that our WV EDS solution can accommodate for analytics and reporting on social determinants of health include other income-related benefits (SNAP, TANF) and social program data (behavioral health, aging, child welfare, housing assistance). The solution also supports geographic linkage of enrollment or claims data to data sets that capture sociocultural characteristics, including publicly available data from the census, CDC, and the Bureau of Labor Statistics. For example, we have geographically linked Claritas PRIZM® Premiere Segmentation sociodemographic clusters and Watson Health IBM PULSE® Healthcare Survey data to client eligibility data to help payers use sociodemographics to better address members' needs.

CM064	The solution should have the ability to support analytics of population health data to develop health improvement communication materials including, but not limited to:
CM065	Campaigns to enroll new members in existing programs
CM066	New programs and services
CM067	Updated benefits/reference information
CM068	Others as defined by the Department during Design, Development and Implementation (DDI)

The population health data sources discussed in CM058 through CM063, when combined with other WV EDS analytics on service utilization and other trends, are valuable for developing health improvement communication materials to inform members and other stakeholders about program opportunities, new services, updated benefits, and other trends that affect them. Our solution can help you pinpoint the members most likely to benefit from enrolling in existing programs or in new programs and services. The

WV EDS can support analyses to identify the specific members affected by changes in benefits, reference information, or policies. This allows DHHR to create communication materials for the right population of members. Our geospatial analytics capabilities can help you narrow the focus to specific regions or service areas. Watson Health subject matter experts are available to DHHR to help design analytics for other communication materials or outreach campaigns. We propose to work with you during DDI to identify other analytics needed for your communication materials.

CM069	The solution should have the ability to capture each Managed Care Organizations' (MCOs') provider data including, but not limited to
CM070	Provider identification (ID) number
CM071	Provider type
CM072	Provider specialty
CM073	Provider affiliation
CM074	Provider physical address
CM075	Provider mailing address
CM076	Others as defined by the Department

The same capabilities for capturing provider data described in response to CM010–CM017 apply to the capture of this MCO provider data.

Financial Management

FM001	The solution should have the ability to obtain various listings of the procedure, diagnosis, and preferred drug list (PDL) files

The WV EDS uses various standardized code sets for validating and analyzing data in administrative information, clinical records, billing, and reimbursement. Cognos Analytics provides prompted reporting capabilities that enable nontechnical users who frequently need to pull code or claims listings to generate these reports by specifying relevant parameters, such as dates of service. Users can easily produce listings of these code sets as reference data or listings of claims billed using the codes. These listings include:

- **Procedure Listings.** The WV EDS uses standard procedure listings, including the Current Procedural Terminology (CPT) maintained by the American Medical Association, which CMS uses for Medicaid billing, and the Healthcare Common Procedure Coding System (HCPCS), a standardized set of procedure codes based on the CPT.
- **Diagnosis Listings.** The WV EDS uses the International Classification of Diseases (ICD) code set, which classifies injuries, diseases, and illnesses for standardized clinical information and reporting purposes. We also support the Systematized Nomenclature of Medicine (SNOMED), which is another vocabulary used to communicate clinical terminology, and Logical Observation Identifiers Names and Codes (LOINC), which standardizes clinical laboratory findings.
- **Preferred Drug List.** The WV EDS uses the preferred drug list (PDL) provided by DHHR's vendor or another preferred drug indicator as directed by DHHR. The PDL standardizes the set of medications available under DHHR programs without prior authorization, which helps manage costs for the state, discounts for members, and guidance for providers. The solution also stores the up-to-date National Drug Code (NDC) list, which supports standardized reporting for prescriptions, billing, dollars reimbursed, and other factors.

Our solution helps assess and determine reimbursement methodologies by providing expenditure data billed using the applicable service codes (CPT, HCPCS, ICD, NDC). The system stores data coded using

any of these standards. These codes allow analysts to model the impact of potential changes in rates and coverage, with the ability to perform what-if modeling. Users can generate reports at the code level or roll up the basic code fields into clinically relevant groups.

Because all code descriptions are table based, they are easily updated as needed. Working with DHHR, we will establish, document, and maintain standard procedures for updating these data elements. The WV EDS will retain all versions on a reference table and the system automatically will pull from the correct version. This is an improvement over the current DSS, which contains only the most recent lists.

FM002	The solution should have the ability to support analytics and reporting on claims processing errors including, but not limited to
FM003	Frequency
FM004	Extent and type of provider
FM005	Others as defined by the Department

The WV EDS supports a comprehensive range of claims reporting and analytics, including standard and ad hoc reports of claims processing errors. Cognos Analytics supports detailed reports on error frequency, type, extent/impact, and so forth, by type of provider or other relevant dimensions defined by DHHR. Cognos reports on any type of reportable data, so DHHR can define parameters, create visual dashboards, and drill down to analyze claims error data in detail.

We also offer several additional specialized capabilities for reporting on claims processing errors:

- An optional solution supports the generation of extracts required for the CMS **Payment Error Rate Measurement (PERM)** program, which estimates the rate of improper Medicaid and Children's Health Insurance Program (CHIP) payments at the state and national levels. We have supported other states by creating PERM data extracts according to the CMS-specified three-year rotation schedule. As directed by DHHR, we can create quarterly claims data extracts and submit them for CMS PERM reporting.
- We maintain a **Fraud Algorithm Library** that gives our solution broad capabilities for fraud, waste, and abuse detection and prevention. Our analytic consultants can access methods from these algorithms that can be used retrospectively to identify postpayment recoveries, as well as to support prepayment interventions like provider education, payment policy refinement recommendations, claims and edit system improvements, and placement of providers on prepay review. The library serves as a starting point to develop West Virginia-specific algorithms; we will work with DHHR to develop those.
- Our optional **Vulnerability Assessment** uses thousands of proprietary analytic algorithms and models to assess paid claims and help identify areas of potential fraud, waste, and abuse; misuse; problematic billing; and incorrect payments. Information sources include CMS's National Correct Coding Initiative (NCCI) edits, which lets us confirm that the MMIS is using up-to-date codes for accurate payments. Among other features, Vulnerability Assessment can help DHHR identify claims that may warrant recovery of overpayment, claims that contain coding errors or otherwise appear to have been miscoded, and long-term savings opportunities—claims that would be denied in the future, if new policies, procedures, edits, education, or other activities are put in place.

All of these features contribute to effective program and healthcare cost management. At the most basic level, the WV EDS captures, stores, and reports on the data needed to enable DHHR to monitor payment processes, predict payment trends, and take timely corrective action. It captures error codes on denied claims and reports on high-volume error types to support efforts to improve provider and processor education and to detect potentially abusive or fraudulent provider billing patterns.

FM006	The solution should have the ability to report based online and subline categories to all claim line details that correspond to the CMS-21 report

Watson Health has produced required federal reports for our Medicaid clients for 20 years, including preparing data for the CMS-21, CMS-21B, CMS-37, and CMS-64 reports, and our solutions have been certified under the MECT for federal reporting. To speed implementation, we have a standard federal reporting data mart and processes that our team configures to meet West Virginia's unique program characteristics for reports, including the CMS-21 and CMS-64 reports.

We work with DHHR during requirements and joint application development (JAD) sessions to design a crosswalk of fund codes, service types, benefit plans, and other categories of information needed from specific claim lines and sublines. These map to the form and row on the CMS forms such as CMS-21, CMS-21B, CMS-37, and CMS-64 specific to West Virginia Medicaid. We keep the crosswalk current as programs and policies change, so that you can continue to effectively claim federal funding.

FM007	The solution should have the ability to report based online and subline categories to all claim line details that correspond to the CMS-64 report.

As described in our response to FM006, we will work with DHHR to establish the specific claim line and subline details that map to required forms, including the CMS-64 report.

FM008	The solution should have the ability to provide data for budgeting, forecasting, and rate analysis for all benefits, benefit types, and eligibility groups

Budgeting, forecasting, and rate analysis require a forward-looking approach to program data, including the ability to report and trend historic expenditures and associated enrollment and utilization by relevant groupings that are specific to your needs. Our data model predefines West Virginia-specific reporting dimensions and data elements like benefits and benefit types, health plans and health plan types, eligibility groups, service categories, regions, rate cells, or other data types that are valuable for budgeting and forecasting—so your users will not have to repeatedly recreate these groups. As your current DW/DSS partner, Watson Health can accelerate this process and streamline the involvement of DHHR staff.

The WV EDS provides enrollment and expenditure trending that provides the foundation for financial analysis. Our solution includes IBM Watson Studio, which prepares the data for forecasting and empowers analysts to create models and sophisticated forecasts of estimated expenditures. Your analysts can choose from a range of powerful analytic tools available through Watson Studio for forecasting and econometric analysis. They can estimate and account for factors including population growth, state economic conditions, provider rate changes, other policy and program changes, and proposed legislation. Techniques are available for analysis of small datasets, limited and discrete dependent variables, and sample selection bias—all common problems in the real world. Users have access to time series, loss modeling, count data regression models, and censored and truncated regression models. The censored and truncated models also enable Bayesian estimation.

Time series models are frequently used in government forecasts. Watson Studio supports forecasting on the basis of a choice of time series models: exponential smoothing, univariate Autoregressive Integrated Moving Average (ARIMA), and multivariate ARIMA (or transfer function models).

Users also will be able to apply the expanded set of data sources in the WV EDS for more robust forecasts. For many problems, a model based on West Virginia's changing demographics provides the most intuitive and accurate view of future behavior. Using census data, your advanced analysts can project future Medicaid enrollment for West Virginia overall. This demographic projection can be turned into a utilization and spending forecast from the WV EDS by applying person-level summary data by eligibility group on the existing Medicaid population and modeling the time series for each group. With

the analytic enhancements in the solution, such as episodes of care, your analysts can also estimate disease-specific trends in utilization and spending.

With all the changes taking place in the Medicaid environment, DHHR will benefit from the breadth and flexibility provided by these advanced analytic tools. Factors affecting the Medicaid budget and rates—such as the economy, changes in legislation, member demographics, and healthcare industry trends—can be identified and quantified in your planning processes to improve your budget projections. This gives you a scientific basis for decision-making to better manage costs, healthcare delivery, and operational efficiencies for improved outcomes.

FM009	The solution should have the ability to support data modeling and to import to and export from other software solutions

For advanced data modeling, the WV EDS Sandbox layer allows data scientists or other authorized users to create data extracts that identify a subset of data on the basis of user-defined search criteria. The extracts can then be exported and shared so that visualizations, dashboards, and other analytic components can be derived from the extracts.

Sandbox users can write sophisticated routines to perform large or complex data extracts. The Sandbox layer is a user-owned schema within the database that enables the Watson Health team and DHHR super users to develop schemas that contain imported external data, which can then be joined to any of the user-accessible data warehouse layers. Within the Sandbox, super users have complete flexibility to create tables, views, and data marts; to import external data into tables of their own creation; to join their schemas to other tables; and to import or join to external tables. They can explore EDS data, along with the external data sources, to discover new relationships and create data extracts for any purpose. Data extracts and reports can be exported to various formats, such as Comma-Separated Values (CSV) and Portable Document Format (PDF), for external sharing or printing.

FM010	The solution should be populated with data as defined by the Department during Design, Development, and Implementation (DDI)

During DDI, Watson Health will load DHHR's current data sources, with the ability to expand data sources over time. Our data domain design features our Core Data Model (CDM), which is specifically designed to capture the data needs for Medicaid and enterprise health and human services analytics. Working with DHHR to define West Virginia-specific program data during DDI, we configure the CDM to populate the WV EDS with these data elements. Our modular approach to data model development means we can configure the model to your unique information needs while remaining compliant with industry standards. We can add new data sources to the model by simply mapping the new data to existing entities or, when necessary, creating new entities.

The CDM comes out-of-the-box with a data dictionary and business glossary of healthcare-specific terminology and business terms to describe the data elements within our model. As a result, business analysts and other report developers have access to the metadata directly in the reporting tool without having to refer to an outside document or another tool. This accelerates report development and improves understanding and trust in the data.

For capturing program data consistently, the solution includes IBM InfoSphere Information Server to provide a single platform and suite of tools for data integration, governance, and quality monitoring. This tool allows the solution to capture, cleanse, and standardize data from disparate sources and allows DHHR to classify the data further (e.g., assigning specific specialties to providers).

FM011	The solution should have ability to provide data for rate-setting analysis applicable to all provider types and member benefits

The WV EDS retains and provides all the data needed to set and monitor reimbursement rates for FFS providers and for capitated health plans, including claims and encounter data, nonclaims financial data, provider enrollment data, managed care organization-reported financials, and member health risk scores. Our ETL and data quality management processes maintain data accuracy and completeness for rate-setting and other fiscal analysis.

The solution supports the full range of reporting and analytic needs in this important area, including modeling future rate changes, evaluating the impact of past rate adjustments, analyzing cost drivers under managed care, evaluating the appropriateness of capitation rates, and generating reliable data that actuaries can use to calculate capitation rates. The solution also supports planning, design, and evaluation of Alternative Payment Models, including shared savings/risk models and bundled payments.

For Medicaid FFS programs, for example, Watson Health has developed and supported cost settlement reports, modeled the impact of proposed rate changes on particular provider specialties or subspecialties, compared Medicaid rates with Medicare and commercial rates within regions of a state, and assessed the impact of state or federal legislation mandating enhanced primary care rates. For managed care programs, we have created extracts for actuarial consultants responsible for setting rates and collaborated with these business partners on initiatives to improve the quality of encounter data for rate-setting. We have supported states in comparing plan-reported payments on claims to MCO expenditure reports and capitation. With its configurable CDM, analytically ready data stores, flexible reporting tools, and statistical modeling capabilities, the WV EDS supports all of these rate-setting use cases.

FM012	The solution should have the ability to add attachments at the detail level of the budget using software applications defined by the Department including, but not limited to
FM013	Microsoft Word
FM014	Microsoft Excel
FM015	Portable Document Format (PDF)
FM016	Others as defined by the Department

Our solution provides broad flexibility for handling budget data, including the ability to provide data in the form of attachments to the detail level of the budget. The solution can store any data file type that DHHR may define and maintain metadata for those types. The user interface can render a broad range of document, image, presentation, and data formats, including Microsoft Word, Microsoft Excel, PDF, and others that DHHR may need.

FM017	The solution should have the ability to provide ad hoc reporting that allows authorized solution user flexibility definitions, and it should have the ability to encompass the Department's reporting needs

Our solution's Cognos Analytics component empowers authorized users to create or view visually rich reports, including flexible ad hoc reports, interactive dashboards, parameterized or prompted reports, detailed reports with cross-tabulations along multiple dimensions, and geospatial analyses. Cognos delivers all the functions of traditional BI but augments them with many artificial intelligence-driven elements, such as natural language dialog, guided analytics, pattern detection, and smart visualizations to make unearthing insights easy to do—and easy to comprehend.

The Cognos suite of query and reporting tools encompasses DHHR's reporting needs. It supports analysis and reporting on any subject for which data exist in the WV EDS. Self-service options enable analysts to capture insights more efficiently through a guided experience that interprets their intent and supports it with a suggested path, leading where they want to go. Advanced users can create ad hoc queries and design dashboards, scorecards, and animated storyboards. The unified interface exposes functionality in context, as needed, empowering users of all abilities and expertise levels to create dynamic, high-impact reports. Cognos also supports efficient report delivery through web and mobile distribution methods.

FM018	The solution should have the ability to report across all Medicaid and Social Service payments regardless of service delivery method and financing mechanism including, but not limited to, the use of a master data management system or function

With the Watson Health WV EDS, all Medicaid and social service payments, across all service delivery methods and financing mechanisms, are fully reportable data. Our solution incorporates InfoSphere Information Server, which leverages the Master Client Index established by the System Integrator to establish and maintain "golden records" from disparate systems. Completely cleansed and standardized, this record becomes the source of truth for information about discrete entities such as members, providers, facilities, and locations. This tool prevents duplicate records, so an entity appearing in a report is the only instance of that entity; for example, a specific individual member receiving treatment or a specific provider receiving payment.

FM019	The solution should provide the ability to organize reports based on member enrollment and eligibility criteria

Cognos Analytics is the solution's primary BI tool for creating and deploying complex queries and reports. It allows WV EDS users to organize reports by any type of data, including member enrollment and eligibility criteria. Cognos reports and dashboards are engaging and visually rich, allowing analysts to organize and explore the data using filters, drill paths, and dynamic visualizations to help them understand member enrollment and eligibility data in detail.

FM020	The solution should have the ability to capture data necessary to perform actuarial services and analyses

The WV EDS captures and provides access to integrated, high-quality data organized to support financial management, including actuarial services. Our clients routinely use our solutions for actuarial analysis, budgeting and rate setting, financial forecasting, utilization and payment profiles, vendor payment validation, and cash flow reconciliation.

Our CDM accommodates financial information such as submitted, allowed, coinsurance, copayments, deductibles (patient out-of-pocket), third-party amounts, and net payments. It includes paid claims and encounters, denied claims and encounters (if submitted by the health plans), and claim/encounter adjustments. Users also have access to nonclaim financials, such as capitation, incentive payments, recoveries, mass adjustments, and cost settlements. As described above, these can be reported by any dimension in the database (e.g., category of service, aid category, region, rate cell, and health plan).

The solution's actuarial and predictive risk functionality includes a Medicaid Cost of Care methodology that calculates risk scores for members to estimate the expected relative healthcare costs of a population enrolled within a program, health plan, or primary care provider. Risk scores are assigned using age, sex, conditions, and severity levels from inpatient and outpatient claims. A suite of risk adjustment models estimates a population's retrospective and prospective expenses, with and without truncating for high-cost cases. Risk scores can be used to risk-adjust historical payments to assess efficiency, set reimbursement and capitation rates, and help identify members for disease management programs, among other uses.

Program Management

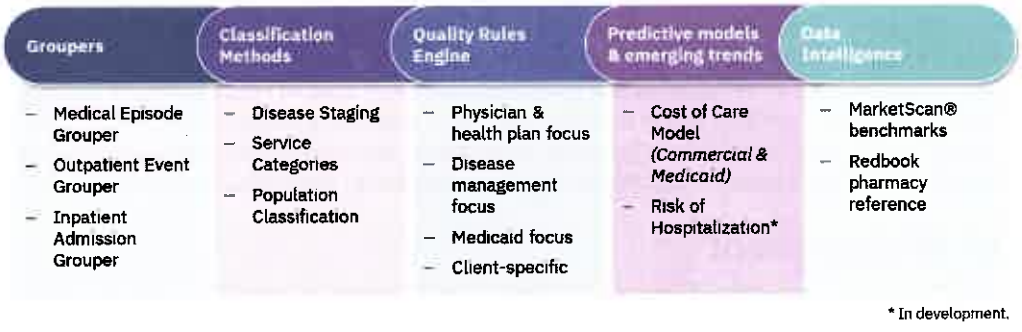
PG001	The solution should support a range of analysis actions including, but not limited to
PG002	Benefit modeling
PG003	Clinical review
PG004	Utilization management

PG005	Provider-member-Managed Care Organization (MCO) profiling
PG006	Program planning
PG007	Forecasting
PG008	Program assessment
PG009	Provider or contractor performance
PG010	Quality assurance
PG011	Fraud, waste, and abuse detection
PG012	Comparison of fee-for-service (FFS) and managed care
PG013	Other functions as described in the Advanced Planning Document (APD) and/or the Request for Proposal (RFP)

The WV EDS solution combines the latest in BI/analytic technology with Watson Health's expertise gained over decades of Medicaid decision support and data warehouse experience to offer DHHR robust, trusted, easy-to-use program management support. The WV EDS supports enterprise-wide program analysis and reporting, such as: benefit modeling; utilization management; profiling of providers, members, and health plans; program planning; forecasting; program assessment; provider or contractor performance; quality assurance; comparison of FFS and encounter transactions; statistical analysis; comparative analysis; financial trends; and case-mix adjustments. The solution enables you to assess the quality and appropriateness of care provided to members.

The WV EDS platform is comprised of modern, industry-standard, COTS-based software, including open source tools such as Python, R, Watson Studio, that delivers a complete range of healthcare-relevant reporting and analytic capabilities. The tools offer deep insight for managing Medicaid and other DHHR programs by delivering timely, actionable information based on the various data sources needed to promote better care, better health, and lower costs for West Virginians. DHHR will be able to produce interactive dashboards/stories and geospatial reports. Reports can be enhanced with rich data elements like episodes of care, health risk scores, evidence-based healthcare performance measures, and third party and client-specific benchmarks.

Figure 12. Watson Health Flexible Analytics. *An analytic framework that leverages reference data and advanced healthcare methodologies and modeling, integrated into the WV EDS reporting tools to deliver actionable insights.*



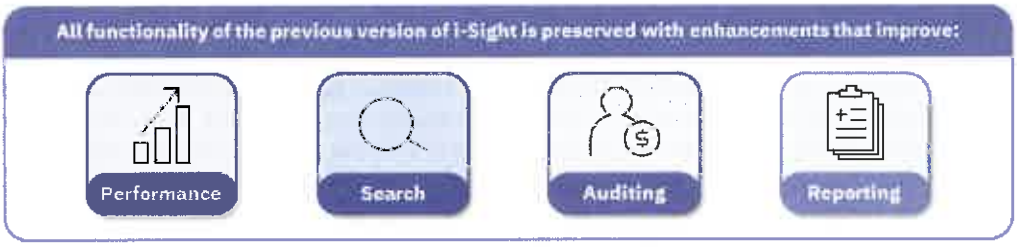
The WV EDS meets DHHR's desire for capabilities to associate clinical data with claims data; flexibly integrate new data fields and data sources; report on program or policy changes; perform prospective and retrospective policy modeling; and produce standard reports, management reports, SUR reporting, MCO comparisons, ad hoc reporting, and healthcare quality measure reporting. Sophisticated analytic capabilities will support DHHR in managing the Medicaid program:

- **Benefit Modeling:** Users can summarize historical cost experience and then model proposed plan design changes, such as changes in member copays that may be introduced through an 1115 waiver, provider rate changes, the addition or deletion of optional benefit coverages, changes to annual benefit limits, drug formulary changes, etc. For example, our clients have used our tools to model the impact of fee schedule changes and to compare current and proposed fees to Medicare rates. As another example, through various special projects, we have helped clients assess potential savings if patients with particular disease conditions who rely on high-cost brand drugs were to switch to newly available biosimilar drugs.
- **Clinical Review:** Our clients and their review partners rely on Watson Health data and reporting capabilities to facilitate clinical reviews. Our WV EDS links clinical data like diagnostic information to the claim and stores an indicator that a claim attachment (like a CT scan) exists, if the indicator is passed in the MMIS claim extract. The solution includes MEG with Disease Staging to help stratify the population for review based on chronic conditions and the course of disease progression. It also has sampling capabilities to obtain a representative subset of claims for medical record reviews. The data model is expandable to include clinical data from the HIE and other unstructured data sets to yield deeper insights into health and functional status, care delivery, and clinical outcomes.
- **Utilization Management:** To monitor utilization, users can count services based on meaningful units like visits, admissions, days, scripts, and episodes. They can report on unduplicated counts of unique claims, members, and providers within a type of service and for a specified period (e.g., a month or year). Users can report on average members for a defined period to track enrollment trends and to calculate rates of utilization and payment per member per month or per year. The data is stored in a way that provides both flexibility and ease of use. DHHR users will be able to access reports online, in real time or near-real time, that provide summary information like the number and type of providers, members, and services.
- **Provider-Member-MCO Profiling:** Users can perform apples-to-apples comparisons of cost and use by provider, by member, and by MCO. This helps identify both the best and worst performing providers and MCOs, as well as members whose care is not being well-managed. Profiling is aided by the high-quality, reliable database, data standardization, and built-in analytics like population-based cost and utilization metrics and SUR peer groups. During DDI, we will work with DHHR to develop 50 measures that support your specific reporting needs.
- **Program Planning:** Clients frequently use our EDW solution for program planning, especially for analyzing the impact of potential policy changes, such as changes in covered benefits or the introduction of a new care management program. Advanced analytic tools and flexible ad hoc reporting support the full life cycle of policy planning and evaluation. The WV EDS helps identify opportunities to improve policies, project the impact of proposed policy changes, support program design and implementation, and evaluate policies and programs after implementation.
- **Forecasting:** Our reporting and analytic tools support a wide range of trending and predictive capabilities. Users have easy-to-use yet advanced functionality for statistical analysis of historical and current data, as well as methods for predicting future healthcare costs and utilization rates for richer insights and sounder decisions. Analysts can display regression lines in charts to visualize predicted outcomes. Power users have ready access to a wealth of powerful open source forecasting tools like R and Python. These predictive capabilities can be applied to the trends defined by DHHR.
- **Program Assessment:** The system's dimension tables allow for reporting on any program or eligibility category. State Medicaid clients often use our solution to monitor and evaluate program performance, especially for new waiver programs. As with all other programs, the data on waiver

programs is integrated for effective population-based analysis on utilization, cost, and clinical quality. The new WV EDS, like the current DW/DSS, will provide SUD analytic reports and dashboards that allow DHHR to monitor the 1115 Waiver. As compared to the current DW/DSS, the WV EDS offers a more robust statistical toolkit that supports efficient analysis of large multivariate datasets for program comparisons and evaluations. It also offers linear and non-linear models for program evaluations and enables analysis of categorical data, text data, images, etc.

- **Provider or Contractor Performance Monitoring:** Our solution fully supports Medicaid performance measurement. It enables our clients to track Key Performance Indicators (KPIs) for MCOs, other contractors, and providers, and to compare these KPIs to baseline measures, benchmarks, and/or contractual targets. Our Flexible Analytics Engine provides built-in healthcare-specific measures and methodologies for trending, benchmarking, and predictive analytics. Our primary reporting tool, Cognos Analytics, supports flexible and visually compelling KPI dashboard reports. We support other states with KPI measurement and reporting for various programs; for example, we calculate and report KPIs to help the Colorado Department of Health Care Policy & Financing (HCPF) manage its Accountable Care Collaborative Program.
- **Quality Assurance:** Our quality rules engine methodology calculates complex industry-standard quality measures that reflect evidence-based medicine. The rules engine handles sophisticated logic to look across eligibility, claims, condition-specific data, and the physicians providing services to a patient. Users can evaluate the completeness of care delivered, both at the patient level and across patients for a single provider. The rules engine will continue to provide adult and child measures for CMS quality reporting, which have been utilized by DHHR for the past three reporting years. Our other clients have used these capabilities to evaluate care management program results against contract performance guarantees, to compare MCO quality of care results, and to inform quality improvement initiatives. For one client, we completed a study that identified regional variations in cost and quality of care that resulted in the implementation of a value-based purchasing program with risk/rewards tailored to performance guarantees and fees at risk in their contracted health plans.
- **Fraud, Waste, and Abuse (FWA) Detection:** Watson Health will continue to provide J-SURS and i-Sight, the tools that DHHR currently uses for detecting FWA and for program integrity (PI) case management, respectively. J-SURS offers built-in sampling capabilities and supports SUR and FWA reporting, such as ranking and other types of exception reports, control file (peer group) reports, and summary-level management reports. Used in conjunction with J-SURS, i-Sight produces reports on case data, including data related to provider audits and staff workloads. A more modern and reliable version of i-Sight will be implemented to improve efficiency and enhance case management and reporting capabilities.

Figure 13. The i-Sight Case Management System. *Optimized and redesigned to offer a dynamic and scalable experience.*



The redesigned i-Sight interface allows investigators to quickly find and update records. A new system structure provides increased speed, performance, and scalability. Search functionality has been redesigned for ease and speed. Quick search allows users to easily find all references of a

specific entity with one simple search, based on the user's access level. Advanced search supports detailed queries that can be designed on-the-fly and saved for future use. A suggested Case Links feature automatically searches and suggests relevant cases or claims to the specific case.

For auditing purposes, every view and field level change is tracked. Authorized users can review case, user, team, and system audit logs. For enhanced reporting, full real-time integration between i-Sight and the reporting engine means that every field captured within i-Sight is available for reporting. A redesigned, drag-and-drop report creation wizard guides users through the report creation process. Users are authorized into the reporting tool based on their case access, protecting the integrity of the data.

- **Comparison of Fee-for-Service (FFS) and Managed Care:** The WV EDS enables the comprehensive comparison of FFS and encounter data using a variety of comparison data factors like procedure, diagnosis, age, gender, etc. Our data model captures information related to MCO claim processing (paid date, paid amount) when it is available, and standardizes data to support comparisons across health plans and across managed care and any FFS experience. It incorporates capitation, administrative fees, and any other non-claims financial data needed for a complete picture of expenditures under managed care.
- **Other Functions as Described in the Advanced Planning Document (APD) and/or the RFP:** Additional functionality will be evaluated per the project's change management process.

The WV EDS meets DSS Checklist requirements; in fact, this solution received CMS certification under the MECT v2.3 in two states in the past year. With the solution's robust reporting and analytic capabilities, DHHR will be able to assess the cost, quality, and appropriateness of care provided to participants in West Virginia's Medicaid and other DHHR programs.

PG014	The Vendor should comply fully with all applicable Department, State, and federal requirements and regulations including, but not limited to
PG015	State Medicaid Manual
PG016	Centers for Medicare & Medicaid Services (CMS)
PG017	West Virginia State Medicaid Plan
PG018	Section 1902 and 2103 of the Social Security Act
PG019	Title 42, Code of Federal Regulations
PG020	Applicable West Virginia Code
PG021	Chapter 9, Human Services
PG022	Section 504 and 508 of the Rehabilitation Act of 1973 as amended
PG023	West Virginia Children's Health Insurance Program (CHIP) State Plan

At Watson Health, we invest a significant amount of time analyzing applicable federal regulations, CMS reporting requirements, and changing federal and state legislation so we can keep our solutions in compliance with new and modified requirements. Throughout the WV EDS project, we will comply with all applicable Department, state, and federal requirements and regulations, including the State Medicaid Manual; CMS; the West Virginia State Medicaid Plan; Section 1902 and 2103 of the Social Security Act; Title 42, Code of Federal Regulations (CFR); applicable West Virginia Code; Chapter 9, Human Services; Section 504 and 508 of the Rehabilitation Act of 1973 as amended; and the West Virginia Children's Health Insurance Program (CHIP) State Plan. Future changes will be assessed via the change management process.

An example of how we identify, comply with, and help our clients comply with changing regulations is the Medicaid and CHIP Managed Care Final Rule of 2016, which updated relevant sections of the CFR for the first time in over a decade. Watson Health played a proactive role in the portions of the Final Rule intended to strengthen Managed Long-Term Services and Supports (MLTSS), which codified guidance previously issued by CMS in 2013 that was informed by policy recommendations from Watson Health MLTSS experts. We also studied the Final Rule to understand its implications for other client business processes in which we play a role, including the collection and validation of encounter data and the oversight of MCO program integrity efforts.

PG024	The Vendor should address how data fields to be included in the data warehouse are defined and agreed upon during Design, Development and Implementation (DDI) as well as how new fields will be added

The WV EDS has the capability to integrate additional data elements. Watson Health begins with our Core Data Model (CDM), which provides the foundation for the WV EDS. We leverage the CDM as the basis for our reporting and analytic data model. In requirements gathering sessions, we learn your business processes and user reporting and analysis requirements, documenting them in the Requirements Specifications Document. Watson Health will augment the CDM with new dimensions, attributes, or data fields that are specific to West Virginia's programs, business practices, and data element requirements, so the reporting from the WV EDS provides meaningful data that supports your needs.

The deep knowledge we have gained as your current DW/DSS partner will enable us to quickly identify and recommend West Virginia-specific additions to the CDM and minimize the burden on state staff. Our design document uses the requirements we have confirmed with you and describes the exact field definition.

Our CDM has been honed based on decades of experience building both Medicaid and commercial decision support systems. It was designed with the flexibility to update and extend schemas and models to incorporate new data fields as needed over the course of the contract. The addition of new data fields in existing data feeds will be handled in accordance with the change management process to be sure the requested change is properly captured, scoped, and analyzed in terms of resources, impacts, and timing. DHHR approval is obtained for cost, scope, and timing before any such change is undertaken.

PG025	The solution should mirror all fields and field naming conventions (both current and future) within the Medicaid Management Information System (MMIS)

The WV EDS will mirror all current and future fields and field naming conventions within the West Virginia MMIS or apply different field names as requested and approved by DHHR. Watson Health has been building databases for a long time. While preserving national standard data formats for interoperability, we enforce the data standards and conventions tailored to each specific project as a foundational tenet of our methodology.

While much of the data going from the MMIS system to the data warehouse must be customized due to the unique aspects of each MMIS vendor system, Watson Health has translated source data from DXC MMIS systems into health analytics for our state clients 16 times. This experience deploying data warehouse solutions using the MMIS data from DXC means that we have many of those customizations pre-built, creating efficiencies for DHHR.

PG026	The Vendor should propose, develop, produce, and maintain a searchable and indexed library embedded within all solution applications including, but not limited to
PG027	Solution policy manuals
PG028	Training materials
PG029	User guides

PG030	Implementation memos
PG031	Data dictionary
PG032	Frequently Asked Questions (FAQs)

We will work with DHHR to create a searchable, indexed library that includes solution policy manuals, training materials, user guides, implementation memos, data dictionary, and FAQs to support system users. Watson Health also will leverage the project central document repository to keep our documents, deliverables, and information current and readily available to WV EDS users. A central project repository allows us to effectively manage system documentation, including versioning and maintenance.

System users can access the solution's user guides and Help information incorporated online within the tools themselves, or the product-specific supplemental information we maintain on the project repository. Additionally, in conjunction with the classroom training Watson Health provides, we prepare materials for online and webinar training and we make user guides available for all training sessions, regardless of the training medium.

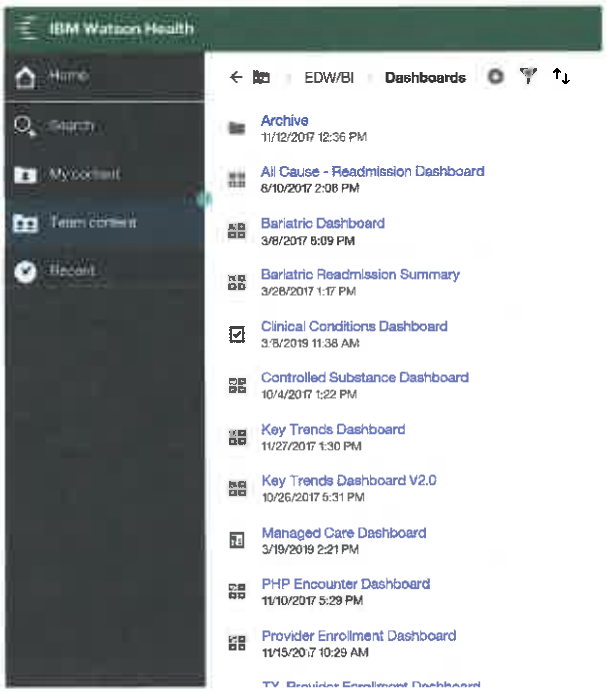
We maintain an up-to-date, electronic, searchable, downloadable data element dictionary and metadata management tools for accessing the business glossary of terms and all related assets. The data dictionary provides information on the source, value, and characteristic attributes for the EDS, data mart tables, and data elements. All documentation related to the data dictionary will be available to DHHR and your authorized users. When new or evolving data is available, all relevant documentation will be updated.

PG033	The Vendor should provide full documentation of developed reports in a searchable, electronic, legible format that is available within the solution

If users cannot find a report or do not know what is in it, the report is of little value. To facilitate effective and efficient use of the system, Watson Health will make available a complete listing of production reports that we create on your behalf and re-run with each database load/update. Exceptions include any ad hoc or user-created reports that are not scheduled as part of the production system, although when users develop reports, they can share them with other users in different formats, languages, and locations using the Cognos collaborative workflow. For example, it is easy for users to make their content available to others, either directly through the Internet-accessible portal or by distributing reports via email.

Cognos Analytics has a content library with an online, searchable index of all reports, queries, and artifacts. The Cognos Content store contains objects such as folders, reports, dashboards, and templates in a searchable repository.

Figure 14. Sample List of Cognos Dashboards in the "Team content folder". *This function facilitates object re-use by providing direct, immediate access to report development content within the tool.*



From this list, a user might select the Bariatric Dashboard, as shown below.

Figure 15. Dashboards. *We present trends and key metrics to provide insight and guide further analyses.*



With evolving business needs and program requirements, reusable business logic is critical to the efficiency of your analytic operations. Watson Health advocates building measure definitions and logic in the reporting layer of the data warehouse whenever possible, so that users access the same definitions and logic across tools and domains. Our proposed solution also supports reuse of logic that is not already available in the underlying data, but rather is created by users in the course of their analysis. Users can define new Calculated Fields, as well as Groups that combine separate values of a data element as needed for a specific study or report. The resulting logic can be saved and/or shared for future use to promote consistency and add new insights in dashboards or other reports.

Authorized users can search, browse, and query the metadata repository powered by IBM InfoSphere Information Governance Catalog (IGC) to determine if a specific report, analysis, or metric already exists before creating something new.

PG034	The solution should maintain updated industry standard and third-party reference data as it changes including, but not limited to
PG035	Inpatient hospital Diagnosis Related Groups (DRGs)
PG036	Current Procedural Terminology (CPT)
PG037	Healthcare Common Procedure Coding System (HCPCS)
PG038	Therapeutic classes

Watson Health understands that reference data is integral to the functioning of a healthcare EDS. Some reference data is a simple structure of a code/description, while others involve many different attributes and related entities. Our model carries both the main reference data that is listed independently and maintains a separate flexible code structure to capture common reference data used within the model.

Various code-sets like DRGs, CPT, HCPCS, ICD-10, therapeutic class, etc. are used for validating and analyzing data in administrative and clinical records. Therefore, throughout the life of the contract and for all solution components, Watson Health will maintain the industry-standard and third-party reference and dimension code data as it changes. CMS DRGs, ICD diagnosis codes, and CPT procedure codes are updated annually. For drug reference data, we provide information from the National Drug Code (NDC) RED BOOK about drugs available for prescription. This includes information about the manufacturer, product, NDC codes, currency of the records, average wholesale prices, direct prices, and full and previous prices. The RED BOOK enhancement is currently incorporated in your DW/DSS solution.

Since all code descriptions are table-based, they can be updated whenever DHHR deems it appropriate to do so. Watson Health will work with DHHR data governance and third-party suppliers to establish, document, and maintain procedures for updating these data elements.

In addition, WV EDS users have access to the latest metadata information through the InfoSphere IGC. Data stewards can modify and update reference data metadata in IGC to incorporate state-specific changes to reference data. We reflect such changes in the database, using the change management process for proper documentation and approval before changes are integrated within the database.

PG039	The solution should have the ability to review utilization by Department-defined member categories to determine the extent of participation and related cost

For program management and accurate forecasting, DHHR must be able to report and trend utilization and expenditures by individual member and by Department-defined member categories (demographic subgroups, aid categories, waiver programs, etc.). We will work with you during DDI to define your member categories and create Department-specific reporting dimensions and data elements, so users do not have to repeatedly recreate the groups and all users define them consistently. Users can access information and reports on member trends by time period (month, quarter, year), including:

- Enrollment counts by aid category, region, county, plan type, health plan, age group, and other breakouts
- Member participation, utilization rates, and payments per member overall and for specific types of service by aid category, region, county, plan type, health plan, age group, and other breakouts
- Expenditures based on CMS-64 expenditure type and member eligibility program and category

PG040	The solution should have the ability to review utilization by Department-defined provider categories to determine the extent of participation and related cost

The WV EDS provides the data and features to analyze the level of provider participation, recent cost and use patterns, the effectiveness of service delivery, and the appropriateness of billing trends. Users will have a variety of capabilities for analyzing provider participation—by location, time period, provider type and specialty, health plan, member aid category or special program, and type of service. They can analyze participation by the number of patients seen by a provider and the associated payments, and by the type of services provided and whether they comply with evidence-based guidelines. For example, analysts can assess whether providers are keeping their patients up-to-date on cancer screening.

The WV EDS also supports analysis of provider billing practices and payments. We can provide DHHR with reports that measure the timeliness of provider claim filing. This enables you to assess compliance with state and federal requirements and to measure and improve data completeness. Our solution offers several ways to monitor individual provider payments period over period to detect unexpected changes, including provider ranking reports, "surge" algorithms, and user-defined alerts. We capture and report on historic and current payments for all provider types and individual providers. Reports can include cost settlement details for relevant provider types, such as hospitals and nursing facilities.

PG041	The solution should have the ability to review utilization by Department-defined Managed Care Organization (MCO) categories to determine the extent of participation and related cost

The WV EDS will support DHHR in assessing utilization by the Department-defined MCO categories. Our data model is optimized for managed care; for example, we flag encounters with a capitated services indicator to avoid double-counting payments. Our solution supports measures of avoidable admissions, ED visits, readmissions, and other potentially unnecessary care that can be tracked at the MCO level.

Watson Health will collaborate with DHHR to develop dashboards and reports that evaluate trends. Our clients commonly use our EDW solution to monitor trends in overall cost, use, and quality, comparing the MCOs on key performance measures relative to other plans and to contract standards and targets. We also have helped them design reports to reconcile payments as reflected in encounter data with payment self-reported by the health plans and with capitation payments, and to assess whether benefits covered by capitation (e.g., home- and community-based services) are being provided as expected to those members.

PG042	The solution should have the ability to archive and retain data in accordance with Department, State, and federal regulations, laws, policies, and/or procedures

All data in the solution, regardless of time-period, will continue to be available online to end users for reporting and analysis. Watson Health maintains all source file, data extracts, and data backups in a long-term storage area so that we can access them if required. They will be retained in accordance with Department, state, and federal regulations, laws, policies, and procedures.

PG043	The solution should have the ability to receive data from the Medicaid Management Information System (MMIS) including, but not limited to:
PG044	Claims history
PG045	Member enrollment

PG046	Provider enrollment
PG047	Primary reference data such as
PG048	Diagnosis
PG049	Procedure
PG050	National Drug Code (NDC)
PG051	Pricing

The WV EDS has the ability to receive all of these data types from the MMIS. Our experience working with DXC on the current DW/DSS and with other clients, creates efficiency for DHHR by enabling us to leverage lessons learned on system interfaces, data structures, data extracts, data sources, and DXC operations. We bring pre-built ETL processes and data models based on our experience with DXC MMIS systems, which lowers implementation risk and increases time to value.

PG052	The solution should have the ability to refresh or replace all historical claims data, member enrollment, provider enrollment, and other primary reference data on a scheduled basis as approved by the Department

The WV EDS has the flexibility to refresh or replace all historical claim data, member enrollment, provider enrollment, and other primary reference data on a scheduled basis, with various update options per Department preference. We understand that reference data is integral to the functioning of a healthcare EDW. Various code-sets like ICD-10, HCPCS, SNOMED, LOINC, etc. are used for validating data in administrative and clinical records. Therefore, throughout the life of the contract and for all solution components, Watson Health will maintain all industry-standard and third-party reference and dimension data as it changes. ICD diagnosis and procedure codes will be updated annually. We will work with DHHR and third-party suppliers to establish, document, and maintain standard procedures for updating these data elements. In addition, users will have access to the latest metadata information about these historical reference datasets.

The WV EDS supports point-in-time analysis, where change is captured from data sources that may not be available if data is dropped and replaced (such as in cases a source system updates in place or deletes data). It is standard practice to establish a baseline in the acquisition of historical data, then version records from that point forward. This maintains a current and historical record of changes. Replacing data, in our experience, typically occurs for certain reference sets or for data corrections where it is not necessary to show the history of the correction.

The WV EDS has the capability to move large volumes of data through the various services and data stores of the EDS with integrity, quality, scalability, and flexibility. Watson Health will work with DHHR to define the optimal schedule and technique for extracting and exporting data from the source systems, inclusive of performing daily refreshes/loading if needed, as defined by source.

PG053	The solution should have the ability to refresh or replace all historical claims data, member enrollment, provider enrollment, and other primary reference data as defined by the Department

The WV EDS provides this capability, as described in PG052.

PG054	The solution should provide the ability to manage offline storage and retrieval of archived data

All data in the WV EDS will continue to be available online to end users for reporting and analysis, regardless of time period. Watson Health maintains all source file, data extracts, and data backups in a long-term storage area so that we can access them if required. This information will be retained in accordance with Department approved data retention guidelines.

We address special archive backup and retention requests as necessary to support business and legal requirements. Access to archived data retains the same functional access as is granted prior to archiving using the same access and permissions granted via role-based access.

PG055	The solution should have the ability to look up information such as subsets, norms, benchmarks, query creation, and all other objects

In Cognos Analytics, reports can be built, published, shared, saved, and used to build report templates from the same report specification. Users can save a report in a private folder for individual use or as a shared template in a public folder for other users. Queries and custom fields can be re-used with different report templates, which provides both reusability and consistency, thus adhering to the goals and objectives of MITA and the Seven Conditions and Standards framework. Subsets are created as data sets from either a Framework Manager Package or Data Module. A data set is a columnar format stored data set stored in either the content store or another external object store. This allows for a cached, point-in-time view of the data that reduces the workload on the database, which dramatically increases performance.

Additionally, to help DHHR assess program performance, we provide external benchmarks developed from our MarketScan Research Databases, the industry's largest repository of independently sourced, well-standardized, high-quality longitudinal healthcare information. We develop the MarketScan databases by aggregating de-identified healthcare data from contributing clients nationwide. Watson Health uses MarketScan to create a library of norms available to our clients who agree to contribute their own non-identifiable data to the database and accept the terms of our data contribution and use agreement, which protects the confidentiality of the data contributors relative to HIPAA standards and our own strict privacy policies. There is no additional charge for MarketScan standard norms as long as the data you contribute represents the entirety of your program.

The library of MarketScan norms contains national Medicaid and commercial benchmarks, as well as state-level commercial norms. This allows you to benchmark your program on dimensions such as disease prevalence, service utilization, quality of care, and payments. For example, Watson Health has used the MarketScan Commercial Claims Database to help several states compare their Medicaid provider reimbursement rates to those of commercial payers, as part of the FFS access to care monitoring plans and reports required by 42 CFR 447.203. Contributing clients also can create custom norms, such as the CMS reported state median results for Medicaid Child and Adult Core Sets of healthcare quality measures.

PG056	The solution should have the ability to receive data in different formats and from different sources including but not limited to
PG057	Vital statistics data
PG058	Encounter data
PG059	Managed Care Organization (MCO) encounter data
PG060	Pharmacy data
PG061	Pharmacy data
PG062	Dental data
PG063	Behavioral health data
PG064	Waiver program data such as enrollment
PG065	Others identified by the Department

With a robust set of tools for loading, transforming, managing, and analyzing all types of structured and unstructured data, the WV EDS has the ability to receive data from all sources listed in PG057-PG064, as well as many others. Watson Health has worked with many industry standard protocols as well as custom data formats. We have experience in all the data formats, including FHIR HL7, HL7, X12, NCPDP, and HIPAA-compliant transaction types such as the 835. Through CMS-funded technical support and direct state contracts, we have helped 15 states improve the quality of their encounter data for rate-setting, performance management, and quality assurance. Our EDS is expandable to incorporate other relevant data sets, such as hospital discharge data, Minimum Data Set (MDS) data, SNAP and TANF data, Medicare data, census data, and more. Additional data sources for the WV EDS will be evaluated using the established change management process.

Watson Health has collected data feeds from hundreds of carriers and other entities that generate healthcare data in a wide variety of data formats (e.g., HL7, EDI X12, 837), and we bring specialized expertise in managed care encounter data.

As part of our ETL requirements and design activities, we analyze each data exchange to determine the best approach and timing. Data can be loaded from the source systems via database replication, publish/ subscribe for web service sources, or data extracts for flat files.

Watson Health integrates both FFS and managed care data for our Medicaid clients. We have capabilities to load managed care data directly from the MCOs as well as from the MMIS. For our state clients, we often load vital statistics data, patient assessment data, behavioral health data, or other types of data not commonly stored in Medicaid databases. We are experts in dealing with healthcare information and standards, including HL7 and NCPDP language syntaxes and ICD-9, ICD-10, CPT, and NDC coding standards, among others. We are active members of several standard-setting organizations, such as the American National Standards Institute (ANSI) X12 Committee and National Committee on Prescription Drug Plans (NCPDP).

Our Core Data Model supports the data sources needed to deliver a comprehensive view of the Medicaid member. It contains the following standard, reusable data dimensions:

- Claim, including professional, dental, facility, pharmacy, and encounters
- Reference – Diagnosis and procedure, drug
- Member – Eligibility and enrollment, PCP, lock-in
- Prior authorization
- Provider – Affiliation, credentialing, taxonomy, specialty, network, payer type (MCO)/Payer/ Plan/Benefit Plan
- Third party liability
- Budget and finance

Our approach to data integration maximizes flexibility and scalability in the solution by building a foundation that can meet the Department's varied and changing demands for reporting and data usage. Data is made available in all forms. Raw data is integrated, conformed, and enhanced to support decision-making, whether for members, providers, administrators, or partners.

PG066	The solution should provide the ability to report any issues impacting integration and interoperability between the proposed solution and related data sources within one (1) business day of discovery

From data acquisition to ETL and finally to destination, our automated data quality checks verify that data received is as expected, complete, and accurate. If issues impact the integration and interoperability between the WV EDS and related data sources, Watson Health will report it to DHHR within one business day of discovery.

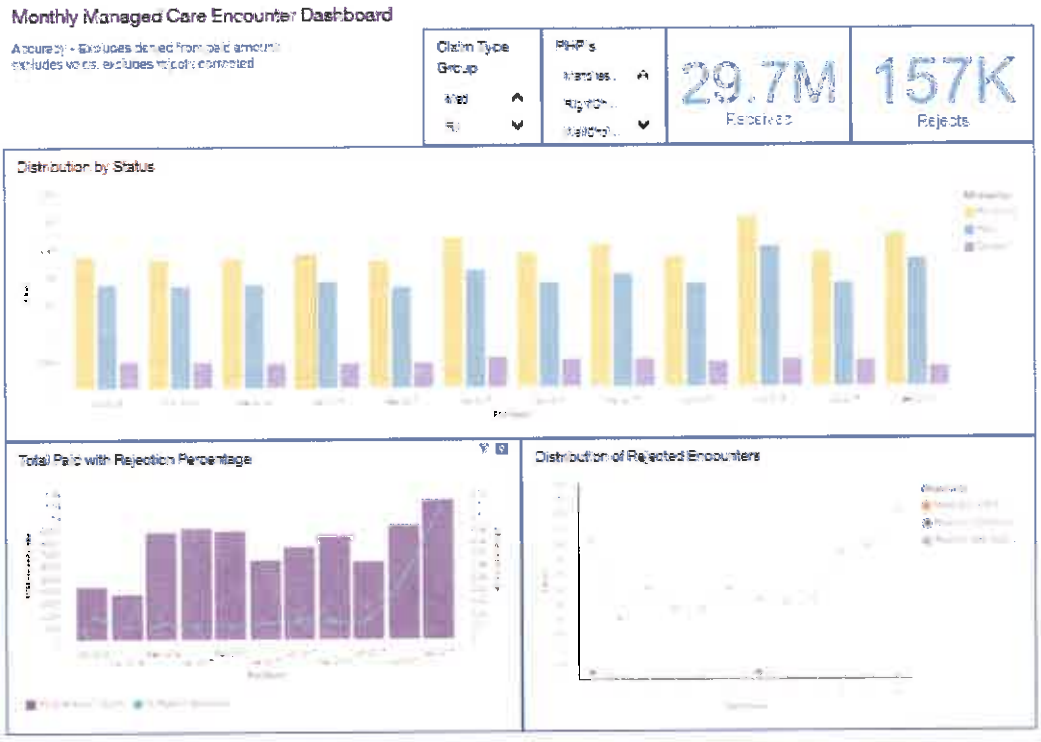
Wherever possible, automated cleansing rules are applied to correct common data errors that may occur; for example, correcting addresses to comply with US Postal Service standards). In addition to automatically repairing the data, quality statistics are tracked on all data entering the warehouse from the various sources to flag issues that require further investigation and improvement.

Importantly, Watson Health has long experience with the types of problems associated with governing and managing data in and around a data warehouse, particularly for state governments. We know the complications that are unique to Medicaid and not necessarily seen in the private sector, such as retroactive enrollment, enrollment churn, HCBS waiver programs, Federally Qualified Health Centers, etc. Because we have this specific experience, Watson Health is a partner that knows how to help.

PG067	The solution should have the ability to integrate data from sources including, but not limited to
PG068	Eligibility
PG069	Capitation
PG070	Claims system
PG071	Managed care encounter data

The WV EDS has the ability to integrate data from sources including but not limited to eligibility, capitation, claims system, and managed care encounter data. We currently integrate this data for more than two dozen state Medicaid clients, including for West Virginia.

Figure 16. Example of a Managed Care Encounter Data Dashboard. *This dashboard shows at a glance the accuracy of the managed care encounter data loaded in the past month.*



PG072	The solution should have the ability to integrate data from contractors including, but not limited to

PG073	Pharmacy benefit manager (PBM)
PG074	Behavioral health plans
PG075	Managed Care Organization (MCO) health plans
PG076	Children's Health Insurance Program (CHIP) contractors
PG077	Others as defined by the Department
PG078	All data sources as defined by the Department
PG079	Providers
PG080	Reference files

The WV EDS can integrate data from all sources listed in PG073–PG080. As a provider of data warehousing, analytics, reporting, and program integrity services to nearly 30 state healthcare clients, Watson Health regularly integrates data from a myriad of different contractors. We have experience with the national MCOs, PBMs, and dental and behavioral carve-out vendors who are prominent in Medicaid. Under the current DW/DSS contract, we have worked closely and effectively with West Virginia's MMIS, CHIP, and PEIA contractors to resolve data quality issues.

Proven and refined over the years, our data management processes have been turning data into actionable decision-making elements for our clients for decades. As other data sources are identified by DHHR throughout the life of the project, we will use the change management process to assess the feasibility and impact of integrating them into the EDS. Watson Health brings the experience and protocols for a seamless integration of data from the entire spectrum of West Virginia's sources.

PG081	The solution should have the ability to securely load, save, and report on confidential and/or proprietary data/information, and limit access to authorized solution users

The WV EDS is an advanced, highly secure solution that brings together disparate data from across healthcare systems and other state agencies, securely loading confidential and/or proprietary data/ information to support the Department's reporting needs. We maintain strong data security and privacy controls, described in Attachment H, a practice that has enabled Watson Health to remain a leader in the healthcare information industry. We encrypt data in motion and at rest, and we apply data masking as required. Users are able to work with complex data tables and apply advanced visualization techniques to make that data more accessible to a broader audience. A web-based GUI portal provides a single point of entry to the enterprise data and the available reporting and analytic tools based on role-based security.

All WV EDS users will be provided "minimum necessary" access to applications and data (both current and historic data) as their role(s) dictate. All access to data – by users, ETL processes, and applications – are first authenticated with, at a minimum, an identifier and password within our Microsoft Active Directory (AD). Security group and role attributes are stored in the AD and, in the case of a user, passed to the BI tool for application level access control.

To control access to PHI, PII, or other sensitive data, or the descriptive information about sensitive data, Watson Health will implement comprehensive Role Based Access Controls (RBAC). Access rights are verified periodically to assure a continued "need to know." When accessing data in the EDS, security views are applied that are associated with the user's role. Security views can be as granular as required. At the column level, sensitive data can be masked completely from view and can be paired with a hashed value where necessary. Row-level security can restrict records returned based on any number of criteria (e.g., substance abuse). Access to entire areas of the database (tables, schemas, etc.) can be restricted to specified user groups.

The WV EDS also enables the storage and recovery of reports based on user credentials via role-based security settings. Watson Health will work with DHHR to define user profiles, roles, groups, and

positions to restrict access to the databases and applications based on a user's job function. Access can be granted at various levels. For example, multiple groups can be added to a single folder to allow wider access for reports and data shared across the enterprise, or a group can be given access to only CHIP or only PEIA data. If a group needs to be able to view reports but not edit them, they can be granted read-only access.

Access permissions are applied regardless of how users access the system, whether through a web browser from their desktop or from a mobile device. The WV EDS provides a solid mix of security and flexibility so that authorized DHHR users can access the data they need, when they need it.

Watson Health complies with all applicable state and federal privacy and security standards, including those prescribed by the CMS, the Social Security Administration (SSA), and the National Institute of Standards and Technology (NIST) Special Publication 800-53 security and authorized controls. We are confident on our ability to securely receive, store, host, extract, de-identify, mask, recover, and otherwise protect your electronic healthcare data, as we do for 400+ healthcare clients.

PG082	The solution should have the ability to incorporate current standards and benchmarks as defined by the Department relevant to Medicaid and other health care programs including, but not limited to
PG083	Utilization
PG084	Cost
PG085	Quality of Care
PG086	Outcomes
PG087	Prevention
PG088	Access to Care
PG089	Eligibility
PG090	Administrative Performance

The WV EDS has the ability to incorporate standards and benchmarks for all of the above domains. External benchmarks relevant to Medicaid and other healthcare programs can be incorporated, such as CMS Medicaid Quality-of-Care core measure national benchmarks. The solution is flexible to include West Virginia-specific targets and standards, such as contractual performance standards for MCOs and other contractors, or value-based purchasing targets for provider quality, use, and cost metrics. For example, we have supported other Medicaid agencies in tracking MCO performance against service level agreements for timely submission of accurate encounter data.

Using the reporting and analytic tools, users can view performance in relation to benchmarks by including what is called a "Reference Line" on an existing data visualization report. The reference line can be dynamic and data driven, based on any benchmarks created during the ETL process, such as state-specific MarketScan benchmarks. Users also can import external data on an ad hoc basis and report on like fields across different data tables. The advanced statistical tools in the solution provide unlimited flexibility for evaluating performance compared to diverse types of benchmarks.

PG091	The solution should have the ability to track claims processing activities and report on current status of payments

The WV EDS will store data on paid claims, denied claims, and claim adjustments made. A "last claim" indicator helps users understand the status of any claim payment thread. The data warehouse also has the capability to store claims in suspense, although that function is best performed by the MMIS.

PG092	The solution should have the ability to access and report on third-party avoidance and collections per West Virginia Medicaid State Plan for the Department's review

Our CDM accommodates financial information such as submitted and allowed amounts, coinsurance, copayments, deductibles (patient out-of-pocket), third-party amounts, and net payments. This enables you to calculate the share of costs paid by Medicare and other third parties before Medicaid as the payer of last resort.

Our solution can accommodate third-party liability (TPL) data. If the DHHR source files provide an indicator of third-party coverage, the WV EDS can examine third-party payment profiles and report on payments that may have the potential for recovery. As a special project, Watson Health has supported other states with data matching using the Public Assistance Reporting Information System (PARIS) interstate files to identify members who may be covered by Medicaid in other states, or who may have coverage through the Veterans Administration or the Department of Defense.

PG093	The solution should have the ability to track claims at any status or location including, but not limited to
PG094	Claims backlog
PG095	Key entry backlog
PG096	File status
PG097	Other indicators as identified by the Department

The WV EDS will capture, store, and report on the data needed to enable DHHR to monitor payment processes, predict payment trends, and take timely corrective action. For example, our solution can incorporate data from paid claims and encounters, denied claims and encounters (if submitted by the health plans), claim/encounter adjustment records, and their associated financials. Any data elements passed from the MMIS are stored with the claim, such as date of receipt and date of payment.

During the Design phase, Watson Health will work with DHHR to define your desired indicators and design required reports. Users also can use the system's robust ad hoc reporting capabilities to create new reports at any time after production implementation. By integrating or interfacing with data on pended or suspended claims, the WV EDS can help you examine the status of claims, the size of the claims backlog, and amounts submitted by providers but still outstanding.

PG098	The solution should have the ability to analyze and report on timely claims filing by providers

The WV EDS can store every data element from the adjudicated claim stream supplied by the MMIS including key submission and processing dates such as date of service, date received, date adjudicated, date paid, and date adjusted (if applicable), as long as those dates are provided on the source files. Reports are available on the timeliness of claims filed by providers and on turnaround time by the claims processing system. Users can perform any type of reporting on this data; for example, by federal or state service category, provider type, specialty, or any other attribute in the database.

PG099	The solution should have the ability to report on and accurately reflect payments on dual eligibles

Watson Health brings extensive experience analyzing subgroups that account for significant costs and/or have unique needs within the Medicaid program, including Medicare-Medicaid dual eligibles. The WV EDS captures Medicare cross-over claims that are submitted to Medicaid for coordination of benefits after Medicare has paid its share of costs. The solution enables you to report on Medicaid payments for Medicare copays and deductibles for eligible Medicare beneficiaries. The system flags cross-over claims, so they can be isolated or excluded for certain types of analysis (to avoid double counting the same service) and tracks the Medicare and Medicaid shares of payments as separate data elements.

Watson Health also has experience loading Medicare claims that are paid in full by Medicare to gain a more complete view of utilization by those dual eligibles. For example, under our contract with the

Colorado Department of Health Care Policy and Financing, we support that agency in bringing Medicare FFS data for dual eligibles into the state's EDW solution to monitor the care delivered to this vulnerable population. In the initial phase of the project, we undertook a special project to create an analytic file that standardized and linked Medicare FFS and Medicaid data for dual eligibles. Using this file, we created shared savings quality metrics for Colorado's Medicare-Medicare Project, a CMS financial alignment demonstration.

PG100	The solution should have the ability to aggregate and report on services including, but not limited to
PG101	Specified time periods
PG102	Service categories
PG103	Unduplicated claims
PG104	Members
PG105	Providers

Our WV EDS solution offers highly flexible data visualization and reporting capabilities that enable users of all types to slice, filter, and aggregate data in a wide variety of ways to report on specified time periods, service categories, unduplicated claims, members, and providers. Executive users will have access to dashboards and other standard reports with interactive features that allow them to filter to specific time periods and service groupings of interest. Business and power users will be able to generate these types of reports within Cognos Analytics easily, with support from Watson Health's analytic consultants if they need it. We recently implemented this solution for Colorado, where users employ the ad hoc reporting capabilities and the ability to import external data sets to their sandbox environment to build out custom reports.

To support users' analytical performance requirements, Watson Health builds data marts to improve performance for commonly executed queries and other high-priority reports. In designing these data marts during DDI, we work with DHHR users to identify and define key reporting dimensions such as:

- **Time Periods of Interest:** Options include State Fiscal Year, Federal Fiscal Year, Quarter, Month, etc. on either a paid claim or incurred date basis.
- **Service Categories:** These can include Category of Service as assigned by the MMIS, Service Type as assigned by our Flexible Analytics Engine, or other state-specific classification, such as CMS 64 line items.
- **Unduplicated Claims:** We maintain all original claims and subsequent claim adjustments in the data warehouse. To support reporting on unduplicated claims, we assign a Last Claim Indicator for the final action claim that can be used for reporting data marts and ad hoc reporting.
- **Members:** Services can be aggregated or filtered by whatever member groupings are available in the source data, such as aid category, waiver program, MCO, county of residence, etc.
- **Providers:** Services can be aggregated or filtered by whatever provider groupings are available in the source data, such as provider type, provider specialty, provider credential or risk score, etc.

Users can build reports to view record-level details or aggregate the records to report unique summary counts of members, providers, claims, services, costs, etc.

Figure 17. Example Report Depicting Enrolled Providers Filtered by Program.



PG106	The solution should have the ability to identify payments by type, as defined by the Department

The WV EDS will capture, store, and report on the data needed to enable users to monitor payment processes, analyze and predict payment trends, and take timely corrective action. This includes identifying expenditures by type, such as:

- Claims vs. non-claims (e.g., capitation, incentive payments, recoveries, mass adjustments, premiums, as available)
- FFS vs. managed care
- Place of service
- Claim type (e.g., facility, professional, dental)
- Category of service
- Aid category

We recognize that with Medicaid modernization and 1115 waivers, additional payment groupings may be needed (e.g., State Plan expenditures vs. Demonstration expenditures). We can capture whatever groupings are needed based on available source data and DHHR-approved business logic.

PG107	The solution should have the ability to track and report on claims by all attributes of the claim including but not limited to
PG108	Claim and line identifier
PG109	Payment status
PG110	Member
PG111	Provider and entity identifiers
PG112	Diagnosis
PG113	Diagnosis code
PG114	Procedure
PG115	Procedure code
PG116	Treatment
PG117	Dates
PG118	Reviewing entity
PG119	Other indicators as identified by the Department

The WV EDS is an effective vehicle to track and report on claims by all attributes of the claim, including those listed in PG108-PG118. Because we capture all elements from industry standard claim formats, any claim-based attribute is available for reporting.

Reports can be generated using claims-based information like diagnosis codes, for example, or based on member or provider/entity identifiers. The WV EDS provides look-up reference data for clinical coding schemes, so that both the diagnostic/procedure/drug code and its English language description are available for selection in reports. The solution captures all claim and line details and identifiers as well as status codes to enable users to select specific claims of interest. It also captures all identifiers for members and providers represented in the source data. As part of data warehouse processing, we apply the Master Patient Index/Master Provider Index assigned by the Systems Integrator to determine "golden records" that enable users to consistently identify unique individuals regardless of data source or time period.

PG120	The solution should have the ability to assist auditors in reviewing provider cost reports and establishing a basis for cost settlements

The information in the WV EDS will enable a thorough analysis of a provider's billings. We capture and report on historic and current payments for all provider types and individual providers. Production reports include payment details for relevant provider types, such as hospitals and nursing facilities, that our clients use in establishing a basis for cost settlements. The system can also assist auditors in identifying potential fraud, waste, and abuse and/or making referrals for criminal prosecution.

PG121	The solution should have the ability to analyze and report on individual provider payments

The WV EDS offers a variety of ways to monitor and report on individual provider payments. Analysts can create reports that display trends in provider payments period over period to detect unexpected changes, including "surge" algorithms and user-defined alerts. They can also generate detailed listings of provider payments by claim, service date, member, or other aggregation as needed to investigate those recent trends or obtain a complete payment history. Program integrity reviewers can assess how payments to an individual provider compares to his/her peers using J-SURS profile reports, while power users can apply advanced data mining and machine learning techniques to identify outliers. Using Episodes of Care and Disease Staging, analysts can compare payments across providers while taking into account their patients' severity of illness.

PG122	The solution should have the ability to retrieve data, on an ad hoc basis, relevant to specific operational units including, but not limited to
PG123	Claims resolution
PG124	Prior authorization
PG125	Medical necessity review
PG126	Others identified by the Department

Our solution delivers information collected and organized to meet the needs of specific user communities or operational units, such as financial management, policy analysis, and quality improvement. We select and aggregate data from the data warehouse into special purpose tables or data marts to support fast ad hoc reporting by certain business units that care only about certain types of data. For example, DHHR staff who focus on waiver programs may want to have special data areas that are refreshed regularly and are organized to give them fast access to just the data they need. Our WV EDS supports such operational needs as:

- **Claims Resolution:** Users can access eligibility data and provider data as of the service date of a claim and can track all versions of a claim through various adjustments to help resolve outstanding claims issues.

- **Prior Authorization (PA):** The system stores prior authorization data, so that users can assess whether PA was received as required by policy for specific services. Users can compare services provided to the PA data to confirm that plan benefits have been properly administered
- **Medical Necessity Review:** Clinical reviewers can view information on a member's diagnostic and utilization history. Using Episodes of Care and Disease Staging, they can quickly assess the severity of illness and co-morbidities that would impact the selection and course of treatment.

PG127	The solution should have the ability to maintain online access to selected management reports and annual reports for the time period specified by the Department, with flexibility for the Department to alter the length of the retention period

Cognos Analytics allows users to retain reports for either a set number of generations (a user-specified number of report output versions) or a user-defined period of time. Users can save their reports for individual re-use or as a shared template for other users. Watson Health will create and maintain a log of production or other IBM-developed reports to make it easy for DHHR staff to find reports of interest. This log will include descriptive metadata and will be fully accessible and searchable.

PG128	The solution should have the ability to produce the current volume of Department standard and operational reports

Watson Health will support the Department's current volume of standard and operational reports in the WV EDS. As part of DDI and to meet DSS certification requirements, we will develop and document a set of production reports and dashboards. We will meet with DHHR staff to review your current reports and how they are used and produced. You may wish to preserve some of these standard reports "as is" if they meet continuing operational needs or federal/state reporting requirements. For other reports, there may be gaps or opportunities to improve. We will leverage the enterprise data and advanced reporting capabilities of the WV EDS to make desired enhancements, such as:

With the many diverse data sources to be incorporated, your analytics partner must know exactly where and how to access the most meaningful data, and how to link and structure the data to be analytically useful. Watson Health brings that knowledge

- Expanding the types of data included in specific reports
- Automating or otherwise increasing the efficiency of producing reports and data exports
- Adding prompt-based reports for frequent use by a broad range of non-technical users
- Enhancing the visualization and interactive capabilities of standard reports

To identify opportunities to improve existing reports or add new ones, we will bring recommendations and best practice report templates based on our experience with other Medicaid and HHS agencies. In collaboration with DHHR, we will define a schedule for producing your standard reports and will review the portfolio of standard reports at least annually to identify opportunities to revise, enhance, add, or sunset reports to meet your evolving needs and leverage new data sources or technology.

Our reporting requirements and design process maximize use of the planned data interfaces for the WV EDS. Based on our deep experience in Medicaid data warehousing and decision support, we will advise you on how to best incorporate the WV EDS data sources and data elements in your standard reports to yield better insights.

PG129	The solution should have the ability to populate new data fields with historical data

Because we retain all source data, we can populate new data fields with historic data, as applicable and supported by the source data and as approved through the change management process. The success of

this effort and the usability of the data will be based on data field availability in historical data and consistency of data values/meanings over time.

Watson Health built our data model to industry standards and designed it with the flexibility to update and extend schemas and models to incorporate new data fields as needed. We can add new data fields to the model by simply mapping the new data to existing entities or, when necessary, creating new entities. The flexibility in this approach allows us to easily extend data model support to new data sources and disparate data types as DHHR requirements dictate.

PG130	The solution should have the ability to allow authorized solution users to promote rules to permanent tables upon approval through the Change Management Process

Rules engines are vital to enabling the WV EDS system to stay reliable, yet flexible. Upon approval through the change management process, authorized users can promote rules to the permanent tables utilizing the promotion screens and services native to IBM Operational Decision Management (ODM), our solution's business rules engine functionality. ODM has a full testing capability so that users can test ad hoc individual rules, packages, or groups of rules, and full release bundles of rules.

For quality rules, Flexible Analytics users can create custom rules using our proprietary Logic software. Logic lets users create and modify their own rules and promote them to the Flexible Analytics build, where they will produce enriched output that can be leveraged in downstream reporting tools.

PG131	The solution should have the ability to create and modify automated authorized solution user-configurable business rules that link, classify, and relate rules and rule groups by patterns, mathematical sets, dependencies, and other factors

The ODM rules engine tool enables business users to create, modify, delete, and test business logic outside of application code. With this flexible and easy-to-use tool, users are empowered to address the ever-changing needs of the modern state healthcare enterprise in near-real time. With business rules separate from application code, business users can define and manage the business logic, thus reducing the amount of time and effort required to update the business logic in the production system and increasing the ability to respond to changes in the business environment.

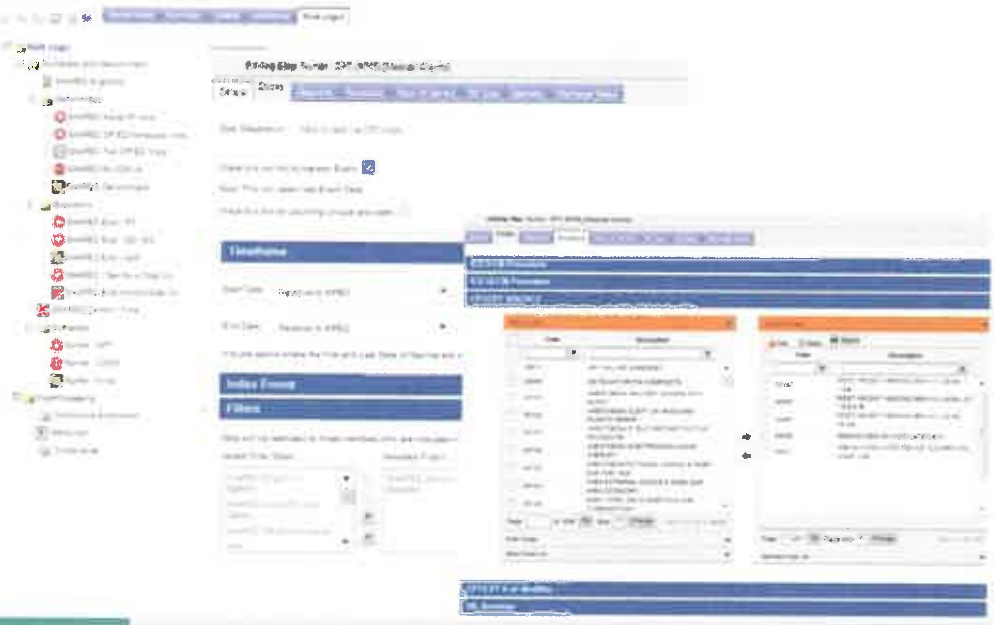
Within the WV EDS, Watson Health will deploy the rules engine as a shared service. In a single application, the Department's authorized business analysts and rules developers can create, modify, and store rules that link, classify, and relate rules and rule groups by patterns, mathematical sets, dependencies, and other factors. Users are able to create common definitions of events and apply them evenly across the analytical domain. The result is a centralized repository of rules that can be leveraged and shared across the solution.

Using the ODM rules engine, for example, your users can define algorithms to assess whether claims payments are consistent with policy (e.g., are there claims in excess of benefit limits)? They can also create complex quality measures; the tool focuses attention on creating the appropriate measure content and clinical data models to support the current measure sets used in quality reporting, as well as the next generation of quality measures driven on increasingly comprehensive clinical and other data. ODM is ideally suited to development of CQMs and other measures, where measure components are inter-related and re-used, such as when rules are linked in a way that a numerator population becomes a denominator population for additional rules.

For quality rules, the Flexible Analytics Quality Rules Engine Logic tool enables users to create new quality rules "from scratch" or modify existing rules to meet their unique reporting needs. Watson Health will work with users to be sure the newly created or modified rules meet their reporting needs from an analytic perspective. Logic is unique in that users do not have to be technical experts to create or modify a rule. A user-friendly interface leverages a common-sense workflow and easy-to-understand terminology

so users can create or modify quality rules seamlessly. The rules can then be used to supplement complex analytic reports.

Figure 18. Flexible Analytics Quality Rules Engine Logic Tool. *Users are able to create new quality rules "from scratch" or modify existing rules to meet their unique reporting needs.*



PG132	The solution should have the ability to allow authorized solution users to use online screens and services inside the solution to promote rules to user-specific tables

As previously stated in PG130, authorized WV EDS users can promote rules to user-specified tables utilizing the promotion screens and services native to our solution's rules engine functionality. Rule engine functionality will be available in all environments, including the analytical sandbox.

PG133	The solution should have the ability to configure rules to be date-specific including, but not limited to
PG134	Date added
PG135	Date modified
PG136	Start and end dates
PG137	Effective date

DHHR can incorporate fine-grain control over rules by including start and stop dates in the body of the rule. Users may express a business policy in a business rule, including the state date, end date, and effective dates of the rule. As a result, certain rules are only effective for a stipulated period of time and are discontinued beyond the needed time period.

For example, if DHHR wants rules allowing short stay for acute care in Institution of Mental Diseases (IMD), which has been granted by CMS as part of the Substance Use Disorder 1115 waiver to West Virginia, you would create validation rules that are effective only for the period of the 1115 waiver. DHHR can do this by providing start-date and end-date to a rule during its creation, which establishes a rule only for a defined period of time. Rules around eligibility may also be created with future dates as a preparation for rolling out new programs.

PG138	The solution should have the ability to allow authorized solution users to create and modify user-specific or shared business rules that link, classify, and relate rules and rule groups by patterns, mathematical sets, dependencies, and other factors

The rules engine component of our solution has these capabilities, as described in PG131. During implementation, Watson Health will work with DHHR to identify the various user roles and responsibilities for the business rules engine. These roles are configured in the ODM application, with some roles only able to view rules, while others are able to author and promote rules in the environment. As a fully integrated component, the rules engine capability has access to all data available in the data warehouse.

PG139	The solution should have the ability to allow authorized solution users to apply identifying codes to any record based on rules engine criteria

WV EDS users can apply identifying codes, such as person_id or claim_id, to any record based on the Quality Rules Engine criteria output. For example, users are able to drill down to detail on members included in rule measure numerators and denominators to obtain a complete understanding of the quality of care being delivered by providers. This also provides a more holistic understanding of member experience and outcomes.

One example of how this might serve WV EDS users in practice is by using the QRE Medicaid Focus package's Breast Cancer Screens Medicaid Adult rule. The denominator in this rule is "all members who are eligible for breast cancer screenings"; the numerator is "include those members who actually received breast cancer screenings". By drilling down to the person or claim identifiers in this rule, users can perform gaps-in-care analyses to determine if providers are delivering recommended care to their patients.

PG140	The solution should have the ability for authorized solution users to receive push notifications based on user-configurable parameters

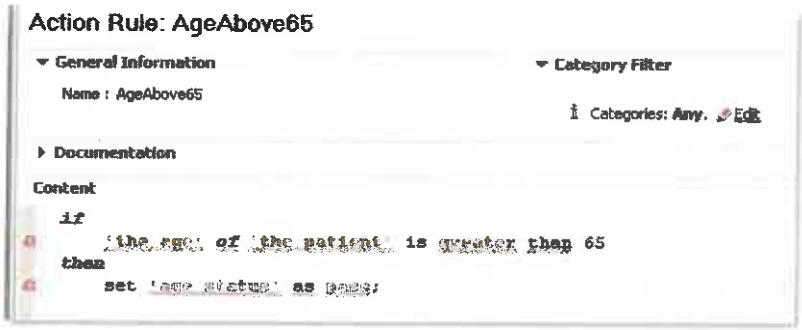
Our solution has the capability to generate a domain-specific business vocabulary and use the vocabulary to define various push notifications/alerts based on user-configurable rules and/or parameters associated with various action types. Business users can define the conditions for which notifications are triggered; these triggers typically occur when error conditions are identified, or when the data has reached pre-defined thresholds. Users also can configure the content of the message. This allows users to fine-tune the message, helping to reduce alert fatigue that users might otherwise experience.

PG141	The solution should have the ability for authorized solution users to review and validate rules without the need to learn a specialized coding language

Within the ODM rules engine, rules are authored using a natural language made up of terms and phrases that are specific to DHHR. The terms and phrases are typically business language and not technical language. The rule format includes user-friendly structures of If/Then, decision tables, decision trees, and scorecards. In addition, our solution supports the full lifecycle of business rule management, empowering business users to edit business rules, and to author, search, report, test, simulate, and deploy rules in a controlled environment. Like any business rules engine, there will be a minimal learning curve for users to get used to the specialized English-like syntax used to configure the rules.

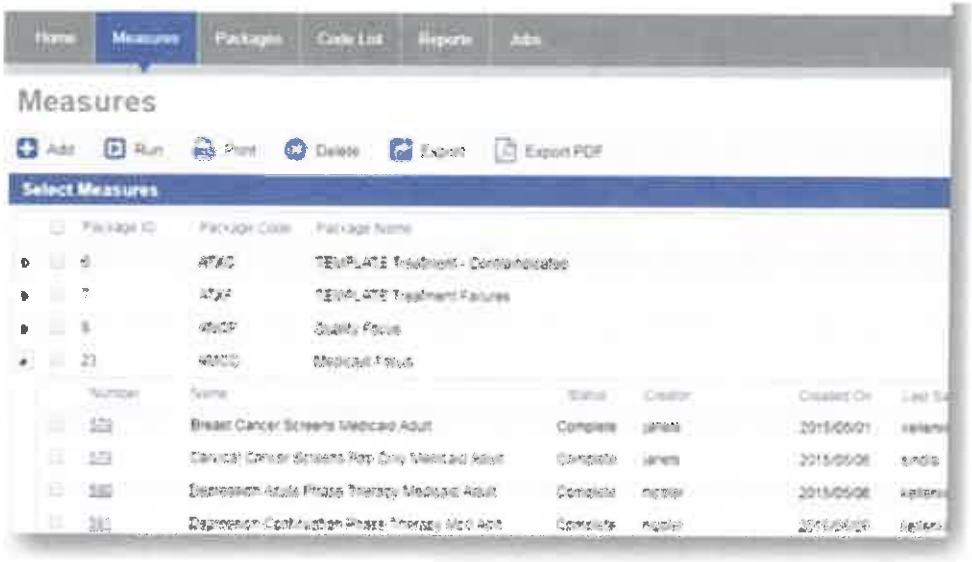
The tool supports non-programmer measure construction and modification, with features that facilitate development, testing, and deployment of English-language rules.

Figure 19. Creating a Rule in ODM. *Users can easily specify or modify measure parameters like patient age. Business rules are text-based, and simple auto-completion functionality makes it easy to select the right phrases to complete the condition and the action. We refer to this format as an "If/Then" structure.*



Further, the Flexible Analytics QRE Logic software does not require users to learn a specialized coding language. Logic users are unaware of the underlying code as they interact with an easy-to-navigate "human language" interface when they create or modify quality rules for reporting purposes. Using the Logic rules editing software, users can review and print all content that is included in every rule measure, along with information about how the rule is set up (e.g. what defines the numerators and denominators).

Figure 20. Flexible Analytics Quality Rules Engine Logic. *Does not require users to learn a specialized coding language, they interact with a "human language" interface.*



PG142	The solution should have the ability to process multi-level rule review and approval that validates logic errors, conflicts, redundancy, and incompleteness across business rules as they are being developed, tested, and implemented

The rule capability is a scalable rule management server and repository with a collaborative web environment for authoring, managing, validating, and deploying business rules. It provides for project governance, including role-based security, history maintenance, and custom metadata. For user-specified rules created on an ad hoc basis, ODM provides review and approval steps to validate logic errors, conflicts, redundancy, and incompleteness across business rules.

All business rules are automatically versioned, tracking what changed, who changed it, and when it changed. The different versions are tracked, so they can be compared and restored. A snapshot of the rules can be taken at any time and stored as a baseline. As a snapshot of a collection of the rules, these baselines play an important role in the overall rule governance cycle and correspond to change releases.

PG143	The solution should have the ability for authorized solution users to test rules against replicated data prior to implementation, including full user acceptance testing (UAT) of the rules

For data integrity, business rule changes follow the testing and change management process established for the project. This means that new business rules undergo unit, integration, performance, and regression testing. Rules also can be tested in the UAT environment. Only after passing this cycle of testing, subject to HIPAA compliance, are rules promoted to the Production environment. They follow the same path the other system components must follow before being released into production. Rules are promoted to the permanent tables utilizing the promotion screens and services native to the tool functionality.

PG144	The solution should have the ability to track and report rule usage, exception usage, and when rules fail to work as designed, and provide recommendations to resolve rule failure

ODM has the ability to track and report usage, exceptions usage, etc. In fact, this is one of the key differentiators of ODM in the world of business rules systems. Our solution has a robust monitoring environment, so rules can be traced during their execution. This monitoring generates process metadata for debugging a situation when a rule that was previously working fails to execute as planned.

Execution traces are stored in a database. The trace contains information on how a decision was made. It records the executed rule flow, the path of executed rule flow tasks, and the rules executed. These details help users or auditors understand what happened when executing a ruleset and any failures in the rule execution. They can also highlight recommended changes to resolve issues.

PG145	The solution should have the ability to capture care management data including, but not limited to
PG146	Treatment plan
PG147	Outcomes
PG148	Prior authorization information
PG149	Others as defined by the Department

The WV EDS has the ability to integrate care management data in its raw form, whether structured, semi-structured, or unstructured. The migration of all forms of data, including treatment plans and other PDF files, is important for the comprehensive business perspective derived from data mining or Natural Language Processing (NLP) analytics.

For the WV EDS, the Department's current data sources were designated for initial conversion, which includes prior authorization information. Additional data sources like treatment plans and outcome information will be evaluated following the project's change management process. Conforming data as consistently as possible to a data model that was designed for reporting and analytics provides the most analytically flexible solution to DHHR. Working closely with you, Watson Health will deliver fully migrated data that is stored in a data model, manner, and platform suitable for all types of analytical processing, so DHHR can understand and act on the data to evaluate and improve care management.

PG150	The solution should have the ability to capture compliance incident data including, but not limited to
PG151	Anomalies and adverse actions, such as
PG152	Termination

PG153	Suspension
PG154	Nonrenewals
PG155	Denial of contracts
PG156	Others as defined by the Department

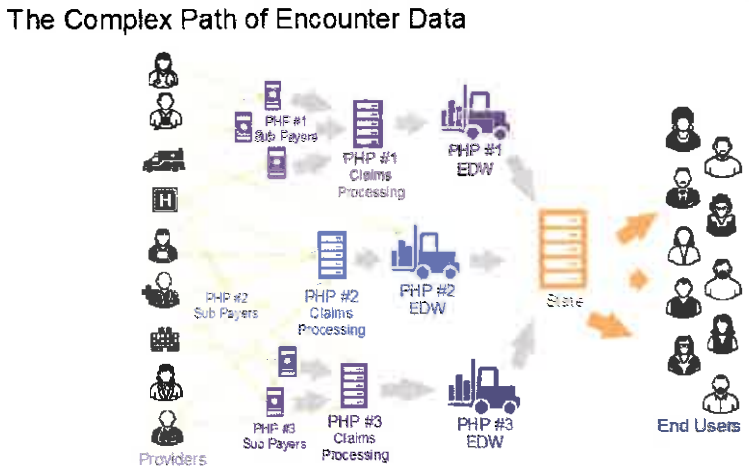
To support the MITA 3.0 business process of Compliance Management, the WV EDS is structured to contain the information needed to manage, track, log, and report on compliance incidents, anomalies, and adverse actions, such as termination, suspension, nonrenewals, and denial of contracts. Other compliance incident information can be added per the established change management process. While the system contains the data to support examining and establishing such compliance incidents, DHHR would be responsible for determining adverse behaviors or conditions, and for the notification of effected individuals or parties.

PG157	The solution should have the ability to capture claims data including, but not limited to
PG158	Payment
PG159	In-house claim number
PG160	Member number
PG161	Patient account number
PG162	Encounters
PG163	Adjudication
PG164	Historical payment information
PG165	Others as defined by the Department

The WV EDS has the ability to capture and store data for all these interest areas, organizing it for easy access. Watson Health currently does this for hundreds of public and commercial payer clients, linking data to the patient/member using the Master Client Index for simplified population-based analysis. Adjudicated claim data supports a myriad of reporting needs. The warehouse also can store other indicators carried on the claim record, such as prior approval, diagnosis and procedure codes for medical and utilization review, data elements from pharmacy and dental claims, and inpatient facility data. Users with proper authority can access any data element for reporting with the Cognos BI interface.

Our solution maintains synchronization of claims and encounter record dates with provider and member record dates—a claim or encounter is always linked to the provider status and member status segments associated with the date of service. Claims and encounter records are synchronized with provider and member eligibility data in monthly records, so service data and monthly eligibility and provider status can always be compared. For example, users can run reports that expose instances where a provider was paid for a service rendered when the provider was under sanction or a patient was ineligible for service.

Figure 21. Encounter Data Presents Particular Challenges. *Watson Health is an expert in this area, having supported states with encounter data collection, validation, and improvement for more than 20 years.*



Watson Health will refresh all historical claims data on a scheduled basis, updating the data marts on a regular schedule that provides analytically meaningful data.

PG166	The solution should have the ability to capture encounter data including, but not limited to:
PG167	Adjudication and encounter payment history information
PG168	Others as defined by the Department

The WV EDS can capture encounter data to support DHHR in assessing the cost and quality of the Medicaid managed care program; our data warehouse and decision support solutions do this routinely. Our Core Data Model (CDM) is optimized for managed care. For example, we flag encounters with a capitated services indicator to avoid double counting payments.

The CDM has data fields that capture information related to the adjudication of claims/encounters by the MCO, such as the MCO paid date and MCO paid amount, when available. The CDM standardizes data to support comparisons across MCOs and across managed care and FFS experience. It incorporates capitation, administrative fees, incentive payments or withholds, and any other non-claims financials required to capture the data needed to gain a complete picture of expenditures under managed care. The solution captures all original and adjusted claims/encounter records submitted by the MCOs, and can accommodate MCO-denied claims as well, giving you a complete history of payment processing.

PG169	The solution should have the ability to capture reference data including, but not limited to:
PG170	Filing deadlines
PG171	Code sets
PG172	Drug status (preferred, non-preferred, non-managed)
PG173	Procedure code
PG174	Diagnosis-related group (DRG)
PG175	Ambulatory payment classification
PG176	National Correct Coding Initiative (NCCI) information

PG177	Others as defined by the Department

Watson Health understands how critical it is in a modular environment to be working from the same reference data as other vendors, coordinated across the enterprise. The WV EDS can capture the reference data in PG170-PG176 and provide the centralized management, stewardship, and distribution required to manage that data as an enterprise standard. This results in fewer errors, reduced risk, and cost savings. We also capture other industry standard reference data, such as RED BOOK for drug reference data. All reference data we currently capture for DHHR will be available in the WV EDS. If the Department would like to capture additional reference data, it would be evaluated using the change management process.

Throughout the life of the contract and for all WV EDS components, Watson Health will update and maintain the industry-standard and third-party reference and dimension code data for the prevailing set of code tables at the time of production implementation as that reference data changes. We will work with DHHR and third-party suppliers to establish and document standard procedures for updating these data elements. As part of reference data management, we maintain historical reference datasets as part of our content. In addition, users will have access to the latest metadata information about these historical reference datasets through the InfoSphere Information Governance Catalog (IGC). Data stewards are able to modify and update metadata about historical reference data in IGC.

PG178	The solution should have the ability to capture plan data, as defined by the Department

A key to plan management is the ability to accurately understand, monitor, and measure services provided in a managed care setting, as well as the quality and cost of those services. Watson Health will work with DHHR to determine your needs for plan data and capture the required data, so you can accurately and fairly evaluate and compare costs and quality, as well as the value delivered from managed care.

Watson Health has experience collecting a variety of plan data for our other Medicaid clients. For example, for our clients for whom we produce T-MSIS extracts, we collect and report on such characteristics of managed care plans as service areas and their effective dates, operating authority and effective dates, waiver identifier, applicable eligibility groups, accreditation organization and dates, and national healthcare entity information. As another example, we have captured MCO contract performance standards related to encounter data submission and produced dashboard reports comparing actual performance to these standards.

The WV EDS will store the information needed to:

- Monitor the State's ability to meets its goals and objectives (budget, plan management, healthcare quality, costs, patient satisfaction)
- Evaluate plan performance, including the State Plan and other benefit plans
- Manage plan reference data
- Create, manage, and transparently communicate measures for managing and improving the Medicaid program; Watson Health produces a number of measures, including HEDIS, and can capture quality measure results (numerators, denominators, rates) generated by the MCOs
- Support budgeting and rate-setting by actuaries

Additionally, the WV EDS has the data model and capabilities to ingest, store, track, and report on the State Plan, in addition to other benefit plans.

PG179	The solution should have the ability to capture carrier data including, but not limited to
PG180	Third-party policy type
PG181	Coverage

PG182	Policy number
PG183	Effective date
PG184	Benefits
PG185	Others defined by the Department

The WV EDS is able to capture carrier data such as third-party policy type, coverage, policy number, effective date, and benefits. Our data model captures third-party liability information that includes policy carriers and other non-insurance parties with an interest in the claim. Coverage data includes the coverage provided to individual members, as well as a Coverage Group to define a larger body of potential members. Policy information is critical to claim processing and is captured in the model; it is linked to a member's household, as the policy may support multiple family members.

includes coverage provided to individual members along with policy numbers and effective dates as well as information on benefits packages

Critical information about TPL data is represented in the model, including:

- **Third-Party Carrier Information:** Includes name, type of carrier, address, telephone, and critical identifiers (National Health Plan identifier and NAIC identifier)
- **Third-Party Group Information:** Includes group identifier, name, address, telephone, and date ranges
- **Third-Party Policy Holder Information:** Includes the policyholder identifier, name, address, telephone, policy holder personal information, and date ranges
- **Third-Party Member Coverage Information:** Includes coverage type, coverage identifier, coverage date ranges, coverage details, verification date, member identifier, and policy information

If DHHR would like to capture additional data types from carriers, Watson Health will evaluate those using the project's change management process.

PG186	The solution should have the ability to capture data source contracting information including, but not limited to
PG187	Provider network
PG188	Contract
PG189	Grievance and appeals information
PG190	Others defined by the Department

The WV EDS has the ability to become a centralized repository for the Department's data source contracting and vendor information. While additional data would be assessed in accordance with the change management process, the system has a structural model that supports storing, managing, and reporting on key data source information such as:

- **Provider Network Information:** We will capture data related to the enrolled provider network as it is provided by the MCOs or other vendors; this includes information such as identifiers, locations, credentials, and ownership organizations.
- **Contract Information:** Particularly with managed care, the ability to track and monitor contracts is important. While the WV EDS does not manage the contracts, it provides the data ingestion, data model, and capabilities to support reporting on MCO contracts.

- **Grievance and Appeals Information:** The data warehouse does not perform or manage the grievance appeal process, as that is best accomplished within the case management tool. It can, however, track grievance and appeals information for reporting and oversight purposes.

PG191	The solution should have the ability to capture member data including, but not limited to
PG192	Demographics
PG193	Eligibility
PG194	Enrollment
PG195	Grievance and appeals information
PG196	Others defined by the Department

Managing detailed information related to a member is important for successful service delivery, care management, program management, and program integrity. The WV EDS has capabilities to integrate multiple sources of member information (including demographics, eligibility, enrollment, and grievances and appeals) for reporting and analysis related to enterprise business processes.

As part of an ER reduction initiative, MaineCare used their Watson Health EDW to identify members who met certain utilization and risk score criteria. Care managers used patient profile information from the system to better understand these members' medical needs and connect them to a PCP and other services. The initiative produced savings of $8M in the first year.

Our data architecture is focused on creating and delivering a level of member data integration that removes entity duplication. Our data warehouse will apply the Master Patient Index/Master Provider Index assigned by the Systems Integrator to determine "golden records" that enable users to consistently identify unique individuals regardless of data source or time period.

Our clients use this high-quality member information for a broad range of purposes, including enrollment trending and forecasting, member participation and utilization analysis, member profiling by program or MCO, etc. The WV EDS enhances the member data with Cost of Care risk scores and Episodes of Care with Disease Staging to enable population stratification for population health and care management applications.

PG197	The solution should have the ability to provide authorized solution users with analytical tools including statistical, comparative, and financial trend analyses, as well as case-mix adjustments

The WV EDS provides DHHR users with sophisticated analytical tools that perform analytical functions including statistical analysis, comparative analysis, financial trend analysis, and case-mix adjustments.

- **Statistical Analysis:** Our solution provides advanced statistical techniques for detecting outliers and aberrant patterns, including classification, decision tree, clustering, segmentation algorithms, and others. For data mining, we have included IBM Watson Studio, a robust toolkit of essential statistical procedures that provides industry-leading algorithms and capabilities like machine learning / deep learning, text analytics, and geospatial analysis. Power users can use the tool to directly access and manipulate their authorized data in any EDW data store. They also have virtually unlimited flexibility to manipulate any user-imported data in the analytic sandbox. With Watson Studio and its easy access to open source tools, including R and Python, power users can create models using traditional linear and non-linear models and machine learning tools, such as support vector machines and neural networks. The tool incorporates a vast array of standard algorithms, statistical procedures, and graphics.

- **Comparative Analysis:** We will design and maintain the system to support accurate and reliable comparative analysis – over time, across programs, and between users. Comparative analysis requires a longitudinal database of high-quality data, where the data has been managed consistently and has been well standardized over time. With a well-designed database and good data management techniques, analysts find it easier to perform accurate comparative analysis. DHHR analysts will have access to a wide array of statistical techniques through Watson Studio to assess the significance of comparisons over time and across programs, MCOs, and other member subpopulations.
- **Financial Trends:** The WV EDS will deliver extensive capabilities for financial trend reporting and analysis. Users can produce expenditure trends by budget-relevant dimensions like category of service, provider type, procedure code/modifier, payment/aid category, region, MCO, etc. They can view trends by date of service, date received, date adjudicated, date paid, and date adjusted (if applicable), as long as those dates are provided on the source files.
- **Case-Mix Adjustment:** When comparing data on different populations, such as when comparing providers, it is important to adjust for variations in case mix. With the WV EDS, your analysts will have access to health risk scores and severity of illness measures they can use to compare providers (or MCOs or programs) and adjust for differences in the member/patient panels.

PG198	The solution should have the ability to compare current expenditures by service type and/or member/eligibility category with previous period expenditures to establish a frame of reference for analyzing trends

During DDI, Watson Health will work with DHHR to configure standard expenditure reports to your key reporting dimensions (e.g., service type, eligibility category, county, fund code, health plan, etc.). These reports will be designed to compare expenditures period over period to provide a basis for various types of financial and policy analysis, such as helping DHHR prepare budget allocations for upcoming fiscal years and tracking expenditures against budget during the current year. They also enable you to compare current costs to prior periods to help assess cash flow. To assure the reports accurately reflect program utilization and expenditures, our analytic DDI efforts involve working with your financial staff to reconcile data in the reports we develop.

The reporting and analytic tools in the WV EDS provide a wide range of trending and predictive capabilities to support financial analysis. Analysts will have easy-to-use yet advanced functionality for statistical analysis of historical and current data, as well as methods for projecting future healthcare costs and utilization rates. This produces richer insights and sounder decisions.

PG199	The solution should have the ability to compare actual expenditures against budget to determine control of current and projected financial positions

The WV EDS can deliver production reports that support fiscal planning and control, including reports that compare actual expenditures to budget, dependent on the availability of budget data in the EDS. Drawing on our experience with DHHR and our experience with program management reporting in other states, Watson Health will recommend proven report templates that we configure to accommodate your unique program and data. These reports will help DHHR compare actual expenditures to budget allocations and develop budget projections.

PG200	The solution should have the ability to analyze expenditures to identify areas of greatest cost

During DDI, Watson Health will develop standard reports for DHHR that monitor the factors impacting expenditures and cash flow, such as enrollment trends, third-party avoidance and collections, provider cost settlements, and timeliness and accuracy of claims processing. In addition to these standard production reports, DHHR staff will have access to user-friendly reporting and analytic tools to create

their own cost trend reports, financial forecasts, and what-if modeling scenarios. The Watson Health account team's data scientists and analytic consultants can provide analytic support to DHHR users through consulting, formal training, user group sessions, and shoulder-to-shoulder coaching. The local account team is supplemented by our SMEs, including statisticians, Medicaid policy experts, and others.

Watson Health analysts can support special studies or requests; for example, we collaborated with a state client to develop an annual "Cost Driver" report to help identify cost containment opportunities. The report quantifies the share of recent cost increases (or decreases) attributable to different cost drivers, such as membership, use, and price by service type.

PG201	The solution should have the ability to report on utilization and cost of services against benefit limitations

The WV EDS supports tracking of utilization and costs against benefit limits. Reports can display the distribution of services by member for a given service type, like chiropractic services, for comparison to annual limits, to help identify specific claims for follow-up investigation. Additionally, to confirm that plan benefits have been properly administered, analysts can compare services provided to prior authorizations.

PG202	The solution should have the ability to provide member enrollment and participation analyses and overall summary, showing utilization rates, payments, and numbers of members by eligibility category

The WV EDS will contain eligibility, claims, and encounter data to support the review of enrollment, participation, and service utilization by individual member and by an array of member categories (demographic subgroups, aid categories, waiver programs, and so forth). Analysts can access information and reports on member trends by time period (month, quarter, year), including but not limited to:

- Enrollment counts by aid category, region, county, plan type, health plan, age group, and other breakouts
- Member participation, utilization rates, and payments per member overall and for specific types of service by aid category, region, county, plan type, health plan, age group, and other breakouts
- Expenditures based on the CMS-64 expenditure type and the member's eligibility program and category

PG203	The solution should have the ability to provide expenditure data by service codes including, but not limited to, current versions of
PG204	Healthcare Common Procedure Coding System (HCPCS)
PG205	International Classification of Diseases (ICD)
PG206	Clinical modifiers
PG207	National Drug Code (NDC)
PG208	Revenue codes

The WV EDS is able to provide expenditure data through applicable service codes (HCPCS, ICD, NDC, etc.), which Watson Health maintains and updates over the life of the contract. The system stores data coded using any of these standards and also captures other standardly coded service data elements, including clinical modifiers and revenue codes. Users can report by these services codes at the most granular level; they can also access additional predefined clinical fields that roll up the basic code fields into clinically relevant groups. For example, the ICD diagnosis code field is rolled up into additional fields, like Diagnostic Related Group (DRG) and Major Diagnostic Category (MDC), and NDC codes are grouped by Therapeutic Class.

PG209	The solution should have the ability to support determining reimbursement methodologies by providing expenditure data by service codes including, but not limited to, current versions of
PG210	Healthcare Common Procedure Coding System (HCPCS)
PG211	International Classification of Diseases (ICD)
PG212	Clinical modifiers
PG213	National Drug Code (NDC)
PG214	Revenue codes

Our solution helps determine reimbursement methodologies by providing expenditure data through the applicable service codes (HCPCS, ICD, NDC, etc.). We store these fields to enable WV EDS users to report on utilization and expenditures at the code level and analyze them together with other information such as modifier codes and provider specialty. Analysts can model the impact of potential changes in rates and coverage, with the ability to perform what-if modeling. For example, Watson Health developed a reporting process that allowed one state Medicaid agency to compare Medicaid and Medicare professional rates and model various fee change scenarios for targeted provider specialties to guide discussions and decision-making on rate adjustments.

PG215	The solution should have the ability to analyze provider participation data by criteria including, but not limited to
PG216	Payments
PG217	Services
PG218	Type of services
PG219	Member eligibility categories
PG220	Other defined by the Department

Users have a variety of capabilities for analyzing provider participation—by services, types of services, member aid category or special program, location, time period, provider type and specialty, and MCO, among others. The WV EDS offers several ways to monitor individual provider payments period over period to detect unexpected changes, including provider ranking reports, "surge" algorithms, and user-defined alerts. Watson Health will leverage proven report templates to support DHHR in monitoring provider participation.

Users can analyze participation by the number of patients seen by a provider and the associated payments, and by the type of services provided and whether they comply with evidence-based guidelines. For example, analysts can assess whether providers are keeping their patients up-to-date on cancer screening. Analysts can also evaluate participation in light of a provider's overall capacity if the provider file contains capacity indicators; advanced users can integrate data from publicly available datasets, such as the Area Health Resources File, to identify and better understand Health Professional Shortage Areas.

PG221	The solution should have the ability to summarize expenditures based on type of federal expenditure and the member's eligibility and program

The WV EDS will contain eligibility, claims, and encounter data to summarize expenditures based on an array of member categories. Analysts can access information and reports that include expenditures based on the CMS-64 expenditure type and the member's eligibility program and category. Watson Health has extensive experience analyzing data by CMS-64 expenditure categories. For many years we have produced an annual Long Term Services and Supports Expenditures Report for CMS that compiles data from state CMS-64 reports to provide data by state, population group, and service category. The ratio of

institutional to community spending found in this report is used widely as an indication of balance in state long-term care systems.

PG222	The solution should have the ability for authorized solution users to perform prospective and retrospective policy modeling (what-if analyses) on claims edit checking and adjudication rules, claims parameters and payment rules, provider payment rules or amounts, or claims sequencing
PG223	The solution should have the ability for authorized solution users to perform prospective and retrospective policy modeling (what-if analyses) on changes in provider profiles
PG224	The solution should have the ability for authorized solution users to perform prospective and retrospective policy modeling (what-if analyses) on changes in member profiles
PG225	The solution should have the ability for authorized solution users to perform prospective and retrospective policy modeling (what-if analyses) on changes in benefit plans
PG226	The solution should have the ability for authorized solution users to perform prospective and retrospective policy modeling (what-if analyses) on patterns in relationships between disparate data
PG227	The solution should have the ability for authorized solution users to perform policy modeling (what-if analyses) on other criteria as defined by the Department

With the WV EDS, DHHR will be able to perform prospective and retrospective policy modeling to project the impact of policy changes or legislative rules before finalization and to evaluate the effect of policy changes following implementation, respectively. Using J-SURS, your analysts can model the financial impact of changes to claims edits and adjudication rules. They can perform what-if analysis to assess of not paying for, or paying differently for, a specific type of claim, based on claims parameters and payment rules, provider payment rules or amounts, or claims sequencing.

Through Watson Studio, your analysts have access to a wide array of predictive modeling and other advanced analytic techniques utilizing widely used open source tools like R Studio, Python, Spark, and Scala. For example, analysts will be able to examine past trends to forecast the impact of changes under consideration and determine the baseline for a cost neutrality threshold, or project what costs would have been in the absence of a recent policy or program change. Additionally, the WV EDS sandbox environment enables authorized users to perform deep data analyses, including highly sophisticated what-if analysis, on data from various sources both within and external to the data warehouse.

We support these capabilities with staff that are experienced with statistical programming, analysis, and Medicaid finance. Examples of policy changes that can be modeled with our solution include:

- Changes in copayments or other member cost-sharing requirements
- Changes in specific covered benefits (e.g., a new specialty drug)
- Changes in provider or health plan reimbursement rates
- Introduction of a new care management program

PG228	The solution should have the ability for authorized solution users to perform retrospective reviews on claims that appear to have been inappropriately paid, such as
PG229	Excessive units
PG230	Duplicate services
PG231	Coding errors, or other errors

Our solution supports the comprehensive analysis of factors that contribute to waste in the healthcare system. Users can perform retrospective reviews on claims that may have been inappropriately paid, in both the FFS and managed care environments.

The Watson Health PI analyst will review state policy and claim/encounters edits to define rules-based algorithms that address West Virginia's unique issues. We document each new algorithm we configure for you, so the parameters and logic for the algorithm are available for reference and reuse. Parameters can be updated if codes change or new exclusions are needed. The algorithms that our state Medicaid clients often select identify provider performance such as excessive services, duplicate services, unnecessary services, coding errors, prescribing practices, and outliers, among others.

PG232	The solution should have the ability for authorized solution users to perform retrospective reviews to determine whether services and billings were a medically-necessary exception to usual practice

Our solution allows users to conduct retrospective review of medical necessity using episodes of care to identify instances of treatment that are inconsistent with guidelines, either through the J-SURS Episode of Care (EOC) feature or our Medicaid Episode Grouper (MEG).

The J-SURS EOC feature is a unique and particularly useful capability. EOC allows a user to identify members or providers who meet a set of conditions (the trigger event) and select all time related services (days before, during, or after) that are associated with it. As an example of how the EOC feature is used in J-SURS to identify treatment inconsistent with guidelines, users can identify dental providers with a pattern of billing pulp caps (procedure code D3110) when amalgam restorations (procedure codes D2140-D2161) were billed. A pulp cap should only be done if a "pulp exposure" occurs when a tooth is filled due to significant decay encroaching upon the pulp (nerve of the tooth).

DHHR analysts can also use the episodes of care created by MEG to examine disease severity, co-morbidities, and course of treatment in evaluating whether a procedure was justified given the patient's clinical condition and treatments to date. For example, using MEG they can identify children with low stage acute otitis media who undergo tympanometry, or women who undergo hysterectomy for conditions for which it is considered inappropriate or before alternative treatments were tried. At the other end of the spectrum, MEG can help identify high-stage patients with multiple co-morbidities and complications whose severity of illness may warrant exceptions to standard clinical practice; for example, the stages for Bacterial Pneumonia and how average utilization and costs generally increase with disease severity.

Table 19. Using Disease Staging to Stratify Cost and Use by Severity

Disease Category RES15: Bacterial Pneumonia					
Disease Stage Code	Disease Stage	Acute Admits	Average Allowed Amount	Admits Per 1000	Average LOS
1.01	**Pneumonia in one lobe**	103	$ 7,816	1.28	2.7
2.01	**With bacteremia**	1	$ 6,000	0.01	4.0
2.03	**With empyema**	4	$ 6,500	0.05	4.0
2.04	**With lung abscess or bronchopleural fistula or bronchopleural cutaneous fistula**	1	$ 86,000	0.01	14.0
3.01	**With endocarditis**	1	$ 7,000	0.01	4.0
3.03	**With congestive heart failure**	61	$ 9,410	0.76	4.0
3.04	**With sepsis**	64	$ 15,406	0.79	4.4

Disease Category RES15: Bacterial Pneumonia					
Disease Stage Code	Disease Stage	Acute Admits	Average Allowed Amount	Admits Per 1000	Average LOS
3.05	**with respiratory failure**	160	$ 13,181	1.98	4.9
3.06	**with shock**	39	$ 42,564	0.48	13.3
	Total	**434**	**$ 14,442**	**5.37**	**4.9**

PG233	The solution should have the ability to compare encounter data and claims with capitation versus fee-for-service (FFS) payment data to determine optimal utilization and payment scenarios

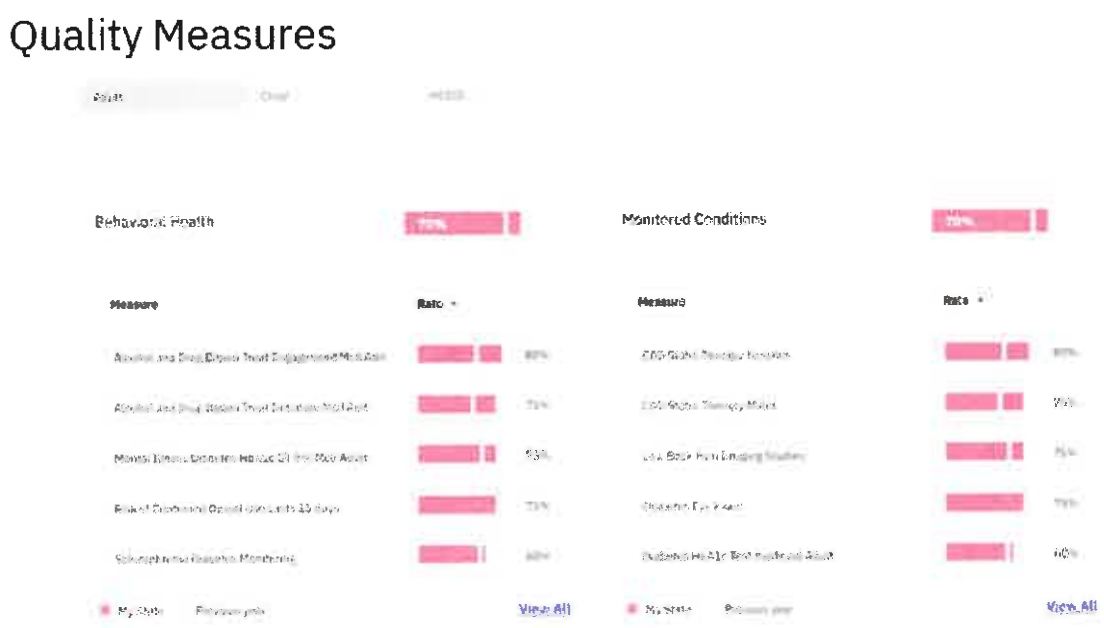
The WV EDS is designed based on best practices and lessons learned from our decades of experience collecting, managing, and analyzing encounter data from more than 400 managed care organizations. Because our Core Data Model (CDM) is optimized for managed care, you can analyze the data accurately and use it to compare managed care experience to FFS experience. The CDM standardizes data to support comparisons across MCOs and across managed care and FFS experience. In addition, Watson Health deploys proven best practices to evaluate FFS and managed care data for completeness, validity, reasonableness, and timeliness.

Users can perform comprehensive statistical profiling of the healthcare delivery and utilization patterns across models of care. We enhance the data with Cost of Care relative risk scores so that you can adjust comparisons among MCOs and across FFS and managed care for underlying differences in illness burden. We also provide episodes of care so that you can evaluate treatment practices and comparative costs for specific clinical conditions, taking severity of illness into account. Users can study access to care under different delivery models, measure the prevalence of chronic conditions and effectiveness of managing these, track improvements in quality of care, and quantify improvements in reducing avoidable or inappropriate acute care costs. Longitudinal analysis allows users to see changes in the health status and utilization trends of FFS and managed care participants over time.

PG234	The solution should have the ability to report health care quality measures in accordance with the Centers for Medicare & Medicaid Services (CMS) Technical Specifications including, but not limited to:
PG235	Adult Core Set
PG236	Child Core Set
PG237	Health Home Core Set
PG238	Substance Use Disorder (SUD) Waiver Measures
PG239	Others identified by the CMS and/or the Department

The WV EDS includes industry-standard quality measures, which will be generated using West Virginia data. These include the CMS Medicaid Child and Adult Core Quality Measures that can be produced with administrative data. We produce these measures for DHHR and other clients today using our Quality Rules Engine (QRE), a proprietary tool incorporated in the WV EDS solution that calculates complex industry-standard quality measures reflecting evidence-based medicine guidelines. The WV EDS also supports the claims-based Health Home core measures, the majority of which align with the Adult measures and can be produced using data subsets and/or minor rule modifications.

Figure 22. Quality Measures. *Generated using West Virginia data for State-specific reporting.*



Additionally, the WV EDS will provide the measures required under West Virginia's 1115 SUD Demonstration Waiver Monitoring Protocol that are supported by data in the data warehouse. The Watson Health Account Team has already been working with DHHR to design reports to create these measures for quarterly and annual submission to CMS; we will migrate the reports to the WV EDS as part of DDI.

Watson Health brings deep experience with SUD metrics through projects for SAMHSA and the CMS Medicaid Innovation Accelerator Program. This experience will guide the design of the WV EDS data model and SUD reports. We have provided technical assistance on 1115 SUD Waivers to states as part of the CMS Medicaid Innovation Accelerator Program (IAP) learning collaborative on Reducing Substance Use Disorders, both prior to submission of the 1115 Waiver application and post-approval. Our IAP team also assisted states, including West Virginia, with SUD reporting and analysis through the IAP Opioid Data Analytics Cohort and the Data Dashboards Flash Track.

The WV EDS can produce quality measures from any sources loaded in the data warehouse. As the EDS is expanded to include additional data sources, such as immunization registry data, lab data, or even clinical data from the HIE, quality and performance measurement will be enhanced. Leveraging information generated by other DHHR business partners helps you advance toward MITA maturity goals of significantly advancing health outcomes while also improving the efficiency and cost-effectiveness of decision-making. For example, your reports can integrate the results of measures calculated by the plans, enabling more robust measurement. Our solution provides the capabilities and experience to help DHHR improve health outcomes for members and create efficiencies for the program.

PG240	The solution should have the ability to provide on an annual basis pre-built queries for the Centers for Medicare & Medicaid Services (CMS) Adult Core Set, Child Core Set, Health Home Core Set, Substance Use Disorder (SUD) Waiver Measures, and others identified by CMS and/or the Department, and the Vendor should review the queries with Department staff once they are complete within a timeline agreed upon with the Department

Watson Health updates our QRE rules engine measures (pre-built queries) annually. Our content management team reviews and incorporates changes to core measures and measure specifications after they are issued by CMS early in the calendar year. WV EDS users can generate the core measures for Adult, Child, and Health Homes using the established templates, as well as the SUD Waiver measures for West Virginia. We will meet with DHHR to review the results per the agreed upon schedule required to meet CMS reporting deadlines (e.g., core measures were due December 31 for FFY 2019).

We recognize the increasing visibility of these measures nationally and at all levels of state government with CMS's publication of the Medicaid and CHIP Scorecard. We will continue to meet with you each year to kick off the annual reporting cycle. The purpose of this meeting is to: 1) review changes in the measures; 2) obtain DHHR input on program, policy, and system changes that might impact results; and 3) identify any new data sources or any deviations in specifications needed for the most accurate reporting. Watson Health will validate results through comparison to CMS published data for other states and West Virginia trends and collaborate closely with DHHR staff to interpret the results. We also help answer any follow-up questions post-submission from CMS's quality measures contractor.

PG241	The solution should maintain all historical queries for the Centers for Medicare & Medicaid Services (CMS) Adult Core Set, Child Core Set, Health Home Core Set, Substance Use Disorder (SUD) Waiver Measures, and others identified by the Department and/or CMS for a minimum of ten (10) years

All report definitions, measure specifications, and report output for the CMS Adult Core Set, Child Core Set, Health Home Core Set, Substance Use Disorder (SUD) Waiver Measures, and others we create for DHHR and/or those produced by CMS over the course of the contract will be retained for a minimum of 10 years, or as long as DHHR would like to retain them.

PG242	The solution should have the ability to report state-defined healthcare quality measures in accordance with specification criteria from various measure stewards such as
PG243	Pharmacy Quality Alliance (PQA)
PG244	National Quality Forum (NQF)
PG245	National Committee for Quality Assurance (NCQA)
PG246	Healthcare Effectiveness Data and Information Set (HEDIS) Measures
PG247	The Joint Commission (TJC) National Quality Measures
PG248	Centers for Medicare & Medicaid Services (CMS) Measures
PG249	U.S. Office of Population Affairs (OPA)
PG250	Agency for Healthcare Research and Quality (AHRQ)
PG251	Centers for Disease Control (CDC)
PG252	Others as identified by the Department

The WV EDS can report state-defined healthcare quality measures in accordance with the specification criteria from all these measure stewards. Our WV EDS solution builds on and expands the quality measures capabilities you have today. The Watson Health Account Team and DHHR staff will have direct access to the Quality Rules Engine to create custom measures from any measure steward for which there is data in the data warehouse. Additionally, users have access to Python through Watson Studio, which provides virtually unlimited flexibility to produce quality measures beyond the core data sets.

WV EDS users can apply all of the logic blocks required for quality measures, addressing eligibility and continuous enrollment criteria, complete look back periods, mandatory and optional exclusions, and complex definitions for denominators and numerators using up-to-date value sets. They have the

flexibility to include denied claim/encounters and non-claims data sources, as available, and to perform risk adjustment as needed.

In supporting DHHR with an expanded set of quality measures, we will draw on the expertise and capabilities Watson Health had grown by providing performance measurement support to all segments of the healthcare industry – federal agencies, state governments, commercial clients (including health systems and health plans), and multi-stakeholder initiatives.

Table 20. Examples of Watson Health Performance Measurement Support

Client	Support Provided
AHRQ	We have supported AHRQ with the National Healthcare Quality Report (NHQR) and National Healthcare Disparities Report (NHDR) since 2000. These annual reports compile more than 200 measures of healthcare quality from numerous sources. Our role on the project has included statistical analyses of measures for the NHQR/NHDR, special studies to support analyses of quality of care, and knowledge transfer of a large volume of data. Most recently, as a subcontractor to Rand, we analyzed the quality of APCD data from different states for the purpose of calculating quality events to support AHRQ in its efforts to advance the use of APCDs for state transparency initiatives
State Medicaid Agencies	We support state Medicaid agencies not only with CMS core measures, but also with measures that are tailored to specific programs or populations. For example, we have provided consulting and technical assistance on measures of access, quality, and well-being for individuals receiving long-term services and supports. We also have created quality measures used for shared savings in dual-eligible Financial Alignment demonstrations and Medicaid ACO initiatives.
Health Systems	We support our health system clients with a reporting tool to create and submit core measures for TJC accreditation and for the CMS Hospital Inpatient Quality Reporting Program (HIQRP). We also provide a certified tool for providers to submit for HIT incentive payment programs. We can leverage this corporate experience to support DHHR in expanding to TJC measures such as Alcohol & Other Drug Use (AOD) Disorder Treatment Provided or Offered on Hospital Discharge and AOD Disorder Treatment at Discharge, as supported by the available data.

Watson Health has been heavily immersed in quality measure development, implementation, and reporting through a range of activities with the National Quality Forum and other quality measure efforts. Currently, our staff sit on the CMS Adult and Child Medicaid Core Set workgroup and the Scorecard workgroup and also serve on technical expert panels examining inpatient psychiatric measures, among other topics. We are well-versed in the NQF-endorsed PQA opioid measures as well as the CDC 2016 opioid prescribing guidelines and subsequent concerns that have been raised in terms of delivering adequate pain management while adhering to or driving toward meeting the guidelines.

Watson Health staff are mindful of the implications of 2024 mandatory reporting of the Adult and Child Core Measures. We welcome the opportunity to address reporting challenges as we move forward with this work, and to partner with DHHR to continue to improve treatment effectiveness and health outcomes for the citizens of West Virginia.

PG253	The solution should provide the ability to produce multidimensional, flexible, ad hoc reports across business functions which meet reporting needs including, but not limited to
PG254	Financial reporting
PG255	Budget forecasting
PG256	Fiscal planning and control
PG257	Claims payment accuracy
PG258	Expenditures
PG259	Timely reimbursement analysis

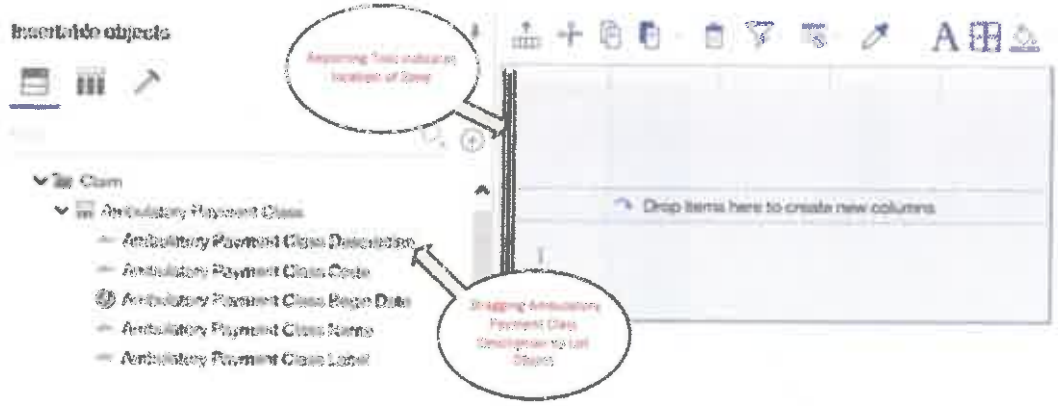
PG260	Cost/benefit analysis
PG261	Eligibility and benefit design
PG262	Geographical analysis
PG263	Program planning
PG264	Policy Analysis
PG265	Federal waiver program evaluation
PG266	Adequacy of and access to care
PG267	Quality of care
PG268	Outcomes assessment
PG269	Disease management
PG270	Managed care plan planning and analyses
PG271	Others as defined by the Department

Our BI reporting solution was designed to support all users, with the right tools, fit for purpose, and accessible from anywhere. The toolset provides ad hoc reporting capabilities that enable DHHR users to produce multidimensional, flexible, ad hoc reports across business functions to meet your reporting needs, including those listed in PG254–PG271. Users also can easily modify standard program management reports that Watson Health creates as part of DDI. The tools in our solution support dashboard delivery through web and mobile distribution models.

We recently implemented Cognos Analytics for Colorado. There, users employ Cognos's ad hoc reporting capabilities and ability to import external data sets to their sandbox environment to build out custom reports. Users can slice, filter, and aggregate data with just a few clicks.

Cognos Analytics is the primary BI tool for creating and deploying complex queries. Cognos provides intuitive, visually interactive interfaces with "drag and drop" report creation features to enable rapid, iterative analysis. Business users can design or view ad hoc analyses and reports using OLAP pivoting functionality when reporting on multi-dimensional data. In addition to visually rich ad hoc reports, they can create interactive dashboards, parameterized or prompted reports, and detailed standard reports with cross-tabulations along multiple dimensions.

Figure 23. Cognos Analytics Supports Drag and Drop Report Authoring Functionality. *This example shows how users can drag and drop data elements into a List object.*



For data mining, power users can utilize IBM Watson Studio to directly access their authorized data in any data store and manipulate the data, along with any user-imported data, with virtually unlimited flexibility in the analytic sandbox. IBM Watson Studio provides industry-leading algorithms and capabilities that include machine learning / deep learning, text analytics, and geospatial analysis. As part of the unified ICP4D, Watson Studio provides a robust toolkit of essential statistical procedures.

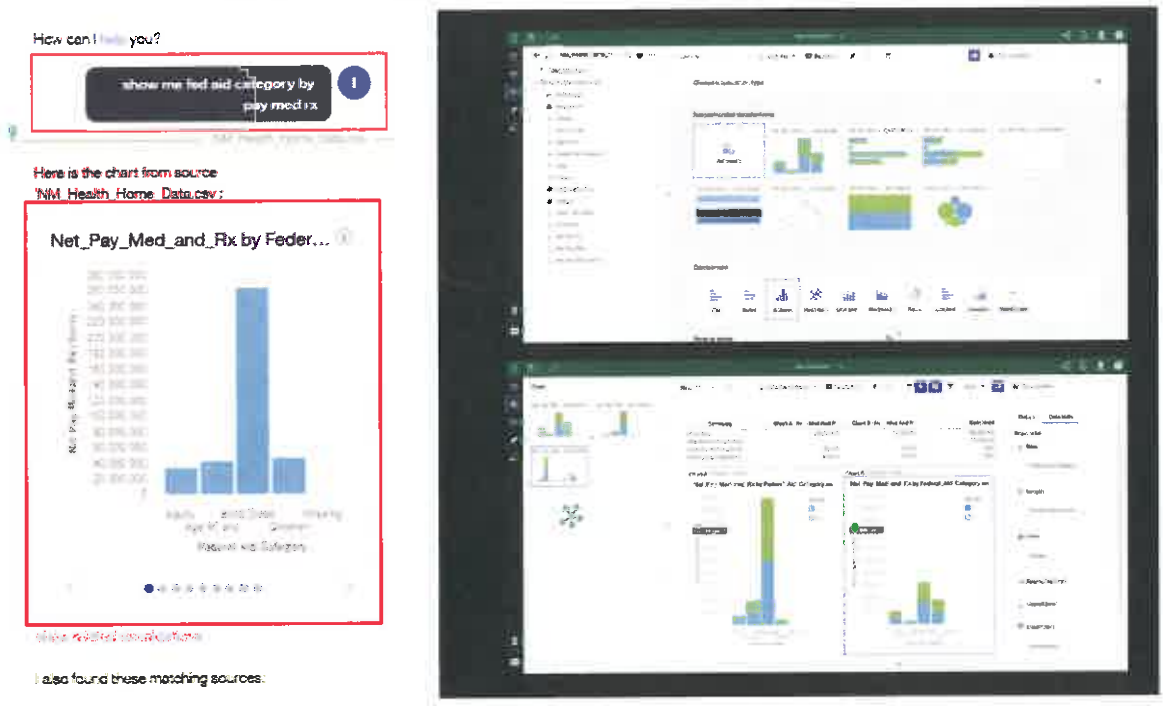
Users who prefer tools outside of the proposed toolkit have the option to connect using Open Data Base Connectivity (ODBC), as the WV EDS architecture and platform is tool and technology agnostic. We can connect any COTS-based tool and software as agreed upon with DHHR. With its modern BI and analytic tools suited to each user's unique needs, our solution will simplify and streamline the work of DHHR staff and stakeholders.

Artificial Intelligence to Expedite Ad Hoc Reporting

Cognos Analytics augments the functions of traditional BI tools with AI-driven elements like natural language dialog, guided analytics, pattern detection, and smart visualizations. These features facilitate data exploration to not only show what happened (descriptive analytics), but also why it happened (diagnostic analytics).

Cognos Analytics 11.1 has an embedded AI Assistant that applies natural language processing, so users can pose questions about the data in plain language and receive intelligent responses. The assistant understands the intent of the question and presents a visualization using the most appropriate graphical display for the nature of the data and the user's perspective. For example, with geocoded data, the system recognizes the most appropriate visualization as a map, adding geospatial mapping of the entire globe, an individual neighborhood, or anything in between. Cognos also guides users by presenting other visualizations that are directly related to what is being examined. Depicted below is a visualization with the "Ask a Question" AI Assistant input box and recommended visualizations about the data on the right.

Figure 24. Cognos Analytics Visualization. *The Cognos AI assistant lets users ask Cognos about their data, with recommended visualizations and exploration capabilities.*



Cognos' data exploration capability also shows the relevant relationships within the data through a capability called pattern detection. It automatically identifies and presents critical relationships within the data including key variables driving a particular outcome. Detecting patterns helps eliminate analysis "blind spots," or guesswork and the inefficient searching that it can lead to.

You can choose a key data variable of interest (such as a program) and a visualization to explore further. A predictive model is built "on the fly" and presented graphically. This graphical display can be included on a dashboard for at-a-glance insight on that variable's impact. The rules that drive the predictive model can be selected and are displayed in plain language so you understand what data variables are predictive of the results you are seeing.

While many organizations are already invested in descriptive analytics that provide hindsight perspective, leaders are investing in diagnostic statistics that provide deeper and more personalized foresight across the healthcare care ecosystem (payers, providers and members). The new AI capabilities within Cognos Analytics 11.1 enable users to interact with and uncover insights from data to improve business processes, make better program decisions, and achieve better patient outcomes.

Analytic Support for Ad Hoc Reporting

There may be times when ad hoc queries or reports involve complexity beyond the skill or comfort level of the user tasked with them or available to complete them. The analytic consultants on the Watson Health account team will be available to support the complete spectrum of your ad hoc reporting needs throughout the term of the contract. They are guided by the information gained from DHHR users through discovery and requirements validation during DDI and by the Analytic Agenda we develop with DHHR during operations. They will be available to support your team in a variety of ways:

- Provide intensive side-by-side coaching to walk the user through the report, drawing on any training and job aids that may be relevant to the task
- Partner with power users to share in the work and conduct a joint project that leverages the combined team's respective knowledge and skill sets
- Perform the task directly, producing reports in the Department's desired formats and timeframe
- Assist with the interpretation of results
- Troubleshoot and resolve issues

In some cases, a combination of the above may be the best approach. For example, if an ad hoc request represents a recurring business need, we might suggest a "see-one, do-one" approach, in which the Watson Health analyst creates the report with the DHHR user observing, and then the user performs a subsequent iteration with the analytic consultant observing and coaching as needed. Or, after creating the report, our analyst might prepare a prompted report the DHHR user can easily apply to meet future needs. Whenever applicable, we use ad hoc support projects as training opportunities. Working side-by-side with your users, Watson Health analysts will support the development and execution of ad hoc reports and/or queries to meet the state's challenging analytic needs.

PG272	The solution should have the ability to calculate Department-specified calculations in temporary arrays allowing for multi-step array-based queries

In Cognos Analytics, users can create calculations within queries that are joined or linked to other queries, thereby creating a multi-step set of queries. In Cognos, the array is the query subject. Query subjects can be stand-alone queries, or they can be linked or joined to other queries. For example, a query's data set is loaded to query subject A and can become a data source for another query's data set for query subject B. There is no upper limit on the available number of steps.

PG273	The solution's data access component should allow the authorized solution user to have the ability to type or select from any menu options available in the solution that include measures, dimensions, subsets, and time periods

The ability to select measures, dimensions, data sets as subsets, and pre-built time period filters are all available within Cognos Analytics. All measures, dimensions, and time period filters are found in the Navigation Bar and are drag-and-drop objects that can be added to a report or dashboard during its design phase. Subsets are created as data sets from either a Cognos Analytics Data Module or Framework Manager Package, as described in PG055.

PG274	The solution's data access component should provide the authorized solution user with search capability for all unique values for macros whose size exceeds system limitations

With Cognos Analytics, users can utilize data sets to search within a macro that would exceed the system limitation of traditional row-based searches.

PG275	The solution should have the ability to capture data collected by each contracted Managed Care Organization (MCO) including, but not limited to
PG276	Social determinants of health
PG277	Others as defined by the Department

The WV EDS is able to capture data directly from MCOs, including not only medical encounter data but also data on social determinants of health (SDoH), such as screenings and referrals for community/social services and the outcomes of these referrals, if they are tracked. We recognize that states are increasingly relying on their MCOs to address critical social needs that impact health, such as housing, nutrition, and transportation, and we understand that West Virginia requires its MCOs to have coordination of care programs that include coordination with community and social services.

Watson Health will cleanse, standardize, and consolidate the data to create a "single source of truth" for reporting and analytics across the Medicaid Enterprise. Our Core Data Model (CDM) supports the incorporation of eligibility and enrollment, claims, clinical, and ancillary data sources to create a holistic and transparent client and program view for DHHR. While the CDM was originally designed for Medicaid data elements, it expands to include additional data elements from MCOs and from other health and social services programs (e.g., SNAP, TANF, child support) for provide a 360-degree view of a member's health and social needs.

The WV EDS will enable analysis and reporting on client experience based on the full array of client data captured in the data warehouse. The solution includes predictive modeling and other advanced analytics that can be applied to any data including social determinants. You can identify high risk members and assess whether they are being referred for and receiving needed services. You can assess MCO performance and evaluate the impact of various interventions to guide future program investments.

PG278	The solution should have the ability to produce a hospice report comparing hospice days to inpatient days for each enrolled hospice member and for all hospice providers

To assess the hospice benefit, our standard report set includes the CMS-required annual hospice report, which compares hospice days versus inpatient days for each enrolled hospice beneficiary and for all hospice providers. Results can be aggregated reports by provider or can be detail listings for members.

PG279	The solution should track the impact of the Medicare drug program

The WV EDS enables DHHR to capture Medicare Part D "clawback" payments to assess the impact of the Medicare drug program and to identify eligibles with Medicare coverage for reporting to CMS. The

solution is expandable to capture Medicare Part D event data to help you better understand drug cost and use experience by the dual eligible population.

PG280	The solution should provide information required for the review and development of medical assistance policy and regulations.

The advanced analytic tools and flexible ad hoc reporting capabilities in the WV EDS support the full life cycle of policy planning and evaluation, including the review and development of medical assistance policy. The solution enables you to identify opportunities to improve policies, project the impact of proposed policy changes, and evaluate policies and programs after implementation.

The WV EDS supports data-driven policy review and development by providing a high-integrity data warehouse that contains complete current and historic data, advanced statistical tools and algorithms, and objective analytic support. The solution facilitates trending and comparative analysis that helps identify emerging cost management opportunities, such as increasing use of expensive new treatments, that might warrant updates to medical policy. During DDI, Watson Health will build fraud and abuse algorithms that detect vulnerabilities, such as excessive use of specific diagnostic services, for focused policy review and possible revisions. Once policy changes are identified, our solution's powerful "what-if" modeling and simulation capabilities allow analysts to examine past trends to forecast the impact of the changes under consideration. We support these capabilities with staff that are highly experienced with statistical programming, analysis, and Medicaid finance.

Our current DW/DSS analytic staff have conducted analyses on various topics to inform program planning and policy review, including ER super-utilizers, FQHC school-based health center expansion, foster care member transition to managed care, increasing reimbursement for mid-level practitioners and ambulance services, and the impact of increasing member copays.

PG281	The solution should support the projection of the cost of program services for future periods.

The Watson Health WV EDS reporting and analytic tools provide a wide range of trending and predictive capabilities to support financial analysis. Agency users will have easy-to-use yet advanced functionality for statistical analysis of historical and current data, as well as methods for projecting future healthcare costs and utilization rates. This produces richer insights and sounder decisions.

Agency staff who are viewing or creating dashboard reports can choose to display trend lines on scatter charts and bubble charts. Also known as lines of best fit or regression lines, trend lines graphically illustrate trends in data series and are commonly used when charting predictions. They help you understand where current trends will lead if left unaddressed and identify areas for management focus.

Analysts can choose from a range of powerful analytic tools available through Watson Studio for forecasting and econometric analysis. These range from linear and nonlinear modeling of simultaneous equations to discrete choice models to supervised learning. All of these methods allow analysts to estimate and account for factors like population growth, state economic conditions, provider rate changes, other policy and program changes, and proposed legislation.

PG282	The solution should meet Transformed Medicaid Statistical Information System (T-MSIS) reporting timelines, providing T-MSIS tapes for submission in accordance with the tape delivery schedules.

Watson Health acknowledges the importance of meeting federal report timelines and schedules. Our understanding is the current MMIS vendor is providing T-MSIS reports for DHHR. To meet this requirement, IBM Watson Health will receive the T-MSIS reports from the MMIS vendor and will deliver them in accordance with the delivery schedules.

PG283	The solution should comply with the information reporting requirements of section 6041 of the Internal Revenue Code (26 U S C 6041) Section 6041 requires the filing of annual information returns showing amounts paid to providers, who are identified by name, address, and social security number or employer identification number

The WV EDS accommodates storing data that is required under section 6041 of the Internal Revenue Code on amounts paid to providers, along with identifying information on these providers, based on the data provided by DHHR. We understand that the Department and/or individual vendors have fiscal responsibility for filing the annual reports with the IRS; our role as the data warehouse vendor is to maintain and update the information as provided and make it available for reporting.

PG284	The solution should provide the ability to create a quarterly report on expenditures under the Money Follows the Person program based on the Department's rules

DHHR users will be able to create a quarterly report on expenditures under the Money Follows the Person program based on the Department's business rules, which will be defined and documented during DDI. We are quite familiar with the Money Follows the Person (MFP) program. As a subcontractor to Mathematica, Watson Health was engaged in a CMS-funded project to collect data efficiently from state grantees to support the evaluation of the MFP national demonstration and to produce an array of reports that describe Medicaid long-term services and supports (LTSS). Watson Health developed a web-based reporting tool for grantees to provide data used in the national MFP evaluation. We created the national LTSS expenditure report that is used by states, CMS, researchers, and other stakeholders to measure state progress in creating balanced and cost-effective LTSS systems. Information from the report has been used in various national composite scores (e.g., the AARP, Inc., "Raising Expectations" scorecard). CMS used the information to determine state eligibility for the Balancing Incentive Program created by the Affordable Care Act. Truven Health also provides CMS leadership with slides that are presented at national conferences and other forums.

PG285	The solution development efforts should be tied to and supportive of agency goals and objectives including, but not limited to
PG286	Managing long term care costs
PG287	Acute care
PG288	Others as defined by the Department

We will align our development efforts related to the WV EDS to support the Department's goals and objectives, including managing the costs of both long-term care and acute care. Watson Health has a long and successful record of providing state Medicaid agencies with BI and data management services that promote data-driven decision-making. We were the first company to install an advanced COTS healthcare decision support system for a state Medicaid agency (Mississippi) in 1991, and we have worked continuously in state Medicaid decision support ever since. We currently provide enterprise data warehouses and/or decision support systems to approximately 16 Medicaid agencies.

Based on this experience and our extensive knowledge of the unique characteristics of the Medicaid program—its financing, regulation and oversight, policies, covered populations and services, and models of care—our solution helps you assess program management opportunities for both long-term services and supports (LTSS) and acute care, as highlighted in the examples below.

Table 21. How Our Solution Helps State Medicaid Agencies Manage their Programs

Long-Term Services and Supports (LTSS)	Acute Care
HCBS Waiver Programs: Profile members and their costs and utilization in 1915c waivers – demographics payments by category of service, clinical conditions, procedures, etc.	**Inpatient Hospital:** Assess quality and cost-effectiveness of care (e.g., assess the rate of Cesarean section deliveries). Quantify readmission/avoidable admission rates to set targets

Long-Term Services and Supports (LTSS)	Acute Care
Identify opportunities to improve access and participation. Detect abusive billing practices. Refine reimbursement methods and rates.	for reducing them through value-based purchasing initiatives. Analyze impact of reimbursement changes.
Managed LTSS: Calculate 1115 waiver program performance measures. Measure improvements in access to and quality of care and re-balancing. Identify members not receiving needed and approved LTSS services.	**Dental Services:** Monitor access to dental services and assess changes in provider access and utilization following reimbursement changes. Analyze the appropriateness and quality of dental care and identify and investigate potential fraud, waste, and abuse.
Nursing Facilities: Compare MDS nursing facility functional assessments with claims data to verify the care is consistent with the assessment and to identify patients who are interested in community transition but have not been referred for an assessment.	**EPSDT:** Produce the annual CMS 416 statewide report on the use of Early Periodic Screening, Detection, and Treatment Services (EPSDT). Assess geographic variation in screening rates in order to identify areas for improvement.
Dual Eligibles: Integrate Medicare and Medicaid data to obtain a complete picture of cost, utilization, and quality for this high-cost population. Identify high-risk members and assess whether they are being managed effectively. Target opportunities to improve care coordination.	**Pharmacy:** Perform integrated analysis of drug and medical claims data to identify the need for policy or program changes. Track treatment for specific clinical conditions to assess compliance with evidence-based clinical guidelines and to provide feedback to physicians or MCOs on improvement opportunities. Design, implement, and monitor a pharmacy lock-in program to prevent abuse of Schedule II narcotics. **Non-Emergency Transportation (NEMT):** Study the impact of introducing capitated NEMT broker programs and monitor those programs over time. Detect fraud and abuse, such as "ambulance trips to nowhere" (trips without a corresponding acute medical service) or potential upcoding of non-emergency to emergency transportation

Our solution's support for advanced analytics can help DHHR track costs, monitor population health outcomes, understand provider protocols, conduct comparative effectiveness studies, perform explanatory and predictive analytics, and measure quality of care.

PG289	The solution should have the ability to meet Department-defined time frames and prioritization for processing authorized solution user requests

As we do today, Watson Health will work with DHHR leadership to obtain approval and prioritization of all user requests and will follow the DHHR process for capturing and tracking on-time delivery of report requests using a central document repository. In addition to prioritizing responses to user requests, our team will proactively reach out to users to help them design analytic studies and reports.

To guide our support efforts, Watson Health will meet with the DHHR management team annually to establish an Analytic Agenda for the coming year. This analytic planning process is designed to assess the achievements of the past year against the Department's current goals and objectives; update your goals and objectives for the coming year; and define a roadmap for the year's reporting, analytic, and consultative activities. The process includes a review of initiatives DHHR is planning or considering and leverages any ideas and recommendations that have resulted from our analytic innovations and enhancements and experience in other states.

Most of the annual meeting is devoted to discussing any changes in DHHR strategies and priorities for the next plan year, including possible program changes, the key decisions you will be making, and the calendar for your activities. We identify activities for which DHHR will need our support and where we can provide additional value, and we collaboratively determine priorities for database and analytic deliverables. By documenting our understanding of your business priorities for the year, Watson Health

can align our training and support activities and prepare to assist DHHR staff in generating the information needed in the timeframe you need it.

We will prioritize WV EDS user support requests using the process described in OP004. Over the past few years the Watson Health team has completed hundreds of ad hoc analytic reporting requests for West Virginia, which are tracked through the state-managed data request process. This process tracks user request submission, approval, and delivery. Currently, analytic and technical support requests are prioritized based on the user role, purpose, and requested due date. For example, requests to support legislative or time sensitive reporting are often given priority over other types of requests. We will work with the DHHR leadership team to appropriately prioritize our support and meet expected timelines.

Program Integrity

PI001	The solution should have the ability to search, sort, filter, and group by any field to support investigative case management

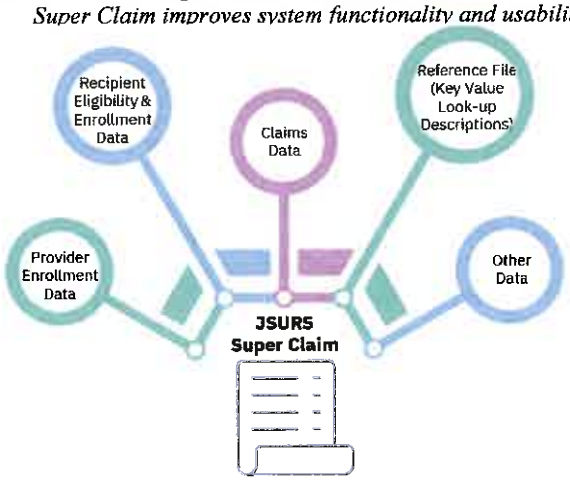
Search and Filters in J-SURS Investigations

J-SURS is one of the nation's most popular Medicaid SUR systems. Developed and installed as the first PC-based SURS solution and continuously enhanced and improved for the last 20 years, it delivers a wide array of reporting and query capabilities. J-SURS is ideal for continuous monitoring of Medicaid program operations, a function that remains vital in healthcare today.

DHHR users will have the ability to select, filter, and compare data elements that are found in your data warehouse in all three report types available in the system (Profile Reports, Record Listings, Top-N Reports). J-SURS is a claims-based system that allows selection on virtually every field carried on a claim. Claims within J-SURS are contextualized further by appending additional data elements derived from both the DSS/DW system and other data if the data can be associated with a claim record.

To improve reporting capabilities, J-SURS creates a "Super Claim." The J-SURS Super Claim is an enhancement over the stand-alone healthcare services claim. The Super Claim underlies the powerful, user-friendly experience for our clients. When building a report, users do not have to remember which tables the data elements are sourced from, because various data elements are available in a single record. The types of information that are appended, or tagged over, as part of the Super Claim build are provider and recipient enrollment information and drug classification information from a drug reference table.

Figure 25. J-SURS Super Claim. *Combining relevant data into a single Super Claim improves system functionality and usability.*



Search and Filters in the Investigative Case Management Tool

When data turn into an official investigation, the i-Sight® Case Tracking tool provides full search and reporting for cases. i-Sight users can:

- Run reports by any field available in the system
- Sort reports
- Search cases by any field or parameter captured within the system. This includes user selections, text box narratives, and searchable files associated to cases.

i-Sight uses a flexible workflow to enable effective and efficient management of cases. During design, development, and implementation (DDI), we configure the system with an appropriate workflow that reflects your requirements. The following are some examples of workflow:

- Automatic case assignment
- Automatic notification of incoming cases
- Automated task creation with accountability, due dates, and follow-up
- Ad hoc task creation with notifications, due dates, and reminders
- Escalation (overdue) notifications
- Approval requests
- Closure notices

A capture form enters new case information into the system, which drives the workflow basics. The capture form uses customized decision-tree criteria to continuously vary the input requirements and embedded algorithms to correctly notify, escalate, and route the case to appropriate personnel. Cases also can be initiated on the basis of the identification of suspicious behavior by providers or beneficiaries using our analytic systems.

Cases entered into i-Sight can simply be recorded for statistical reporting; if further action is required, the case can be escalated. Within the tool's maintenance section, the administrator defines notification rules to notify the person(s) of newly escalated cases. Once notified, a manager typically is prompted to select a case owner (or the selection process can be automated). That selection creates an automatic notification email to inform the case owner of the new responsibility. This email includes a summary of case information as well as a direct link to the case file.

The case owner can access the case file, where all activities and correspondence related to the case are tracked and managed. The workflow also monitors the case status and can be set to send reminders of upcoming deadlines, as well as escalation notices where deadlines were missed. When a case is closed or resolved, automated notifications can be sent to the various parties involved in the case (and to managers overseeing various issues), informing them of the case outcome. "Bring Forward" tasks can be embedded in the case file, allowing a case owner to be reminded of long-term commitments that occur months or even years in the future.

PI002	The solution should have the ability to associate providers with their members and members with their providers to view those relationships and to access all associated data including, but not limited to
PI003	Member records
PI004	Provider records
PI005	Prior authorizations

PI006	Member case management data
PI007	Claim/encounter records when accessing any one of them in the solution

Our PI review and case management tools provide the ability to link providers with members and members with their providers to view relationship- and access-associated prior authorization and claim/encounter records together. J-SURS users can view and access these data relationships. Users can do all of the following:

- Select claims and encounter data dating back to whatever period is appropriate for the specific research (at least 5 years of historical data are maintained in J-SURS)
- View data displayed by National Provider Identifier, Medicaid ID, and/or a subset of the provider's practice
- Associate services furnished in a clinical setting to both the clinic and service provider, as long as the treating or service provider's ID is on the claim or encounter record
- Produce claim and encounter detail and special reports by provider type and member classification (e.g., category of service) and other key variables (e.g., group practice, case)
- Identify services received by members who are enrolled in selected programs and track federally assisted program participants separately from other categories of assistance
- Run reports on waiver services by member or provider
- Link all services to a single member, regardless of the number of historical changes in beneficiary ID, as long as sufficient data are available to make the connection between records
- Customize any report to reflect data from managed care encounters, FFS claims, waiver services, or combinations thereof

As investigations become cases, the i-Sight Investigative Case Management tool seamlessly integrates documents into cases managed by a full workflow engine:

- Potential case links can be automatically suggested on the basis of department-defined rules.
- Documents and attachments of any sort can reside within cases.
- Documents can be linked to numerous cases.
- Documents can contain descriptive metadata and are indexed to aid in discovery.

Users can store images (scans) of case-related documents, such as responses received from providers, members, and other entities involved in the case. Case reviewers can scan document attach them to the appropriate case, provider, or member record.

PI008	The solution should have the ability to associate providers to providers and providers to members to view those relationships and to access all associated data including, but not limited to
PI009	Member records
PI010	Provider records
PI011	Prior authorizations
PI012	Member case management data
PI013	Claim/encounter records when accessing any one of them in the solution

Our program integrity review and case management tools provide the ability to link providers to providers, and providers to members, so users can access all associated data including prior authorization and claim/encounter records. J-SURS users can view and access these data relationships; users can:

- Select claims and encounter data dating back to whatever period is appropriate for the specific research (at least 5 years of historical data is maintained in J-SURS)
- View data displayed by National Provider Identifier, Medicaid ID, and/or a subset of the provider's practice
- Have associate services furnished in a clinical setting to both the clinic and service provider, as long as the treating or service provider's ID is on the claim or encounter record
- Produce claim and encounter detail and special reports by provider type and member classification (e.g., category of service) and other key variables (e.g., group practice, case)
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PI014	The solution should include an Investigative Case Management component with the ability to capture, store, track, and report on all actions, determinations, and resolutions through to final resolution including, but not limited to
PI015	Suspensions
PI016	Terminations
PI017	Criminal/civil convictions
PI018	Recovered amounts from referrals of potential fraud, waste, and abuse
PI019	Recovered amounts from improper payment
PI020	Recovered amounts from various third-party recoveries including, but not limited to
PI021	Tort and casualty
PI022	Restitution
PI023	Trust and trust recoveries

i-Sight can track any type of PI case, including the full progress resolution. It supports data entry, access, presentation, assignment of tasks to colleagues, and case reporting. Case process tracking includes:

- Suspensions
- Terminations
- Criminal/civil convictions
- Recovered amounts from referrals of potential fraud, waste, and abuse
- Recovered amounts from improper payment
- Recovered amounts from various third-party recoveries including, but not limited to tort and casualty, restitution, trust and trust recoveries

Our proposed case management tool, i-Sight, is uniquely configured to manage investigative cases from start to finish. With i-Sight, users can do the following:

- Define all the work steps for different kinds of cases
- Automatically assign a unique identification number for each case and allow for the manual assignment of unique identification numbers
- Automatically assign and/or reassign cases based on user-defined criteria, including workload balancing
- Route and record all work done on a case, whether by your staff, contractor staff, or consultants
- Schedule events related to the case and provide notices to your staff or others as appropriate

In addition, case reviewers can enter information about critical items such as:

- Conversations with providers, recipients/members, and other entities
- Supporting documents as attachments to the case record like analytic reports or claim samples
- Scanned images of correspondence, medical record extracts, and other documents for case-building as attachments to the case record

This information is searchable by case number and other case identifiers, including provider name/ number or recipient/member name/number.

PI024	The solution should include an Investigative Case Management component that manages recoveries including, but not limited to
PI025	Tracking payments received
PI026	Payment plans
PI027	Offsets
PI028	Claim/encounter adjustments
PI029	Settlements
PI030	Restitutions
PI031	Multiple payments and checks
PI032	Amounts remaining due
PI033	Due dates
PI034	Court case numbers and jurisdictions

PI035	Defendant names
PI036	Recovery supplier payments
PI037	Federal share calculations
PI038	Bankruptcies
PI039	Business status including out of business

We will configure i-Sight to track and manage all the information and activities identified in PI025–PI039. i-Sight's reporting, tracking, and monitoring capabilities include full payment, adjustment, and offset information as well as details of information such as total dollars recovered from all Medicaid integrity activities, such as settlements, judgements, overpayments, other collections, unit investigations, other civil or criminal law enforcement tracking, business status, and bankruptcies. Users can run reports by quarter, calendar year, or fiscal year, by individual reviewer, or collectively for the entire PI unit.

i-Sight records settlement agreements on the case and the status and status dates of progress in the settlement. It also stores all data elements of interest and produces reports on case data, including information on staff workloads, such as:

- Number of cases reviewed
- Number of claims included in the sampling universe
- Number of actual claims reviewed in the sample
- Total dollars reimbursed for cases included in the universe
- Total dollars reimbursed for actual claims reviewed in the sample
- Total dollars identified as overpayments for claims reviewed
- Reports by quarter, calendar year, or fiscal year, by individual reviewer or collectively for the entire unit

PI040	The solution should include an Investigative Case Management component that manages recoveries with the ability to link all claims associated with an investigation

i-Sight records recovery agreements on the case and the status and status dates of progress in the settlement, including links to claims associated with the investigation.

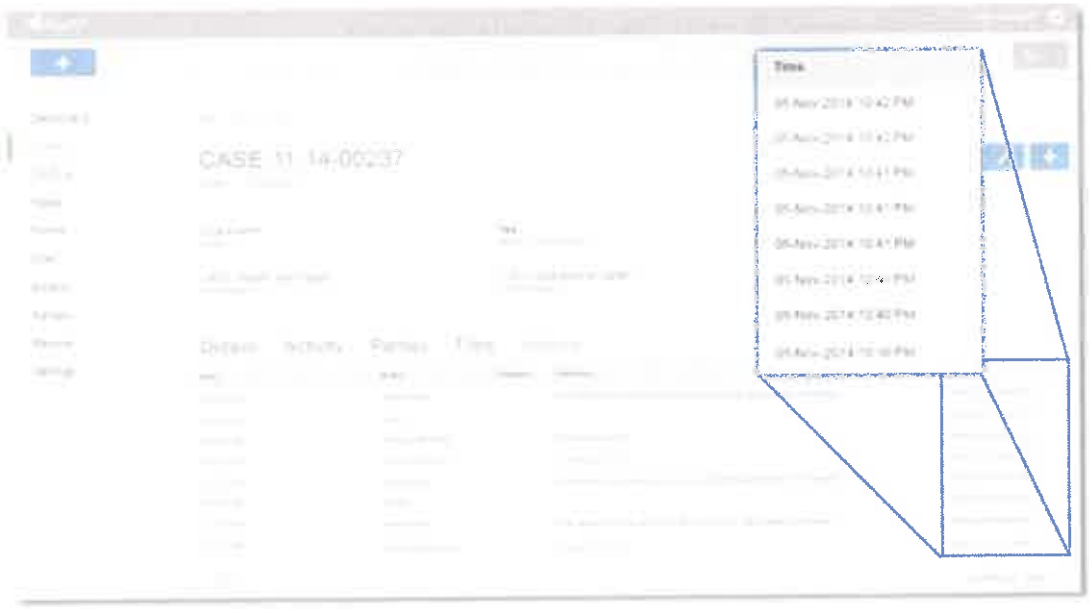
PI041	The solution should include an Investigative Case Management component that manages recoveries including the stage of review with respect to:
PI042	Investigations
PI043	Appeals
PI044	Final dispositions
PI045	Referrals
PI046	Active status
PI047	Managed Care Organizations (MCOs)
PI048	Responsible parties
PI049	Linked investigation claims
PI050	Others as defined by the Department

The i-Sight case tracking system is an end-to-end tracking system that provides easy case access to all authorized users and parties. It manages recoveries including the review stage. i-Sight can track any and all activities, including audits, investigations, appeals, dispositions, referrals, status, managed care organizations, responsible parties, settlement agreements, desk reviews, demand letters, collections, and recoupments. It can also link investigation claims.

PI051	The solution should include an Investigative Case Management component that has an audit trail on each record including, but not limited to
PI052	Notes
PI053	Capturing changes by authorized solution user identification
PI054	Date and time of change

As a potential fraud case progresses, it is critical to be able to demonstrate who added or changed information, when, and why. i-Sight records all user activity, including notes, additions, deletions, and modifications, resulting in audit trail entries that display "before" and "after" values including case views. A complete case history with every action dated and timestamped provides an audit trail. Having this information readily available helps prevent questions about the accuracy and authenticity of case activity. Authorized users can view audit trails can at a case level, user level, team level, or systemwide level, giving the most robust auditing experience.

Figure 26. An i-Sight Case Management Audit Trail. *i-Sight records all activity for users with appropriate access, including additions, deletions, and modifications. A complete case history with every action dated and timestamped provides an audit trail.*



PI055	The solution should have an Investigative Case Management component that supports multiple ongoing Department-specific reviews within a single case

As a complete, advanced case management system, i-Sight allows multiple reviewers and multiple reviews to work within a single case.

P1056	The solution should have an Investigative Case Management component that supports reporting on all case information including, but not limited to
P1057	Overall case status
P1058	Department-specific audit status

i-Sight reports offer real-time, action-oriented information that users can easily print and/or share with others in the organization. Every field and parameter captured in the case management system, including Department-specific audit status, is available for real-time reporting within the integrated BI tool. This provides ultimate flexibility in analyzing the Department's data. At a glance, managers can monitor the workloads of team members, detect emerging trends, and identify issues. i-Sight's reporting engine allows the user to:

- Report on individual case status
- Analyze overall department performance (aging reports)
- Report and compare performances by individuals, regions, offices, and other organizational units
- Generate exception reports showing overdue cases and actions
- Report trends by customer, allegation type, and so forth
- Filter reports to show specific timeframes and product groups, for example
- Create graphs and charts
- Automatically broadcast reports using email
- Export reports to pdf or Microsoft Excel

Users can run reports by any field available in the system, sort reports, and search cases by any characteristic. You also can choose to have us create a variety of searchable fields, such as service type, provider name and provider number, beneficiary name and beneficiary number, service authorization number and service category, clerk identification.

P1059	The solution should include an Investigative Case Management component that includes automatic and scheduled notification of case status changes, and other criteria as defined by the Department

We configure workflow rules required to optimize your business processes. Each workflow notification can be based on multiple parameters. Parameters include auto notification of new cases; auto assignment (based on up to two parameters); case or action owner reminders; automatic task creation with accountability, due dates, and follow-up; approval requests; escalation notices (overdue); closure notices; and other case status changes.

P1060	The solution should include an Investigative Case Management component that allows claims and encounter data to be flagged to indicate the current audit process stage including, but not limited to
P1061	Open
P1062	Under review
P1063	Finalized
P1064	Needs follow-up
P1065	Other statuses identified by the Department

i-Sight includes the ability to flag specific claim and encounter records within a case, with the audit process stage identified as open, under review, finalized, needs follow-up, and other statuses identified by the department. To facilitate cases with a large number of claims, a user can batch disposition the stage of

a case on claims through an action instead of having to enter each record independently. All case stages and substages can be configured to the specifications of the department.

PI066	The solution should have the ability to produce comprehensive statistical profiles of providers by peer groups for all categories of service authorized under the Medicaid program

Our solution provides a full suite of statistical profiling reports. Users have the ability to build Profile Reports with custom measures and a scorecard to assign points, which allows the system to compare peer groups and pull out outliers. This helps you understand "who's who" in your provider network to find overlapping services, upcoding, lack of services that should co-occur, collusion between providers, doctor shopping, or excessive services in a day.

PI067	The solution should have the ability to perform analyses and produce reports responsive to requests from the Department by means of computerized exception processing techniques

J-SURS offers users state-of-the-art reporting and data query capabilities. Both a powerful data mining tool and a robust report generator, J-SURS users can ask ad hoc questions and respond instantly to issues that arise during data analysis—there is no lag time for programming algorithms or complex queries. Exception processing allows users to create peer comparisons or outlier reports for any provider type or specialty, and also identify specific billing irregularities, such as billing two procedures when one code is inclusive of the other. Identification of these type of scenarios often leads to the recovery of funds without the necessity review medical records.

"J-SURS is a great tool that enables Program Integrity Staff to find Medicaid program outliers. The built-in algorithms discover information in minutes! For staff to find the same information would require review of millions of claims. Not a fun task at all." —Nevada client

PI068	The solution should have the ability to suppress processing on a member within specified categories on a run-to-run basis

J-SURS supports suppressing processing on members within specified categories. This allows users to focus on more relevant data during analyses. Users can suppress the profiling on a single member or a group of members by using a data element group of the member's IDs.

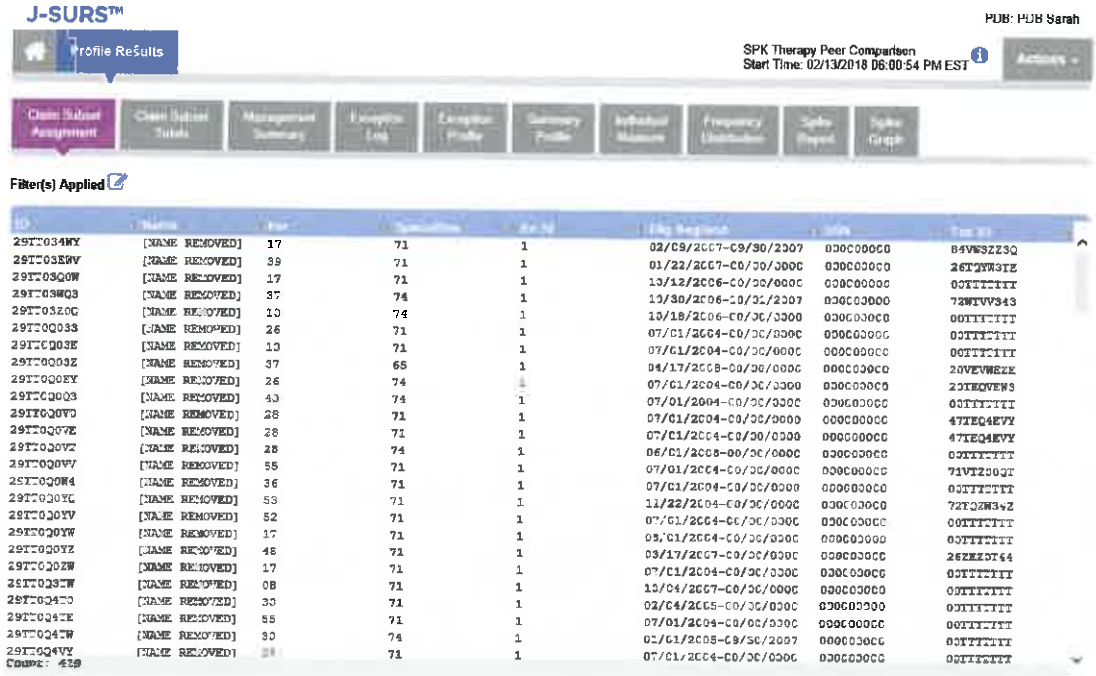
PI069	The solution should provide access to all data elements outlined in the State Medicaid Manual (SMM) Part 11, section 11335, and all additional data required for appropriate analysis of the program

J-SURS users can select, filter, and compare data elements that are found in the data warehouse in all report types available in the system. J-SURS is a claims-based system that allows access to virtually every data element that is carried on a claim. These data elements align with the MECT for SURS, as well as with State Medicaid Manual Part 11, section 11335. Claims within J-SURS can be contextualized further by appending additional data elements derived from both the WV EDS system and other data, if it can be associated with a claim record.

PI070	The solution should have the ability to export claims-based class groupings such that data can be used within a spreadsheet or database software

J-SURS reports such as class groupings can easily be exported to Excel, .csv files, and .pdf files. Users commonly export these reports for more detailed analysis using other software and services. This feature is also useful for including data in case summaries or for use as attachments when educating or recovering money from providers. This has proven to be a time-saver for many of our state clients.

Figure 27. Class Group Assignment Report. *This report is a list of each ID that had claims that met the criteria specified in the claim subset. It can be exported to Excel, .csv, or .pdf.*



ID	Name	Age	Specialties	Zip Id	Elig Segment	Gender	Tax ID
29TT034WY	[NAME REMOVED]	17	71	1	02/09/2007-09/30/2007	000000000	84VW3ZZ3Q
29TT03EWV	[NAME REMOVED]	39	71	1	01/22/2007-00/00/0000	000000000	26T2TW3IE
29TT03Q0W	[NAME REMOVED]	17	71	1	10/12/2006-00/00/0000	000000000	00TTTTTTT
29TT03WQ3	[NAME REMOVED]	37	74	1	10/30/2006-10/31/2007	000000000	72WTVV343
29TT03Z0G	[NAME REMOVED]	10	74	1	10/18/2006-00/00/0000	000000000	00TTTTTTT
29TT0Q03S	[NAME REMOVED]	26	71	1	07/01/2004-00/00/0000	000000000	00TTTTTTT
29TT0Q03E	[NAME REMOVED]	10	71	1	07/01/2004-00/00/0000	000000000	00TTTTTTT
29TT0Q03Z	[NAME REMOVED]	37	65	1	04/17/2008-00/00/0000	000000000	20VEVWEZE
29TT0Q0EY	[NAME REMOVED]	26	74	1	07/01/2004-00/00/0000	000000000	23IEQVEW3
29TT0Q003	[NAME REMOVED]	40	74	1	07/01/2004-00/00/0000	000000000	00TTTTTTT
29TT0Q0V0	[NAME REMOVED]	28	71	1	07/01/2004-00/00/0000	000000000	47IEQ4EVY
29TT0Q0VE	[NAME REMOVED]	28	71	1	07/01/2004-00/00/0000	000000000	47IEQ4EVY
29TT0Q0VZ	[NAME REMOVED]	28	74	1	06/01/2008-00/00/0000	000000000	00TTTTTTT
29TT0Q0VV	[NAME REMOVED]	55	71	1	07/01/2004-00/00/0000	000000000	71VTZ00QT
29TT0Q0W4	[NAME REMOVED]	36	71	1	07/01/2004-00/00/0000	000000000	00TTTTTTT
29TT0Q0YL	[NAME REMOVED]	53	71	1	11/22/2004-00/00/0000	000000000	72TQZW3+Z
29TT0Q0YV	[NAME REMOVED]	52	71	1	07/01/2004-00/00/0000	000000000	00TTTTTTT
29TT0Q0YW	[NAME REMOVED]	17	71	1	08/01/2004-00/00/0000	000000000	00TTTTTTT
29TT0Q0YZ	[NAME REMOVED]	48	71	1	03/17/2007-00/00/0000	000000000	26ZEZ5T64
29TT0Q0ZW	[NAME REMOVED]	17	71	1	07/01/2004-00/00/0000	000000000	00TTTTTTT
29TT0Q3ZW	[NAME REMOVED]	08	71	1	10/04/2007-00/00/0000	000000000	00TTTTTTT
29TT0Q4TD	[NAME REMOVED]	30	71	1	02/04/2005-00/00/0000	000000000	00TTTTTTT
29TT0Q4ZE	[NAME REMOVED]	55	71	1	07/01/2004-00/00/0000	000000000	00TTTTTTT
29TT0Q4ZW	[NAME REMOVED]	30	74	1	01/01/2005-09/30/2007	000000000	00TTTTTTT
29TT0Q4VV	[NAME REMOVED]	28	71	1	07/01/2004-00/00/0000	000000000	00TTTTTTT

Count: 428

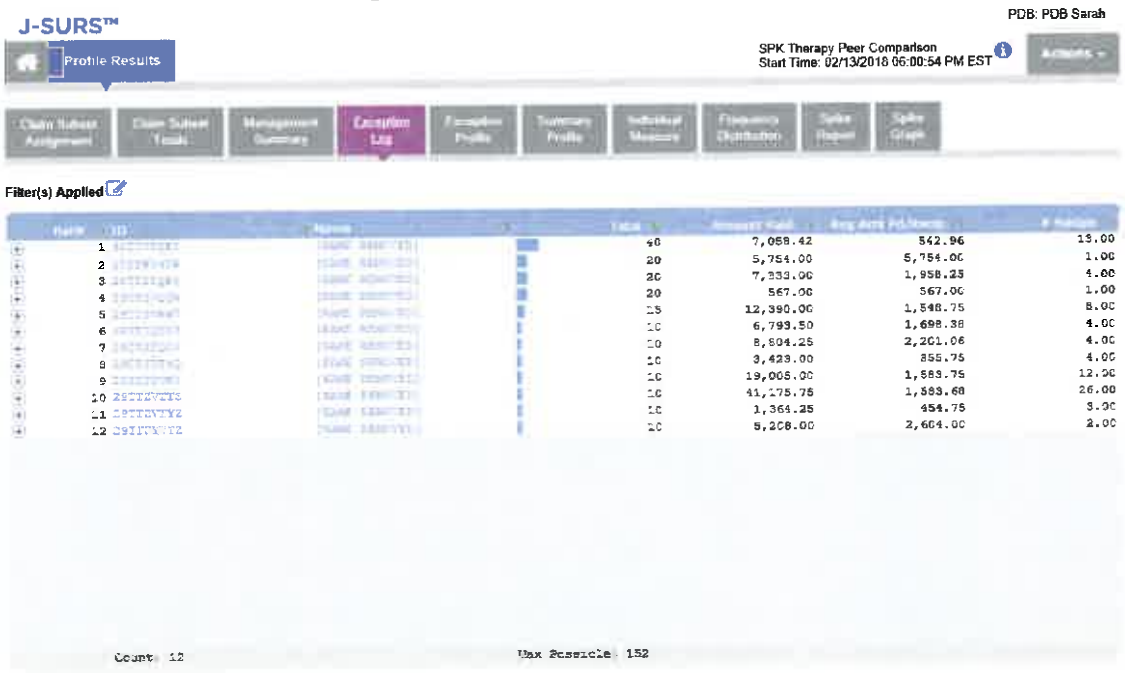
PI071	The solution should include a process to weight and rank exception report items to facilitate identification of the highest deviators.

It is easy to identify the highest deviators using the powerful Exception Scoring process available in J-SURS. For example, users can identify a provider whose number of members and average paid per member are both above the group average. Exception patterns and weights can be calculated on multiple dimensions to support disparity in the exception score and risk levels. Users also can generate an alert by assigning an exception weight to any identified measure; for example, users can generate an alert on any provider who was paid more than $500,000 and treated patients fewer than 100 days in the past year.

PI072	The solution should have the ability to capture provider and member use of covered services and items including, but not limited to, prescribed drugs.

The J-SURS data model incorporates medical, dental, and drug claims for both FFS claims and managed care organization encounters, along with associated member and provider data. To capture all these data and analyze them more efficiently, J-SURS creates the "Super Claim." The J-SURS Super Claim is an enhancement over the stand-alone healthcare services claim. The Super Claim underlies the powerful, user-friendly experience for our clients. When building a report, users do not need to remember which tables data elements are sourced from, because various data elements are available in a single record.

Figure 28. Exception Log. *This report identifies the providers who were outliers in the report. The user can clearly see their rank and corresponding Exception Score. Provider One received a score of 40. This functionality helps guide users to which providers to focus on.*



Examples of the types of information that are appended, or tagged over, as part of the Super Claim build include provider and recipient enrollment information and drug classification information from a drug reference table.

P1073	The solution should have the ability to classify members into peer groups to develop peer group statistical profiles using criteria including, but not limited to
P1074	Age
P1075	Gender
P1076	Race
P1077	Geographic region
P1078	Eligibility Category
P1079	Special programs code
P1080	Claims data elements
P1081	Other criteria defined by the Department

Profile reports are the flagship functionality of the J-SURS solution. Profile Reports are designed to conduct statistical peer comparison. The goal of these reports is to identify outliers in your Medicaid program and help prioritize case leads. Profile Reports identify providers and members in your Medicaid program whose claims activity might suggest fraud, abuse, or overutilization according to current state and federal regulations and guidelines.

Profiles can be created on the basis of, but not limited to, the Member ID, Servicing (Rendering) Provider ID, Billing Provider ID, Referring (Prescribing/Ordering) Provider ID, and Tax ID (Federal Employer

Identification Number [FEIN]). J-SURS users can also classify by age, sex, race, geographic region, eligibility category, special program code, and other criteria defined by the Department or any combination of the data element on the claim.

Profile Reports are built by Power Users in the web-based Report Wizard, which provides a guided approach to help users create the reports more effectively and efficiently. A Profile Report may be a peer group comparison or outlier report but can also look for a specific scenario—for example, duplicate lab claims, multiple office visits, or any other billing irregularity users wish to investigate.

PI082	The solution should have the ability to classify providers into peer groups to develop peer group statistical profiles for comparative analyses using criteria including, but not limited to
PI083	Category of service
PI084	Provider type
PI085	Provider specialty
PI086	Type of practice
PI087	Enrollment status
PI088	Facility type
PI089	Geographic region
PI090	Place of service
PI091	Billing versus rendering provider
PI092	Number of beds
PI093	Claim data elements
PI094	Provider ownership
PI095	Referring provider
PI096	Ordering provider
PI097	Prescribing provider
PI098	Individual providers within group practices
PI099	Other criteria defined by the Department

Profile Reports identify providers in your Medicaid program whose claims activity might suggest fraud, abuse, or overutilization according to current state and federal regulations and guidelines. A Profile Report aggregates claims according to an ID or any other data element found on a J-SURS record that acts as the key value. There are multiple ways to aggregate claims and create profiles. The ID numbers of providers and members is the most common key value that J-SURS uses. Profiles can be created on the basis of, but not limited to, the Member ID, Servicing (Rendering) Provider ID, Billing Provider ID, Referring (Prescribing/Ordering) Provider ID, and Tax ID (FEIN).

A Profile Report may be a peer group comparison or outlier report and can look for a specific scenario; for example, duplicate lab claims, multiple office visits, or any other criteria defined by the DHHR that are based on data available in J-SURS.

PI100	The solution should have the ability to develop provider and member profiles sufficient to provide specific information as to the use of covered types of services and items including, but not limited to prescribed drugs

Profile Reports can look for specific covered types of services information or scenarios—for example, prescribed drugs, duplicate lab claims, multiple office visits, or any other billing irregularity that users wish to investigate. J-SURS allows users to drill down from summary to detailed report data. Record listing reports also enable users to create a direct query to the database and pull claims on the basis of a set of criteria. The interface supports advanced queries with nested conditions.

PI101	The solution should have the ability to classify treatment to develop statistical profiles by diagnosis codes and/or diagnosis code ranges

Profile Reports are designed to conduct statistical peer comparison. The goal of these reports is to identify outliers in your Medicaid program and help prioritize case leads. Profile Reports identify providers and members in your Medicaid program whose claims activity might suggest fraud, abuse, or overutilization according to current state and federal regulations and guidelines. There are multiple ways to aggregate claims and create profiles. J-SURS can classify treatments by diagnosis codes and/or diagnosis code ranges, among many others.

PI102	The solution should have the ability to classify treatment to develop statistical profiles by procedure codes and/or procedure code ranges

J-SURS can classify treatments by procedure codes and/or procedure code ranges, among many others.

PI103	The solution should have the ability to track readmissions for members readmitted to the same or different inpatient facility(s)

Tracking readmissions is critical to understanding the quality and effectiveness of inpatient treatments. J-SURS tracks readmissions for members readmitted to the same or different inpatient facility(ies).

PI104	The solution should have the ability to analyze rendering, ordering, referring, prescribing, and billing provider practices to report atypical utilization and/or billing patterns

Profiles can be created based on, but not limited to, the Member ID, Servicing (Rendering) Provider ID, Billing Provider ID, Referring (Prescribing/Ordering) Provider ID, and Tax ID (FEIN number).

PI105	The solution should have the ability to provide statistically valid random samples as defined by the Department and extract data for provider audits, member utilization analysis, and recoupment of funds

J-SURS has the ability to provide stratified random samples in its profile reports. It also supports extracting data for audit, analysis, and to provide reports that support recoupment of funds. This extract feature is particularly useful when users want to perform national, legally-validated sampling techniques such as CMS' RAT-STATS.

PI106	The solution should have the ability to support analytics of service and billing practices to detect utilization and billing problems including, but not limited to
PI107	Incidental procedures
PI108	Mutually exclusive procedures and/or procedure codes
PI109	Mutually required procedures and/or procedure codes
PI110	Unbundling of procedure codes
PI111	Bill splitting
PI112	Other fields identified by the Department

Study Groups are an advanced feature of Profile Reports that enable users to capture "if…then" scenarios in the claims data. Rather than relying on aggregate sums, counts, and calculations over long periods

(such as months or years), Study Groups will only bring claims into a Profile Report based on their occurrence either before or after another type of claim, within a certain number of days.

Study Groups are a recipient-based function. They identify cohorts of recipients who have had a certain number of claims, units, dollars (or another user-defined parameter) in their claims over a specified number of days. With Study Groups, J-SURS can identify services that were duplicative, represent unbundling of a global service, exceeded limits in a certain amount of time, or occurred (or did not occur) relative to each other when they would/would not be expected to. Study Groups can be used to identify:

- Recipients with more than one "once-in-a-lifetime" surgery, such as an appendectomy, gallbladder removal, or hysterectomy
- Providers who frequently bill more than one Evaluation and Management service for their recipients within any 7-day period
- Dental services provided on a tooth that has already been extracted
- Providers who are billing dental cleanings in addition to full mouth debridement on the same date of service
- Recipients who received Personal Care Services during an inpatient hospital stay

PI113	The solution should have the ability to create random sample reports that include appropriate universe and sample totals to support analyses at varying levels of confidence

J-SURS has the ability to provide stratified random samples in its profile reports. These reports include universe and sample totals to support various audit and analysis functions.

PI114	The solution should maintain a date-driven parameter control file with online, real-time edit and update capability that allows the Department to specify criteria including, but not limited to
PI115	Data extraction criteria
PI116	Report content
PI117	Date parameters
PI118	Exception parameters
PI119	Others as defined by the Department

J-SURS maintains its library of proven fraud and abuse metrics, algorithms, and reporting instructions in a Parameter Data Base Library (PDB). J-SURS is easy-to-use and intuitive—it puts the analyst in control, with access to critical information needed to target providers and recipients for review and audit. On an ad hoc basis, users can easily:

- Access a library of proven fraud and abuse metrics, algorithms, and reporting instructions maintained in a PDB
- Design new report algorithms or queries, with no need for programming or SQL knowledge; users can specify the data to be used in the query/report (including extraction criteria, report content, date parameters, exception parameters, and others as defined by the Department), run the query/report, and monitor its progress
- View, manipulate, and export the results online
- "Slice and dice" drill-down grid results by dragging, dropping, and clicking
- Archive the results/reports for future viewing, printing, or modification for a new report

PI120	The solution should have the ability to generate frequency distributions and rankings for authorized solution user-selected report and statistical items

- J-SURS supports rules-based claims analysis and profiling of all types of statistical items, including:
- Frequency and duration testing
- User-defined study group analysis
- Provider spike identification
- "Absence of" analysis (e.g., identify ambulance services provided in absence of a valid medical service
- Stratified random sampling
- Member restriction/lock-in candidates
- "Long-term wrap reporting"

Top-N is an aggregate ranking reports allow users to choose combinations of up to three data elements from a claim. The combination of the values of data elements is ranked and shown in the results. Users can choose to rank by highest claim count, amount paid, or even head counts of recipient or provider IDs. Top-N is a helpful tool to get answers to high-level questions such as "Who are the top-paid providers in each provider type?" or "What is the distribution of claim types in my data?"

PI121	The solution should include all claims data elements

J-SURS is a claims-based system that allows selection on virtually every field that is carried on a claim, and all fields that are relevant to program integrity investigations. Claims within J-SURS are contextualized further by appending additional data elements derived from both the DSS/DW system and other data if the data can be associated with a claim record.

PI122	The solution should have the ability to flag a claim's most recent iteration

J-SURS flags a claim's most recent iteration. J-SURS automatically indicates that a claim being viewed had a previous version or iteration, so that users can review prior versions in the data warehouse.

PI123	The solution should have the ability to review all iterations of claims in order to ensure claims are processed within Department policy guidelines, contractual requirements, and all applicable State and federal laws and requirements

The data warehouse solution maintains all iterations of claims. The J-SURS system flags claims that have previous iterations so that users can review them if desired.

PI124	The solution should have the ability to review paid claims in order to
PI125	Ensure claims are paid within Department policy guidelines, contractual requirements, and all applicable State and federal laws and requirements
PI126	Ensure accuracy
PI127	Identify excessive quantities and/or duplicate billing for the same procedure and/or procedure code ranges
PI128	Identify excessive use of Healthcare Common Procedure Coding System (HCPCS) codes, surgical codes and/or procedure code ranges and other codes identified by the Department
PI129	Identify claims paid above the quantity of claims, monetary, or other Department-specified limits
PI130	Other criteria defined by the Department

J-SURS brings together systematic intelligence (proven algorithms, built-in statistical scoring for peer comparisons, and human intelligence) to provide greater vision into the claims review process through an intuitive and easy-to-use application for maximum analytic value.

Profile Reports

Profile Reports are the flagship functionality of J-SURS. They are designed to conduct statistical peer comparisons. The goal of the reports is to identify outliers in the Department's Medicaid program and help prioritize case leads.

Better Leads in Nevada Using J-SURS
In 2016, Nevada used J-SURS Profile Reports for faster insights. They identified providers who might warrant surprise onsite audits. One candidate was billing many questionable physical therapy services—costing $1.5 million in reimbursements from Medicaid since 2010.

Lower Limit and Zero Limit ("Absence of") Detection

J-SURS Exception Processing provides a special notation that enables users to identify individuals who lack an expected amount of services. Lower/zero limit testing can be used to identify:

- Transportation without a corresponding medical claim on the same, or around, the date of service of the transportation
- Recipients with medication management but no prescription claims 60 days prior or after
- Providers who lack variety in diagnosis codes across all patients

Exception Processing

Exception Processing refers to the user-defined scoring process. J-SURS assigns points to an individual Profile based on the Profile's Individual Measures results. Points are assigned to the Profile when an Individual Measure exceeds limits based on either (1) statistical comparison with the peer group or (2) user-defined amounts. Algorithm design is based on state Medicaid policy or suspected fraud, waste, and abuse practices that can be seen in the claims data. In Profile Report results, J-SURS displays a list of the IDs (or codes) whose claims data exceeded average or "normal" limits.

Benefits of Independent MMIS Exception Processing Analysis
Nevada leveraged J-SURS to identify a DME provider for abusive billing of rental equipment, since the MMIS claims payment system had no mechanism in place preventing a DME provider form continuing to bill. This led to creation of a J-SURS algorithm that revealed 634 actionable cases. This helped the State identify $201,000 in overpayments over 6 years.

Study Groups

Study Groups are an advanced feature of Profile Reports that enable users to capture "if…then" scenarios in the claims data, as described in PI106–PI112.

Spike Reporting

J-SURS Profile Reports provide an additional set of results that compute the percentage change between each time period in the report for the first five individual measures placed in the report. This is known as a Spike Report. The Spike Report lists IDs in descending order according to the highest percentage change. By design, the results of Spike Reports are computed separately from Exception Processing. An ID or code may exhibit spikes that are worthy of investigation although the ID or code might not be an outlier based on the Exception Criteria.

Figure 29. Spike Report. *This report calculates changes in billing practices from one-time period compared to another to support easy identification of spikes or significant changes in billing practices.*

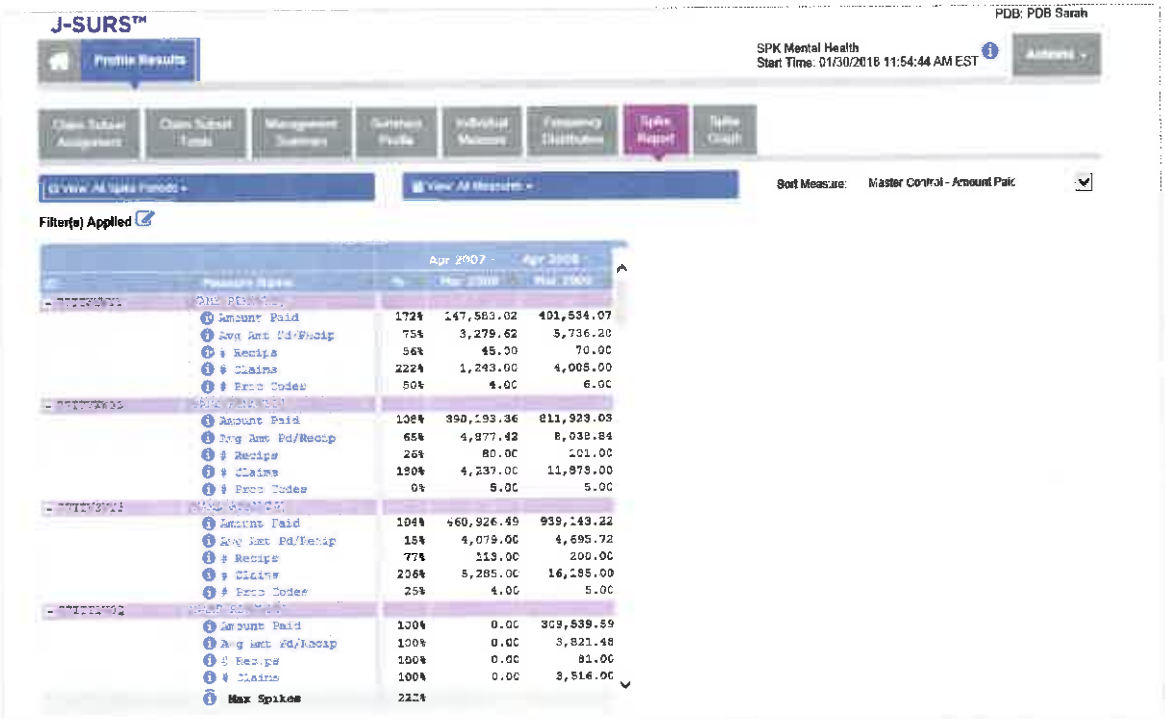


Figure 30. Spike Report. *This report enables users to plot up to two time-period comparisons from the Spike Report for more visualization of the data.*



DD1 Reporting

DD1 functionality creates a mini-database of claims based on the Claim Subset Selection criteria and time periods from a Profile Run. DD1 enables users to view the claims behind the aggregate totals in a Profile Report. The records in a DD1 database are available to query and view in a Record Listing report. These databases are not affected by the monthly claim file updates, they remain intact until users ask the Watson Health team to delete them—the claims that are written to the DD1 table are essentially frozen in time. This is important because if auditors and investigators open a case based on J-SURS findings that eventually is referred to law enforcement, the original subset of claims is still available.

Long-Term Wrap

The J-SURS extract involves a process that tags non-Long-Term Care (LTC) claims with the ID number of the LTC facility where a member resides. If the recipient is in an LTC facility on the date of service of a claim, then that claim is tagged with the ID number of the LTC facility of residence. The purpose of the Long-Term Care Wrap (LTCW) functionality is to easily identify LTC facilities whose residents are receiving services from non-LTC providers. The LTCW ID supports a Profile Report Run Type. The Claim Subset Selection for these reports can select claims for any service of interest (e.g., DME items or pharmacy). However, the Profiles generated are specific to each LTC facility, and the Measures and Displays reflect the other services that have been provided to recipients in each LTC facility.

PI31	The Vendor should assist the Department staff in responding to any audit requests from federal and State agencies and external entities

Watson Health will assist DHHR staff in responding to audit requests from federal and State agencies and other external entities.

PI132	The solution should have the ability to use historical data to support types of investigations including, but not limited to
PI133	Provider utilization review
PI134	Provider compliance review
PI135	Member compliance review
PI136	Member utilization review
PI137	Drug utilization review
PI138	Other as defined by the Department

J-SURS users can select and analyze claims and encounter data dating back to whatever period is appropriate for the specific research. The review period is limited only by the Department's data retention policies. Examples include, but are not limited to:

- View data displayed by National Provider Identifier (NPI), Medicaid ID, and/or a subset of the provider's practice.
- Associate services furnished in a clinical setting to both the clinic and service provider, as long as the treating or service provider's ID is on the claim or encounter record.
- Produce claim and encounter detail and special reports by provider type and beneficiary classification (e.g., category of service) and other key variables (e.g., group practice, case).
- Identify services received by beneficiaries who are enrolled in selected programs, and track federally assisted program participants separately from other categories of assistance.
- Run reports on waiver services by beneficiary or provider.

- Link all services to a single beneficiary, regardless of the number of historical changes in beneficiary ID, as long as sufficient data is available to make the connection between records.
- Customize any report to reflect data from managed care encounters, FFS claims, waiver services, or combinations thereof.

PI139	The solution should have the ability to interface with all Department-specified claims processing systems

Our solution's ETL software allows us to interface with any DHHR-specified claims processing systems. J-SURS can receive data using industry-standard text file formats that can be provided by any claims processing system or environment.

PI140	The solution should have the ability to conduct surveillance and utilization review (SUR) across all Medicaid services and Social Services payments regardless of the service delivery method or financing mechanism

J-SURS includes the ability to review member and provider activity across all Medicaid services and Social Services, as long as sufficient data is available to make the connection between claim records. Programs include managed care encounters, FFS claims, waiver services, or combinations thereof.

PI141	The solution should have the ability to link all services to a single member regardless of the number of historical changes in the member identification (ID) number

J-SURS has the ability to link all services to a single beneficiary, regardless of the number of historical changes in beneficiary ID, so long as sufficient data is available to make the connection between records. J-SURS has a field for both the original ID and the claim ID. Any subsequent IDs should be linked to the original ID of the member.

PI142	The solution should have the ability to maintain appropriate controls and audit trails to ensure that the most current surveillance and utilization review (SUR) data are used in all processes relying on the SUR data repository

The Watson Health data load reconciliation process uses control totals from source system extracts to the SURS system. This process covers the standard monthly SURS data loads and any off-cycle or special-purpose loads that may be required. Standard control totals with each load track the number of records added. Financial totals and unique ID counts are also gathered during the load and reported in the reconciliation output. The J-SURS load is a pass-through process; no transformation takes place, so that the most current data from the data source is considered the content authority. Once submission, processing, validation, and publishing have completed, users can access the latest data available.

During the history update process, claims are added to and deleted from the claim history file. This process will update the sequential files used for J-SURS runs and the J-SURS drill-down database. The history update process ensures the newest month's claims are available for user reporting. This is a standard process that occurs on a monthly basis for all J-SURS clients.

PI143	The solution should have surveillance and utilization review (SUR) functions to produce management summary reports and to edit control files for inactive service codes including, but not limited to
PI144	Procedure codes
PI145	Revenue codes

J-SURS provides customizable management summary profile reports. Customizations include inactive procedure and revenue codes.

PH146	The solution should have the ability to track federally-assisted program participants separately from other categories of assistance

J-SURS allows users to identify services received by beneficiaries who are enrolled in selected programs, and track federally assisted program participants separately from other categories of assistance.

PH147	The solution should have the ability to identify members who exceed program norms, ranked by severity

J-SURS identifies members who have exceeded program limits and ranks them based on the frequency or severity of the incorrect billing. Through exception processing, users can identify members who have exceeded set program limits (i.e. members with more than one dental cleaning in a 6-month period).

PH148	The solution should have the ability to identify services received by members who are enrolled in selected programs

J-SURS users can customize any report to reflect data from managed care encounters, FFS claims, waiver services, or combinations thereof to identify services received by members.

PH149	The solution should have the ability to identify services received by members who have specified diagnoses

J-SURS Study Groups allow users to identify members who received services based specified diagnoses.

PH150	The solution should have the ability to profile all services provided to a member during a single episode of care

The J-SURS Study Group analysis function allows user to profile services provided to a member for an episode of care. J-SURS Study Groups are a recipient-based function. They identify cohorts of members who have had a certain number of claims, units, dollars (or another user-defined parameter) in their claims over a specified number of days. Study Groups can be ranked for severity. With Study Groups, users can identify services that:

- Exceeded limits in a certain amount of time
- Occurred, or did not occur, relative to each other when they would or would not be expected to
- Were duplicative
- Represent unbundling of a global period

Cost recoveries for these kinds of analysis are extraordinarily valuable. For example, in 2011, a J-SURS analyst at one state agency identified misuse of a newborn discharge code (99435) that can be billed only when a newborn is delivered and discharged within 24 hours. The analyst used J-SURS' "episode of care" function to identify all newborns with this discharge code plus any claims for the preceding three days. The result was a group of hospital nursery charges occurring before the date of service on the claim for the newborn discharge code, indicating the newborn was not delivered and discharged on the same day. The agency recovered the difference between the higher paying discharge code and the correct code for a total of $106,000. It also implemented policy changes that will continue to save money going forward.

PH151	The solution should have the ability to generate reports of individual members by peer group

J-SURS allows users to build Profile Reports with custom measures and a scorecard to assign points, which will allow the system to compare peer groups and pull out outliers. This will help Department users, for example, compare differences in services provided for chronic conditions like diabetes or episodes of care such as knee surgeries.

PI152	The solution should have the ability to select claims and encounter data dating back to whatever time period is appropriate for the specific research

J-SURS allows users to select and analyze claims and encounter data dating back to whatever period is appropriate for the specific research. The review period is limited only by the Department's data retention policies. Examples include, but are not limited to:

- View data displayed by National Provider Identifier (NPI), Medicaid ID, and/or a subset of the provider's practice.
- Associate services furnished in a clinical setting to both the clinic and service provider, as long as the treating or service provider's ID is on the claim or encounter record.
- Produce claim and encounter detail and special reports by provider type and beneficiary classification (e.g., category of service) and other key variables (e.g., group practice, case).
- Identify services received by beneficiaries who are enrolled in selected programs, and track federally assisted program participants separately from other categories of assistance.
- Run reports on waiver services by beneficiary or provider.
- Link all services to a single beneficiary, regardless of the number of historical changes in beneficiary ID, as long as sufficient data is available to make the connection between records.
- Customize any report to reflect data from managed care encounters, FFS claims, waiver services, or combinations thereof.

PI153	The solution should have the ability to produce claim and encounter detail and special reports by provider type and member classification including, but not limited to
PI154	Category of service
PI155	Group practice
PI156	Case

J-SURS can produce claim and encounter detail and special reports by provider type and beneficiary classification (e.g., category of service) and other key variables (e.g., group practice, case).

PI157	The solution should have the ability to provide and store all utilization reports in the medium designated by the Department

J-SURS reports can be exported easily to Microsoft Excel, .csv files, and .pdf files. Users commonly export reports for inclusion in case summaries or for use as attachments when educating or recovering money from providers. This has proven to be a time-saving feature for many of our state clients.

PI158	The solution should have the ability to provide standard Department and Centers for Medicare & Medicaid Services (CMS) program integrity reports in accordance with Department reporting standards

We will provide standard Department and CMS program integrity reports in accordance with DHHR reporting standards. Watson Health has decades of PI experience, as well as the tools, proven queries, and a national community of 20 clients. J-SURS offers standard reports to satisfy CMS PI certification requirements and has been certified in states across the country, including West Virginia.

PI159	The solution should have the ability to provide the flexibility to vary time periods for reporting purposes and produce reports on a daily, monthly, quarterly, or other frequency as specified by the Department

J-SURS users can select time periods for reports, and to produce reports on a daily, monthly, quarterly, or other frequency as specified by DHHR. A report can be run for one specific time period and easily modified to be run for another time period.

PI160	The solution should have the ability to display all relevant data by National Provider Identifier (NPI) or by a subset of the provider's practice

J-SURS allows users to display all relevant data by National Provider Identifier (NPI), Medicaid ID, and/or a subset of the provider's practice.

PI161	The solution should have the ability to develop and implement technical and authorized solution user training programs

The J-SURS team includes an internal training team that can provide a variety of technical and operational training programs for different tiers of user groups, such as general users and power users. One week of onsite training is provided annually, with additional training delivered via Web Ex as requested. We can customize these training programs to meet DHHR's specific training interests.

PI162	The solution should have the ability to automatically identify exceptions to norms of utilization or quality of care standards established by the Department for any type of member covered by the Department plan

J-SURS Exception Profile Reports let users build reports to define exceptions to norms of utilization or quality of care standards. Once defined, these reports can then automatically identify exceptions for any type of member covered by the Department plan.

With the powerful Exception Scoring available in J-SURS, it is easy to look for warning events in combination. For example, users can easily identify a provider whose number of members is above the group average and whose average paid per member is also above the group average. In addition, exception patterns and weights can be calculated on multiple dimensions. You can generate an alert by assigning an exception weight to any identified measure. For example, you could generate an alert on any provider who was paid more than $500,000 and treated patients less than 100 days in the past year.

PI163	The solution should have the ability to automatically identify deficiencies and generate reports on levels of care and quality of care by provider type

J-SURS supports rules-based claims analysis, identification, and reporting of all types of provider entities and types—not just servicing providers, but analysis by billing ID, referring ID, tax ID, and managed care plan ID. Additional features include analyzing and identifying deficiencies on levels of care and quality of care by provider type, such as "Absence of" analysis (e.g., identify ambulance services provided in absence of a valid medical service). A user can, for example, identify a physician prescribing abuseable drugs with no corresponding medical visits to determine if the prescriptions were medically necessary.

PI164	The solution should have the ability to support pattern recognition and provide an automated fraud and abuse profiling system, that includes pre-built algorithms for the ongoing monitoring of provider and member claims to detect patterns of potential fraud, waste, and abuse, including excessive billing

J-SURS is specifically designed for Medicaid PI analysis and investigations. It includes a starter set of pre-built algorithms that have proven successful in fighting fraud, waste, and abuse across the country. With minimal training and technical experience, users can customize these algorithms or create their own.

PI165	The solution should have the ability to automatically report on details of the practice of providers identified as exceptions or outliers

J-SURS Profile Report results display automatically identify and display the IDs (or codes) whose claims data has exceeded average or "normal" limits. To do this, J-SURS assigns points to an individual Profile based on the Profile's Individual Measures results. Points are assigned to the Profile when an Individual Measure exceeds limits; the limits are based on either (1) statistical comparison with the peer group or (2) user-defined amounts. Algorithm design is based on State Medicaid policy or suspected fraud, waste, and abuse practices that can be seen in the claims data.

PI166	The solution should have the ability to identify misutilization of services by individual members and promote corrective actions

Profile Reports are designed to conduct statistical peer comparison to identify outliers and help prioritize case leads. Profile Reports identify members whose claims activity might suggest overutilization or misutilization according to current state and federal regulations and guidelines. By comparing normal utilization to misutilization or overutilization, DHHR can use these reports to craft corrective action plans.

PI167	The solution should have the ability to automatically identify exceptions to norms of practice established by the Department for any type of provider covered by the Department plan

J-SURS Exception Profile Reports allow users to build reports to define exceptions to norms of utilization or quality of care standards. Once defined, these reports can then automatically identify exceptions for any type of provider covered by the Department plan.

Through the powerful Exception Scoring, it is easy to look for warning events in combination. For example, a user can easily identify a provider whose number of members is above the group average and whose average paid per member is also above the group average. In addition, exception patterns and weights can be calculated on multiple dimensions and alerts can be generated by assigning an exception weight to any identified measure.

PI168	The solution should have the ability to apply clinically-approved guidelines against episodes of care to identify instances of treatment inconsistent with guidelines

Study Groups allow users to apply clinically-approved guidelines against episodes of care to identify instances of treatment inconsistent with guidelines. Cost recoveries for these kinds of analysis are extraordinarily valuable. For example, a J-SURS analyst at one state agency identified members who were receiving C-PAP machines for sleep apnea, but there had been no sleep study performed to confirm the diagnosis. The analyst used J-SURS' study group functionality to identify every instance where this occurred. After review, it was determined that many members who received a C-PAP machine from one particular DME rarely had the diagnosis of sleep apnea. In addition to recovering the money for the unnecessary C-PAP machines, we recommended a policy to require a sleep study be performed and the diagnosis of sleep apnea confirmed within 6 months of the member receiving a C-PAP prescription lab.

PI169	The solution should have the ability to generate early warning reports of high-cost services and service misutilization based on current payment data to quickly identify high-volume practices

Users can build Profile Reports with custom measures and a scorecard to assign points that enable the system to compare peer groups and pull outliers based on current payment data, such as high cost of service and service misutilization, in order to identify high-volume or high-cost practices.

A comprehensive profile includes provider type-specific measures and uses the Super Claim to not only analyze services directly rendered by individual servicing physicians, but also their ordering, referring, and prescribing habits. This profile incorporates basic measures such as Amount Paid, Number of Claims, Average Amount Paid per Claim, Average Amount Paid per Recipient, and recipient demographic information. The profile also includes measures specific to the various types of Evaluation and Management (E&M) Services. Exception Criteria focuses on the use of modifiers, frequent E&M per recipient, and bill padding with additional diagnostic services on the same date of service as E&M. The volume of DEA controlled substances and amount paid for other types of services referred are included in Exception Processing.

Advanced Provider Profiling at Your Fingertips

In Nevada, J-SURS is used to profile pediatric providers who are statistical outliers in the following metrics:

- Procedure Code modifiers 25 (the "single physician" concept) and 50 (billable, but not normally reported together)
- Unbundling of individual testing that should be included in Early Periodic Screening, Testing, and Diagnosis (EPSTD) codes
- Wellness visit codes and "sick" child visits on the same date of service
- Incorrect use of neonatal intensive care codes based on the age of the infant
- Overuse of family planning counseling and other add-on codes

Through J-SURS analysis, the PI Unit became aware of 6 pediatrics groups suspected of overbilling Medicaid approximately $61,000 in one year. They are currently reaching out to these providers to review records and educate on correct claims submission.

J-SURS users also have access to Top-N reports, which provide summarized information on up to three selected variables, so you can answer exploratory questions like, "Who is the highest cost provider for this procedure code?"

PI170	The solution should have the ability to support provider performance reviews to determine the adequacy and extent of participation and service delivery

J-SURS users can build Profile Reports with custom measures and a scorecard to assign points, so the system compares peer groups and pulls outliers. This will help users look for provider participation and service delivery adequacy, as described in PI169.

PI171	The solution should have the ability to review provider participation and analyze provider service capacity in terms of member access to health care

Users can build Profile Reports with custom measures and a scorecard to assign points that enable the system to compare peer groups and pull outliers. Since J-SURS can review member claim history across providers, services, and program, DHHR users can build profiles that can analyze provider services rendered among specialty peer groups. For example, users can search for procedure codes that should be tied to episodes of care but are not, indicating that a care network may lack access to specialty care.

PI172	The solution should have the ability to support report balancing and verification procedures

The Watson Health data load reconciliation process uses control totals from source system extracts to the SURS system. This process covers the standard monthly SURS data loads and any off-cycle or special-purpose loads that may be required. Standard control totals with each load track the number of records added. Financial totals and unique ID counts are also gathered during the load and reported in the reconciliation output. The J-SURS load is a pass-through process; no transformation takes place, so that the most current data from the data source is considered the content authority. Only after submission, processing, validation, and publishing have completed, are users allowed access to the dataset.

Assumptions

Table 22. Attachment G Assumptions

Assumption
The data source will contain member and provider information
Existing Advantage Suite file formats (interfaces) will continue to be provided. A format is defined as the layout, formatting of all data elements within the layout, the way data is filtered/extracted, claims adjustments use the specified methodology within the layout documentation, use the specified valid values and data dictionary for all data elements, financials and dates are in the specified formats, etc. Any changes to file formats will require a CR.
Extract from the WV EDS will occur once a month into J-SURS.

ATTACHMENT H TECHNICAL SPECIFICATIONS APPROACH

Overview

Our Watson Health WV EDS is designed using modern, robust, proven data management methodologies and best practices to meet DHHR's needs. We have applied built-in accelerators and lessons-learned to reduce risk and enhance value. Our platform includes an application integration layer that allows us to publish and expose reliable, reusable services that integrate with the IES vendor's enterprise service bus (ESB). We follow the standards defined by the Center for Medicaid & State Operations (CMSO) initiative for MITA and facilitate data sharing through open, industry-standard interfaces and exposed APIs. Using these standards makes our platform architecture scalable, extensible, and modular.

Data in our solution progresses from source system to analytically unified and aggregated information. As data moves from one layer to the next, it moves through different physical data layers with various degrees of integration, conformity, and enhancement, to provide the right data, for the right use case, at the right time. This approach also maximizes flexibility and scalability in the solution by building a foundational model-based data store with variations designed to meet your changing demands for data access, analytics, reporting, and exploration.

Our data domain design features our Core Data Model (CDM), which is specifically designed to capture the data needs for Medicaid and enterprise health and human services analytics. Our CDM data integration components are designed with architectural flexibility to accommodate your future data sources and expanding analytics needs by updating and extending schemas and model objects to incorporate new data fields and future data sources as needed with minimal disruption to operations.

Good data governance and data management practices and tools make it easier to discover and understand determine what areas may be at risk or need focused attention from DHHR across the WV Medicaid data landscape. Our solution uses integrated components all sharing a common metadata repository to provide data understanding, governance, integration, and management capability. Our approach to data quality begins with establishing quality thresholds and variances during requirements sessions, then applying the quality logic to gauge the quality of the data. We ensure that data quality standards, business rules, and policies are applied prior to the data entering the production database.

The WV EDS solution includes methodologies and logic specifically designed to group and categorize Medicaid data and to calculate meaningful metrics on the data. We integrate information in different formats from diverse sources and systems, apply rich analytic content, such as evidence-based measures and clinically sound techniques for grouping, risk scoring, population health analysis and benchmarking. These enhancements make the data "analytically ready" for users of all types. Our solution's robust reporting tools provide standard and ad hoc reporting capabilities and dashboards with state-of-the art visualization features. Our custom analytics engine puts powerful healthcare measures and methods into the hands of all types of users, both internal and external to DHHR.

Our WV EDS solution is delivered as a cloud-hosted, software-as-a-service deployment, including the installation, configuration, implementation and deployment of all necessary infrastructure and software components. We will host the WV EDS solution on our Watson Health cloud platform which delivers the most cost-effective and flexible approach to hosting for DHHR.

At Watson Health, we focus on securing the data our clients entrust to us for safekeeping, and we routinely check and improve our processes and measures. Physical and logical protections rigorously control who has access to data in the solution. Our WV EDS has strong security controls, safeguards, and alerts to prevent, monitor, and detect potential and actual violations.

Data Sources, Delivery, and Display

DD001	The solution should have the analytic ability to report benchmark dimensions and commonalities

Our WV EDS solution incorporates national analytics measures and benchmark data. Watson Health developed the proprietary IBM MarketScan Research Databases, which contain one of the largest and longest-running collections of privately and publicly insured, de-identified patient data in the US. The MarketScan databases capture the continuum ofcare— physician office visits; hospital stays; retail, mail order, and specialty pharmacies; and carve-out care like mental health services. The data is contributed by large employers, managed care organizations, hospitals, EMR providers, Medicare, and Medicaid. The data includes:

- De-identified records of more than 250 million patients (medical, drug, dental)
- Productivity (workplace absence, short- and long-term disability, and workers' compensation)
- Laboratory results
- Health risk assessments (HRAs)
- Hospital discharges
- Electronic medical records (EMRs)

Using IBM MarketScan data, DHHR will be able to benchmark performance across the continuum of the WV healthcare ecosystem.

Our solution provides the ability to capture expected benchmarks and compare program/plan/provider performance against those benchmarks. We can incorporate external benchmarks such as CMS Medicaid Quality-of-Care core measure national benchmarks. Individual users can also import external data on an ad hoc basis and report on common fields across different data tables. Our Flexible Analytics solution will deliver standard reports enhanced with rich data elements such as adjusted benchmarks, meaningful aggregates like healthcare groupers, and pre-defined yet customizable healthcare performance measures.

The solution enables comparisons to both internal and external benchmarks to help identify best practices and target areas for performance improvement. Internal benchmarks enable you to compare current experience to a baseline, subgroups to one another (e.g., regions, MCOs), providers to a peer group, etc. The solution supports "dynamic benchmarks" based on user-defined views of the data. Leveraging built-in healthcare intelligence, the WV EDS solution empowers users to adjust these internal comparisons for underlying population differences -- including age/gender, health risk, case mix, and disease severity. This assures fair comparisons of program, health plan or provider performance.

Our experience with encounter data and benchmarking will support DHHR when it chooses to compare the performance of WV's MCOs with industry benchmarks, with each other, and ultimately to inform effective rate setting.

DD002	The solution should provide documentation of all data objects and codes, abbreviations, and descriptions in logical and physical data models in a searchable, approved, current online data dictionary

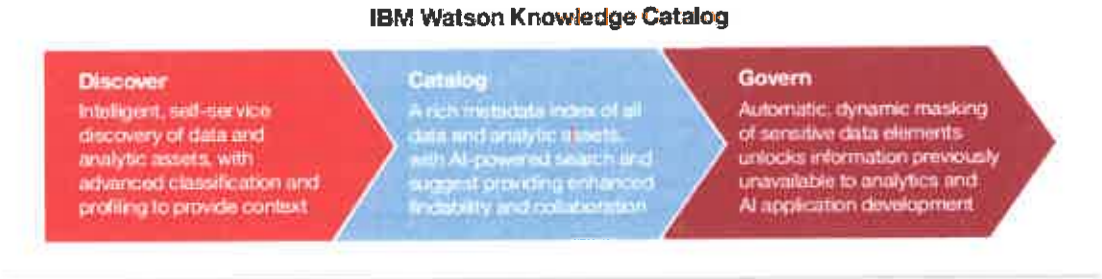
Access to data source metadata is crucial to the overall understanding and usability of a data warehouse. We will utilize IBM Infosphere Information Server which is a framework of components built around a common metadata repository. Infosphere Information Governance Catalog (IGC), a component of the Infosphere Information Server suite, is an interactive, web-based tool that enables users to create, manage, and share an enterprise vocabulary and classification system correlated with captured metadata within a central catalog, the Information Server metadata repository. IGC provides an interactive GUI and reporting interface for accessing the business terms, definitions and relationships of all data assets. IGC and its metadata repository will form the foundation of the Data Governance tooling in our solution. This solution has been successfully proven in the industry and recognized by Gartner for the depth and breadth of its metadata management features.

The WV EDS data dictionary within IGC provides information on the source, value and characteristic attributes of all WV EDS tables and data elements including metadata such as terms, abbreviations, and descriptions of each. IGC maintains this metadata in an accessible, online metadata repository. It is an up-to-date, electronic, searchable, reportable metadata repository that becomes the cornerstone for data understanding and quality throughout the WV EDS, and the applications it supports.

Our WV EDS solution also includes an enterprise data catalog via IBM Watson Knowledge Catalog (WKC). WKC is a data catalog that is tightly integrated with and adds extended capability to IGC. WKC can help DHHR users easily find, prepare, understand and use the data they need by quickly discovering curating categorizing and sharing data assets, data sets and analytical models throughout the organization. It serves as a single source of truth for data engineers, data stewards, data scientists and business analysts to gain self-service access to data they can trust. The WKC data catalog provides the following advantages to the DHHS data analyst and user community:

- **Delivers speed and self-service.** Rather than submitting requests to an IT group for data that will meet analysts' business needs, Analysts simply search through a data catalog themselves. This frees up more time for the IT group and means that the analyst doesn't need to wait for IT. It provides self-service access to data to data citizens.
- **Enables comprehensive search and access to relevant data.** An analyst will not know if they're missing relevant data or the most up to date asset unless they can search across all available data assets. They might find something they would not have been able to find before which can augment their analysis and provide better insights.
- **Provides meaningful context.** When an analyst finds a data asset that would be useful to them, they can read a description, view business metadata and business term definitions, and read comments provided by others about the data. That way, the analyst can put each column in a data asset in the context of their business.
- **Improves trust and confidence in data.** By previewing the data and profiling it, an analyst can very quickly see if certain fields have null or incorrect values. This makes cleansing the data even easier. The quality scores and user-provided recommendations on the data asset help improve the confidence in data for an analyst to use.
- **Protects data while staying compliant.** Instead of an IT professional masking each column, data rules automatically run based on automatic classification of data.
- As well as providing a single source of truth about all your data sets, WKC provides a single point of access. Artificial intelligence (AI)-powered search and suggest capabilities help users find assets more easily and present the available metadata to help them understand what they've found and assess whether it is useful to them. WKC has an AI feature for searching and suggesting assets based on what it "learns" from your search behavior. It uses Watson Machine Learning to derive a list of assets that you haven't accessed yet based on attributes common to the assets that you've viewed, created, and added to projects, such as tags, data classes, data types, asset owners, and asset types. It includes a governance policy manager and engine, which ensure that the policies and rules that describe how your data should be used are enforced each time a data asset is accessed. Embedded, self-service data preparation tools accelerate the time it takes to transform data for productive use in analytics and AI applications. This helps to transform data governance from a documentation process into an actionable way to proactively protect your business data.

Figure 31. IBM Watson Knowledge Catalog (WKC). *WKC is a data catalog, providing a single point of access for metadata on all data assets with AI-enabled search and suggest capabilities.*



- We will make all documentation related to the data dictionary accessible to DHHR authorized users. Additionally, business analysts and other report developers have access to the data object metadata directly in the reporting tool, Cognos Analytics, without having to refer to an outside document or another tool. This accelerates report development as well as improves understanding and trust in the data.

DD003	The solution should provide documentation of all data objects and codes, abbreviations, and descriptions in logical and physical data models in a searchable, approved, current online entity relationship (ER) diagram

Watson Health follows a progression of development of Conceptual, Logical, and Physical Data Models for the WV EDS. We use ERwin Data Modeler to develop and maintain the data models and other metadata about the data structures. ERwin enables visualization and manipulation of complex data structures, streamlining the design process and synchronizing the model with the database design.

With ERwin, we implement data modeling standards, define entity relationships, include data element definitions and abbreviations; create domains and keys, and build Entity Relationship Diagrams (ERDs). We build the Logical Data Model (LDM) or ERD, which is a representation of business concepts laid out in visual form that clearly shows these concepts and their various relationships. The LDM is independent of the underlying and ensuing Physical Data Model (PDM) which we generate from the defined LDM.

In addition to the online access to data models through the ERD, ERwin's reporting tool allows a data modeler to generate a wide variety of reports on the most recent data model. ERwin provides easy options to generate and view reports that effectively describe and share the model with others, including business users, in a variety of easy-to-analyze, visually appealing views.

Electronic or hard-copy documentation will be made available directly or provided on an agreed-to schedule per the D009 Documentation Management Plan deliverable. Model documentation can be made available to the user community in a variety of formats such as PDF, Word and HTML for validation, searching, and review. We develop and submit data model-related documentation as data model changes are deployed in each environment throughout and in accordance with our SDLC process and Communications Management Plan. The resulting ERDs will be the property of DHHR.

DD004	The solution's data modeling tool should have current and historical versions available upon request

Watson Health utilizes the ERwin Data Modeler suite of tools. ERwin allows us to develop a model for the WV EDS that is fully attributed, database-compliant and readable, having table relationships, data types and diagrams within the modeling tool. Our scalable, multi-user modeling environment allows simultaneous work on a model without compromising integrity. It provides change and version control capabilities for all data models. Authorized users will have access to all data models and model constructs

within the data modeling tool. We will keep all historical versions of the WV EDS data model accessible to DHHR and/or available upon request.

DD005	The solution should have the ability to detect, maintain, and analyze both predetermined and authorized solution user -created relationships among claims, persons, providers, and other entities

Establishing and Maintaining Pre-determined Data Relationships

Our data model begins with our Core Data Model (CDM) which is divided into subject areas like Claims, Provider, and Member to facilitate model management and make it easy to understand from a logical perspective. The CDM provides an in-depth understanding of the data and the pre-determined relationships among key entities such as Claims, Member, Provider and other entities (e.g., MCOs) that is needed to support analysis of access to care, services delivery and payment, and health outcomes. The WV EDS data model will be seeded from the CDM asset. The relationships between these major subject areas and entities are inherent within the CDM.

We have also designed the CDM with the flexibility to update and extend schemas and model objects to incorporate new entities and data attributes as needed. To provide a comprehensive picture of the enterprise, we augment the CDM with new dimensions, attributes, or data fields that are specific to WV's program needs, business practices, and policies. The WV EDS can store data from sources such as Social Security Administration (SSA) data, vital statistics, health plan encounter data, benefit manager encounter data (e.g. pharmacy, dental, mental health), waiver program data, and Census Bureau data. We will work closely with DHHR to configure and customize the model for WV's needs.

Our WV EDS solution establishes and maintains the pre-determined entity relationships in the WV EDS data model as part of the data integration and ETL process. Our data integration discipline helps to ensure that standard, repeatable and automated processes are developed to normalize, enhance, correlate and aggregate data according to defined and documented business rules and industry-standard categorizations. Our solution's processes are derived from our experience combined with the capabilities of data integration tools and technology platforms. We also bring pre-built ETL processes and data models based on our experience with DXC MMIS systems. Our team's experience has been built into these accelerators, lowering the risk of implementation and driving faster time-to-value with your data assets.

User-Created Data Relationships

The Sandbox layer is a user-owned schema within the WV EDS database that enables the Watson Health team and authorized DHHR solution users to develop schemas that contain imported external data which can then be joined to any of the user-accessible WV EDS data tables. Within the Sandbox, power users have complete flexibility to create tables, views and data marts, to import external data into tables of their own creation, to join or establish relationships between their schemas and other WV EDS tables, and to import or join to external tables. They can explore or establish relationships between the WV EDS data in conjunction with external data sources to discover new relationships and create data extracts for any purpose.

DD006	The Vendor should maintain synchronization of claims and encounter record dates with provider and member record dates (a claim or encounter is always linked to the provider status and member status segments associated with the date of service)

Our solution maintains synchronization of claims and encounter record dates with provider and member record dates—a claim or encounter is always linked to the provider status and member status segments associated with the date of service. Claims and encounter records are synchronized with provider and member eligibility data in monthly records, so service data and monthly eligibility and provider status can always be compared. For example, users can run reports that expose instances where a provider was paid for a service rendered when the provider was under sanction or a patient was ineligible for service.

Effective financial management starts with complete, timely, accurate data on claims and encounters, members, and providers. Through the WV EDS, users will have access to integrated, high quality data organized for financial analysis. They will be able to analyze data on paid claims and encounters, denied claims and encounters (if submitted by the MCOs) and claim/encounter adjustments; a "last claim" indicator will be assigned to note the status of any claim payment thread. Our solution supports the tracking of claims processing financial activities and the status of payments. Payments can be analyzed by date of service, date received, date adjudicated, date paid, and date adjusted (if applicable), as long as those dates are provided on the source files.

Our emphasis on data quality and our proven processes for evaluating data quality and improving it where necessary means that the synchronization of claims/encounter records with provider/member records based on the date of service will be accurate and complete.

DD007	The solution should have the ability to produce multi-dimensional data objects including, but not limited to
DD008	Data cubes
DD009	Customized tables
DD010	Data marts
DD011	Materialized views
DD012	And to develop, implement, and maintain both derived and aggregated data including, but not limited to
DD013	Total claim costs
DD014	Unique member counts
DD015	Units of service
DD016	Benchmarks

The WV EDS includes Data Marts built on multi-dimensional data constructs reflecting the greatest level of granularity and tuned for reporting and analysis. A Data Mart could be a collection of database views and/or tables, cubes, or other constructs to support the accessing application. We design and build the Data Marts as star schemas with conformed dimensions, with derived and aggregated data as required, to help easily answer our clients' business questions via analytical queries and tools.

Our Cognos Framework Manager solution provides a semantic layer on top of the data that allows users to query data using business terms and incorporate Calculated Measures. We will create Calculated Measures or other aggregated data within the data marts to support ease of reporting and better query performance.

Our Core Data Model (CDM) has the flexibility to incorporate new entities, data attributes and customized tables, as needed to support WV's program needs, business practices, and policies. Within the Sandbox, power users have complete flexibility to create new or customized tables, views and data marts.

We also provide Data Mart constructs enhanced with data reduction and summarization techniques to improve end-user experience and to enhance BI/reporting tool capabilities and performance. These can be implemented as independent physical database tables or via materialized query table constructs in the database that are automatically maintained based on the data in the dependent tables on which the materialized query table is defined.

Data Marts typically include specialty marts for supporting specific business process models (MITA functional areas) or operational tasks. Examples of our Data Marts include Medical Expenditures Trends, Pharmacy Data Mart, and Enrollment Trends.

Our proven Data Mart design is configured to accommodate WV's unique programs and data. We will build Data Marts to support analysis on total claim costs, unique member counts, units of service, benchmarks and other data metrics. We can also apply and customize proven report templates to monitor broader aspects of programs such as member enrollment, access, and utilization; provider participation and service delivery; claims processing and payment trends; and MCO performance.

Our WV EDS solution incorporates the proprietary IBM MarketScan Research Databases. Using IBM MarketScan data, DHHR will be able to benchmark performance across the continuum of the WV healthcare ecosystem. And our solution provides the ability to capture expected benchmarks and compare program/plan/provider performance against those benchmarks.

DD017	The solution should maintain current and historical data

Our WV EDS maintains both current and historical data online. Our solution can scale/grow to maintain all data and records associated with the WV EDS project over the life of the contract in compliance with Federal and State policies around data retention. We will work with DHHR as part of our data management process to define the specific data retention/archiving policies for the WV EDS data.

Our WV EDS has an Integrated Data store layer that is a set of aggregated, dimensionally designed table structures that store current and historical data in a star schema model. All data in the Integrated Data Store layer and the Data Marts, regardless of time period, will continue to be available online to end users for reporting and analysis.

DD018	The solution should maintain current and historical claim data including, but not limited to
DD019	Date of payment
DD020	Date of adjudication
DD021	Prescription date
DD022	Date of service

Our WV EDS maintains all historical claim data, member and provider enrollment, and other primary reference data on a scheduled basis that best accommodates each client's needs. For DHHR, we can update the WV EDS with data produced by the MMIS as often as that data is updated. We will update the Data Marts on a regular schedule that provides analytically meaningful data.

Our solution supports the tracking of claims processing financial activities and the status of payments. Payments can be analyzed by date of service, prescription date, date received, date adjudicated, date paid, and date adjusted (if applicable), given those dates are provided on the source files. Reports are available on the timeliness of claims filed by providers, and on turnaround time by the claims processing system. The solution provides access to integrated, high-quality data that is organized to support financial analysis and management.

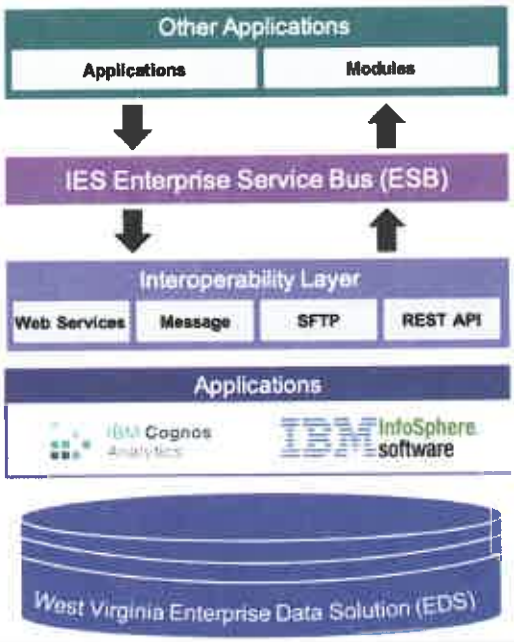
DD023	The solution should develop and maintain standard table joins that allow linkages among member records, provider records, claim/encounter records, and all other solution data to enhance querying, reporting, and analytics

Our WV EDS data domain is seeded from the Watson Health Core Data Model (CDM). We built this model to industry standards, relying on our extensive Medicaid and healthcare experience. The CDM is divided into subject areas like Claims, Provider and Member to facilitate and simplify model management and make it easy to understand from a logical perspective. The model is split into a series of fact and dimension tables, which mirror the data relationships that exist in the business. We configure them to help you easily answer your business questions.

The CDM provides an in-depth understanding of the data and relationships among key entities such as Claims, Member, Provider and other entities (e.g., MCOs) that is needed to support analysis of access to care, services delivery and payment, and health outcomes. The WV EDS data model will be seeded from the CDM asset. The relationships between these major subject areas and entities are inherent within the CDM.

Our data model is also represented within the Cognos Framework Manager solution which provides a semantic layer on top of the data that allows users to join/link data using drag and drop features and provide ease of use in query, reporting and analytics.

Figure 32 WV EDS Interoperability Layers Between the WV EDS and the IES ESB. *Our solution exchanges data via industry recognized, standard interface protocols for data exchanges.*



DD024	The solution should have the ability to receive and accept interfaces and exchange data with government agencies, data vendors, industry groups, providers, insurers, and health information exchanges as designated by the Department

We follow the standards defined by the Center for Medicaid & State Operations (CMSO) initiative for MITA and facilitate data sharing through open interfaces and exposed APIs. Using these standards makes the solution's technical architecture scalable, extensible, and modular. Because of this modular, MITA-aligned design, our solution can grow over time to meet the evolving needs of DHHR with minimal impact to the overall solution and other vendor modules.

Our WV EDS will exchange data using a variety of methods including an Enterprise Service Bus (ESB) as provided by the IES vendor. Our solution is built around the principles of an open, standards-driven Service Oriented Architecture (SOA), which decouples data from modules and applications -- providing shared access to quality data while maintaining a loosely coupled separation of services. This is achieved through publishing and exposing reliable, reusable services that easily integrate with an ESB. Our solution will support and seamlessly complement the IES ESB.

We extensively use REST APIs such as FHIR, other web services, and message brokering services to transfer data while keeping the underlying data structure invisible to other modules and applications. Data services accommodate data access and sharing through documented payloads defined in XML, and/or JSON. Moreover, the WV EDS components for data intake, data integration, data transformation and data quality are capable of consuming and publishing standard web services (SOAP, REST, etc.) and accepting and sending messages through message queues. As a result, our solution provides several secure methods for consuming, transmitting, or publishing data to the IES ESB.

Methods used by the WV EDS to publish data to the ESB include:

- Publishing web services that can be consumed by external applications using standard data formats such as XML and JSON;
- Communicating payloads through message brokering services provided by the IES ESB
- REST APIs; and
- SFTP for mass data transfer.

Our interoperable solution will acquire data through the IES ESB from a variety of source systems—both internal and external to the DHHR enterprise—using industry recognized standard interface protocols for data exchanges. This variety of methods for application interfaces and data exchange will support government agencies, data vendors, industry groups, providers, insurers, and health information exchanges that need to exchange data with the WV EDS, as designated by DHHR. We will work with DHHR to define these interfaces as they are required, using our Change Management process to evaluate the scope of development work required.

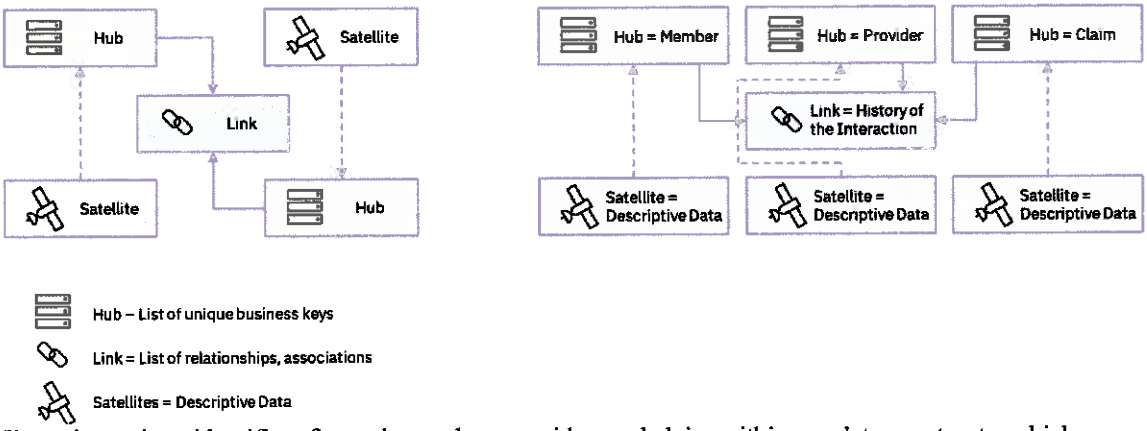
DD025	The solution should have the ability to assign a single unique identifier to all members, providers, and claims received from all data sources

The industry standard Data Vault (DV) methodology, a hybrid approach encompassing the best of breed capabilities of 3rd normal form (3NF) and star schema models, underpins the WV EDS data model design. The DV design provides the structure for the physical data model (PDM), a detail-oriented, historical tracking, and uniquely linked set of normalized tables that support multiple functional areas of business. DV focuses on data naming standards; referential integrity constraints; primary, foreign, and unique key constraints; precise definitions and comments; and thorough source-to-target mappings.

The DV methodology allows us to translate business needs into information marts with domain-specific data. The model is divided into subject areas like Claims, Provider, and Member to both facilitate model management and make it easier to understand from a logical perspective. Our approach calls for Data Marts organized in "facts" for metrics / measures and "dimensions" for attributes. The dimensions are hierarchical and conformed across the data warehouse, utilizing best practices in healthcare data.

Orienting the model on business keys provides the ability to integrate, connect, and access information in the same way that the business does in daily operations. The DV Model includes three core entity types; Hubs, Links, and Satellites, which draw power from their simplistic design and provide strength beyond historic Data Warehouse designs. By tying the model to business keys, your data set becomes directly tied to your business processes making it easier to find gaps between data collection and how business processes are perceived to be operating. When new data sources need to be added, new DV constructs can be added and then further linked to existing DV structures without any change to the existing data model. It is a truly flexible model designed to grow and scale with your organization.

Figure 33. Data Vault Constructs (Hubs, Links, and Satellites). *The Data Vault model defines linkages among member records, provider records, claim/encounter records for making the data usable and meaningful for reporting and decision making.*



We assign unique identifiers for each member, provider, and claim within our data constructs, which allows for detailed analysis of individual records and counts. Users will be able to report on unduplicated counts of unique members, recipients, and providers for a specified time period (e.g., a year) to assess participation and impact. Users can count services based on meaningful units like visits, admissions, days, scripts, and episodes to report on unduplicated counts of unique claims, members, and providers within a type of service and for a specified time period (e.g., a month or year). They will also be able to report on average members for a defined period to track enrollment trends and to calculate rates of utilization and payment per member per month or per year. The data are stored in a way that provides both flexibility and ease of use. Our WV EDS provides all of the building blocks for effective Medicaid program reporting and analysis

DD026	The solution should have the ability to automatically identify duplicative members, providers, and/or claims- related information received from a single or multiple source(s), and merge that information into a single record

Our data profiling and Extract-Transform-Load (ETL) capabilities in tandem with our business discussions with DHHR enable us to appropriately and consistently model, translate, de-code/encode, de-duplicate, cleanse, standardize, match/merge, normalize/de-normalize, and aggregate data for the WV EDS using authoritative sources of data records identified from our data profiling results and discussions in JAD sessions. Our solution has dozens of out-of-the-box transformations, including those for de-duplication. The application of these transformations ensures the de-duplication logic is consistent and avoids requirements for custom coding.

Master Data Management (MDM) is an area of functionality within the WV EDS that provides "golden" records for the core data entities, which are essential to the overall operation of the organization. Our WV EDS will receive the Master Client Index (MCI) and Master Provider Index (MPI) from the Master Data Management (MDM) solution provided by the IES vendor. We will use this identifier to identify each unique Client (Member) and Provider and will merge data from multiple sources into a single "golden record" in the WV EDS. This approach provides a firm foundation on which to build information related to Members, Providers, and other claims-related master entities, such as Facilities or Locations. A golden record will be established for the defined core entities that exist in the WV EDS based on guidelines established in collaboration with DHHR. We will receive the master identifiers for all core entities from the IES vendor identifying the master record for any claims-related information we receive.

DD027	The solution should have the ability to schedule interfaces and data exchanges

We understand the importance of automation and gaining operational efficiency across the WV EDS through scheduling of data exchanges between applications to support timely interfaces. Our WV EDS solution comes with a comprehensive scheduling functionality. From a tooling perspective, our solution utilizes IBM Infosphere Information Server (IIS) to provide data exchange, transformation, and management capability. Infosphere Information Server is a suite of data integration tools that share a common metadata repository and that provide the ability to manage, create, design, and schedule jobs that automate the ETL and data exchange processes. IIS facilitates modular connectivity, data movement and transformation logic development with maximum reusability of all constructs. IIS also supports SOA interoperability across application interfaces by utilizing exposed APIs and services to exchange data.

Our WV EDS solution also uses various methods to automate scheduling of data extracts depending on the complexity, interdependency, notification requirements, report requirements and output file type, of a data extract. All processes are well documented, and are actively supported throughout the life cycle of the project. Senders and recipients of data receive notifications either confirming that the extracts have successfully transmitted or with information as to why the extracts may have failed. A transmittal report specifies the content of the data, record counts of each table, carrier specific frequency counts, and any issues with the data.

DD028	The solution's interface processing should not adversely affect other activities, such as regular operations, other jobs, reporting, queries, analytics, research, and extract, transform, load (ETL)

As we develop the Interface Control Documents (ICD), DHHR and Watson Health will mutually agree on the timing of ingestion of each dataset into the WV EDS. Each data source will have a tailored data extract and migration plan to ensure the data content is migrated completely and accurately to the WV EDS. The individual data source strategies will accommodate the current technical climate of each supplier, and the requirements for the data content they contain. The strategy and plans will be flexible to accommodate the timeline and requirements for each data source extract and migration so as not to disrupt source system operations. We time/schedule our interfaces/exchanges to be during off-peak hours or outside of critical reporting/analytic database operations. Protecting and minimizing disruption to source system operations and reporting will be a focus during all phases of ETL processing.

Based on the latency requirements defined in the ICD, some datasets will be loaded via batch processes and some via real-time interfaces. As part of our ETL requirements and design activities, we analyze each data exchange to determine the best approach and timing. Data will be loaded from source systems in one of the following ways:

- **Publish/Subscribe**: For web service sources, a business event or transaction triggers the publishing of a message in the source system with its associated information published to a queue. The data acquisition service subscribes to this queue so it can acquire the messages/information posted. The service then transports the data to the WV EDS for further ETL processing.
- **Data Extract**: For flat file sources (including some XML files) and limited smaller database sources, we will receive data directly from the source supplier at a configured interval so as not to interrupt normal operations. The source supplier provides the files to the WV EDS via Managed File Transfer (MFT) for loading into the data warehouse Data Staging area and for further downstream cleansing, conforming, and standardizing.

DD029	The solution should have the ability to validate that all files meet the extract, transform, load (ETL) edit standards prior to entering the production database, such that any files or content failing to meet standards are returned to the originator and flagged for review

We understand the need to validate and standardize the data used for analysis across all systems and agencies sending data to the WV EDS. In order to achieve this, our Data Integration engineers will work

closely with the established DHHR Data Governance board/committee to ensure data standards, business rules, and policies are applied prior to the data entering the production database.

Our processes include analytic validity checks that are focused specifically on healthcare quality business rules. Our data quality testing is based on more than 35 years of experience transforming data for use in complex healthcare analytics. While some solutions check quality by simply verifying counts, sums, and looking for blanks, our data quality checks utilize over 350 rules, such as the validation of codes against your healthcare reference data, to provide an analytically ready set of data. From data acquisition to ETL, and then finally to destination, data quality checks verify that data received is as expected, complete, and accurate.

The WV EDS will apply ETL edit standards to all data files that enter the WV EDS for processing into the production database. IBM Infosphere DataStage and QualityStage are the data integration and data quality components, respectively, of IBM InfoSphere Information Server (IIS). IIS provides a graphical framework for developing the jobs that move data from source systems to target systems.

In DataStage and QualityStage, data transformation capabilities are exposed as "transformation stages" on a palette in the GUI design interface and are used on all types of data. These transformation stages define the processing logic that moves the data from inputs to outputs. The transformation stages manipulate the data with pre-built, reusable transformation logic. They make it easier to accommodate new sources and manipulate data quickly and consistently. Organized into general functional categories, the transformations solve common and complex data challenges that integration projects must handle when moving data between external systems and applications. DataStage and QualityStage enable a single approach to access, cleanse, transform, and deliver data without resorting to hand coding.

Our data quality practices are instilled with feedback loops to ensure that reconciliation of data happens as it is loaded, well before it reaches the end users. Quality statistics are tracked on all data entering the WV EDS. Data stewards use these statistics to identify opportunities to fix the data at the source. As the data enters the WV EDS any records that cannot be repaired automatically are queued up and submitted to the data stewards for assessment and correction. A feedback loop will be established with the data suppliers so they can remain informed of the quality of the data they are providing. Files and associated records failing to meet standards will be returned to the original data supplier and flagged for review.

DD030	The solution interface design and Interface Control Document should be extensible, scalable, and adjustable to work with business and technology changes

Interface Design

Watson Health has been delivering healthcare analytics for a long time, over which time we have been involved with many changes as to how healthcare data is captured. Healthcare terminology, code sets (e.g., ICD9, ICD10, LOINC, SNOMED), data formats (e.g., EDI, X12, HL7, FHIR), and data standards have evolved over this time. Our solution adjusts and accommodates any emerging interoperability standards as they evolve.

Our InfoSphere Information Server and Transformation Extender Pack for Healthcare integration products are capable of interfacing directly with available services provided through an ESB using standard web service protocols (SOAP, REST, etc.) as well as publish/subscribe methods with message queues. In addition, for transferring of files, we will configure our SFTP server to push and pull data from our Managed File Transfer (MFT) solution, MOVEit. The MOVEit MFT utility enables end-to-end, enterprise data delivery, tracking and reporting with simple deployment and ease of use to streamline the file transfer lifecycle. It secures, monitors, and reports on data files transferred through multiple protocols with complete visibility into the file transfer cycle.

Our WV EDS solution will acquire and share data from a variety of source systems through the IES vendor ESB and any other technology or services, as required. Our solution will interface with the ESB via web

services that accommodate data access and sharing from any of the supported interfaces, including HL7, X12, SOAP, REST, SFTP, and message queues. We will receive MMIS data from published web services or direct consumption methods in any form or fashion required, proprietary or standards based.

We follow the standards defined by the Center for Medicaid & State Operations (CMSO) initiative for MITA and facilitate data sharing through open interfaces and exposed APIs. Using these standards makes the solution's technical architecture scalable, extensible, and modular. Because of this modular, MITA-aligned design, our solution can grow over time to meet the evolving needs of DHHR with minimal impact to the overall solution and other vendor modules.

Interface Control Documents (ICDs)

Watson Health will work with each data source supplier to establish a formal data exchange/interface agreement, as well as a document describing the data to be exchanged with that source system. This information is captured in an Interface Control Document (ICD), which will adhere to the CMS ICD standards. The ICD identifies the rules required for developing and maintaining the interface or exchange with the data source, including all possible inputs and outputs, and how the interfaces are maintained.

The ICD outlines the data received from or sent to each supplier. It fully describes the process by which we receive the data, the high-level subject area mapping between each data supplier and the WV EDS, and the full list of source files available when we first receive the data. It will conform to CMS and WV standards to ensure the quality of the resulting information. The ICD establishes the expectations of all parties regarding data sharing and clarifies the inputs and outputs of the interface or data exchange.

Figure 34. Sample excerpt of an Interface Control Document (ICD) spreadsheet workbook. *The ICD is defined in a spreadsheet workbook so that it is easily modifiable, extensible and adaptable to additions/changes to interface details over time.*

Database Interface Characteristics	
Protocol:	
If Protocol is *Other*, please identify:	
Client Database and Version:	
Client Database Name:	
Client Database Details:	
Server Database and Version:	
Server Database Name:	
Server Database Details:	
SQL Variant:	
If *Other*, please explain:	
Stored Procedures:	
If Yes, please list:	
Security/Encryption	
File-level Security:	
Data Encryption Security:	
If *Other*, please explain:	
Payload Encryption:	
Authentication:	
Identity Management:	
Interface Processing Characteristics	
Logging Required:	
Delivery Confirmation:	
If *Other*, please explain:	
Error Handling, Record Correction, Logging, and Resubmission:	
Fatal Error Notification:	

Watson Health fully documents all interfaces within ICDs to support smooth implementation and on-going operations. In the process of creating the ICD for a specific data source, we establish the planned update frequency for that specific data interface as part of ongoing operations. We maintain an ICD for each data source and document the interface changes throughout the data life cycle.

We will use the CMS ICD template as an overall plan to describe our approach to interface control. We recommend that the detailed interface descriptions be provided in an Excel-based ICD workbook, with each interface having its own tab. The benefit of this

approach is that when we add, modify, or remove an interface, we only need to update a single document. The Excel template is also easily modifiable and extensible; it can be changed as business or technology changes affect the interface definition over time.

DD031	The solution should have the ability to incorporate new data sources and changes to existing data sources as part of routine maintenance

We will maintain the data interfaces and exchanges with the source systems currently available in the existing WV DW/DSS (i.e., MMIS, PEIA and WV HSC) as part of ongoing maintenance of the WV EDS. We will accommodate changes to these interfaces but recommend that they go through the Change Management process and are scheduled as part of routine maintenance. Managing these changes using an established process will help project staff assess the impact of any changes and prioritize them against other WV EDS updates. By ensuring the successful implementation and testing of changes, project staff members are able to make well-informed choices about updates to the system.

We will manage changes to other established data sources or new data sources incorporated in the future using the same process. New data sources will also be accommodated via Change Requests (CR) as defined by our Change Management process.

DD032	The solution should have the ability to ensure the data conversion and extract, transform, load (ETL) processes adhere to the standards and guidelines of the Health Insurance Portability and Accountability Act (HIPAA), Centers for Medicare & Medicaid Services (CMS), Medicaid Information Technology Architecture (MITA), National Institute of Standards and Technology (NIST), and other government and industry standards guiding secure, consistent, accurate, and efficient data exchange

Compliance with CMS and MITA Guidelines

Our solution, skills and applied experience for the conversion and migration of data from legacy to modern MES systems have been tried, tested and proven successful in multiple state engagements. We have helped transition state agencies from legacy enterprise IT systems to modern, interoperable and efficient implementations using new tools, technologies, and approaches. Our solution is built in alignment with the MITA 3.0 principles and the 7 Standards and Conditions with integrated data transformations and efficient reuse of processes to promote accuracy and efficiency in data conversion and migrations from data sources across the enterprise.

Our solution is built around the principles of an open, standards-based Service Oriented Architecture (SOA), enabling DHHR to share access to data across the enterprise. We will follow the Center for Medicaid & State Operations (CMSO) initiative for MITA to encourage integrated data transformation across the enterprise and improve Medicaid administration. Using these standards promotes the presence of open interfaces and exposed APIs.

Compliance with HIPAA and NIST Security Standards

Our ETL tooling will provide the data movement, conversion, and transformation capability. The data migration jobs translate business rules into generated code for implementation. Our solution performs the data manipulation and calculations required within the data transformation process. A key component of our solution, the IBM Transformation Extender for Healthcare, allows us to easily receive and integrate message formats such as EDI, HL7, X12, NCPDP, and HIPAA, supporting both ICD-9 and ICD-10 codes.

Our Watson Health Chief Information Security Officer (CISO), Corporate Security Officer (CSO) and Security Management team are responsible for making sure our systems maintain compliance with HIPAA and NIST 800-53 rev4 standards. Our processes comply with HIPAA, ensuring that member/patient personally identifiable information (PII) must be anonymized before being exposed in a data service and/or all services must authenticate the requester before processing a request.

We strictly adhere to formalized security and privacy procedures that comport with all applicable laws and standards, including HIPAA and NIST, and the encryption of electronic protected health information (ePHI) in transit and at rest. We will also comply with DHHR policies and procedures that govern the receipt and removal of hardware or electronic media containing ePHI.

Watson Health implements and maintains controls based on the current revision of the NIST SP 800-53 framework (currently rev. 4) for all of the data warehouse systems we implement.

Test Data De-identification

Watson Health understands the requirement to protect WV data in testing environments. We perform testing using de-identified data, so developers and testers typically aren't working with PHI and other identifiable data. We create de-identified test data using the IBM Optim Test Data Management tool. As the system is developed, all test data is loaded and de-identified in the Staging layer; de- identification follows the test data through the different layers.

Role-based Access Control (RBAC)

Watson Health will work with DHHR to develop a security matrix of users, applications, and data to keep your data secure and accessible based on business need, authorization, and data classification categories. Using controls such as authentication, authorization, encryption, and role-based access control (RBAC), we will implement the policies defined by DHHR for data security. Comprehensive role-based access control (RBAC) will be implemented to confirm only those with proper authorization have access to the masked or unmasked data. When accessing data in the WV EDS, security views associated with the user's role are applied. Watson Health staff users are only authorized to view or work with data if required by their work activities, such as for ETL and data conversion testing.

Data Encryption

To ensure the confidentiality of your data, we securely encrypt all data, both at-rest and in-transit. All data transmissions both inbound and outbound (data extracts and reports) are restricted to only use secure transport protocols including Secure File Transfer Protocol (SFTP) using Secure Shell (SSH) encryption for push or pull transfers, or HTTP Secure (HTTPS) using an encrypted SSL channel to push or pull data.

Compliance with HIPAA for Secure Data Exchange

Our data management best practices enforce secure data exchange through a single and controlled point of entry of file transfer. Our solution supports both inbound and outbound data transfer through the MOVEit Managed File Transfer (MFT) utility. MOVEit enables managed file transfer of large amounts of data, securely and in compliance with HIPAA. It uses secure transport protocols including Secure File Transfer Protocol (SFTP) using Secure Shell (SSH) encryption for push or pull transfers, or HTTP Secure (HTTPS) using an encrypted SSL channel to push or pull data. No sensitive information that is transmitted can be improperly modified without detection, and we apply strict data access controls governed by the "need to know" and "minimum necessary" principles required by law.

We are committed to implementing, configuring, and supporting DHHR so it fully complies with all federal (e.g., HIPAA, HITECH, ARRA) and state laws, rules, and regulations. Our Compliance and Security Manager will work with the Agency's technologists to ensure the system complies with the rules, regulations, standards, and system security plan templates as they apply to DHHR. We take confidentiality and security very seriously, and historically have taken steps beyond HIPAA to prevent security compromises.

DD033	The Vendor should coordinate with the Department and maintain a schedule that documents when data is expected, when it is received, when it is processed by extract, transform, load (ETL), and when it is loaded to the data warehouse tables and database objects

We will schedule our ETL processing according to DHHR direction and scheduling criteria. We will work with DHHR, and third-party data suppliers, to define the optimal schedule and approach for extracting, exporting, and loading data from the source systems to the WV EDS. Senders and recipients of data receive notifications to confirm that the extracts have successfully transmitted or with information as to why the extracts may have failed. A transmittal report specifies the content of the data, record counts of each table, carrier specific frequency counts, and any issues with the data.

Data in our WV EDS solution progresses from source system transaction level data to analytically unified and aggregated information. As data moves from one layer to the next, it moves through different physical data layers with various degrees of integration, conformity, and enhancement. Our processes will document when data feeds are complete at each phase of the process, from receipt, to initial load to Data Staging, through ETL into the Integrated Data Store and into the Data Marts. Our process for receiving and processing data is fully automated and includes checkpoints for evaluating and documenting the progress of all data processing steps along the way.

In addition, we apply a series of proven, automated data quality checks at each stage of the data management process -- after intake, data load, transformation, integration and enhancement, and aggregation. The checks include such advanced data quality analysis as rate-based calculations across file types with trending and comparison to external benchmarks, and validity checks on the output from enhancements such as episodes and quality measures. We thoroughly document methods for all data quality checks performed against the data to provide full transparency in working with DHHR data stewards and other data suppliers to understand and resolve data issues. We produce data quality reports specific to each phase of the process and make these available for DHHR review, storing them in the project documentation repository. From source data extract through transformations, aggregations and destinations along the way, data quality checks verify that data received is as expected, complete, and accurate.

Customer Example

For one of our larger state customers, we developed a highly efficient data receipt, data load, and data reconciliation process. The majority of the inbound data feeds are automatically loaded and reconciled through the MOVEit (MFT) and ETL processes. Once the files are ingested by MOVEit, a trigger file is created, which executes the ETL job. Upon successful completion of the ETL job, an automated email is sent to both internal and external users, containing a source to target reconciliation spreadsheet. The data load process is mostly automated (assuming no MFT or ETL failures are encountered).

DD034	The Vendor should ensure the solution components that are web based have cross-browser compatibility over the life of the contract and support software utilization in the current version and two (2) prior versions at a minimum for the following browsers including, but not limited to
DD035	Microsoft
DD036	Apple products
DD037	Google Chrome
DD038	Firefox
DD039	Internet Explorer (IE 7 or greater)
DD040	~~Other browsers as requested by the Department~~ (Requirement deleted per Q&A)

The WV EDS is a software-as-a-service solution deployment model; it supports all major web browsers and their most stable current version. In addition, in an effort to provide backwards compatibility, we will support up to two previous versions per each supported browser. The table below provides the web-based components of the solution, supported browsers, and versions that are required by the client systems.

Table 23. WV EDS Applications and Supported Browsers

Application	Supported Software
Cognos Analytics	Apple Safari v9 and future fix packs Apple Safari on iOS 10.x and future fix packs Google Chrome (latest release) and future fix packs Microsoft Internet Explorer 11 and future fix packs
InfoSphere Information Server	Google Chrome (latest release) and future versions Microsoft Internet Explorer 10 or later Mozilla Firefox ESR 31 and future fix packs
IBM Cloud Pak for Data	Mozilla Firefox (recommended) version 54 or higher Google Chrome version 60 or higher
ESRI ArcGIS	Internet Explorer (version 11 or later) Edge Firefox (version 10 or later) Chrome (version 10 or later) macOS Safari iOS Safari (tablets only)

DD041	The solution should support non-linear "undo" ability to ensure any action performed at any time in a single work session within a given component can be reverted to a former state.

WV EDS solution supports undo and redo across its applications. However, it may be restricted under certain circumstances, such as:

- Changing to a different client where collection of actions ends
- Transaction logging is turned off
- When an undo/redo action may affect multiple views and calculated fields. Sometimes such actions may cause cascading effect across non-active screens causing severe issues with performance.
- When an undo/redo may compromise the integrity of a process or data
- When a session of work is saved or discarded in its entirety

DD042	The solution should have the ability to support Windows-based or similar shortcuts including, but not limited to:
DD043	Ctrl+c for copy
DD044	Ctrl+v for paste
DD045	Ctrl+z for undo

Our WV EDS applications that are rendered through Windows-based clients support shortcuts for (but not limited to) copy, paste and undo. However, these shortcuts may be restricted under certain circumstances such as:

- Changing to a different client where collection of actions ends
- Transaction logging is turned off

- When a shortcut action may affect multiple views and calculated fields. Sometimes such actions may cause cascading effect across non-active screens causing severe issues with performance.
- When a shortcut action may compromise the integrity of a process or data
- When a session of work is saved or discarded in its entirety

DD046	The solution should provide electronic audit trails for every interface file input when received, when processed by extract, transform, load (ETL), and when loaded to table(s)

Our WV EDS data ingest processes are automated, well documented, and actively supported throughout the life cycle of the project. Our processes will document when data feeds are complete at each phase of the process - from receipt to initial load, to Data Staging through ETL, into the Integrated Data Store, and into the Data Marts. Our process for receiving and processing data is fully automated and includes checkpoints for evaluating and documenting the progress of all data processing steps along the way. Senders and recipients of data receive notifications either confirming that the extracts have successfully transmitted or with information as to why the extracts may have failed. A transmittal report specifies the content of the data, record counts of each table, carrier specific frequency counts, and any issues with the data.

Additionally, our ETL component, InfoSphere Information Server (IIS), maintains its own operational logs of the ETL processes it executes. These logs serve several purposes. We use them to monitor the ETL processes in real time, so developers and ETL administrators can track the success or failure of individual data integration routines. We also use them to restart an ETL process that initially failed to execute. This enables an ETL administrator to start the process where it left off rather than from scratch. Since these logs keep track of what is happening when and to which data, they are useful when debugging complex ETL routines. Finally, we use them to audit the ETL process, serving as a record of the kinds of transformations performed against the data.

DD047	The solution should have the ability to revert to a previous version when an implemented change causes an undesirable solution impact, within a timeframe determined by the Department

Solution-related database backups are performed and can be used for local, operational recovery, for issues such as damaged data, accidental deletions or various errors. Should these situations occur, we can use backups to restore the WV EDS database and rollforward to a specified point-in-time prior to when the invalid change to the data occurred. The database rollforward activity is performed while maintaining full transactional integrity to ensure the data remains accurate and consistent as of the point-in-time to which the database is recovered. We will work with DHHR to design our processes and procedures to recover the database to a prior point-in-time within a timeframe determined by DHHR.

In addition, the data extracts we receive will be maintained in their original transferred form for an Agency agreed retention timeframe. These extract files will serve as the "Pre-ETL" copies of source data as of a point-in-time and will be used to verify that the transformations were valid and the ETL processing was successful. These files can also be used to reload the WV EDS from previous point-in-time copies of the source data if needed.

DD048	The solution should have the ability to associate clinical data with the claim record

The WV EDS links clinical data such as diagnostic information and claims attachment documents to the claim record. The system is capable of storing an indicator that a claim attachment (like a CT scan) exists, if the indicator is passed in the MMIS claim extract. Our solution can interface with the WV designated Health Information Exchange (HIE), Health Information Network (HIN), to receive clinical data in HL7, CCD or FHIR format.

We link clinical data to the claim data based on member identifiers that are created during the build process. We will use the IES vendor-provided Master Client Index (MCI) to associate the clinical and claims data around an individual member. A particular strength of our build process is the careful integration of data, even when captured from different sources and formats.

Our data integration techniques have been refined over decades, as we have built hundreds of complex healthcare analytic databases. Medical claims and clinical data are loaded and mapped to data models, transformed via business rules, and stored in our Integrated Data Store and Data Marts. Clinical and claims data is stored in respective data stores allowing unified queries to retrieve data from both sources for a complete view of the member.

In addition to associating the clinical data with the claim record, our solution enhances the source data by assigning disease stages and creating episodes of care using proven, clinically derived methodologies. Using the episode group as the unit of analysis, analysts can perform comprehensive profiling of physicians and other providers. Episodes also give you the ability to evaluate chronic disease management programs and analyze services delivered to a patient for treating or preventing health problems.

DD049	The solution should have the ability to view activities during integration such as job schedules, job times and load processing

InfoSphere Information Server (IIS) provides an Operations Console that allows operators to monitor the live runtime environment. The Operations Console shows which jobs are running, how the jobs are performing, and how the system resources are being utilized. The console also provides dashboards for alerts of job failures or excessively long running tasks, and provides the ability to stop and restart jobs as needed.

The Information Server Operations Console provides engine-wide information about job runs, system resources, workload management queues, and engine status. We use the console to monitor the ETL processes in real time, to track the success or failure of individual data integration routines, and to monitor performance and elapsed time of the job runs. We also use the information in these panels to identify service errors, failed jobs, and performance issues. Every ETL job is monitored, and alerts sent to administrators for immediate attention. Automated procedures resolve issues, like the recovery of failed jobs, using self-healing and automatic recovery techniques when possible. The Operations Console allows users to access information about jobs, job activity, system resources, and workload management queues for a real-time, detailed perspective on what is happening during data integration activities.

DD050	The solution should have the ability to store and analyze semi-structured and unstructured data, such as case notes

The WV EDS solution promotes reusable components and modularity, supports interoperability, integration, and an open architecture for integrating clinical and administrative data, with both traditional and new types and formats of data like case notes, EHRs, JSON, XML, and other documents in unstructured and semi-structured data formats. In addition, our solution includes the IBM Watson Studio component which offers Natural Language Processing (NLP) analytics capabilities for analyzing case notes, audio recordings of doctors' notes, etc.

In addition, Watson Annotator Service for Clinical Data is a cognitive service designed to allow organizations to unlock critical information in unstructured data. This unstructured data can include physician notes, discharge summaries, and pathology reports, using NLP to deliver domain-specific insights about information, such as symptoms, disease, allergies, and medication, to help drive insights for care.

These analytic techniques applied to unstructured text data will help DHHR recognize and extract the intent, context and meaning from case notes, lab notes and other free form text.

DD051	The solution should have the ability to analyze and report on data integration audit logs

Our solution's extract, transform, load (ETL) component, InfoSphere Information Server, maintains its own operational logs of the ETL processes it executes. InfoSphere Information Server captures operational metadata about the success or failure of the ETL jobs and transformations and stores them in its metadata repository. The operational metadata can be used to audit the ETL process and the transformations performed against the records. Operational metadata are captured and can be used to audit information such as how many records an ETL job processed and how long the job took to complete. These metadata may be viewed and investigated as necessary in the IBM InfoSphere Information Governance Catalog (IGC), our solution's metadata management tool, via metadata queries or reports. The metadata repository, the reporting interface, and the operational metadata themselves combine to allow users full visibility and audit capabilities on the data integration process and activities of the WV EDS.

DD052	The solution should define a hierarchy to resolve conflicts between the same data elements from different sources

Data profiling results are an important factor in determining how to manage conversion of data and perform the data migration. We review and discuss the results of our data profiling with DHHR to determine the most appropriate transformation and conversion strategies. Our data profiling activities include comparing analogous values across data sources. Understanding how similar elements are populated across data sources informs decisions about which records should be used as primary or secondary sources. For example, if multiple data sources provide date of death, one source may be 85 percent populated and another only 15 percent populated. Or perhaps the best quality data are populated before a specific date in one source and after a transition date on a different source. This information informs DHHR as to what business rules should be applied in the data conversion logic to determine the source or hierarchy of sources for a date-of-death field.

We work closely with business and technical subject matter experts to define a hierarchy of data sources, coupled with business rules to resolve data element conflicts across data sources. The resulting process ensures that the right decisions are made in referencing, defining, maintaining, and changing any data, including identifying authoritative sources of data and "golden" records. Our goal is to ensure that the highest data quality is attained by using the most reliable and accurate sources of data for the WV EDS.

DD053	The solution should have the ability to accept data in a variety of formats from different sources and standardize

Source data come from transactional, registry, commercial off-the-shelf (COTS), custom, internal, and external systems. They come from technologically disparate systems, each presenting different challenges in retrieving, translating, and storing the data accurately, accessibly, and in a historically meaningful context.

At Watson Health, our vast experience with Medicaid data conversions establishes our expertise in understanding of the types of data that DHHR must convert, including how to perform the appropriate retrieval, mapping, transformation, and loading of Medicaid data into the WV EDS. We understand and acknowledge the challenges involved in migrating historical data from source data systems into a new data store that has different structures and relationships.

Based on our data profiling analysis and business discussions, our proposed solution enables us to appropriately and consistently model, translate, decode and encode, deduplicate, cleanse, standardize, match/merge, normalize/denormalize, and aggregate source data into the WV EDS using authoritative sources of data records. These authoritative sources are identified from our data profiling activities and from directives from DHHR.

Maintaining the integrity of historical data is a critical underpinning of meaningful analytic solutions. Conforming to a data model specifically designed for reporting and analytics will provide the most analytically flexible solution to DHHR. At Watson Health, our experience brings familiarity with the Medicaid data elements, including the types of potential data issues that we have seen in the past. Appropriate data elements are mapped into the most relevant data elements within the data model of the new solution with appropriate transformations defined to meet DHHR requirements. We apply our prior knowledge when profiling the data for specific data quality conditions, mapping the source data elements to the data model, developing the logic for conversion of the data, and migrating, converting, and standardizing the variety of data formats and structures found in state Medicaid data as they are loaded into the WV EDS.

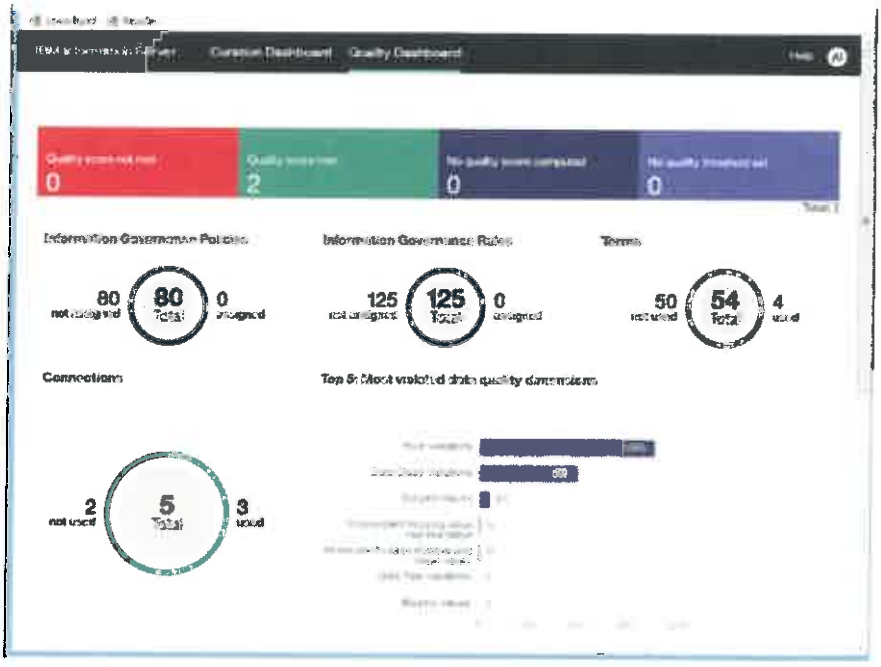
DD054	The solution should have the ability to identify, correct, and report data quality/defect issues.

Data Profiling

During data profiling, we work with DHHR to explore, validate, and resolve any data quality issues. We spend time familiarizing ourselves with the data relationships and content and start conceptualizing how the data are to be modeled and how they relate to other content.

Our approach to data quality begins with establishing quality thresholds and variances during requirements sessions and then applying the quality logic in the data profiling tool to scrutinize the data, checking for completeness, reasonableness, accuracy, and duplication. InfoSphere Information Analyzer, our data profiling tool, is driven by automated Data Rules with defined thresholds and variances to easily gauge the quality of the data. It allows users to set thresholds on key data values, run an automated data profiling analysis, and study variances in data columns based on these values. The data profiling process allows value and format checks as well as data/code value checks. By applying data profiling before the data are loaded into the WV EDS, data quality exceptions can be captured and the source system of the data quality issue notified before the data exception enters the WV EDS.

Figure 35. InfoSphere Information Analyzer Data Profiling Dashboard. *Showing data rule and data class violations.*



Data Quality/Integration Processing

As quality rules and thresholds on key data values are established during requirements sessions, we apply the quality logic to scrutinize the data. The thresholds define what are considered violations for the dataset. Data profiling studies variances in data columns on these values.

Quality conditions and statistics are continually tracked on all data received from the various sources so that acceptable quality is maintained. Within our data integration processing, we incorporate quality checks specifically to confirm the accuracy of the data using Data Rules (e.g., a male cannot give birth or an admit date cannot be greater than the discharge date.) We can also apply specific business rules to correct the data for known exceptions, as directed by DHHR. We identify, correct (if appropriate), and report on Data Rule violations or data exceptions during data profiling and during data integration processing.

DD055	The solution's development environment should have the capacity to support all components of the solution

Our WV EDS platform takes advantage of the operational efficiencies and virtually unlimited scalability of cloud-based hosting technology. Our solution runs on a virtual computing Infrastructure-as-a-Service. During design, development, and implementation (DDI), our Project Management team works with DHHR to plan out each installation component. Watson Health manages the procurement, installation, and configuration of each component and is responsible for maintaining the environment and its upgrades throughout the life of the project.

The development team uses the Development environment primarily for development and unit testing activities. It is built on the same highly scalable hardware infrastructure as all other environments, designed with our choice of servers, storage, database, and networking, in addition to the software components that reside on this infrastructure. All layers of the WV EDS are designed with performance, scalability, and redundancy in mind, while also allowing for low-impact changes and expansion if requirements change.

To manage a shared resource environment, we size the amount of computing power to support multiple concurrent users, leveraging a clustered architecture that is designed for high throughput of analytic workloads. Sufficient storage for all data is made available within the storage tier using Tier 1 storage. Disk space allotments per user or environment are adjustable and can be sized according to DHHR's requirements. Our WV EDS platform and architecture allow for flexibility and elasticity to deliver the necessary capacity for all components of the solution, in both production and development environments.

DD056	The solution's environments should have the ability to handle scheduled or on-demand requests to refresh data with a referentially intact subset of data

Our WV EDS uses the InfoSphere Optim Test Data Management tool to manage data refreshes in nonproduction environments. Referentially intact production data subsets are extracted and used to populate the corresponding nonproduction environments. By managing data at the business object level, InfoSphere Optim Test Data Management preserves both the relational integrity of the data and their original business context across related physical tables. Business objects can be pulled from a single database or from several related applications and databases. This "federated" extract capability makes it easy to create production-like environments with data that can accurately reflect end-to-end test cases.

In addition, the InfoSphere Optim Data Privacy component offers extensive capabilities to effectively mask sensitive data across nonproduction environments, providing a variety of transformation techniques that substitute sensitive information with realistic, fully functional masked data. Examples of the masking techniques include substrings, arithmetic expressions, random or sequential number generation, date aging, and concatenation. The contextually accurate masking capabilities help masked data maintain the original nature of the unmasked data, adhering to edit criteria on the data element and preserving

referential integrity as well. For example, if a masked data element, such as a telephone number, is a primary or foreign key in a database table relationship, then this newly masked data value must be propagated to all related tables in the database or across data sources. If the data are a portion of another row's data, that row must be updated with the same data as well. These capabilities enable us to maintain referential data integrity even after anonymization has occurred.

We address both scheduled and on-demand requests to refresh nonproduction data environments from production data subsets using the capabilities of the tool described above to deliver a referentially intact and anonymized dataset, as required by DHHR.

DD057	The solution should have a production environment that is used to deploy the solution

Our WV EDS solution runs on a virtual computing Infrastructure-ass-a-Service with the security and authorized controls necessary for government cloud deployments. The platform features a sophisticated, private cloud-based infrastructure built on a combination of powerful clusters and virtual machines that serve clearly defined functions. Our private cloud architecture provides DHHR with all of the benefits of a public cloud—including scalability and elasticity—with full control and customization available from dedicated resources over a computing infrastructure hosted in our data centers. The WV EDS production environment is to be hosted in our Dallas, Texas, data center.

We provide DHHR with a defined production WV EDS environment inclusive of all production source system data identified, defined, and designated for inclusion in the WV EDS. Each data source has a tailored migration plan to ensure that the data content is migrated completely to the production data store.

DD058	The solution's production environment should have the ability to support all components of the solution

Our WV EDS platform takes advantage of the operational efficiencies and virtually unlimited scalability of cloud-based hosting technology. Our solution runs on a virtual computing Infrastructure-as-a-Service. The WV EDS production environment is built on a highly scalable hardware infrastructure, designed with our choice of servers, storage, database, and networking, in addition to the software components that reside on this infrastructure. All layers of the WV EDS are designed with performance, scalability, and redundancy in mind, while also allowing for low-impact changes and expansion if requirements change.

To manage a shared resource environment, we sized the amount of computing power to support multiple concurrent users, leveraging a clustered architecture that is designed for high throughput of analytics workloads. Sufficient storage for all data is made available within the storage tier using Tier 1 storage.

We procure, install, configure, host, operate and maintain all system infrastructure (environments, interfaces, and tools) and maintain all necessary end user software, ensuring that version consistency is maintained across all system components in all environments with our team delivering support. Software upgrades and licenses are maintained for all environments. Our WV EDS platform and architecture allow for flexibility and elasticity to deliver the necessary capacity for all components of the solution in the production environment.

DD059	The solution should contain a data access component that serves as a central access point for authorized solution users

The IBM Cloud Identity-as-a-Service component serves as the single online portal to all the available applications within our WV EDS. When accessing WV EDS, users provide their unique account and password, along with a unique two-factor code to validate their identity. Cloud Identity-as-a-Service validates location and authorized role before granting access to any WV EDS assets. Our solution provides single sign-on access to all the web-based tools in our WV EDS solution, including IBM Cognos Analytics and IBM Watson Studio. Via this central access portal, users have ready access to the business intelligence (BI) tools in our solution. The Cloud Identity-as-a-Service serves as the central access point

for user reporting and can be expanded to include any new applications or tools that DHHR may choose to add in the future.

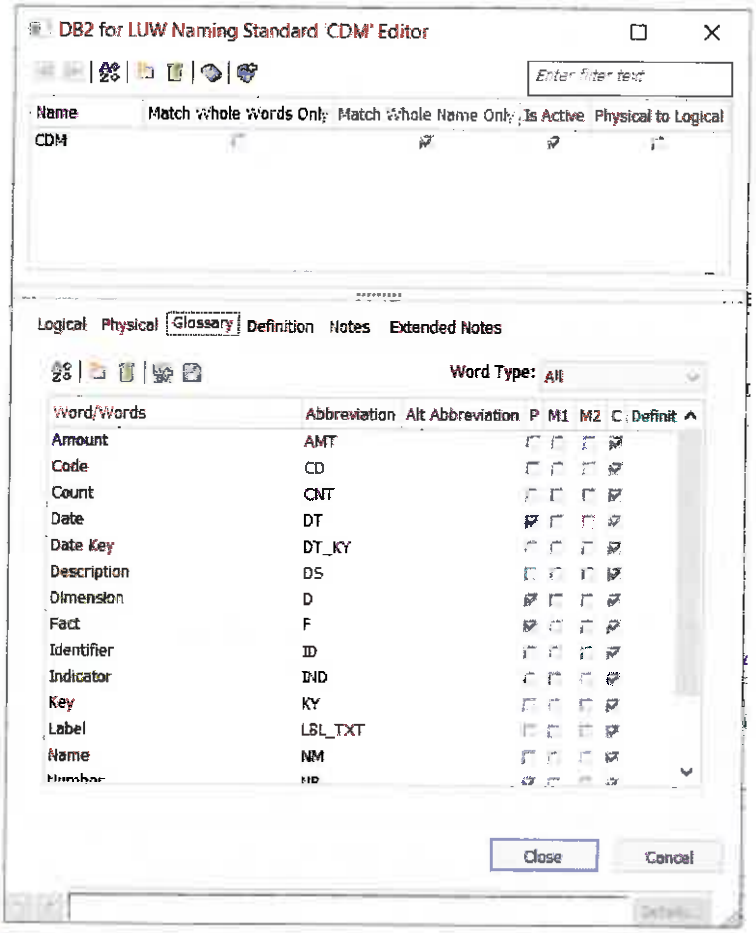
DD060	The solution's data model component should be maintained in an open systems modeling tool that can generate reports

We use the industry-leading, open systems modeling tool ERwin Data Modeler to develop and maintain our data models and other metadata about the data structures. ERwin enables visualization and manipulation of complex data structures, streamlining the design process and supporting synchronization of the model with the database design. ERwin has been the market leader in data modeling and is well supported with extensive documentation and online help. It can manage any type of structured or unstructured data from any type of relational database or data warehouse, on premises or in the cloud. ERwin's reporting tool allows a data modeler to generate a wide variety of reports on the most recent data model with easy viewing options. These reports can be used to describe and share the model with others, including business users, in a variety of easy-to-analyze, visually appealing formats.

DD061	The solution's data model component should be maintained in an open systems modeling tool that can enforce object-naming standards

ERwin Data Modeler supports naming standards so that names of all data model objects and metadata are assigned and used correctly and consistently. ERwin provides a Naming Standard Model (NSM) Option Editor tool to create naming standards and to develop a glossary that contains glossary words, their abbreviations, and alternate abbreviations. Each NSM Option object includes the naming standards for logical and physical model objects, as well as the glossary. We can apply the naming standards defined in the NSM Option objects to a model. The components of logical and physical model object names are prime, modifier, or class. The user can specify the prime, modifier, or class naming components for entities, tables, attributes, columns, and domains in the order they should appear in the name. Naming standards for physical names can be different from the naming standards for logical names. A Naming Standards Compliance tool can be run to check the model to verify that the naming standards are applied properly, which provides a means of naming standards enforcement.

Figure 36. ERwin Data Modeler Naming Standard Model Option Editor. *Defines naming standards for glossary words, their abbreviations, and alternate abbreviations.*



DD062	The solution's data model component should be maintained in an open systems modeling tool that can import and export metadata

ERwin Data Modeler can transfer model data to other applications using the following methods:

- Use the Metadata Integration wizard to import and export a wide variety of models generated by other sources.
- Use the Extensible Markup Language (XML) file format to exchange entity and attribute names with applications that support this file format.

ERwin can also load a wide variety of models and metadata generated by other sources into a data model. Metadata integration technology is embedded within ERwin Data Modeler to provide integration capabilities with about a hundred industry-leading metadata products in the form of a wizard.

DD063	The solution's data model component should be maintained in an open systems modeling tool that can provide version control of logical and physical data models

ERwin Data Modeler provides change management and version control capabilities for all data models, logical and physical, through a centralized model management repository. Users can store, access, and

analyze the history of changes made to a model, lock down specific versions, run difference reports between versions, and seamlessly roll back models to previous states as required.

DD064	The solution's data model component should be maintained in an open systems modeling tool that can provide forward-engineering abilities

ERwin Data Modeler has forward engineering capabilities, allowing it to generate a physical data model from a logical data model. A Check Model feature validates the physical model before forward engineering. The data modeler can then check and uncheck the specific objects in the model that are to be included in the generated Data Definition Language (DDL). ERwin supports the formation of a database schema and physical database on the basis of a data model by generating DDL scripts for a wide-ranging variety of relational database management system engines.

DD065	The solution's data model component should be maintained in an open systems modeling tool that can provide reverse-engineering abilities

ERwin Data Modeler has reverse engineering capabilities. It supports the formation of a data model on the basis of an available data source by extracting information from an existing physical database or a DDL script. ERwin creates a graphical representation of the selected database objects and the relationships between the objects. The graphical representation can be a logical or a physical model.

DD066	The solution's data model component should be maintained in an open systems modeling tool that can support volumetric calculation abilities

ERwin Data Modeler supports adding volumetrics to the data model and performing volumetric calculations. Volumetrics can be used to calculate the size of entities in a logical model or the size of tables, indexes, and physical storage objects in a physical model or the database where the physical model is built. When calculating entity size in a logical model, volumetrics information is in place on the entities when a physical model is forward engineered from the logical model. The volumetrics information is persisted to the table properties on the physical model. The combined calculations of all table sizes in the database can be used to calculate physical database size and growth.

DD067	The solution's data model component should be maintained in an open systems modeling tool that can support comparison abilities for different logical and physical data model versions

ERwin Data Modeler has a Complete Compare feature that can compare models or databases to ascertain the differences in the objects and properties. This feature can compare the following items:

- A data model with another data model or version
- A data model with a database
- A data model with a database schema
- A data model with a script file
- A database with another database

ERwin's Complete Compare feature enables the user to compare two versions of a model at the logical or physical level, displays differences, and allows for merging and updates in either direction.

DD068	The solution's data delivery component should maintain the following information related to the authorized solution user acknowledgement of data extraction

As the analytics and enterprise data warehouse contractor for 10 state Medicaid agencies, Watson Health is very experienced at creating large-scale data extracts and supporting client power users in generating their own data extracts.

Watson Health uses various methods to automate scheduling of data extracts, depending on the complexity, interdependency, notification requirements, report requirements, and output file type of a data extract. The authorized solution user requesting a data extract receives acknowledgment of data extraction

in a notification. Senders and recipients receive notifications either confirming that the extracts have successfully transmitted or providing information as to why the extracts may have failed. A transmittal report specifies the content of the data, record counts of each table, carrier-specific frequency counts, and any issues with the data.

The WV EDS supports self-serve, client-generated extracts, enabling power users to write sophisticated queries to create data extracts down to the detailed claim-line level. These power users can schedule data extracts to run on the basis of any time element or trigger occurrence (e.g., database refresh), individually or grouped into jobs to schedule multiple data extracts at once, and with dependencies between data extracts as needed. We integrate and respect consent preferences as those preferences apply to the data being retrieved, the use case, and the role of the requestor.

DD069	The solution's data delivery component should maintain the following information related to the authorized solution user
DD070	Receipt of data
DD071	Data elements requested
DD072	Selection criteria for extraction
DD073	Method of export
DD074	Others as defined by the Department

We provide published reports, files, or data extracts for external applications, systems, or parties as required by DHHR. As directed by DHHR, we design and deliver customized data extracts and prepare special reports and analysis for outbound data exchange. We maintain acknowledgment of the recipient's receipt of data, the data elements requested, the criteria for data extracted, the method of data export and transmission, and any other logistical aspects of or metadata about the data extraction and transmission process.

The authorized solution user requesting a data extract receives acknowledgment of data extraction in a notification. Senders and recipients receive notifications confirming that the extracts have successfully transmitted or providing information as to why the extracts may have failed. A transmittal report specifies the content of the data, record counts of each table, carrier-specific frequency counts, and any issues with the data. In addition to the many useful reports pre-built into the auditing systems, custom reports can be developed to fulfill specific DHHR needs. In addition, reports and dashboards can be scheduled for automated delivery via email.

All data transmissions, both inbound and outbound (data extracts, files, and reports), are restricted to use only secure transport protocols. Any requests for ad hoc reports, files, or extracts require explicit authorization from DHHR. For transmitting data extracts, we have written procedures and controls in place to protect the data and securely accomplish the transmission. The InfoSphere Optim Data Masking solution is available to deidentify data, adhering to Safe Harbor regulations for data dissemination while maintaining inherent data referential integrity and providing analytically meaningful data to external parties. We track all disclosures of protected health information.

DD075	The solution's data delivery component should have the ability to extract the data in all industry-accepted formats including, but not limited to
DD076	Excel
DD077	Joint Photographic Experts Group (JPEG)
DD078	Others as requested by the Department
DD079	Word

DD080	Hyper Text Markup Language (HTML)
DD081	Software and Services (SAS)
DD082	Graphical User Interface (GUI)
DD083	Extensible Markup Language (XML)
DD084	Application Programming Interface (API)
DD085	Text
DD086	Comma-Separated Value (CSV)
DD087	Delimited text
DD088	Portable Document Format (PDF)

Our WV EDS supports all industry-acceptable standard formats for data, reports, and information interchange. It ensures that users receive information in their preferred format for easy integration into their business processes.

Using reporting services within our InfoSphere Information Server suite of metadata management and data integration tools, we can create reports to communicate summaries, data, details, or statistics in various formats, including HTML, PDF, Revisable Form Text (RFT), Text (TXT), Excel Spreadsheet (XLS), and XML. The IBM InfoSphere DataStage component also provides avenues for converting data into an extensive list of standard formats. It supports free-form data types such as fixed-length format, JavaScript Object Notation (JSON), XML, and CSV file types.

WV EDS users are able to export reports to Excel (.XLS) from all the analytic and reporting tools. There are numerous formatting options within Excel for different outputs and printing. Other export formats are also available, including CSV, PDF, HTML, and XML. Cognos and ESRI ArcGIS maps are available in JPEG format for embedding into documents and presentations.

Our solution also supports representational state transfer (REST) application programming interfaces (APIs) that can be accessed through normal Hyper Text Transfer Protocols (HTTP), for example, GET, PUT, POST, and DELETE functions. These APIs can be used for integration into the WV service-oriented architecture so that disparate applications can access useful information irrespective of technological format differences. The APIs support standard XML and JSON payloads for ease of use.

In addition, ESRI ArcGIS includes APIs and RESTful web services that allow users to build and deploy custom applications that include geographic information system functionality.

DD089	The solution's data delivery component should maintain details of requests, including time stamp, duration, and volume of data extracted

The data extraction process includes the following audit data elements to ensure integrity when extracting data from our WV EDS:

- Volume of data
- Record counts
- Total financial amount
- Eligibility counts
- Timestamp
- Time period

The data extraction process generates and maintains these statistics for audit and validation along with the extracted data. This information is used as a control check when any data extract is shared with an extract recipient. We notify the extract recipient of this audit information along with the extract so that he or she can validate the extract at the receiving end. Watson Health tracks and manages this audit information

with the inventory of all extracts. We share this information with appropriate authorized stakeholders, as directed by DHHR for review and verification.

DD090	The solution should have the ability to schedule data extraction based on time or occurrence of events

We use InfoSphere Information Server for scheduled and automated data extraction. The tool helps us automate data extracts via defined processes that include multiple steps for scheduled execution or executions triggered by an event. For example, an extract can be triggered by the creation of a file. The solution also provides an event manager to generate alerts and emails that inform of successful completion and/or failure of any processes. We leverage the alert function to notify and inform all stakeholders of any incorrect processing, error reports, or unsuccessful execution of any process within 24 hours of occurrence. Additionally, the WV EDS Sandbox environment provides access for power users to create their own extracts as required.

DD091	The solution should have the ability to delete/clean up extracted data sets

Our solution includes a data set management tool to delete extracted data sets that are no longer required for retention.

DD092	The solution should have the ability to extract proportionally large volumes of data based on specified selection criteria

Our WV EDS allows users to create large data extracts using user-defined selection criteria. The large extracts can be shared with other departments so that visualizations, dashboards, and other analytic components can be derived from the extracts. Such data extracts can also be automated and scheduled through the job scheduling feature of our ETL tool, InfoSphere DataStage. Additionally, the IBM Data Studio component in IBM Cloud Pak for Data (ICP for Data) allows authorized users, typically Sandbox users, to write sophisticated routines to perform large data extracts.

DD093	The solution should have the ability to monitor and control data extraction requests

For tracking and reporting on data extraction requests from both state internal and external entities, we log and track all requests in our Product Support Portal. Our Analytic team supports DHHR in fulfilling the data extraction requests based on prioritization by DHHR data governance. Because data extract time frames vary greatly depending on the complexity and volume of data, it is important to establish definitions and guidelines up front to properly categorizing these requests. Progress on each request is also recorded in the Product Support Portal.

DD094	The solution should have the ability to send automatic alerts to authorized solution users when errors occur during the data delivery process and other user interaction processes

The Information Server Operations Console provides information about automated extracts, system resources used for the extract, estimated run duration, and status. We use the console to monitor data extraction jobs in real time, track the success or failure of the data extraction process, monitor performance, and track elapsed time of job runs.

Data extraction jobs are monitored and alerts are sent to authorized solutions users for immediate attention. Automated procedures resolve issues, such as the recovery of failed jobs, using self-healing and automatic recovery techniques when possible. Errors that require manual intervention are resolved through a triage process that is mutually agreed on by Watson Health and DHHR. We make detailed information on the data extraction job runs available to DHHR via a standard operational report.

DD095	The solution should have the ability to notify the authorized solution user as to the details of the extract, including estimated duration and size

InfoSphere DataStage provides a performance monitor diagnostic aid, which is a useful tool for designing extraction jobs. A performance analysis graphical user interface provides a graphical representation of job performance and computer utilization. This feature can give some indication of relative job performance and size.

The Information Server Operations Console allows operators to monitor the live runtime environment—showing which data extraction jobs are running and how they are performing, indicating how the system resources are being used, providing dashboards for alerts of job failures or excessively long running tasks, and giving the ability to stop and restart extracts as needed. Charts in the Operations Console interpret job performance and computer resource use on the data extraction jobs and stages.

Our WV EDS solution can also send alerts to notify a user of data extract job information, including estimated duration, estimated size, and type of extract.

DD096	The solution should have the ability to generate reports with summary and detail information on data delivery requests, executions, and other authorized solution user interaction processes

For tracking and reporting on data extraction requests from both state internal and external entities, we log and track all requests in our Product Support Portal. Our Analytic team supports DHHR in fulfilling the data extraction requests based on prioritization by DHHR data governance. We generate summary and detailed reports from the Production Support Portal to keep DHHR informed as to the nature of the request, the authorized user who requested the report, the date of request, date of delivery, date of execution, and any other history so that DHHR is aware of the status and activities for each request. We produce such reports either on request or on a mutually agreed-to schedule. We ensure full transparency of data delivery activities for managing and delivering quality information.

DD097	The solution should have the ability for authorized solution users to request, develop, and/or schedule dataset creation and monitor the status

Our WV EDS supports self-serve, client-generated extracts, enabling power users to write sophisticated queries to create data extracts down to the detailed claim-line level. These power users can schedule data extracts to run on the basis of any time element or trigger occurrence (e.g., database refresh), individually or grouped into jobs to schedule multiple data extracts at once, and with dependencies between data extracts as needed.

With all reporting tools in the solution, authorized users can schedule reports and dashboards to run automatically at the frequency required by the individual user. Scheduled reports can be distributed to private or public folders, burst (i.e., results divided and subsets distributed to multiple recipients), subscribed to, or delivered through other distribution channels.

Users are be able to produce scheduled predefined reports, on-demand canned reports, and on-demand ad hoc reports with the WV EDS. Cognos Analytics provides several options for delivering predefined and ad hoc report results, both scheduled and on demand. Predefined reports can be scheduled to run on any given day or at any time and interval defined by the user. Alternatively, users can subscribe to reports to receive push notifications when updated reports are available.

Our BI tools promote self-serve reporting even by nontechnical staff, which frees your power users and analysts to focus on insightful research and analysis.

DD098	The solution should have the ability to perform structural transformations against source data including, but not limited to
DD099	Summarization
DD100	Partitioning

DD101	Normalization
DD102	Consolidation
DD103	Filtering
DD104	Derivation
DD105	Others as defined by the Department

Our WV EDS is a fully featured modern solution with the ability to perform all structural transformations on source data as required for valid data organization or query performance, including summarization, partitioning, normalization, consolidation, filtering, derivation, and others as defined by the Department.

Table 24. WV EDS Structural Transformation Capabilities. *WV EDS data structure capabilities optimize data organization, data quality, and performance of queries and reports.*

Structural Transformation	Capability
Summarization	• We enhance the data with multiple forms of aggregation, summarization, and clinical groupings to facilitate analysis. • We pre-aggregate data into summary-level tables to further facilitate fast information retrieval via the BI and reporting tools. • On the basis of analytical performance requirements, we aggregate tables to improve performance for commonly executed queries and other high-priority reports.
Partitioning	• We use partitioning and indexing strategies to handle the amount of data we anticipate will have to be processed.
Normalization	• We make data normalization decisions in our logical data model resulting in the final normalized representation of entity-to-entity relationships, independent of any specific physical database implementation. • We apply our Data Vault methodology and framework to our physical data model to normalize, enhance, correlate, and aggregate data according to defined and documented business rules and industry-standard categorizations. These enhancements make the data usable and meaningful for reporting and decision-making. • Our ETL solution supports the development of standard, repeatable, and automated processes to normalize, enhance, correlate, and aggregate data according to defined and documented business rules, standard and repeatable transformation logic, and industry-standard categorizations
Consolidation	• We cleanse, standardize, and consolidate data to create a consolidated view of all data to support reporting and analytics across the Medicaid Enterprise System. • Our data quality processes validate incoming data, they match, merge, and consolidate data on the basis of defined rules so that reporting data meet defined standards for accuracy, currency, cleanliness, transformation, enhancement, and completion. • Our master data management process focuses on consolidating master data; enhancing the data with external tools and data, such as addressing standardization and episode groupers; as well as centralized publishing of the resulting master data.
Filtering	• We create data mapping documentation containing specific information about the source tables/elements and the target tables/elements, along with the selection criteria, standardization logic, and filters applied during data transformation and loading.
Derivation	• We determine and build derived fields and formulas and apply data quality rules using flexible, configurable, rules-based logic to apply the appropriate data transformations in all data layers of the data warehouse.
Others as defined by the DHHR	• We perform other structural transformations as defined by DHHR via our change management process.

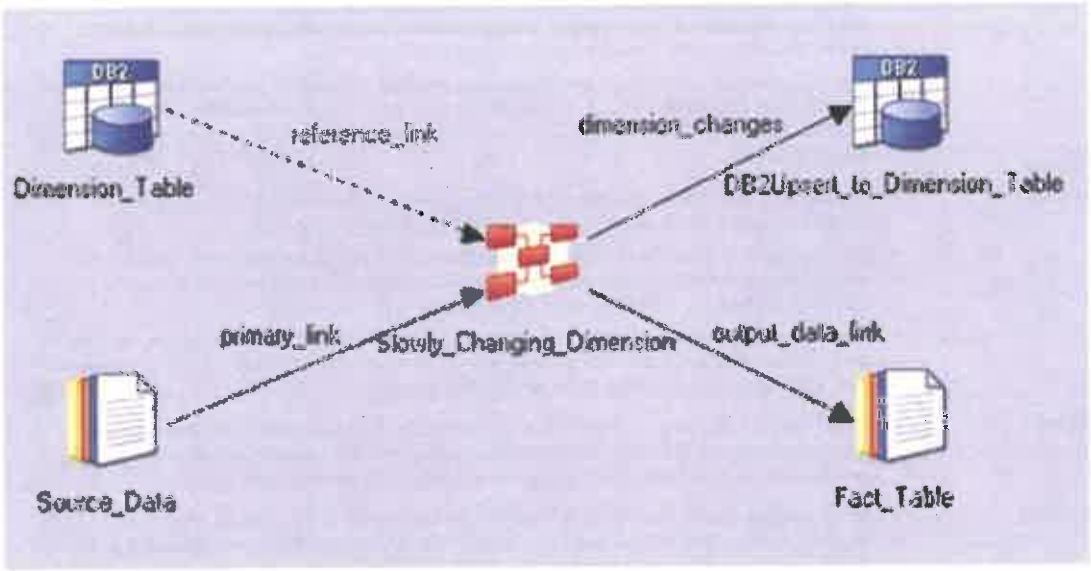
DD106	The solution should have the ability to provide a development environment in which the logic for slowly-changing entity relationships can be quickly and accurately written

The WV EDS data models are maintained to support standard Type 2 Slowly Changing Dimensions (SCDs) associated with the main fact tables. This feature enables tracking incremental changes to the attributes of a dimension over time.

IBM InfoSphere Information Server handles the logic for SCDs with pre-built transformations and flexibility in processing logic and job design. The key elements of a job design are the *stages* and the *links* between the stages. A stage describes a data source, a processing step, or a target system. The data transformation capabilities in the DataStage libraries are exposed as *transformation stages* on a palette in the design interface and are used on all types of data. These transformation stages define the processing logic that moves the data from the input links to the output links. The transformation stages manipulate the data with pre-built, reusable transformation logic.

InfoSphere DataStage, a component of Information Server, includes an SCD stage—a processing stage that works within the context of a star schema database. The SCD stage has a single input link, a single output link, a dimension reference link, and a dimension update link. The SCD stage reads source data on the input link, performs a dimension table lookup on the reference link, and writes data on the output link. The dimension update link is a separate output link that carries changes to the dimension. SCD stages support both SCD Type 1 and SCD Type 2 processing. SCD Type 2 processing adds a new row to a dimension table. DataStage job design is flexible. A designer can design one or more jobs to process dimensions, update the dimension table, and load the fact table. A separate job can be created for each dimension, one job can be created for all dimensions, or several jobs can be created with several dimensions each.

Figure 37. InfoSphere DataStage Job Design Using the Slowly_Changing_Dimension Transformation Stage. *The job performs the dimension lookup and updates the fact and dimension table when the dimension changes.*



The InfoSphere SCD stage, along with the other pre-built, reusable transformation stages in the DataStage libraries, supports fast, efficient, accurate, and consistent code development for data and data relationship maintenance. A pre-built, reusable data connection and transformation logic coupled with a modular design ensures that the same transformation logic is applied in all jobs when a given transformation stage

is used, ensuring accuracy and consistency of the logic. It also makes maintaining the logic and reusing the same logic across all jobs quicker and easier.

DD107	The solution should have the ability for authorized solution users to quickly and accurately write query logic for complex entity relationships

We have included IBM Cognos Analytics, a suite of query and reporting tools, to support querying, reporting, and analysis on any subject for which data exist in the WV EDS. Cognos Analytics provides standard and ad hoc reporting capabilities and dashboards with state-of-the art visualization features. It delivers all the functions of traditional BI augmented with many AI-driven elements, such as natural language dialog, guided analytics, pattern detection, and smart visualizations facilitating data understanding and exploration. Its self-service options and guided experience features interpret and support the user's intent with a suggested path through the data and intuitive visualizations.

Our solution includes pre-built IBM Cognos Framework Manager models derived from our data marts. The Cognos Framework Manager reporting model helps enable reporting users to understand the data, analyze the data, and assemble queries and reports. The models provide a logical view of the available data and their relationships in a business context. The Cognos Framework Manager data model view is easy for BI users to understand and facilitates ease of analysis and reporting.

Advanced users tend to prefer Cognos Analytics to create ad hoc queries. The unified interface exposes functionality in context, as needed, empowering users of all abilities and expertise levels to engage in creating reports with rich visualizations and interactive experiences for maximum impact. Users can create ad hoc queries, parameter-based queries, predefined templates, and geospatial analyses. Our Cognos Framework Manager metadata model drives query generation with predesigned entity relationships to ease development of queries with complex table joins and structural relationships.

DD108	The solution should have the ability to create interactive reports and maps

The WV EDS, powered by Cognos Analytics, provides visualizations such as graphs, charts, plots, tables, maps, summarized data, and many other visual representations of data. The interactive nature of Cognos Analytics enables users to explore the data using parameter-based queries, filters, and drill paths to help them answer specific questions of interest. Drill paths allow users to move from summary-level reports down to detail levels. Users will be able to produce high-impact graphical visualizations with interactive Cognos Analytics dashboards/stories and geospatial reports. Data can be viewed and displayed at the desired geographic level as represented in the corresponding data (state, county, ZIP Code, block group). Dashboards allow users to ask more questions and drill down into the data, and they can be shared with other users. Business and advanced/power users can easily generate these types of reports within Cognos Analytics, with support from our training programs and analytic consultant teams.

DD109	The solution should have the ability to produce maps with both cartographic representation and global satellite imagery

The WV EDS, powered by Cognos Analytics, provides both cartographic and satellite imagery by integrating with ESRI ArcGIS, creating a seamless reporting experience. ESRI ArcGIS is a complete geographic information system (GIS) application that allows users to produce maps and perform geospatial analytics using geographic data. ArcGIS is a scalable platform for working with all forms of imagery (satellite, aerial, drone, and ground based) to create valuable geospatial visualizations. It supports cartographic representations and those with satellite imagery. ArcGIS will allow users to visualize data in geospatial ways and quickly identify relationships, patterns, and trends.

DD110	The solution should have the ability to allow authorized solution users to create and/or select the type of map image they prefer to view, print or edit

The WV EDS, powered by Cognos Analytics and integrated with ESRI ArcGIS, enables users to produce cartographic or satellite maps displaying geospatial data, and these maps can be included in reports and dashboards. The mapping visualization overlays available are Region, Points or Cluster, Heat, and Latitude/Longitude maps.

DD111	The solution should have the ability to permit an authorized solution user to select and navigate information to be displayed on maps in a pop-up to highlight information about a location, including charts and graphs, photos, and other information as requested by the Department

The WV EDS, powered by Cognos Analytics and integrated with ESRI ArcGIS, enables users to produce maps displaying geospatial data, and these maps can be included in reports and dashboards. All geographically relevant data in the WV EDS can be used within the mapping visualization overlays to highlight the desired information.

DD112	The solution should have the ability to resize and print all reports and maps within the solution

The WV EDS, powered by Cognos Analytics and integrated with ESRI ArcGIS, enables users to produce maps displaying geospatial data, and these maps can be included in reports and dashboards. All mapping visualizations can be sized and resized by grabbing the corner of the map and making the adjustment. In addition, all report and dashboard objects, i.e., lists, charts, widgets, etc., can be resized in the same manner. Lastly, all reports and dashboards can be exported as a PDF and printed.

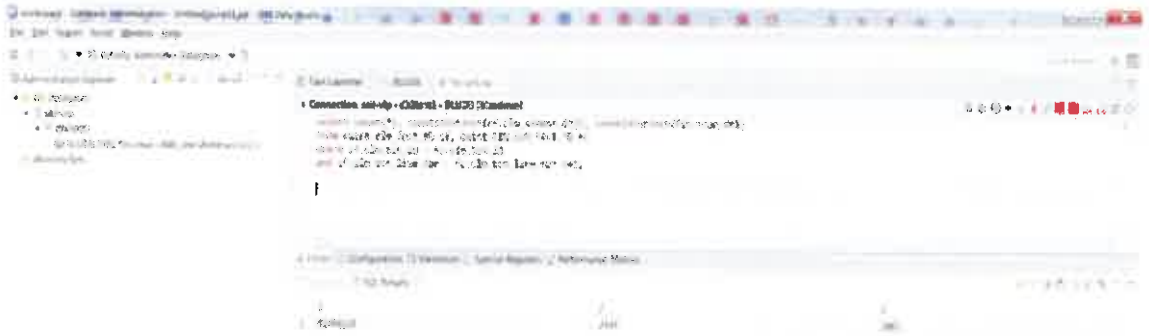
DD113	The solution should have the ability to create and display legends, documentation, and data on reports and maps

The WV EDS, powered by Cognos Analytics and integrated with ESRI ArcGIS, enables users to produce maps displaying geospatial data, and these maps can be included in reports and dashboards. The mapping visualizations available are Region, Points or Cluster, Heat, and Latitude/Longitude maps. All mapping visualizations come with a legend that can be customized, and if appropriate, the legend can be turned off.

DD114	The solution should support a query editor that provides editing, execution, and debugging functionality

Authorized users will be able to build and run queries on the WV EDS data using IBM Data Studio. IBM Data Studio provides a user interface for developing database queries, jobs, procedures, and tables and the ability to tune Structured Query Language (SQL) queries. Users can create an SQL statement by using the SQL Query Builder. The SQL Query Builder provides a graphical interface for creating and running SQL statements. Statements that are generated by the SQL Query Builder are saved in a file with the extension .sql. The options in the Design pane vary depending on the type of statement that the user is creating When more than one set of options is available, the options appear as notebook pages. For example, for a SELECT statement, the options include selecting columns, creating conditions, creating groups, and creating group conditions. A user can open the Expression Builder wizard, which guides them through the creation of complex expressions, from anywhere in the SQL Query Builder that an expression can be specified.

Figure 38. IBM Data Studio User Interface. *Data Studio's interactive SQL Query Builder helps users build, edit, and run SQL queries.*



IBM Data Studio provides the capability for advanced/power users to create "comments" that can guide other users in understanding their query logic. Database administrators and advanced users can also develop database applications to support more complex data management activities. These tasks are performed in the context of a data development project or a Java project, which are used to store and share development artifacts.

Users can develop these Java applications using SQLJ, an American National Standards Institute standard approach to embedding SQL statements into Java programs. The SQLJ editor includes SQLJ Assist wizards to add SQLJ clauses to an SQLJ file and an SQLJ debugger to control execution by setting breakpoints, stepping through code, and examining the contents of variables. IBM Data Studio enables developers and administrators to create and run SQL queries and programs for increased functionality and productivity.

DD115	The solution should have the ability to access external plan data via the Application Programming Interface (API)

Watson Health will work with DHHR to determine your needs for plan data and capture the required data, so you can accurately and fairly evaluate and compare costs and quality, as well as the value delivered from managed care.

Our WV EDS solution will access and share external plan data through the IES vendor ESB and any other technology or services, as required. This approach ensures that systems interacting with the WV EDS are interoperable and utilize exposed APIs and services as expected.

DD116	The solution should provide a rules engine that utilizes technical call-level interface using the Application Programming Interface (API) standard

The WV EDS uses IBM Operational Decision Manager (ODM), an industry-leading business rules management system employed for our solution's use of business rules. Instead of having a developer code your business rules, ODM allows business rules to be configured and codified in a way that is both understandable and accessible to someone with very little coding experience.

The ODM Decision Server provides development and runtime components for a rule-based solution that automates the response of highly variable decisions required by client applications. At the core of a rule-based solution, the client application requests a decision from a decision service. At each decision point, business rules packaged as rule sets are used to express policies for how decisions are made.

In ODM, the user must define all the sources of data for business object fields that are used in event rules. The data connection definition is defined for any of the supported databases. The hosted database must be accessible to Event Designer and to the event runtime server.

The ODM Decision Server also provides a REST service for rule set execution. The ODM Rule Execution Server provides a reliable and scalable execution environment for your business rule application. The Rule Execution Server provides a set of APIs that are implemented using the REST services.

DD117	The solution should have the ability to add, test, and implement new source-to-target mappings at the Department's request

Our process is to create source-to-target mapping documents, including mapping templates, data conversion requirements, data imputation rules, transformation logic descriptions, and frequency/latency and any other criteria or dependencies, for all data sources that are part of the solution. Appropriate data elements are mapped into the most relevant data elements within the data model of the new solution with appropriate transformations defined to meet DHHR requirements. We test and implement these mappings within our ETL code.

We validate the data mapping specifications with DHHR and provide the mapping documentation. Mapping documentation is dynamic and will be maintained as changes to data transformations, filters, and sources are made. We accommodate new data sources via change requests as defined by our change management process and integrate them into the documentation as they are integrated into the solution. We maintain all solution schemas, metadata, hierarchies, standard harmonization strategies, data dictionaries, and data quality management information as part of our overall data management and documentation responsibilities.

DD118	The solution should have an extract, transform, load (ETL) data acquisition component with a development environment that has the ability to build and deploy new source/target combinations within the solution

The InfoSphere FastTrack component of InfoSphere Information Server provides an interface for creating mapping specifications for source-to-target mappings. A user can use any existing shared metadata column or any term from the business glossary as sources or targets. The user can also create candidate columns and terms within specifications for new targets that do not yet exist. A mapping editor is provided to create a specification and source-to-target mappings. Each mapping can consist of more than one source and more than one target. Mappings can be further refined by applying transformation rules. Mappings specifications can also be imported from other application sources or exported to .csv files. Finally, mapping specifications can be used to generate jobs as a step toward building and deploying the source-to-target ETL jobs within the solution. The jobs are then further modified in InfoSphere DataStage.

Infosphere DataStage is the data integration component in InfoSphere Information Server that provides a graphical framework for developing the jobs that move data from source systems to target systems. It enables data integration development with components to help transform and move data between multiple sources and targets. The graphically-based development environment speeds integration of new data sources as the need arises.

DD119	The solution should have an extract, transform, load (ETL) data acquisition component that supports automated impact analyses against the ETL code base

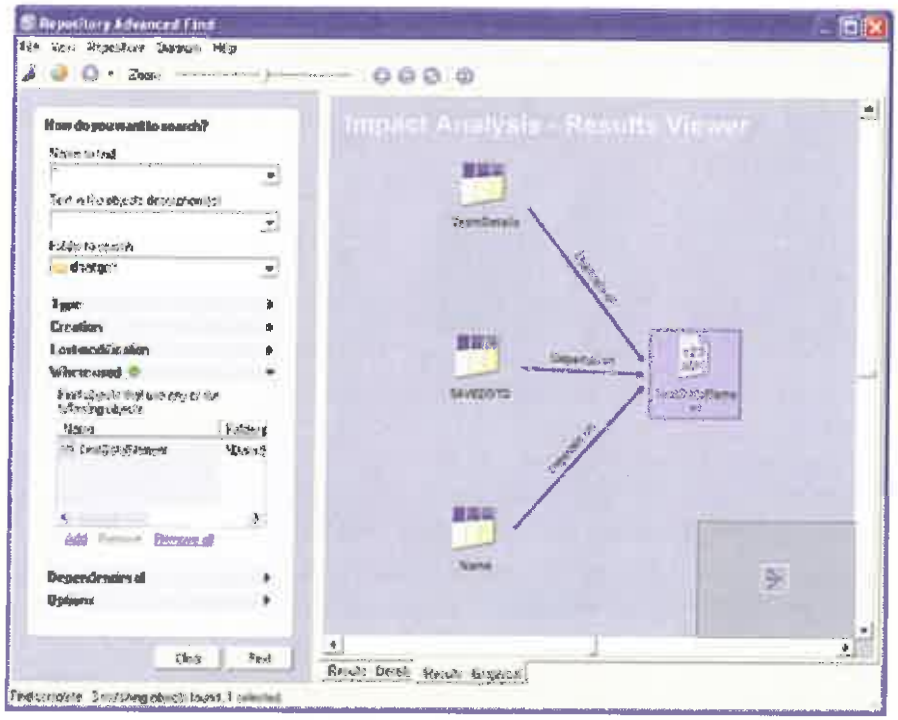
Each new data source or change to an existing data source to be integrated into the WV EDS must adhere to an established and ongoing process approved by DHHR. As part of this process, we perform an impact analysis to evaluate and verify that the data source integration will have no adverse effects on the enterprise data warehouse or other modules.

We implement the Infosphere Information Server platform and its Information Governance Catalog (IGC) component. This component both analyzes the impact of source system changes and provides an audit trail of all data integration and data acquisition activities. IGC facilitates tracing lineage from sources

through jobs and databases to BI reports. It also performs impact analysis to understand dependencies and the effects of changes on a column or job in the downstream ETL process.

Impact analysis queries display results in list or graphical form, showing the relationships of the objects found by the query.

Figure 39. The IGC Advanced Find Results Showing Impact Analysis. *The results of a "where used" query shows what other objects use the object. In this example, the results show that there are three table definitions that use this data element, TestDataElement.*



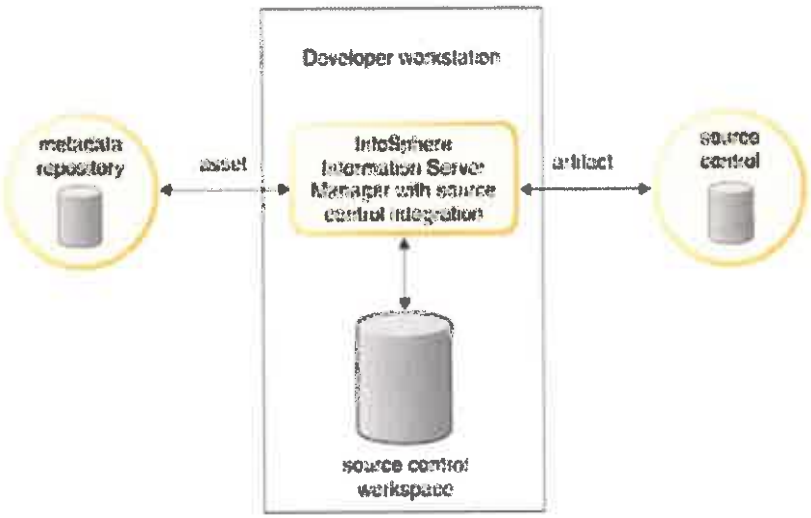
Each change will require an impact analysis to evaluate and verify that there are no adverse effects to the ETL jobs, database structures, or other modules. We share the results of the impact analysis with DHHR and other stakeholders to review and determine the appropriate course of action. We do not implement or apply changes to the production repository until DHHR has reviewed and approved them.

DD120	The solution should have an extract, transform, load (ETL) data acquisition component that supports the versionmg of ETL modules

The InfoSphere Information Server Manager deployment tool is used to manage versioning of InfoSphere ETL jobs and associated assets in our source control system. The tool creates and manages packages of assets that can be built and deployed on an iterative basis.

The basic life cycle methodology for InfoSphere DataStage and QualityStage jobs is to support the development, test, release, and maintenance of the applications. In a basic deployment scenario, a set of InfoSphere DataStage and QualityStage assets is moved from a development environment to a test or production environment. The set of assets is deployed as a unit to a single target system and a single DataStage and QualityStage project. However, the set of assets can be deployed many times to many systems or projects as it moves through its life cycle.

Figure 40. Conceptual Relationship Between the Information Server Metadata Repository, InfoSphere Information Server Manager, and the Source Control Repository. *The asset is sent from the metadata repository to the source control workspace, and a version of the asset, known as an artifact, is written to the source control repository.*



InfoSphere Information Server Manager supports a model of separate systems that are used to develop, test, and run InfoSphere ETL jobs. The deployment tool facilitates this model by providing a secure, managed, and trackable method of moving assets between the different systems.

DD12I	The solution should have an extract, transform, load (ETL) data acquisition component that has the ability to create ETL functions using pre-packaged transformation objects

In InfoSphere DataStage and QualityStage, data transformation capabilities are exposed as "transformation stages" on a palette in the GUI design interface and are used on all types of data. The pre-built, reusable transformations are organized into general functional categories that solve common and complex data challenges that integration projects must handle when moving data within heterogeneous applications and data stores. These transformation stages define the processing logic that moves the data from inputs to outputs and can use pre-built, reusable transformation logic. They make it easier to accommodate new sources and manipulate data quickly and consistently. Along with industry-standard enhancements specifically for healthcare data, pre-built transformations make the data usable and meaningful for reporting and decision-making.

Reusable transformation functions enable data integration specialists to maximize speed, flexibility, and effectiveness in their designs. They can transform data to satisfy both simple and complex data integration tasks. Below is a list of some of the types of transformations available in our proposed solution:

- Transform data with expressions
    - Use the expression editor to trim data by removing leading and trailing spaces, concatenate data, perform operations on dates and times, perform mathematical operations, and apply conditional logic.
- Join data from multiple flat files
    - Read data from multiple flat files and write the data to a single target file.
- Join heterogenous sources

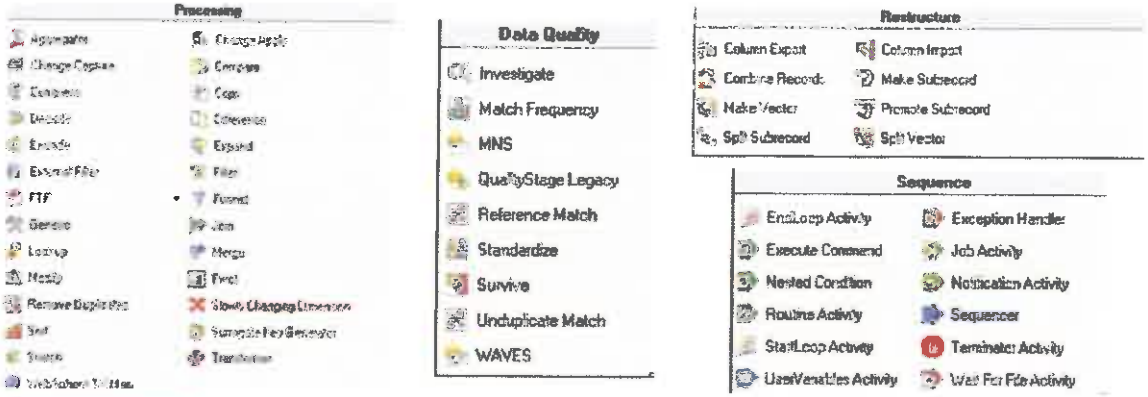
- Extract data from two different types of databases and load the results into another type of database in the appropriate format.

- Summarize data by common characteristics
  - Summarize data by using the Aggregator stage. Records can be grouped by one or more characteristics.

- Pivot data in a table
  - Map a set of columns in an input row to a single column in multiple output rows by using a horizontal pivot with the Pivot Enterprise stage.

- Find deltas from yesterday's file
  - Identify changes from a previous file with the Change Capture stage.

Figure 41. Data Transformation "Stages" on the Palette. *Pre-built data manipulation and transformation logic comes out of the box in graphical "stages" for selection from a palette during job design.*



DD122	The solution should have an extract, transform, load (ETL) data acquisition component that has the ability to design, develop, and implement reusable ETL processes for transformation, exception/error handling, audit and control, and balancing

The WV EDS uses IBM Infosphere Information Server to provide data exchange, transformation, and management capabilities. This tool provides a common framework of shared services that enable users to understand and collaborate about their data, cleanse data, monitor data quality, transform the data, and deliver the data as trustworthy information. The ETL component supports the development of standard, repeatable, and automated processes to normalize, enhance, correlate, and aggregate data according to defined and documented business rules, standard and repeatable transformation logic, and industry-standard categorizations. Pre-built reusable transformations make it easy to manipulate data with consistent logic across any data source.

Exception/Error Handling

Our ETL jobs ensure that our ETL processes have moved and translated the data successfully. Levels of errors that can be encountered are identified, and a method for error handling and communication required for each level of error is defined. Interfaces use detailed exception handling with logs and alerts as to which jobs failed, when they failed, and why they failed. ETL administrators can then work with WV EDS and source system administrators to trace and resolve any system or interface-related issues quickly.

Exception handling will reference log files to indicate which, if any, jobs had load failures and why. Metadata, such as the source system name and the date the record was loaded, are captured when data are loaded. We report the statistics of all ETL exception reports to DHHR. Authorized users also have online access to the Data Quality Exception console and can view relevant metadata and data exception results.

Audit and Control

Infosphere Information Server maintains its own operational logs of the ETL processes that it executes. These logs serve several purposes. They are used to monitor the ETL processes in real time so that administrators can track the success or failure of data integration routines. These logs also are used to restart an ETL process that has initially failed to execute, allowing an ETL administrator to pick up where the process left off rather than having to start from scratch. Because these logs keep track of what is happening when and to what data, they are useful when debugging complex ETL routines. Finally, they can be used to audit the ETL process, operating as a record of the kinds of transformations performed against the records.

Balancing

When reconciliation problems happen, it is critical to know not only that there is a problem but how to resolve it as quickly as possible. Our processes use multiple steps to ensure that reconciliation of data happens as the data are loaded, before they reach the end users. We capture source metadata, such as the source system name, source record counts, and the date the record was loaded, as they are loaded. The reconciliation process makes sure that all records and values have propagated to the subsequent data layer as intended, on the basis of the defined data source transformation steps.

Our procedures emphasize data quality and system-to-system reconciliation, including automated financial balancing. We incorporate more than basic row counts and dollar validation for data loads. Our data integration team employs data profiling and data assessment to ensure data quality and to illuminate any potential impacts to the analytics derived from data. We conduct quality checks and data reconciliation to confirm that all ingested data meet quality standards to ensure quality in analytics and reporting.

DD123	The solution should have an extract, transform, load (ETL) data acquisition component that has the ability to enter documentation from system level down to individual code line and includes a run-time debugger

The WV EDS ETL component includes features for detailed job documentation on constructs and components of the job as well as the job itself. It also includes a runtime debugger for interactive testing and analysis of job execution, allowing the designer to inspect the logic in the job and the data as they are processed by the job.

DataStage Annotations

With InfoSphere DataStage, a designer can insert notes called annotations into job designs to make the design easier to understand and maintain. Annotations provide a way to document the ETL process and understand a given job. Annotations can be used for a wide variety of purposes throughout a job design. For example, annotations can be included to explain, summarize, or describe a job design or to help identify parts of a job design. Annotations can be included in all types and components of jobs, in job sequences, and in shared containers. Annotations do not obstruct the display of the stages, links, or other components in your job design.

There are two types of annotations that you can use in job designs:

- **Annotation.** Text used to annotate stages and links in the job design. You can add as many of these types of annotation as required. These annotations can be copied and pasted into other jobs.

- **Description annotation.** A full or short description of each job design. This description becomes part of the job properties in the tool.

DataStage also includes a job reporting facility that generates job reports in order to document job designs. The job reporting facility allows a user to generate an HTML report of a server, parallel or sequence job, or shared containers, view it in the Reporting Console or in a standard internet browser, and print it from the browser. The report contains an image of the job design followed by information about the job or container and its stages. Hotlinks facilitate navigation through the report.

DataStage Debugger

The InfoSphere DataStage debugger provides basic facilities for testing and debugging ETL job designs. The debugger is a runtime tool that enables the designer to set breakpoints on the links in your job. When the job is run in debug mode, the job will stop when it reaches a breakpoint. In the Debug window, you can inspect field data for records meeting specified criteria at any data link of a job without modifying the job. The designer can then step to the next action (reading or writing) on that link or step to the processing of the next row of data (which might be on the same link or another link).

DD124	The solution should have an extract, transform, load (ETL) data acquisition component that has the ability to provide automatic and manual caching control to balance quick response with scalability.

Our preferred ETL tool, IBM DataStage, provides system caching that allows multiple jobs or stages running concurrently or subsequently to share the same server files, either as read only or for writing and updating.

Write-Deferred Caching

Write-deferred caching offers the best performance because expensive synchronous writes to the physical disk are deferred. In this stage, a file or a block of records is not written to the physical storage until all subsequent or parallel data transformation on the file or block of records is complete. It is usually used when entire tables require refresh, and multiple processes update the data in the table. With write-deferred caching, the actual deferred blocks of record are automatically determined by a least recently used aging algorithm. Although this option provides the best overall performance, it is imperative that no external update can be done to the destination data until all transformation processes related to the data are complete.

Write-Immediate Caching

Write-immediate caching has slower performance than write-deferred caching because it writes to the physical disk at the same time that the file or record cache is updated. Although this option reduces performance, it avoids file corruption as much as possible should the server engine crash.

DataStage provides DHHR with the option of choosing the appropriate automated or manually caching mechanism so that you can balance response time against integrity and scalability of the ETL processes.

DD125	The solution's extract, transform, load (ETL) data acquisition component should populate summarized, aggregated structures based on detail data changes in the timeframe of the detail refresh window using both set-based and procedural constructs.

We apply several techniques to ensure that users have fast and easy access to data for querying and reporting. Based on analytical performance requirements, we build aggregate tables, summarization tables, and cross-reference tables in our Core Data Model (CDM) to improve performance for commonly executed queries and other high-priority reports.

Out ETL processes are designed to update and refresh such tables when the underlying tables are periodically refreshed with new data. These updates are done through predefined stored procedures, calculated fields, and so forth. The logics for data aggregation or summarization are embedded and

integrated into the transformation processes, ensuring that the integrity of the information is maintained during periodic data updates to the warehouse.

DD126	The solution's extract, transform, load (ETL) data acquisition component should have the ability to acquire, transform, and load proportionally large data volumes to obtain the current volume of source data

Our WV EDS is purposefully designed to move large volumes of data through the various services and data stores with speed, integrity, quality, efficiency, scalability, and flexibility to deliver business value efficiently.

In addition, we also optimize our environment for maximum throughput and performance. Performance tuning and optimization are integral to our development processes, which begin with astute design and unit tests, proceed through integration and volume tests, and continue throughout the production life cycle. These are some of the best practices that we follow:

- We cache data that are shared between parallel jobs.
- We create intermediate restart points in our ETL processes so that the entire process need not be run upon failure.
- We schedule smaller and dissociated jobs to run concurrently.
- We customize resource allocation to jobs at runtime depending on job characteristics.

As a result, our solution, complemented by our processes, is oriented toward providing the best performance in processing large data volumes.

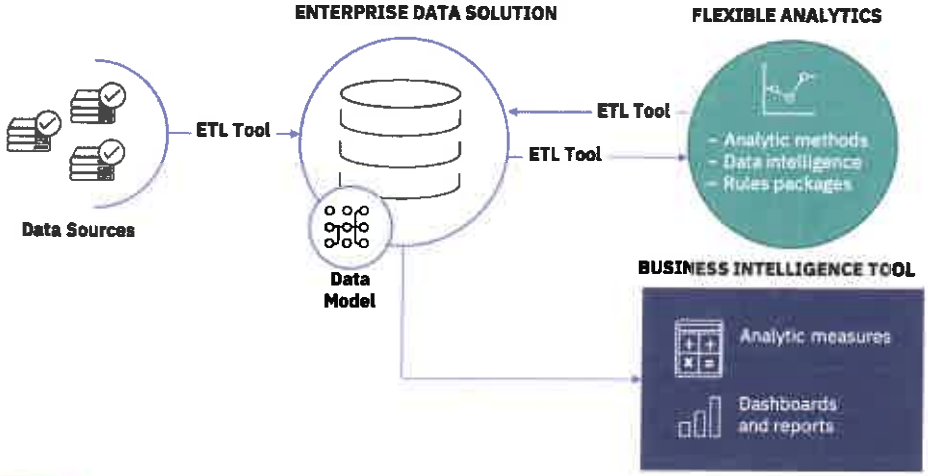
DD127	The solution's extract, transform, load (ETL) tool should have a data acquisition component that performs a timely data refresh from sources outlined in the Enterprise Data Solution (EDS) Request for Proposal (RFP) for each development phase indicated

We work with DHHR to create a schedule for environment refresh of source data. The data refreshes prevent the environments from being stale and allow the newly developed data feeds to be included in the refreshes. If an ad hoc refresh for a particular testing phase is needed, the Watson Health Release Workstream Leader works with the WV EDS delivery team to schedule and communicate an off-schedule refresh. We refresh all nonproduction environments, including development, testing, and training, on a schedule in accordance with the development or other environment activities and DHHR's specific requirements.

DD128	The solution's extract, transform, load (ETL) data acquisition component should populate internal analytic applications that are specifically required or proposed as part of the solution

The IBM Flexible Analytics package is included in the WV EDS to enrich the data warehouse data. Flexible Analytics is a modular analytic offering that provides a combination of analytical models to enrich your data. Our ETL process, technology, and tooling acquires, ingests, integrates, transforms, and populates the WV EDS data stores, including all analytic data stores, and calculates analytic metrics in a cohesive and holistic manner with automatically captured operational metadata. As part of the data integration process, Flexible Analytics enriches the raw claims, eligibility, and drug data with powerful healthcare-specific insights that are integrated back in the WV EDS data stores for reporting and analytics. Flexible Analytics will continue to consolidate new and updated measures as they become available, through this single package in the WV EDS solution.

Figure 42. Watson Health Flexible Analytics Data Workflow. *Logical view of how the Flexible Analytics solution overlays the WV EDS data store by enrichment of the data model with analytic measures.*



DD129	The solution's extract, transform, load (ETL) data acquisition component should have the ability for multiple authorized solution users to work on single or multiple tasks, reports, and/or projects concurrently

IBM InfoSphere Information Server supports role-based access control. Groups are created that are specific to each user function (Administrator, Developer, Operations, etc.), and the individual user IDs are associated to their prospective group. IBM InfoSphere DataStage and QualityStage jobs are organized in projects, along with associated design items. Administrators create projects using the Administrator client tool. Different users can be granted access to different projects. Each user could be assigned to work within the user's own project. Appropriate user roles are assigned to each of the groups for a given project using the Administrator client tool. User roles determine which projects and features that users in those groups can use.

ETL developers design InfoSphere DataStage and QualityStage jobs using the IBM InfoSphere Designer client tool. The Designer client tool is like a workbench or a blank canvas with a palette that contains the tools that form the basic building blocks of a job. The Designer client tool uses a repository to store the objects that are created as part of the design process. When the developer saves the job, the details are written to the metadata repository. Other users who are authorized in the project can then view and edit the job designs.

Jobs and their associated objects are organized in projects. When users start the Designer client tool, they specify the project that they will work in, and everything that a user does is stored in that project. The Designer client tool gives users the tools that they need to create jobs that extract, transform, load, and check the quality of data. When a user's job designs are finished, they are run in the Director client tool. No data are moved or transformed until the user actually runs the job. When users start the Director client tool, they specify the project that contains the jobs to run.

The Administrator client tool helps create, design, and manage jobs; helps define tables; and can access metadata services. The Director client tool helps validate, run, schedule, and monitor jobs. These applications, their project construct, and role-based access control allow multiple authorized users to work on designing, developing, and running jobs concurrently.

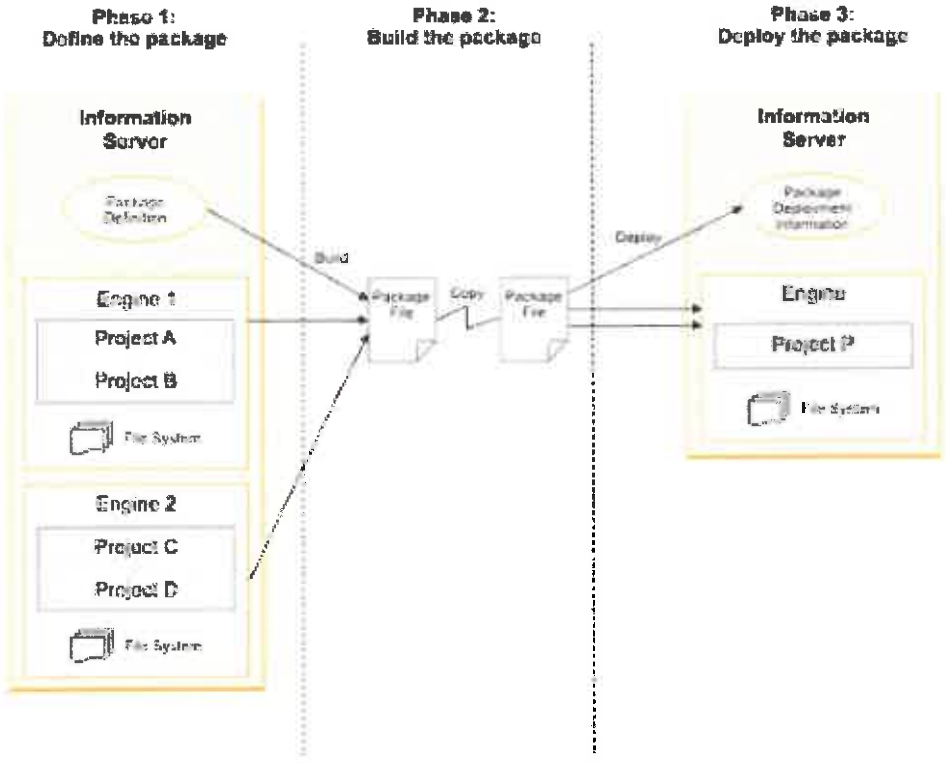
DD130	The solution's extract, transform, load (ETL) data acquisition component should support ease in promotion of code from one environment to another

The InfoSphere Information Server Manager deployment tool is used to manage versioning and deployment of InfoSphere ETL jobs and associated assets. The tool creates and manages packages of assets that can be built and deployed on an iterative basis to support code promotion from one environment to the next in the development life cycle.

The basic life cycle methodology for InfoSphere DataStage and QualityStage applications is concerned with the development, testing, release, and maintenance of the applications. In a basic deployment scenario, a set of InfoSphere DataStage and QualityStage assets is moved from a development environment to a test or production environment. InfoSphere Information Server Manager supports a model of separate systems that are used to develop, test, and run InfoSphere ETL jobs. The deployment tool facilitates this model by providing a secure, managed, and trackable method of moving assets between the different systems.

Deployment or promotion of code from one deployment environment to the next is an iterative process. The user specifies the assets to deploy by defining a package. When the user is ready to deploy, the package is built into a package file and copied to the target deployment environment. The package is then deployed to move the assets to the target system. When the assets on the source system change, there is no need to redefine the package; all the user needs to do is rebuild, recopy, and redeploy the package. The Information Server Manager tool makes code promotion and management easy and less prone to error.

Figure 43. InfoSphere Information Server Manager Package Deployment Phases. *The Infosphere Information Server Manager promotes ETL code from one environment to the next using packages to simplify the process and reduce errors.*



DD131	The solution's extract, transform, load (ETL) data acquisition component should have the ability for high-speed movement of data between source and target systems located on the network.

Data retrieval from source systems is performed using a "fast unload" approach from normalized data tables. It is then loaded into identical, normalized tables in the Data Staging area of the WV EDS where it is prepared for integration. This approach quickly establishes connectivity to the data sources and performs extraction routines that access source systems to retrieve the source data. Extract and load processes move data from source databases or files without cleansing or transformation to maximize the speed of data movement across the network.

DD132	The solution's extract, transform, load (ETL) tool should have extraction functionalities that can unload, select, or filter data from source systems including the application of remote filters against the source.

Information Server provides multiple techniques via connectors, operators, and plugins to connect to each database or type of data source. Data connection objects store the information needed to connect to a particular database in a reusable form. For ETL jobs, Watson Health finds that database connectors offer the best functionality and performance for accessing databases.

The WV EDS source-to-target mapping documents define any connectivity requirements and selection or filtering criteria or dependencies for the data elements to be selected from the sources. The source extraction granularity is fully configurable to the table/row/column level. Selective subsets of data are supported against the source. For example, granular subsetting and filtering at table/row/column levels are often used when sensitive data should not be accessed or replicated to other systems.

DD133	The solution's extract, transform, load (ETL) tool should have extraction functionalities that can deliver transparent, cross-platform access to remote data sources.

We understand that the data to be ingested will come from various sources, and identifying the appropriate data acquisition approach for each will be a critical step. WV EDS uses InfoSphere DataStage to provide direct, native access to a broad range of commonly used sources and targets. These include database systems, file systems, enterprise resource planning (ERP) systems, Hadoop environments, NoSQL and cloud-based repositories, as well as standards-based connectors such as Open Database Connectivity (ODBC), Java Database Connectivity (JDBC), Web Services, REST APIs, and XML sources. These broad connectivity and performance capabilities support any data source type, function, or data element needed to contribute to the WV EDS solution.

We typically rely on data feeds or file extracts as the source input for the WV EDS unless there is a specific need to use a direct extract method. In such cases, we depend on support from source system suppliers for appropriate access to the source system, knowledge and consultation by DHHR SMEs, data model documentation, advisement on appropriate or preferred data access methods, and potential use of computing resources on the source systems for extract routines. We control and execute all aspects of the ETL process using various extract methods, including coding the extracts directly from the transactional source systems if required. Our data source connectors and extraction techniques can support cross-platform remote access to data sources if required. We work with DHHR to define the optimal schedule and approach for extracting and exporting data from the source systems.

DD134	The solution's extract, transform, load (ETL) tool should have extraction functionalities that can efficiently process varying arrays and repeating groups.

With InfoSphere DataStage, an ETL developer can easily load, manage, and use repeating groups and internal record structures such as GROUP fields and OCCURS clauses by using the Complex Flat File stage. The metadata can be flattened into a normalized set of columns at load time so that no arrays exist at runtime.

The Complex Flat File stage lets you convert data extracted from complex flat files that are generated on IBM mainframe with a hierarchical structure in its arrangement of columns. It is physically flat (that is, it has no pointers or other complicated infrastructure) but logically represents parent-child relationships. You can use multiple record types to achieve this hierarchical structure. For example, use records with various structures for different types of information, such as a "C" record for claim header and a "D" record for claim detail information, or for repeating groups of information (12 months of payments). Users can also combine these record groupings, and in the case of repeating data, they can flatten nested OCCURS groups.

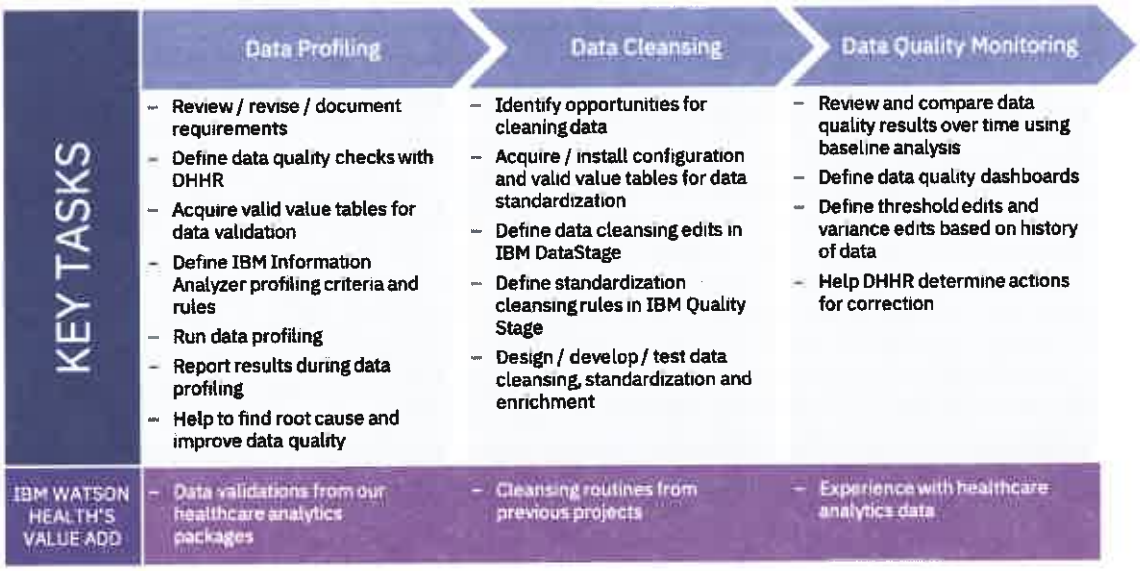
DD135	The solution's extract, transform, load (ETL) tool should have extraction functionalities that can receive data from a variety of source systems and formats of source data

WV EDS uses InfoSphere DataStage to provide direct, native access to a broad range of commonly used sources and targets. These include database systems, file systems, ERP systems, Hadoop environments, NoSQL and cloud-based repositories, as well as standards-based connectors such as ODBC, JDBC, Web Services, REST APIs, and XML sources. It provides multiple connections via connectors, operators, and plug-ins. These broad connectivity and performance capabilities will support any data source type, function, or data element needed to contribute to the WV EDS solution. In addition, we consume publicly available or nonpublic data sources via any available method and support integration of such data within the WV EDS to support reporting and analytics.

DD136	The solution's extract, transform, load (ETL) tool should have data checks and edit procedures in response to data quality issues identified in source systems and internal analytic applications

In our WV EDS, we have an established and comprehensive standard framework to drive design, development, and implementation of enterprise data quality. The data quality process consists of data profiling, data cleansing, and continued data quality monitoring to institutionalize data quality within the solution.

Figure 44. Key Tasks in the Data Quality Process. *Data profiling, cleansing, and ongoing quality monitoring.*



Data quality is evaluated across six primary dimensions:

- Completeness—identifying data that are missing or unusable

- Conformity—finding data that are stored in a nonstandard format
- Consistency—locating data with conflicting values
- Accuracy—identifying out-of-range or incorrect data, including inappropriate values in fields with standard values sets (e.g., diagnosis code, procedure code, procedure modifier, revenue code, or drug code fields)
- Duplication—inappropriate data that are repeated in the dataset
- Integrity—finding data or keys that are missing or not properly referenced

We also leverage data profiling for checking data reasonableness. Validations relating to data reasonableness look at the relationship between two or more columns, between columns across different data files, or between a column and "normative" data, to ensure that they are reasonable. Examples of reasonableness checks include the following:

- Comparison of diagnosis to age, diagnosis to gender (e.g., pregnant and male), and charge to payment
- Percentage of surgical services to total services
- Percentage of non-specific diagnoses
- Average cost per service by procedure code ranges

Standard or custom edits can be selectively applied to a single data source or multiple data sources. We work with DHHR to add custom edits and apply additional data edits during the data profiling stage. At the end of data profiling, we either accept a file for further processing or reject it on the basis of the number of failed quality checks. Reports can be generated for DHHR and other stakeholders to assist you in understanding errors contributing to rejection. In addition, we can share these reports with data suppliers as required.

From source data extract through transformations, aggregations, and destinations along the way, data quality checks verify that data received are as expected, complete, and accurate.

DD1.17	The solution's extract, transform, load (ETL) tool should have the ability to perform both set-based and procedural checks and edit procedures based on the Department's data quality objectives

Our procedures emphasize data quality and system-to-system reconciliation, including automated count comparisons and financial balancing, which involve set-based logic. We incorporate more than basic row counts and dollar validation for data loads. Our data quality checks are based on more than 35 years of experience transforming data for healthcare analytics. Although some solutions check quality by simply verifying counts and sums and looking for blanks, our data quality checks use more than 350 rules, such as the validation of codes against your healthcare reference data.

Our data integration team employs data profiling and data assessment to ensure data quality and to illuminate any potential impacts to the analytics derived from data. We conduct quality checks and data reconciliation to confirm that all ingested data meet quality standards to ensure quality in analytics and reporting. We apply the necessary edits to confirm the data are useful for analytics. For example, we have products that run National Correct Coding Initiative edits against client claims data to assess whether the claims adjudication system has applied all of the applicable edits correctly. We have extensive experience on projects for CMS that involved assessing billing fraud or abuse across the Medicare and Medicaid programs and developing edits and models for the Medicare Fraud Prevention System. We apply this logic and perform edits during our processing as directed by DHHR.

DD138	The solution's extract, transform, load (ETL) tool should have the ability to perform all demographic field check and edit procedures

Our WV EDS performs all field-level checks and edits on demographic data fields as required to standardize and conform them to accurate and common values across all data sources. All of our implementations include conforming dimensions and processes for reference, demographic, and geographic dimensions.

Our master data management solution helps eliminate duplicate records by identifying, matching, and merging them into a single golden record. This approach provides a firm foundation on which to build information related to members, providers, and other claims-related and demographic master entities such as facilities or locations. The definition of master data domains will follow defined guidelines that we establish in collaboration with DHHR. A golden record is established for those defined core entities that exist in the WV EDS. As an example, we may create a master data index for entities such as members, providers, facilities, and locations, depending on your data and reporting needs.

As an example of our experience in this area, we recently completed a data remediation project for a state client whose eligibility system had data quality issues when that system went live. With multiple IDs pointing to a single client, the metadata or attributes related to an individual could be distributed across two or more cases, resulting in incorrect demographics and enrollment data, with the potential to cause inappropriate eligibility determinations and the incorrect allocation of benefits and services. This issue affected any state agency using the master client record and affected the quality of the data in the reports we produced from the data warehouse. After performing an initial assessment and submitting our recommendations to the state, we were engaged to correct the problem. Ensuring that the master data are conformed and matched across records and that the demographics data are correct is an explicit area of focus for our data quality procedures.

DD139	The solution's extract, transform, load (ETL) tool should have the ability to apply complex data mapping and domain value conversions against source data

Reference Data and Domain Value Conversions

We understand how critical it is for a modular vendor environment to be working from the same reference data, coordinated across the enterprise. Throughout the life of the contract and for all solution components, we update and maintain the industry-standard and third-party reference and dimension code data for the prevailing set of code tables at the time of production implementation as that reference data changes. We work with DHHR and third-party suppliers to establish, document, and maintain standard procedures for updating these data elements.

An enterprise data management foundation serves as the basis for shared, common views of both providers and recipients, along with the reference data and attributes describing them. Our data quality checks validate codes against your healthcare reference data, providing an analytically ready set of data. From data acquisition to ETL and finally to destination, data quality checks verify that data received are as expected, complete, and accurate.

As part of reference data management, we maintain historical reference datasets as part of our content. In addition, DHHR users will have access to the latest metadata information about these historical reference datasets through the InfoSphere IGC. Data Stewards can make modifications and updates to metadata about historical reference data in IGC.

Data Domain Definitions

In our data modeling tool, a data type from a defined data domain is applied to every attribute in a logical model and to every column in a physical model. In addition, we can establish ETL rules so that all systems that use numeric fields are defined and coded as numeric data only; similarly, all systems that use

alphabetic data fields are defined and coded as alphabetic data only. Our ETL tool's out-of-the-box edit functions (NUM and ALPHA) can be applied to any string or expression to evaluate its contents and check whether it is numeric or alphabetic, respectively.

DD140	The solution's extract, transform, load (ETL) tool should have the ability to perform an initial one-time data load from sources outlined in the Enterprise Data Solution (EDS) Request for Proposal (RFP) for each indicated development environment

Our InfoSphere DataStage tool and ETL process include an initial one-time "full refresh" of data from designated source database tables to the new WV EDS development environment and any other environments as required. After this initial refresh of historical data is established, the WV EDS is periodically updated with data changes from the sources. We can continue to receive extracts and perform change comparisons and delta processing to identify and process any records subsequently updated or deleted from the source dataset since the initial "full refresh" static extract was captured. As additional extracts are processed for subsequent migration batches, we have the previous static file against which to compare subsequent datasets and to reconcile the data in the WV EDS. Performing change comparisons and delta processing allows us to identify and process any records inserted, updated, or deleted on the source dataset since the static file was captured. We also capture metadata, including the delta file source, including when they were received and loaded, effective dates, and update dates.

We work with DHHR to create a schedule for environment refresh of source data. The data refreshes prevent the environments from being stale and allow the newly developed data feeds to be included in the refreshes. If an ad hoc refresh for a particular testing phase is needed, the Watson Health Release Workstream Leader works with the WV EDS delivery team to schedule and communicate an off-schedule refresh. We refresh all nonproduction environments, including development, testing, and training, on a schedule in accordance with the development or other environment activities and DHHR's specific requirements.

DD141	The solution's extract, transform, load (ETL) tool should have the ability to geocode subject area addresses

Our WV EDS applies specific quality checks and transformations for physical address records and geographic location data. We use address verification and geocoding services available with InfoSphere QualityStage to standardize and geocode address information. QualityStage standardizes address records and matches those records to the United States Postal Service® (USPS) standard addresses. Valid addresses can be standardized to comply with USPS standards, and invalid address exceptions can be reported. We also use this address verification functionality to geocode (i.e., apply latitude and longitude indicators to) all addresses and location data and store the information in the data warehouse.

DD142	The solution's extract, transform, load (ETL) tool should have the ability for high-speed movement of data between source and target systems on the network

We have experience with large data transfers over networks and with transferring data from other clouds via direct connections/pipes. In terms of network speeds, our proposed solution includes high-speed network switch fabric for storage networking and all the other components required to transfer data across the host of servers. Our speed and scale are limited only by source system and environment considerations. Our cloud platform provides for virtually unlimited scale and flexibility to accept data from source systems no matter where they reside.

DD143	The solution's extract, transform, load (ETL) tool should have the ability to efficiently load proportionally large data volumes

Our WV EDS, through its ETL processes, provides the capability to move large volumes of data through the various services and data stores with speed, integrity, quality, efficiency, scalability, and flexibility to deliver business value.

Our WV EDS is designed for future growth. The hardware and software components are scalable; all have been proven in large-scale production environments. The architecture offers the operational efficiencies and virtually unlimited scalability of cloud hosting. Our solution is deployed on a Massively Parallel Processing storage environment, which can be scaled horizontally by adding nodes, rather than moving to a server with more central processing units (CPUs) or higher storage capacity. This architecture facilitates efficiency via the granularity of incremental capacity growth while sustaining virtually unlimited growth in users and data volume across all components.

In addition, the ETL component is built on a highly scalable software architecture that delivers high levels of throughput and performance. InfoSphere Information Server is designed to automatically optimize the use of all available hardware resources. It uses powerful parallel processing technology to ensure that large volumes of information can be processed quickly. This technology ensures that processing capacity does not inhibit project results, allowing solutions to easily expand as the hardware infrastructure is made available and to fully use the processing power of all available hardware.

Beyond the underlying hardware architecture and the ETL engine's optimization of it, the ETL component's integration architecture also contains the following capabilities to maximize data throughput:

- A method for processing data without writing to disk, in batch and real time
- Dynamic data partitioning and in-flight repartitioning
- Both pipeline parallelism and partition parallelism to achieve high throughput, performance, and scalability

The WV EDS is hardware and ETL component is architected to optimize throughput when loading large data volumes and with the elasticity and flexibility to support incremental capacity growth with sustained performance as those data volumes grow or vary over time.

DD144	The solution's extract, transform, load (ETL) tool should have the ability to schedule and monitor transformation jobs/sessions to populate internal analytic applications

Our WV EDS comes with a comprehensive scheduling functionality. For example, InfoSphere Information Server provides both administrators and clients with the ability to manage, create, design, and schedule jobs in DataStage and QualityStage—jobs including those that perform transformations and populate our solution's internal analytics in the Watson Health Flexible Analytics modular internal analytic component.

Our WV EDS solution validates, runs, schedules, and monitors jobs. It uses the job scheduling features of DataStage and QualityStage to automatically run jobs at specified times, days, or intervals. Jobs can also be scheduled with an external job scheduler tool or technology by using the command line interface to run the job as a script. There is a single command, *dsjob*, with a large range of options for logging in, starting, stopping, managing job log files, and generating a job report. The *dsjob* command can be used in shell or batch scripts without extra processing. This feature allows DataStage ETL jobs to be scheduled and managed by industry standard job scheduler tools.

Our implementations can also use the scheduling systems available within the base operating systems, such as Windows Task Manager and Unix *cron*, and integrates with the Department's enterprise scheduling software, if requested. Regardless of the scheduling system used, we schedule our processes for population of our internal analytics according to DHHR direction and scheduling criteria.

For ETL job monitoring, the Information Server Operations Console allows users to access information about jobs, job activity, system resources, and workload management queues. It provides engine-wide information about job runs, resources, and engine status. Users can monitor jobs by viewing the job log, which contains entries describing events that occurred during the last (or previous) runs of the job. The Watson Health team uses the information from the console to identify service errors, failed jobs, and performance issues.

DD145	The solution's extract, transform, load (ETL) tool should have the ability to create complex job streams with interdependencies

The Information Server job scheduling capability allows users to develop sequence jobs to run multiple jobs in sequence and in conjunction with other jobs and to integrate programming controls such as branching and looping into the job workflow. Users can specify the job stream interdependencies and job control information, such as the different courses of action to take depending on whether a job in the sequence succeeds or fails. When jobs are combined in a sequence job, they can be easier to troubleshoot. Sequence jobs also provide checkpoint restart capabilities so that on restart, processing continues after the last successful step in the workflow.

DD146	The solution's extract, transform, load (ETL) tool should have the ability to re-route error or exception records to a separate target for future interrogation

Our WV EDS ETL jobs ensure that our ETL processes have moved and translated the data successfully. Levels of errors that can be encountered are identified, and a method for error handling and communication required for each level of error is defined. Exception handling references log files to indicate which, if any, jobs had load failures and why. Metadata, such as the source system name and the date the record was loaded, are captured when data are loaded. We report the statistics of all ETL exception reports to DHHR. Authorized users will also have online access to the InfoSphere Data Quality Exception console and will be able to view relevant metadata and data exception results.

When the ETL and data profiling or data quality processes find quality issues in the data, exceptions are generated and stored. For example, a Data Rule generates an exception set for all records that do not meet the conditions of the Data Rule. The generated exception set also creates a new exception event and triggers an application to send exception sets to the Data Quality Exception Console. The Data Quality Exception Console then displays the exception sets and their associated exception detail records. All DataStage and QualityStage jobs that generate exceptions send exception sets to the Data Quality Exception Console. Within the console, users can specify which exception sets are to be managed. Data stewards can use the console to monitor and manage the priority of data quality issues. The data stewards can then send those exception sets and all subsequent ones of the same filter conditions to the IBM Stewardship Center.

DD147	The solution's extract, transform, load (ETL) tool should have the ability to correct data and subsequently re-submit corrected data to the ETL process

Watson Health works with each data source supplier to establish a formal data exchange/interface agreement and a document describing the data to be exchanged with that source system. This information is captured in an Interface Control Document (ICD) which adheres to the CMS ICD standards. The ICD identifies the rules required for developing and maintaining the interface or exchange with each data source, including all possible inputs and outputs, and how the interfaces are maintained. We maintain an ICD for each data source and document the interface changes throughout the data life cycle.

The ICD specifies how record exceptions are to be corrected and reprocessed by the ETL processes. The approaches may vary by source system and may include more investigation into the root cause of the exception as required. The approach for resubmission considers the integrity of the WV EDS data stores and the timing of job logic and reports. We discuss plans and approaches for data exception processing

and resubmission with DHHR and the processes are fully documented in the ICD. We adhere to the documented conditions and processes for corrected data resubmission as informed by our discussions with DHHR.

Within InfoSphere Information Server, the IBM Stewardship Center provides Data Stewards with a central browser-based interface where they can collaborate on and manage data quality issues and data exceptions that arise. Authorized DHHR users will have online access to the IBM Stewardship Center, with the InfoSphere Data Quality Exception Console providing a view of relevant metadata and profiling results. The exception sets can be managed in the Stewardship Center by designing and initiating a standard business process to handle and resolve the data quality issues. For example, a business process could route tasks that are related to systematic errors to a team that is responsible for resolving these issues. In addition, we authorize selected users for direct SQL access to the WV EDS tables down to the most detailed claim-line level and associated metadata for data quality inspection.

DD148	The solution's extract, transform, load (ETL) tool should have the ability to reports results of an ETL session, including automatic notification of normal processing and failures, descriptions, and counts of exceptions

Our WV EDS ETL processing is designed to ensure that data are moved and translated successfully. Levels of errors that can be encountered are identified and a method for error handling and communication required for each level of error defined. Exception handling references log files to indicate which, if any, jobs had load failures and why. Metadata, such as the source system name and the date the record was loaded, are captured when data are loaded. We report the statistics of all ETL exception reports to DHHR. In addition, authorized users have online access to the InfoSphere Data Quality Exception console and can view relevant metadata and data exception results.

The Information Server job log is updated when an ETL job is validated, run, or reset. The job log is used to troubleshoot jobs that fail during validation or that are aborted when they are run. Our solution allows users to view the job log, which contains entries describing events that occurred during the last (or previous) runs of the job. Entries are written to the log when—

- A job or batch starts or finishes
- A stage starts or finishes
- Rejected rows are output
- Errors are generated

Additionally, we employ two approaches to make sure that our processes have moved and translated the data successfully:

- **ETL reconciliation.** Confirms that everything that was expected to be loaded was properly loaded into the WV EDS data stores through postload checks and balances. Our processes use multiple steps to ensure that reconciliation of data happens as the data are loaded, before they reach the end users. We capture source metadata, such as the source system name, source record counts, and the date the record was loaded, as they are loaded.
- **System-to-system reconciliation.** Compares source to target at a high level. This process ensures that any errors outside the ETL process are discovered, such as a potential error in the data source extract. This process would compare postprocessing counts, control totals, and other high-level metrics to verify accuracy and consistency.

Our WV EDS ETL processing results are captured and recorded in logs and consoles for notification purposes. Any exceptions are captured and documented for examination and follow-up actions.

DD149	The solution's extract, transform, load (ETL) tool should have the ability to generate and manage notifications and alerts, including how the alerts are registered, logged, and to whom they were posted

Our WV EDS includes detailed exception handling with logs and alerts as to which jobs failed, when they failed, and why they failed. ETL administrators can trace and resolve any system or interface-related issues quickly. Alerts and logs generated during ETL are used for reporting data exceptions and errors during processing.

In Information Server, exceptions are entities that are generated by a condition or event and that might require additional information or investigation. An exception set provides information about the set of exceptions that were produced by the event. Data exception sets can be managed in the Stewardship Center by designing and initiating a standard business process to handle and resolve the data quality issues. For example, a business process could send alerts via email or route tasks that are related to systematic errors to a team that is responsible for resolving these issues.

The Subscription Manager is a notification service that authorized users can use to subscribe to exception events and specify the action to take when an event is generated. An authorized user can subscribe to receive notifications for exception events for data quality rule violations or other exception events. Sample email templates for exception events are provided with Information Server and can be customized for specific email content and format requirements.

The alerts themselves, including information as to whom the alert was sent, are also logged within a central database on the SolarWinds Orion Platform.

DD150 The solution's extract, transform, load (ETL) tool should have the ability to tune ETL process steps

Performance tuning and optimization are iterative processes that begin with job design and unit tests, proceed through integration and volume testing, and continue throughout the production life cycle of the application. Our solution offers a number of performance pointers documented in our Information Server product documentation. These include specific recommendations for tuning job flows and environment variables to maximize throughput and resolve bottlenecks.

For example, adjusting the following environment variables are recommended for performance tuning of a job flow.

- APT_BUFFER_MAXIMUM_MEMORY
- APT_BUFFER_FREE_RUN
- TMPDIR directory default

In addition, our WV EDS ETL process supports both ETL and ELT processing approaches so that transformation and aggregation logic can be performed either in the data integration engine (ETL) or on the data warehouse with post-load SQL (ELT). This technique is known as *balanced optimization*.

Balanced optimization can improve the performance of some DataStage jobs because we can control where the intensive work is performed: in source data servers, in DataStage, or in target data servers. Balanced optimization gives the job designer greater control over the job. The designer designs the job as normal and then uses balanced optimization to redesign the job automatically to stated preferences. This redesign process can maximize performance by minimizing the amount of input and output performed and by balancing the processing against source, intermediate, and target environments.

Finally, we use strategies for bitmap indexing, compression, and partitioning to further improve ETL and reporting performance. Indexing on both the fact and dimension tables is based on data cardinality and frequency of access as well as access paths taken to acquire data for reporting. Partitioning occurs for performance and maintenance reasons.

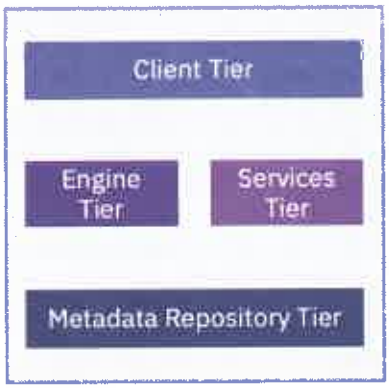
All of these techniques and design practices contribute to the goal of tuning the ETL process steps and overall processing environment for optimized performance.

DD151	The solution's extract, transform, load (ETL) tool should have the ability to load-balance ETL jobs or process steps

Users install IBM InfoSphere Information Server product modules in logical tiers. A *tier* is a logical group of components within InfoSphere Information Server and the computers on which those components are installed. Each tier includes a subgroup of the components that make up InfoSphere Information Server. The engine tier performs the heavy workload of ETL processing in DataStage jobs.

To maximize the IBM InfoSphere Information Server engine efficiency and throughput, we can create a parallel processing or grid topology. In these topologies, the workload for each job is distributed across several processors, effectively load balancing the ETL workload.

Figure 45. Conceptual Illustration of the InfoSphere Information Server Topology Tiers. *The engine tier performs the heavy ETL processing workload in DataStage jobs.*



Load Balancing With Parallel Processing Topology

In a parallel processing topology, the workload for each job is distributed across several processors on one or more computers, called *compute nodes*. Within InfoSphere DataStage, the user modifies a configuration file to define multiple processing nodes. These nodes work concurrently to complete each job quickly and efficiently. A *conductor node* computer orchestrates the work. The processors can be located on the same computer or on different computers that are connected over a network. The engine tier includes a parallel engine component that uses the processors and computers concurrently to complete each job.

Load Balancing With Grid Topology

We can also configure the InfoSphere Information Server parallel framework for grid computing processing. In a grid topology, a resource manager dynamically allocates resources for job processing at runtime. With a grid implementation, a resource manager manages the pool of available resources and dynamically allocates them as jobs are submitted for processing, load balancing based on current resource utilization. For each job, the resource manager waits until resources are available and then generates a configuration file that assigns resources to the job. The system minimizes the idle time for each processor and helps ensure that resources are used in the most efficient manner.

DD152	The solution's extract, transform, load (ETL) tool should have the ability to recover from the abnormal ending of a job and restart or rollback

If a DataStage ETL job has stopped or aborted, we can reset a job or job invocation using the dsjob -run command with the -mode RESET. The RESET parameter can also be used for jobs with a status of "Finished" to undo the updates performed during a successful job run. A *Job > Reset* or Reset button is also available on the toolbar of the Job Status view of the DataStage Director graphical client interface.

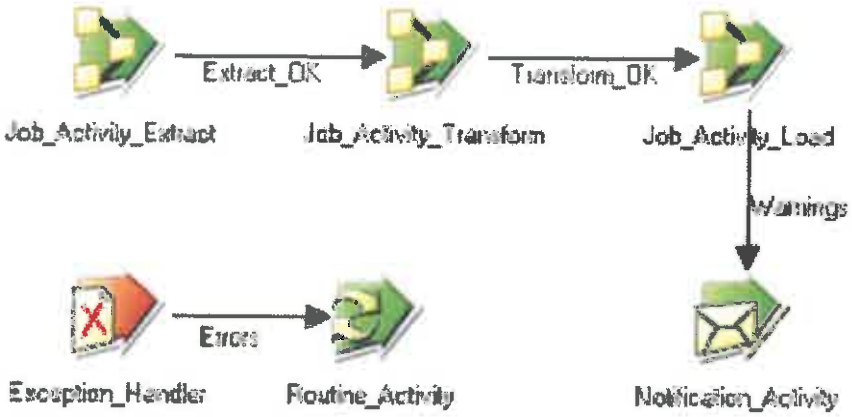
DataStage jobs can be restarted by issuing the *dsjob -run* command with the -mode RESTART parameter. The RESTART parameter resumes a restartable job sequence from the last checkpoint by using the original job parameter values.

Sequence jobs allow multiple jobs to run in sequence and in conjunction with other jobs. Sequence jobs also provide checkpoint restart capabilities so that they can be restarted if they fail. On restart, processing continues after the last successful step in the workflow. Checkpoint recording can be specified at a project-wide level or for individual sequence jobs. If a restartable sequence job fails, it can be restarted from the point at which it failed.

DD153	The solution's extract, transform, load (ETL) tool should have the ability to create complex job schedules with both serial and parallel streams

The InfoSphere Information Server job scheduling capability also allows users to develop sequence jobs to run multiple jobs in sequence and in conjunction with other jobs and to integrate programming controls such as branching and looping into the job workflow. Jobs can be combined in a sequence job to develop larger processing patterns. Users can specify the control information, such as the different courses of action to take depending on whether a job in the sequence succeeds or fails.

Figure 46. DataStage Sequence Jobs. *The first job extracts. The second job transforms. The third job loads. The last Job Activity sends messages with a "Notification_Activity." Exceptions from the job activities are handled by using a "Routine_Activity" stage.*



The Infosphere Information Server job scheduler and sequence jobs can be used to create complex job schedules of serial sequences or multiple jobs running concurrently via parallel scheduling criteria. In addition, multiple invocations of a job or a job sequence can run concurrently with each invocation starting with different parameters to process different datasets. This results in parallel job invocations of a given job.

DD154	The solution's extract, transform, load (ETL) tool should have the ability to initiate jobs based on time or occurrence of events

Time-based Job Scheduling

The Infosphere Information Server job scheduler can automatically run jobs at specified times, days, or intervals, as follows:

- Once today at a specified time
- Once tomorrow at a specified time
- On a specific day and at a particular time
- Daily at a particular time

- On the next occurrence of a particular date and time

Each job can be scheduled to run on any number of occasions, by using different job parameters if necessary. For example, you can schedule a job to run at different times on different days.

Sequence Jobs With Triggers

With sequence jobs, triggers can be added that define the flow of control. Sequence jobs are created by adding activities, linking the activities, specifying triggers for each activity, and optionally adding parameters for each activity. When you link two activities together, you define the triggers that define the flow of control. Triggers determine what actions an activity takes when it runs as part of a sequence job.

An unconditional trigger runs the target activity once the source activity completes, regardless of what other triggers are run from the same activity. A conditional trigger runs the target activity if the source activity fulfills the specified condition. The condition is defined by an expression and can be one of the types shown below.

Table 25. Conditional Trigger Types. *The Conditional Trigger defines on what condition of a source activity that the action will be taken on a target activity.*

Conditional Trigger	Action
OK	Runs the target activity if the source activity succeeds
Failed	Runs the target activity if the source activity fails
Return Value	Returns a routine or command when the activity runs
Warnings	Returns a message if the activity produces warnings
Custom	Runs a customized trigger for the activity, which users define as an expression
User status	Returns a customized status message and writes it to the log

DD155	The solution's extract, transform, load (ETL) tool should have the ability to create log files that are detailed enough to debug issues

The Information Server job log is updated when an ETL job is validated, run, or reset. The job log is used to troubleshoot jobs that fail during validation or that are aborted when they are run. Our solution allows users to view the job log, which contains entries describing events that occurred during the last (or previous) runs of the job.

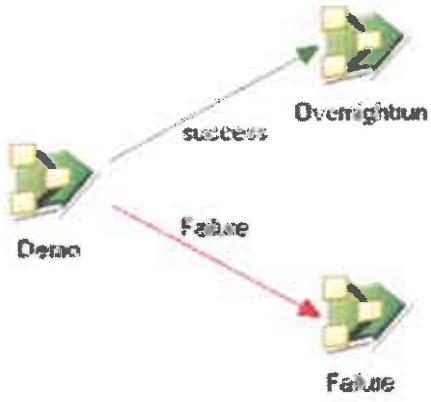


Figure 47. Sequence Job With Triggers. *This sequence job shows a sequence that runs the Demo job. If the sequence job runs successfully, the success trigger causes the Overnightrun sequence job to run. If the Demo job fails, the Failure trigger causes the Failure sequence job to run.*

The log file for a job is displayed in the Job Log view. The Job Log columns are described below.

Table 26. Job Log Columns. *The columns in the Job Log view contain a summary of events that occur with an ETL job is validated, run, or reset.*

Column Name	Description
Occurred	The time the event occurred
On date	The date the event occurred
Type	The type of event
Event	A message describing the event. The first line of the message is displayed. If a message has an ellipsis (...) at the end, it contains more than one line. You can view the full message in the Event Detail window.
Invocation	If the log is for a job invocation, gives the invocation ID; otherwise is blank
Occurred	The time the event occurred

The full message for an event can be viewed in the Event Detail window, which contains a summary of the job and event details.

Table 27. Event Detail Window Content. *The columns in the Event Detail window contain a summary of the job, the Event Type, and the full Event Message.*

This field...	Contains this information...
Project	The name of the project and the computer that hosts the engine tier
Event #	The ID assigned to the event during the job run
Event type	The type of event. The event types are— • Info • Warning • Fatal • Control • Reject • Reset
Job name	The name of the job
Invocation	If the log entry is for a job invocation, gives the invocation ID; otherwise is blank
Timestamp	The date and time the event occurred
User	The name of the user who reset, validated, or ran the job
Message	The full event message

To display the information in the above tables, a *View > Log* menu option or View Log button is available on the toolbar of the Job Status view of the DataStage Director graphical client interface.

The descriptive information captured in the job log and the event detail views provide the information necessary to inform on the events that occurred, the job stages that were processed during the event, the cause of the event, and the data associated with the event. This level of detail provides the information necessary to investigate and debug any errors that occurred.

DD156	The solution's extract, transform, load (ETL) tool should have the ability to generate, store, search, report, import, export, and document ETL-generated metadata, including source definitions

Our WV EDS ETL component, InfoSphere Information Server, stores imported metadata, operational metadata generated by ETL processes, project configurations, reports, and results from all components of Infosphere Information Server. Infosphere Information Server can import and export common metadata assets such as physical databases, BI assets, logical data model assets, physical data model assets, custom

attribute definitions, and other assets to/from the Infosphere Information Server metadata repository. The InfoSphere IGC metadata management toolset lets users locate, retrieve, and report on information about data objects—their meaning, physical location, characteristics and usage, and all such information provided by metadata. Authorized users can search, browse, and query the metadata repository to locate and retrieve information about data objects—their meaning, physical location, characteristics and usage, and all such information provided by metadata.

The metadata repository can contain metadata from all supported source data stores and the objects including physical databases and the objects within those databases, for example, tables, columns, keys, and relationships across tables. Table definitions are imported directly from the source data stores and stored in the repository so they can be shared by all the jobs in a project.

DD157	The solution's extract, transform, load (ETL) tool should have the ability to generate, store, search, report, import, export, and document ETL-generated metadata, including target definitions

Our WV EDS ETL component, IBM InfoSphere Information Server, stores imported metadata, operational metadata generated by extract, transform, load (ETL) processes, project configurations, reports, and results from all components of InfoSphere Information Server. InfoSphere Information Server can import and export common metadata assets such as physical databases, business intelligence (BI) assets, logical data model assets, physical data model assets, custom attribute definitions, and other assets to and from the InfoSphere Information Server metadata repository. Authorized users are able to search, browse, and query the metadata repository to locate and retrieve information about data objects—their meaning, physical location, characteristics and usage, and all such information provided by metadata.

The metadata repository can contain metadata from all supported target data stores, the objects including physical databases, and the objects within those databases, including tables, columns, keys and relationships across tables. Table definitions are imported directly from the target data stores and stored in the repository so they can be shared by all the jobs in a project.

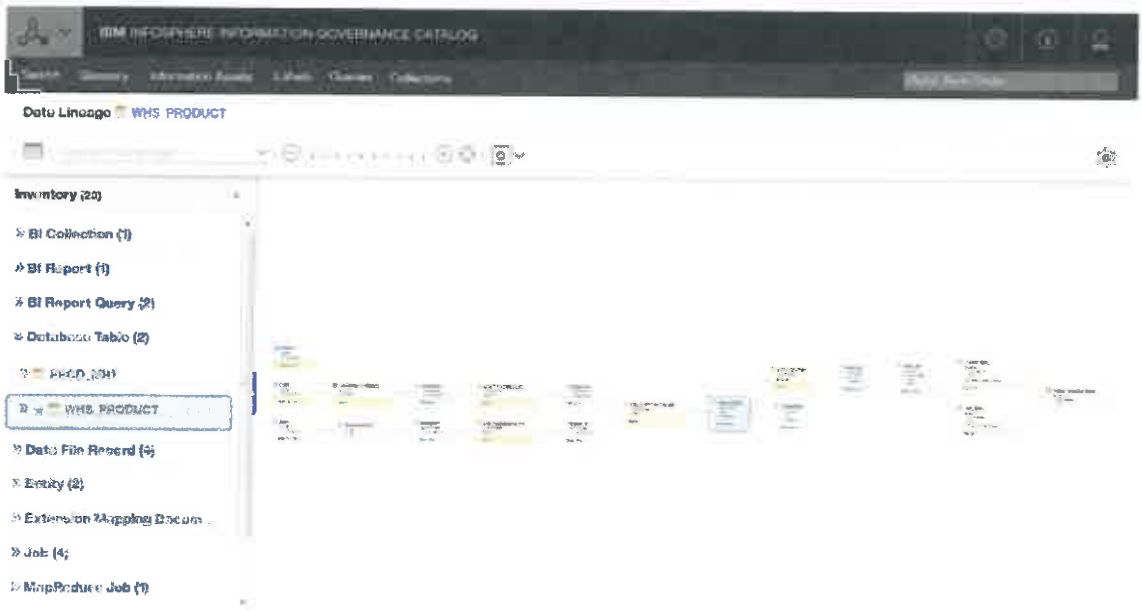
DD158	The solution's extract, transform, load (ETL) tool should have the ability to generate, store, search, report, import, export, and document ETL-generated metadata, including database mapping(s)

InfoSphere Information Server provides a mapping editor to create ETL mapping specifications that consist of source-to-target mappings. Mappings can be further refined by applying transformation rules. Mapping specifications are stored in the metadata repository and can also be imported from other application sources or exported to .csv files. Authorized users can use the InfoSphere Information Governance Catalog (IGC) to search, browse, and query the metadata repository, including source-to-target mappings.

DD159	The solution's extract, transform, load (ETL) tool should have the ability to generate, store, search, report, import, export, and document ETL-generated metadata, including data lineage

IGC facilitates tracing lineage from data sources through jobs and databases to BI reports and performing impact analysis to understand dependencies and the effects of changes to a column or job in the downstream ETL process. IGC provides an interactive, web-based interface for visual exploration of the metadata. Data lineage reports track data assets through the entire ETL flow in both directions—from source to target or from target to source. Users can navigate through IGC to trace data lineage with a graphical visualization.

Figure 48. InfoSphere Information Governance Catalog (IGC) Sample Data Lineage Graphical View. *A view from IGC showing data lineage of one specific table.*



DD160	The solution's extract, transform, load (ETL) tool should have the ability to generate, store, search, report, import, export, and document ETL-generated metadata, including transformations

The ETL operational metadata about the sources, targets, transformations, and the job runs themselves are all captured automatically at run time and stored in the common metadata repository. The metadata can be viewed and investigated later as necessary to understand the data movement and transformations that occurred. The transformation metadata allows users to view the entire landscape of data integration processes, with visibility into data transformations that operate inside and outside of InfoSphere Information Server.

DD161	The solution's extract, transform, load (ETL) tool should have the ability to generate, store, search, report, import, export, and document ETL-generated metadata, including data dependency analysis

Data Dependency Analysis

IGC metadata management toolset lets you locate, retrieve, and report on information about data objects—their meaning, physical location, characteristics and usage, and all such information provided by metadata. Authorized users can use IGC to search, browse, and query the metadata repository.

IGC facilitates tracing lineage from sources through jobs and databases to BI reports and performing impact analysis to understand dependencies and the effects of changes to a column or job in the downstream ETL process. Impact analysis queries display results in list or graphical form, showing the relationships of the objects found by the query. Dependency analysis queries include "where used" and "dependencies of" queries. These queries can be used to discover where a particular object is used by other objects or what other objects a particular object depends on.

From the "Dependencies of" results view, the user can use a pop-up menu to invoke a view of the entire dependency path to a particular object.

Figure 49. Graphical view of a "Dependencies of" query result. *A "Dependencies of" query is run on a simple job called seq2seq.*

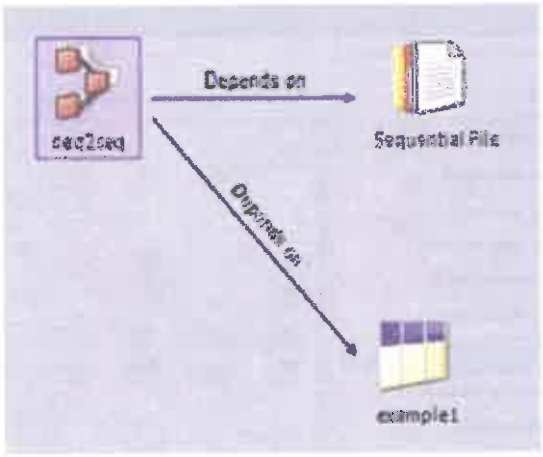


Figure 50. Graphical view of a Dependency Path query result. *A Dependency Path query shows the full dependency path from the seq2seq job to the example1 table.*



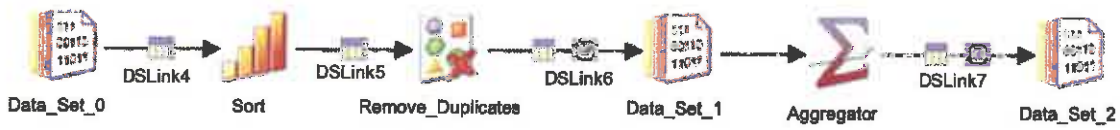
Data Relationship Analysis

The above results are based on the metadata dependencies in the IGC as opposed to dependencies within the data themselves. In addition to these capabilities, our InfoSphere Information Analyzer data profiling tool can run a relationship analysis on the actual data to identify potential primary key/foreign key relationships between two or more data sets or tables. The analysis can evaluate single and multicolumn relationships and can be used to determine potential relationship candidates and automatically selects the best relationships between datasets. This capability can be useful to DHHR as new data sources are evaluated for future integration into WV EDS.

DD162	The solution's extract, transform, load (ETL) tool should have the ability to generate, store, search, report, import, export, and document ETL-generated metadata, including process flows

The ETL operational metadata about the sources, targets, transformations, and the job runs themselves are all captured automatically at run time and stored in the common metadata repository. The ETL process flow metadata are available to be viewed and investigated later as necessary to understand the data movement, transformations, and the overall process flow of the data from source to target destination. In addition, our solution's graphical environment presents a visual process flow of data as they move through the transformation process from source to target.

Figure 51. Example Job Flow on the Graphical ETL Canvas with "Sort", "Remove_Duplicates" and "Aggregator" Transformations. *The Watson Health solution has pre-built and reusable transformation stages and graphical job flows for intuitive, consistent and easy job development.*



DD163	The solution's extract, transform, load (ETL) tool should have the ability to generate, store, search, report, import, export, and document ETL-generated metadata, including operational statistics

Operational Metadata Statistics

The ETL operational metadata about the sources, targets, transformations, and the job runs themselves are all captured automatically at run time and stored in the common metadata repository. Operational metadata consist of information about the execution of an application or a job. Such information includes times and dates, counts of records processed and rejected, and statistics about processes, processors, and servers that are generated in the course of executing a job. After a job is run, the statistics of the job run (operational metadata) are stored in the metadata repository. IGC can then use these metadata to build operational metadata reports.

Data Profiling Statistics

The above results are based on the operational metadata statistics stored in the IGC as opposed to statistics about the data themselves. In addition to these capabilities, our InfoSphere Information Analyzer data profiling tool can produce column analysis statistics. These statistics can also be used to calculate meaningful results as a single number, indicator, or metric about the data.

The column analysis results include values such as column name, data type, length, minimum, maximum and mode values, cardinality, and selectivity. Statistics include the number of unique values, cardinality, value, pattern, and length frequencies. A user can tailor rule output, specifying the statistics to be produced and how exception information should look such as counts and percentage of records that did not meet the rule condition. A set of detailed results and statistics for each data object is stored repeatedly over time for each data profiling run to produce time series of events that can be tracked, annotated, reported, and trended over time.

DD164	The solution's extract, transform, load (ETL) tool should have the ability to generate, store, search, report, import, export, and document ETL-generated metadata, and store metadata in an open format

Metadata Integration Bridges

Metadata can be imported from tools, files, and databases into the metadata repository by using InfoSphere Metadata Integration Bridges with InfoSphere Metadata Asset Manager. One can use bridges to import metadata from a particular tool, file, or database into the metadata repository and to export metadata from the metadata repository. The bridge converts the information by translating the semantics of the source tool into the semantics of the target tool. These capabilities allow metadata to be exchanged with common data integration tools and with scripts containing data definition language (DDL) or copybook definitions.

Open IGC

Open IGC is the technology that allows users to define new asset types within IGC with their own names, icons, custom properties, and containment relationships. Open IGC is a framework to extend the standard IGC metadata categories (databases, tables, files, ETL processes, XML schemas, BI models, data models,

and many more) with user-defined categories. This is the ability to create nearly "any" type of new object within the IGC and then connect it to other objects with a whole new lineage paradigm. Open IGC supports metadata exchange with a number of bridges for common data integration tools, database scripts, and file systems.

IGC Representational State Transfer Application Programming Interface

IGC also has a Representational State Transfer Application Programming Interface (REST API) that allows client applications to access and author IGC content. In this manner, IGC content can be integrated into other software tools and portals. The IGC REST API enforces security roles, workflow, and viewing permissions just like the IGC user interface.

DD165	The solution should have an extract, transform, load (ETL) mobility management entity (MME) data content component that versions the stored metadata content

Note: *It is assumed that Mobility Management Entity (MME) was intended to be Managed Metadata Environment (MME) as per p.57 of the RFP.*

Tracking Metadata Asset Changes and Workflow

With InfoSphere IGC, designated users can create glossary assets: terms, categories, information governance policies, and information governance rules. In addition, users can define relationships between the glossary assets that they create and other catalog assets. In addition to glossary assets, the catalog can contain metadata about information assets, which are assets other than glossary assets.

In addition to helping users understand and govern their information, IGC helps users understand the change and workflow processes of their assets. IBM Stewardship Center can access asset information and activity in the catalog by using the IGC REST API. IBM Stewardship Center sends an email notification to specific recipients as soon as a governance event such as creation, modification, import, or workflow change occurs to an asset. The email contains the asset name, the action that occurred, and a link to the Details page of that asset. When an information governance rule is sent for approval, the email contains a link to approve or reject the modified rule.

Comparing Metadata Versions With Baseline Analysis of Data

Our WV EDS ETL component, InfoSphere Information Server, (1) stores imported metadata, such as physical databases, BI assets, logical data model assets, physical data model assets, and custom attribute definitions, and (2) captures operational metadata generated by ETL processes, project configurations, reports, and results from all components of InfoSphere Information Server, including data profiling results from InfoSphere Information Analyzer.

InfoSphere Information Analyzer provides the data-driven creation of metadata and a way to link the metadata to physical objects, enhancing and extending the semantic information about the data itself. The structure of data can change as new versions of external data source definitions evolve over time. Information Analyzer provides a means to monitor the data in an external data source to ensure that they continue to support the processes with which they are associated. To ascertain whether external source data have changed, a user can create a data profiling project to evaluate the structure and content of the data and then use baseline analysis to monitor for any changes.

Baseline analysis compares the column analysis results for two versions of the same data source. A user chooses the analysis results to set as the baseline version and then uses the baseline version to compare all subsequent analysis results of the same data source. The user can continue to review and compare changes to the initial baseline as often as needed or change the baseline if necessary. This capability allows for comparison of the table metadata with the external source data themselves, so the metadata can be synchronized with the source data over time.

Glossary Workflow From Development Glossary to Published Catalog

InfoSphere IGC has an optional workflow feature that allows glossary metadata content to be managed by a workflow. The glossary metadata move from one state to the next via a defined workflow. If the workflow feature is not enabled, then changes to the glossary become available to the enterprise immediately whenever a change is saved or the content is imported. If workflow is enabled, glossary content must go through an approval and publication process to be made available to general users.

When the workflow feature is enabled, the existing glossary is split into a development glossary and a catalog. The development glossary contains copies of glossary assets as they initially exist in the catalog. This is known as a state of *synced* to indicate that an identical copy of the assets exists in the development glossary and in the published glossary. As glossary assets are developed and authored, the development glossary also contains glossary assets that are being created or revised but that have not yet been published. In the development glossary, assets move through a series of workflow states as they are reviewed, approved, and published by users in assigned workflow roles.

Table 28. IGC Development Glossary Workflow States. *Glossary assets in the Development Glossary are in one of these Workflow States related to their stage of development.*

Workflow State	Description
Draft	• When an asset is initially created, it is in draft state. If a published asset is edited, the edited version of it is in the development glossary in draft state. The asset in draft state can be sent for approval or discarded from the development glossary.
Pending approval	• After an asset in draft state is sent for approval, it is in pending approval state. An asset in pending approval state can be approved or it can be returned to draft state by the Editor or Approver.
Approved	• After an asset is approved, it is in approved state. From approved state, the asset can be published to the catalog. Alternatively, it can be sent back to draft state.

Table 29. IGC Development Glossary Workflow Roles. *Users with these workflow roles can interact with glossary assets that are under development.*

Users With This Workflow Role	Can Do These Tasks With Glossary Assets
Editor	• Create, edit, and delete assets, and send assets for approval
Reviewer	• Review assets under development
Approver	• Approve assets for publication
Publisher	• Publish approved assets
Editor	• Create, edit, and delete assets, and send assets for approval

After the changes to glossary assets are reviewed and approved, glossary assets that are in the development glossary are published to the catalog so that all IGC users—even those who do not have workflow roles—can view the assets in the catalog, as defined by catalog permissions. After an asset is published, it appears identically in the development glossary and the catalog. The next time that the asset is edited, the edited version is displayed in draft state in the development glossary and the previously published version remains unchanged in the catalog.

A development log entry is created whenever a change is made to a glossary asset or whenever a workflow participant adds a comment. The development log provides information about each change including the date it was made, the type of activity that occurred, the workflow state of the asset, the responsible user or user group, and comments. The development log is displayed on the details page of the glossary asset. This display helps users of the development glossary track the changes to the glossary asset over time.

DD166	The solution should have an extract, transform, load (ETL) mobility management entity (MME) data content component that includes the technical infrastructure to capture, store, and report the various forms of metadata

Note: *It is assumed that Mobility Management Entity (MME) was intended to be Managed Metadata Environment (MME) as per p.57 of the RFP.*

Collecting, Storing, and Cataloging Metadata

Access to up-to-date metadata about business meaning, technical assets, data sources, and data processes is crucial to the overall understanding, governance, and usability of a data warehouse. InfoSphere IGC, our solution's metadata management toolset, enables users to create, manage, and share metadata about information assets and processes across the organization. IGC lets users locate, retrieve, and report on information about data objects—their meaning, physical location, characteristics and usage, and all such information provided by metadata. Its interface accommodates visual exploration of metadata that are generated, used, and imported by the Infosphere Information Server suite of tools. It also includes an accessible glossary for establishing common terminology, classifications, and language metadata. Authorized users can use IGC to search, browse, and query the metadata repository.

Reporting on Metadata

Reporting on metadata is a key capability for gaining a better understanding of the content of the solution's metadata repository. Reports give users deeper insight into information governance by identifying useful forms and patterns across their information assets and metadata.

Our solution's InfoSphere Information Governance Dashboard provides access to metadata that can be used to assess and monitor the implementation of your governance policies and rules. Reports provided by Information Governance Dashboard are based on the IBM Cognos Framework Manager model. The provided model in Cognos Framework Manager allows users to understand the classes and relationships of data that contribute to reports. By using Information Governance Dashboard, one can measure the impact and effectiveness of your information governance initiatives by querying and visualizing business, technical, and operational metadata that are collected, stored, and cataloged in the metadata repository by InfoSphere Information Server products.

Information Governance Dashboard provides the user with these elements:

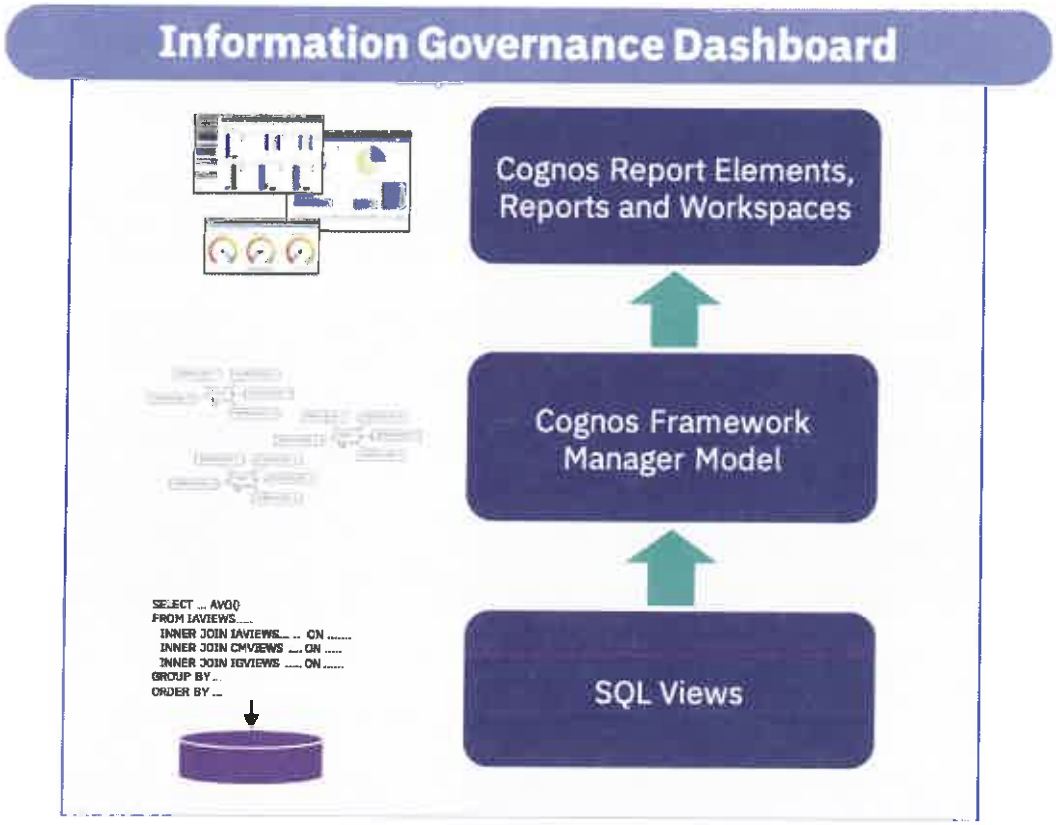
- A set of SQL views
- A Cognos Framework Manager model that you can use to understand the classes and relationships of data that contribute to reports
- A set of predefined Cognos reports and workspaces

Information Governance Dashboard can be used to access four areas of reporting capabilities. These areas are (1) data quality and metadata completeness (information governance), (2) exception management, (3) data analysis, and (4) data classification. The companion SQL views plus the included Cognos reports and dashboards can be used to build customized reports to suit your needs. Users can create information governance reports that are based on the SQL views, models, and queries. An exception management reporting capability is also provided for viewing reports on data exceptions sets.

Summary

Our solution's automatic capture of metadata by the InfoSphere Information Server components into their common metadata repository—the IGC for organizing and cataloging those metadata so that they can be viewed and understood and the Information Governance Dashboard, which provides a set of views, reports, dashboards, and a framework for customizing reports—delivers a global enterprise view of all information governance metadata on the WV EDS.

Figure 52. The InfoSphere Information Governance Dashboard. *This dashboard includes SQL Views and Cognos reports, dashboards and models that can be customized to suit DHHR's needs. The business, technical, and operational metadata that are collected and cataloged by InfoSphere Information Server products and stored in the common metadata repository can be queried and visualized using Cognos Analytics on SQL Views.*



DD167	The solution should have an extract, transform, load (ETL) mobility management entity (MME) data content component that accommodates a sufficient, as defined by the Department, volume of metadata content for the proposed solution

Note: *It is assumed that Mobility Management Entity (MME) was intended to be Managed Metadata Environment (MME) as per p.57 of the RFP.*

Our data management processes have been built over 35+ years of healthcare analytic experience, and our data management teams can help DHHR with the following tasks:

- Implement standard healthcare terminology
- Track asset stewardship and history
- Follow contextual relationships between terms, objects, and assets
- Track data analysis and validation throughout the WV EDS environment

We work with DHHR and your data governance organization to identify and accommodate an appropriate level of metadata content for our proposed WV EDS solution. This begins with our standard Core Data

Model data dictionary and healthcare terminology as the baseline, which we can modify and configure to DHHR's specific business needs.

Our WV EDS solution provides metadata to describe the content, structure, and other characteristics of WV's original source datasets and as a foundation to describe the data that should be analyzed and infer their relationships. Metadata are also used to create source-to-target mapping specifications.

The metadata repository of InfoSphere Information Server contains many different types of common metadata assets, including implemented data resources, BI assets, and logical and physical data model assets. It stores imported schemas, directories, tables, files, and data fields in addition to project configurations, reports, and results for all components of InfoSphere Information Server.

InfoSphere IGC provides the foundation for creating business-driven semantics, including categories and terms. And InfoSphere Information Analyzer provides the data-driven creation of metadata and a way to link the metadata to physical objects, enhancing and extending the semantic information about the data itself.

Our metadata environment and infrastructure store the entire breadth of metadata described above in as much volume of content and detail as DHHR desires. As directed by the Department, we design and adjust our metadata management procedures accordingly.

DD168	The solution should have an extract, transform, load (ETL) mobility management entity (MME) data content component that accommodates, at a minimum:
DD169	75 active users
DD170	40 concurrent users
DD171	Allows for 10% growth per year spread across all user levels

Note: *It is assumed that Mobility Management Entity (MME) was intended to be Managed Metadata Environment (MME) as per p.57 of the RFP.*

Our WV EDS solution's common metadata repository and toolset accommodate 75 active and 40 concurrent users allowing for an annual growth rate from these numbers of 10 percent across all user levels. Our solution architecture leverages n-tier based design principles and is scalable both vertically and horizontally. We have sized our InfoSphere Information Server environment to support the above requirements.

DD172	The solution should have an extract, transform, load (ETL) mobility management entity (MME) data content component that has the ability to capture and synchronize metadata

Note: *It is assumed that Mobility Management Entity (MME) was intended to be Managed Metadata Environment (MME) as per p.57 of the RFP.*

Metadata Integration Bridges

InfoSphere Metadata Integration Bridges with InfoSphere Metadata Asset Manager Metadata can be used to import from tools, files, and databases into the metadata repository. The user can use bridges to import metadata from a particular tool, file, or database into the metadata repository and to export metadata from the metadata repository. The bridge converts the information by translating the semantics of the source tool into the semantics of the target tool. These capabilities allow metadata to be exchanged with common data integration tools and with scripts containing data definition language (DDL) or copybook definitions.

Comparing Metadata Versions With Baseline Analysis of Data

Our WV EDS ETL component, InfoSphere Information Server, (1) stores imported metadata, such as physical databases, BI assets, logical data model assets, physical data model assets, custom attribute

definitions, and other assets, and (2) captures operational metadata generated by ETL processes, project configurations, reports, and results from all components of InfoSphere Information Server, including data profiling results from InfoSphere Information Analyzer.

InfoSphere Information Analyzer provides the data-driven creation of metadata and a way to link the metadata to physical objects, enhancing and extending the semantic information about the data itself. The structure of data can change as new versions of external data source definitions evolve over time. Information Analyzer provides a means to monitor the data in an external data source to ensure that they continue to support the processes with which they are associated. To ascertain whether external source data have changed, a user can create a data profiling project to evaluate the structure and content of the data and then use baseline analysis to monitor for any changes.

Baseline analysis compares the column analysis results for two versions of the same data source. A user chooses the analysis results to set as the baseline version and then uses the baseline version to compare all subsequent analysis results of the same data source. The user can continue to review and compare changes to the initial baseline as often as needed or change the baseline if necessary. This capability allows comparison of the table metadata with the external source data themselves, so that the metadata can be synchronized with the source data over time.

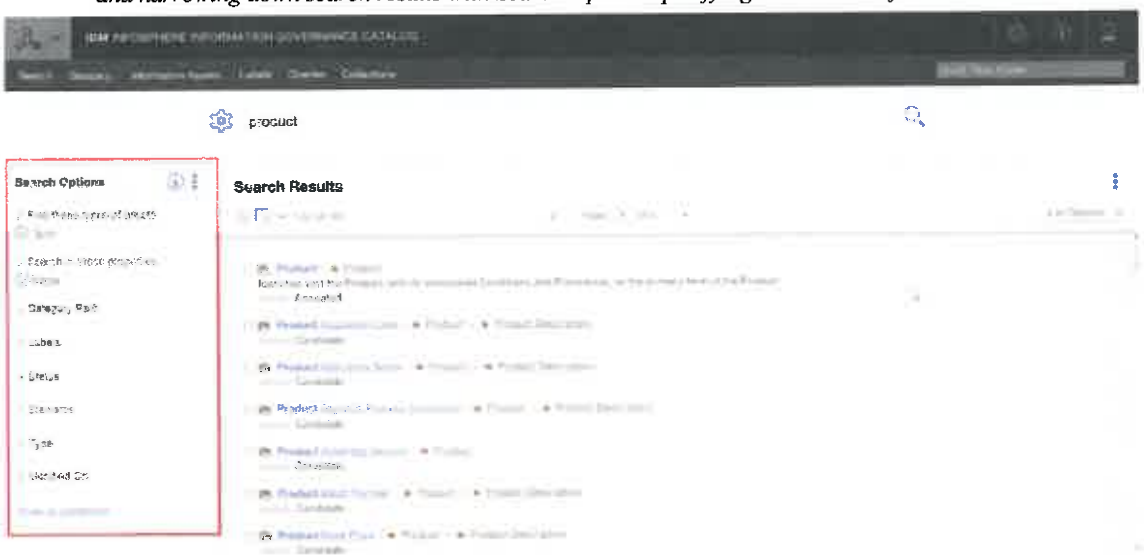
DD173	The solution should have an extract, transform, load (ETL) mobility management entity (MME) data content component that provides wild card (SQL-LIKE), keyword- and attribute-based search abilities to locate the required metadata.

Note: *It is assumed that Mobility Management Entity (MME) was intended to be Managed Metadata Environment (MME) as per p.57 of the RFP.*

Searching the Metadata Repository by Keyword and Within Specified Metadata Attributes

Our WV EDS metadata repository is the cornerstone for understanding the meaning of any assets defined in the enterprise. It is searchable for any type of asset in the catalog. Catalog search capabilities are available in the IGC interface to allow users to better understand the meaning of metadata in the context of their enterprise. Search options are provided to narrow down search results by specifying the asset types to search and the metadata attributes to which the search string is applied. IGC searches the asset types and the metadata attributes that the user selects for the string typed. A search can be limited to assets that have specific labels, status, stewards, type, or that were modified within a certain period of time. Search options can be saved within the browser. And search results can be saved in a .csv file.

Figure 53. Search Results in InfoSphere Information Governance Catalog. *Searching by the string "product" and narrowing down search results with Search Options specifying the metadata fields to search.*

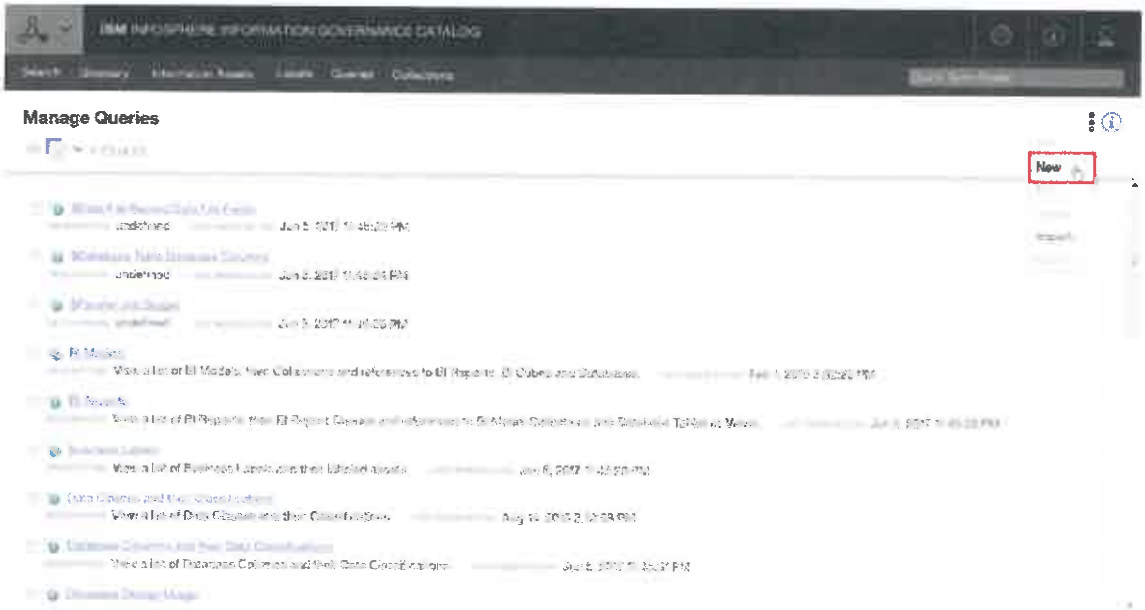


Querying the Metadata Repository With SQL-like Conditions

Within IGC, a guided interface allows a user can create SQL-like queries with specified conditions to find and list assets, their properties, and their relationships. The IGC "Queries" option guides the user through a dialog that builds a query. On the Display tab, the user selects the Asset Type (e.g., Database Table, etc.) and the metadata properties the user wants to see in the results (e.g., Short Description, Governed by Rules, etc.). The user can control the display of results by reordering or changing the output name of any metadata property.

On the Criteria tab, users specify the conditions for returning results. They can add multiple conditions and subconditions, selecting properties and related objects from the Properties list to make the Query Results as precise as needed. They can specify "Any" or "All" to apply each condition or subcondition as an "Or" or "And" condition, respectively. Depending on the type of the Property, the query can be narrowed. For example, if the Property is type text, the query can be narrowed by using SQL-like conditions such as "Begins with," "Is null", "Is not", or "Contains." If the Property is type date, the user can choose a date range by using "Is between" with begin and end dates. If the Property is a relationship, "Is null" or "Is not null" can be chosen. Queries can be saved and published so that other users can see and run the query.

Figure 54. Saved Metadata Queries in InfoSphere Information Governance Catalog (IGC). *SQL-like queries on IGC metadata can be built and saved making them available for other users to run.*



DD174	The solution should have an extract, transform, load (ETL) mobility management entity (MME) data content component that provides a central interface to manage and maintain the MME

Note: *It is assumed that Mobility Management Entity (MME) was intended to be Managed Metadata Environment (MME) as per p.57 of the RFP.*

Information governance is a holistic approach to managing, improving, and leveraging information to increase an organization's confidence in its decisions and operational business processes. Our WV EDS solution includes a comprehensive solution and environment for managing metadata in a common metadata repository shared by all components of our InfoSphere Information Server suite of tools. The InfoSphere IGC component provides the entry point and central interface for DHHR to understand and govern its information.

Access to up-to-date metadata about business meaning, technical assets, data sources, and data processes is crucial to the overall understanding, governance, and usability of a data warehouse. Our metadata management toolset lets the user locate and retrieve information about data objects—their meaning, physical location, characteristics and usage, and all such information provided by metadata. Authorized users will also be able to search, browse, and query the metadata repository powered by InfoSphere IGC.

With InfoSphere IGC, the user can perform these tasks:

- Establish a common business language and manage business perspectives about information and align those views with the information technology perspective
- Explore assets in the catalog
- Enhance existing metadata with descriptions and associations
- Analyze dependencies and relationships of key information assets and BI reports, analyze operational metadata, and trace lineage
- Manage the catalog metadata to obtain in-depth analysis reports

- Manage the people and processes that govern data assets

IGC enables users to create, manage, and share metadata about information assets and processes across the organization. Its interface accommodates visual exploration of metadata that are generated, used, and imported by the Infosphere Information Server suite of tools. It also includes an accessible glossary for establishing common terminology, classifications, and language metadata.

IGC has been successfully proven in the industry and recognized by Gartner for its metadata management features. Gartner recognized IGC for its depth and breadth, enhanced information governance functionality, automatic asset classification/tagging enabled by machine learning, and focus on openness.

DD175	The solution should have an extract, transform, load (ETL) mobility management entity (MME) data content component that has an extraction capability to allow metadata to be exported and distributed in open and non-proprietary formats by authorized solution users

Note: *It is assumed that Mobility Management Entity (MME) was intended to be Managed Metadata Environment (MME) as per p.57 of the RFP.*

Exporting Glossary Assets From the Metadata Repository

Users can import and export glossary assets to and from external files. They might export some glossary assets, edit the resulting file, and then import this modified file to update the catalog. Or they might use export to create an archive of glossary assets. Users can import and export glossary assets by using these nonproprietary file formats: CSV, XML, or glossary archive (XMI).

Users can use an XML file to export all or part of the glossary assets so that they can modify the file outside of IGC. The file can define any kind of glossary asset, including new or existing terms, categories, information governance policies, and information governance rules. And it can include all properties of these assets, including Steward assignments, labels, collections, and relationships. The XML file format is the most versatile of all IGC import and export file formats and is the standard format for the interchange of glossary assets.

Exporting Metadata From the Metadata Repository in Standard Format

InfoSphere Metadata Asset Manager can export implemented data resources to a file that is compliant with the Object Management Group (OMG) Common Warehouse Metamodel (CWM) XML Metadata Interchange (XMI) file format using the OMG CWM 1 XMI 1 bridge. This specification proposes that XML Metadata Interchange (XMI) is used to interchange data warehouse metadata on the basis of the CWM metamodel. Within InfoSphere Metadata Asset Manager, from the Repository Management tab, the user can choose to export databases or database schemas. When a database is exported, its database schemas, database tables, and other contained assets are exported to the file.

IGC REST API

IGC also has a REST API that allows client applications to access and author IGC catalog content. In this manner, IGC catalog content can be integrated into other software tools and portals. The IGC REST API enforces security roles, workflow, and viewing permissions just as the IGC user interface does.

DD176	The solution should have an extract, transform, load (ETL) mobility management entity (MME) data content component that provides a relational database repository for persistent storage of metadata content (if centralized) or for registry (if decentralized approach)

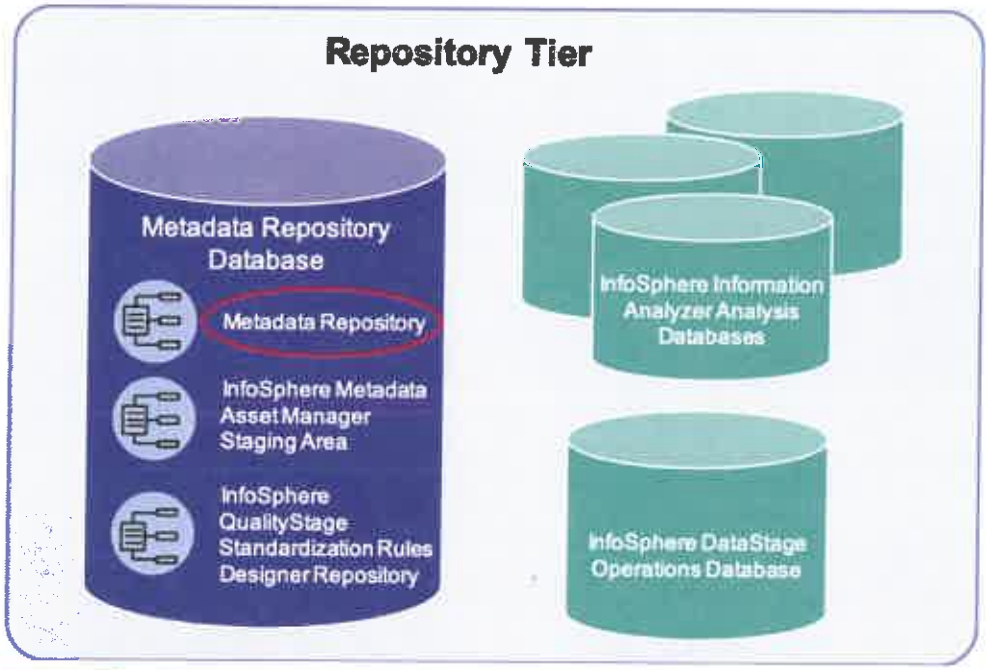
Note: *It is assumed that Mobility Management Entity (MME) was intended to be Managed Metadata Environment (MME) as per p.57 of the RFP.*

Our WV EDS solution uses InfoSphere Information Server, which is installed in a logical tiers. A *tier* is a logical group of components within InfoSphere Information Server and the computers on which those

components are installed. Each tier includes a subgroup of the components that make up InfoSphere Information Server. The metadata repository tier contains the relational database engine that stores the metadata repository and all its content

The Metadata Repository Database is a standard relational database for persistence and can be installed on IBM Db2, Oracle, or Microsoft SQL Server relational database management systems (RDBMSs), including in an existing database instance. (Db2 is provided with InfoSphere Information Server.) These RDBMSs provide backup, administration, scalability, parallel access, transaction support, and concurrent access.

Figure 55. InfoSphere Information Server Repository Tier. *This tier contains the metadata repository and other data stores that support Information Server component operation. The repository tier can be deployed on Db2, Oracle, SQL Server, or a Hadoop cluster in a supported topology.*



DD177	The solution should provide a Database Management System and support physical database administration

Our WV EDS solution is built on IBM Db2 Warehouse. Db2 Warehouse is an elastic cloud data warehouse service managed by the Watson Health platform services team. The cloud platform delivers independent scaling of storage and compute. The database engine includes a highly optimized columnar data store with actionable compression and in-memory processing to supercharge your analytics and machine learning workloads. The solution is designed and tested to ideally fit the workloads inherent in data warehousing and analytics applications.

The Db2 Warehouse cloud service runs on the Db2 RDBMS engine. The Db2 engine is a massively parallel processing architecture, designed for scalability and flexibility and optimized for advanced query processing. It exploits the intelligent IBM common SQL engine, Db2's columnar technology and flash storage standard. Db2's best-in-class in-memory columnar processing technology lowers input/output (I/O), improves bandwidth, and lowers central processing unit costs. Complex queries run faster because they can be parallelized across one or more compute nodes while the data for the query are distributed

across the flash storage servers. The Db2 Warehouse cloud service is optimized (developed, tuned, and tested) for massively parallel processing of large data volumes to support the broadest array of workload options for structured and unstructured data.

Day-to-day operations for the Db2 Warehouse cloud service—including database monitoring, uptime checks, and backups—are fully automated, so our Watson Health platform services team can focus on delivering the highest-quality data structures for DHHR instead of only database administration. The cloud service is fully automated with physical database administration supported by the Watson Health platform services team.

Our Watson Health platform services team performs the database and data administration activities specific to WV EDS on the cloud service, including creating and managing Db2 Warehouse instances, creating physical database objects (tablespaces, tables, indexes, views, etc.) and loading data into the WV EDS tables defined within our supported environments. The Db2 support tools package (aka dbtoolkit) contains a number of scripts and utilities that can help with many of these common database administration tasks. A web console is available to perform many key tasks, such as loading data, working with tables, running SQL, and monitoring. A command-line user interface (aka CLPPlus) is also available to define, edit, and run statements, scripts, and commands.

DD178	The solution should provide a Database Management System that maintains all databases used in the proposed solution including, but not limited to
DD179	Installation
DD180	Configuration
DD181	Updates
DD182	Patch fixes

Unlike some analytics vendors, we are an integrated application and hosting team. We deeply understand how our applications and infrastructure work together to provide DHHR coordinated services to deliver analytics from your data. We view application and infrastructure management and monitoring as a single practice. The Db2 Warehouse cloud service is a fully automated cloud service supported by the Watson Health platform services team. In addition, our team of engineers are fully responsible for software installation, configuration, upgrades, patch application, monitoring the performance of all the components of the infrastructure and ensuring that we meet all required Service Level Agreements (SLA)s.

We manage the procurement, installation, and configuration of each component and are responsible for maintaining the environment and patches and upgrades throughout the life of the project. At no additional cost to the agency, license transfers and technology refreshes occur throughout the duration of the contract, should they be needed.

To keep the WV EDS technology current, Watson Health performs a monthly review of solution hardware, software, and licenses, and recommends upgrades or removal of unneeded hardware, software, and licenses eligible to be decommissioned, upon approval from DHHR. We work closely with our clients to properly plan and implement any changes in the system. To help you understand the purpose, scope, and risk profile of a change, we proactively engage DHHR through our standard program and change management practices.

DD183	The solution should provide a Database Management System that provides day-to-day database operational support

The Db2 Warehouse cloud service is a fully automated cloud service supported by the Watson Health platform services team. The Watson Health team fully automates and supports day-to-day operations for the Db2 database management system, including database monitoring, uptime checks, and backups. Our

Watson Health team performs day-to-day support of database and data administration activities specific to WV EDS on the cloud service.

DD184	The solution should provide a Database Management System that identifies and resolves problems/issues.

Autonomic Database Management System Features

Db2 Warehouse is a fully automated and managed cloud service. In addition, the Db2 RDBMS provides an autonomic computing environment that is self-configuring, self-healing, self-optimizing, and self-protecting. By sensing and responding to situations that occur, autonomic computing shifts the burden of managing a computing environment from database administrators to technology. Automatic features allow the database system to perform self-diagnosis and to anticipate problems before they happen by analyzing real-time data against historical problem data and potentially making changes to the system without intervention to avoid service disruptions. The following are some automatic Db2 RDBMS features:

- Data compression
- Automatic storage
- Automatic backups
- Automatic statistics collection
- Automatic reorganization
- Configuration advisor
- Health monitor
- Utility throttling

Database Administration Support

The database administrator works proactively with the technical and operational team to implement appropriate structures, procedures and processes that meet the data needs of the WV EDS project. The database administrator performs all database administration tasks as assigned to ensure the availability, performance, integrity, and security of databases for the WV EDS database environment. Duties include (1) database support, layout, research, process automation, documentation, database upgrades, backup/recovery, disaster recovery testing, capacity planning, installation, design, and tuning and (2) database administration and scripting.

The Watson Health platform services team is constantly proactively monitoring to identify and resolve any issues or problems with the service. Our monitoring solution logs historic query run times in a usage database. We create usage reports on this data to monitor and analyze query performance over time and to build a library of expected performance benchmarks. Our team works to resolve any issues immediately as they are reported or as we find them through proactive monitoring.

DD185	The solution should provide a Database Management System that can define and activate new environments.

Our Watson Health deployment team creates and manages Db2 Warehouse instances, creating physical database objects (tablespaces, tables, indexes, views, etc.) and loading data into the warehouse tables defined within our supported environments. We define and load new environments, beyond those defined in our initial contract terms, as directed and approved via Change Requests as defined by our Change Management process.

DD186	The solution should provide a Database Management System that monitors and synchronizes such that all environments operate efficiently, and data quality and validation is ensured with additional indexing as needed.

Data Vault Physical Data Model Methodology

Our WV EDS architecture and approach to data modeling enable us to efficiently provide a comprehensive data model that is sustainable and adaptable to your evolving business needs without comprising performance, accessibility, or ease of use. Our data vault methodology underpins the solution's design. The *Data Vault methodology* is a hybrid approach encompassing the best of breed capabilities of 3rd normal form (3NF) and star schema models, a hub-and-spoke model with integration by business keys. Data from multiple source systems are integrated by business key, making them function oriented and efficient. Our adoption of the Data Vault methodology results in a solution that delivers performance, scalability, extensibility, and usability.

We have optimized and refined our data model over many installations to support high query performance, flexibility, modularity, and ease of use. Our goal is to maintain the logical model design as much as possible while taking into consideration physical implementation changes that might be necessary to ensure fast loading, high query performance, or maintenance activities.

Data Structure Design and Implementation

Our WV EDS solution is designed to execute high performance and scalability of concurrent query processing over considerable volumes of data accessed in the solution's RDBMS. The physical data model design, database implementation and infrastructure architecture are optimized for these aspects of the solution. We use strategies for indexing, compression, and partitioning to further improve operational efficiency and performance. Indexing on both the fact and dimension tables is based on data cardinality and frequency of access as well as access paths taken to acquire data for reporting. Partitioning occurs for performance and maintenance reasons, which enables much faster query performance because of the lower number of records scanned.

Ongoing Data Quality Validation

Understanding the flow of data and ensuring data quality and validation as data progresses through the environment are a critical part of the information architecture. Data are validated as they move into the warehouse, checking for completeness, reasonableness, accuracy, and duplication. The data quality assessments include making sure the data going into the warehouse balance internally and with the source systems from which they obtain information.

Our solution uses a rigorous and continual process of improving source-system data. We continuously monitor and assess the data to ensure that they maintain acceptable quality. This constant monitoring is necessary because data quality can degrade over time. It allows us to achieve incremental downstream benefits in the WV EDS. Monitoring includes establishing a feedback loop with the data source suppliers and working to fix the data at the source proactively rather than continuing to fix them reactively during the ETL processes. By establishing data quality practices with feedback loops, our solution ensures that reconciliation of data occurs before it reaches report users. The BI community recognizes this data quality feedback loop as a best practice. By establishing these data quality practices and feedback loops, DHHR can provide all stakeholders with information they can trust and rely on for decision-making throughout the life of the solution.

DDI187	The solution should provide a Database Management System that runs on open systems platforms

The Db2 Warehouse cloud service is a fully automated cloud service supported by the Watson Health platform services team. Watson Health platform services manages the hardware, software, availability, much of the security, and more. This allows DHHR to focus on business outcomes and not on the infrastructure needed to deliver those outcomes. DHHR does not need to manage or interact with the operating systems platform for the RDBMS or the Db2 Warehouse cloud service.

That said, the IBM Db2 Warehouse software runs on any Docker-supported infrastructure, without the hassles of complex configuration. Db2 Warehouse is deployed as a Docker container allowing deployment on a variety of platforms, such as Intel x86, IBM Power, and Linux on z or any virtual private cloud, such as the private cloud we use in our deployment for the WV EDS cloud service. In addition, the underlying DB2 engine itself runs on a range of open systems Linux, Unix, and Windows operating platforms.

DD188	The solution should provide a Database Management System that has all related cache entries on a single cache partition

A partitioned database environment is a database installation that supports the distribution of data across database partitions. This means that the data are physically stored across more than one database partition, and yet applications and users accessing data in a multipartition database are unaware of the physical location of the data. The partitioning feature of Db2 provides a means to split large tables so that each partition has its own slice of the data. This feature allows Db2 to achieve a high degree of parallelization, which results in greatly improved query performance. Applications and users accessing data in a multipartition database do not need to know the physical location of the data. The partitioning is transparent to the user.

The Db2 database manager allows great flexibility in spreading data across multiple database partitions of a partitioned database. Large tables may be spread across multiple database partitions and smaller tables on a single database partition. The table rows are related by distribution key as they are loaded and distributed to each partition. Each database partition has its own buffer pool memory, which acts as a cache for all table rows located on that partition—rows related by distribution key. Because of the related distribution key, the database manager can choose to perform join or subquery processing locally at the database partition in which the data is stored. These are known as *collocated joins*. In addition to the local bufferpool or cache, each database partition can have local indexes on the data it stores to improve performance of local data access. This attribute can have significant performance advantages.

Db2 also has a feature called replicated materialized query tables, which can further assist in the collocation of joins in a partitioned database environment. For example, if a star schema contains a large fact table that is spread across 20 database partitions, the joins between the fact table and the dimension tables are most efficient if these tables are collocated.

In most cases, the dimension tables are small and can be placed on a single database partition and replicated to all other partitions to support local, collocated joins between the fact and dimensions tables. The user can limit the data to be replicated by specifying only a subset of the columns from the table or by restricting the number of qualifying rows through predicates.

A replicated materialized query tables can also be created in a multipartition database partition group, so that copies of the source table are created on all of the database partitions. Joins between a large fact table and the dimension tables are more likely to occur locally in this environment than if the dimension tables are broadcast to all database partitions.

A partitioned database environment allows a database to remain a logical whole, despite being physically divided across more than one database partition. The fact that data are distributed and/or replicated remains transparent to most users. Each database manager in each database partition works against its own partition of the database resulting in increased performance for local data access. Each query workload is spread across all partitions. This is known as "divide and conquer" parallelism, and it greatly improves overall query response time.

DD189	The solution should provide a Database Management System that supports at a minimum Extensible Markup Language (XML)

Db2 provides an XML data type to define columns of a table and store well-formed XML documents in their native hierarchical format in the database alongside other relational data. XML documents can be inserted, updated, and deleted using SQL data manipulation statements. The load utility can be used for the efficient movement of large volumes of XML data into tables. The Db2 database system also provides mechanisms for constructing and querying XML values, as well as exporting and importing XML data. The XML data in table or view columns can be retrieved as serialized string data through various application interfaces.

DD190	The Vendor should assess the Department's reporting needs to inform development of reporting and dashboarding abilities in support of the Department

Standard Production Reports

As part of design, development, and implementation, Watson Health proposes to assess DHHR's reporting needs and document a set of standard production reports as defined by DHHR to meet specified operational needs or federal/state reporting requirements using them as a baseline. We bring report templates and proven best practices that are leveraged from our other state implementations and configure them to accommodate DHHR's program and reporting requirements. These include styles and standards such as headings and footers to ensure consistency in reporting outputs.

Our solution enables DHHR to produce reports in a full range of formats, including dashboards and animated storyboards, and with a variety of visuals and objects, where applicable. We work with DHHR to define the types of reports, the data included in the reports, sort formats, layouts, frequency, and media required to support specific business needs while meeting industry standards.

We create and maintain a log of system-generated or other Watson Health-developed reports. This log includes descriptive metadata and is fully accessible and searchable. In Cognos Analytics, the IBM Cognos Content Store contains all objects such as folders, reports, dashboards, and templates in a searchable repository. The content store facilitates reuse by providing direct, immediate access to content within the tool.

Self-Service Dashboarding and Reporting Capabilities

Watson Health believes it is critical to provide users of all levels with a cohesive, easy-to-use set of reporting and analytic tools infused with rich metadata to support self-service BI capabilities. It is imperative that users and stakeholders are empowered to use the WV EDS in a self-service manner. To support this functionality, we are proposing IBM Cognos Analytics, a suite of query and reporting tools to support analysis and reporting on any subject for which data exist in the WV EDS. Cognos gives users self-service options, so they can capture insights more efficiently through a guided experience that interprets their intent and supports it with a suggested path, leading where users want to go.

Advanced users tend to prefer Cognos to create ad hoc queries and design dashboards, scorecards, and animated storyboards. The unified interface exposes functionality in context, as needed, empowering users of all abilities and expertise levels to engage in creating reports with rich visualizations and interactive experiences for maximum impact. Users can create ad hoc queries, parameter-based queries, predefined templates, and geospatial analyses. Cognos also supports efficient and effective report delivery through web and mobile distribution methods.

DD191	The solution should have the ability to export data and query results directly from the solution into the user-specified format including, but not limited to
DD192	Excel
DD193	Word
DD194	Hyper Text Markup Language (HTML)

DD195	Access
DD196	Software and Services (SAS)
DD197	Graphical User Interface (GUI)
DD198	Extensible Markup Language (XML)
DD199	Application Programming Interface (API)
DD200	Text
DD201	Comma-Separated Value (CSV)
DD202	Delimited text
DD203	Portable Document Format (PDF)
DD204	Joint Photographic Experts Group (JPEG)
DD205	Others as requested by the Department

Having worked with 40 state Medicaid agencies, Watson Health is very experienced in working with large and diverse data sources, including creating large-scale data extracts and supporting our clients' power users in generating their own data extracts. Our solution provides industry-proven BI and analytic tools and finely tuned business processes to support the full span of functionality DHHR requires including flexible data extract capabilities for sharing data as needed within and beyond the WV EDS environment.

Data Extracts

The reporting components of the WV EDS solution to allow authorized users, typically Analyst and Advanced Analyst user personas, to create data extracts that identify a subset of data on the basis of user-defined search criteria. In addition, DB2 Data Studio allows Sandbox users to write sophisticated routines to perform large or complex data extracts.

Within the Sandbox, super users have complete flexibility to create tables, views, and data marts, to import external data into tables of their own creation, to join their schemas to other tables, and to import or join to external tables. They can explore the WV EDS data, along with the external data sources, to discover new relationships and create data extracts for any purpose. Data extracts and reports can be exported to various formats for external sharing or printing.

Cognos Analytics Export Formats

Cognos Analytics provides multiple data export formats, including HTML, XML, PDF, Excel, and CSV (and to multiple tabs within a single workbook). Users can also export reports into delimited formats; such as tab delimited, XML, or CSV, for easy import into other applications (such as Microsoft Access, Word, Excel, or SAS), or to ship a dataset to another user. The saved reports can reside within the Cognos Analytics Content Explorer portal in public or private folders or can be downloaded to a local or network drive.

REST API Data Exchange

We extensively use REST APIs, other web services, and message brokering services to transfer data while keeping the underlying data structure invisible to other modules and applications. Data services accommodate data access and sharing through documented payloads defined in XML and/or JSON. Our solution supports REST APIs that can be accessed through normal HTTP protocols (e.g., GET, PUT, POST, DELETE functions). Our standard for real-time healthcare data integration is the HL7 specification, which is built on modern REST and web service standards. REST APIs provide fast connection to data and use less network bandwidth than other real-time web services.

Other Data Export Approaches and Data Formats

In addition, the Db2 export utility may be used to export data from a SQL Select statement into a delimited text file. Images in JPEG and other graphical user interface file types can be stored in and exported from Db2 Binary Large Object (BLOB) data types. And, InfoSphere DataStage jobs can export data into a text format in a sequential file output link. Other export formats may be accommodated as appropriate per discussions with DHHR and as approved via Change Requests as defined by our Change Management process.

DD206	The solution should have the ability to provide dashboards specific to Service Level Agreements (SLA) and Key Performance Indicators (KPI)

Watson Health provides tools to determine latency at the database server level and supplies results monthly to DHHR. As part of the monthly metric reporting, we generate a standard set of SLA and system statistics as part of a performance monthly summary (generated on the first business day following the first day of the month, with supporting data, as requested by DHHR) with content and in a medium and format approved by DHHR, which is also available on the Operational Performance Dashboard. The Operational Performance Dashboard uses BI capabilities to make it easy for DHHR to view SLA performance. This report includes performance summaries such as—

- Key performance indicators (KPIs)and related service levels targeted versus actual results
- KPIs and related service levels prior period report comparisons
- KPIs and service levels reported as noncompliant
- KPI corrective action plans (CAP), CAP details, impacts to other modules, and estimated compliance date
- KPI resolution date and detailed corrective status for all CAP resolutions

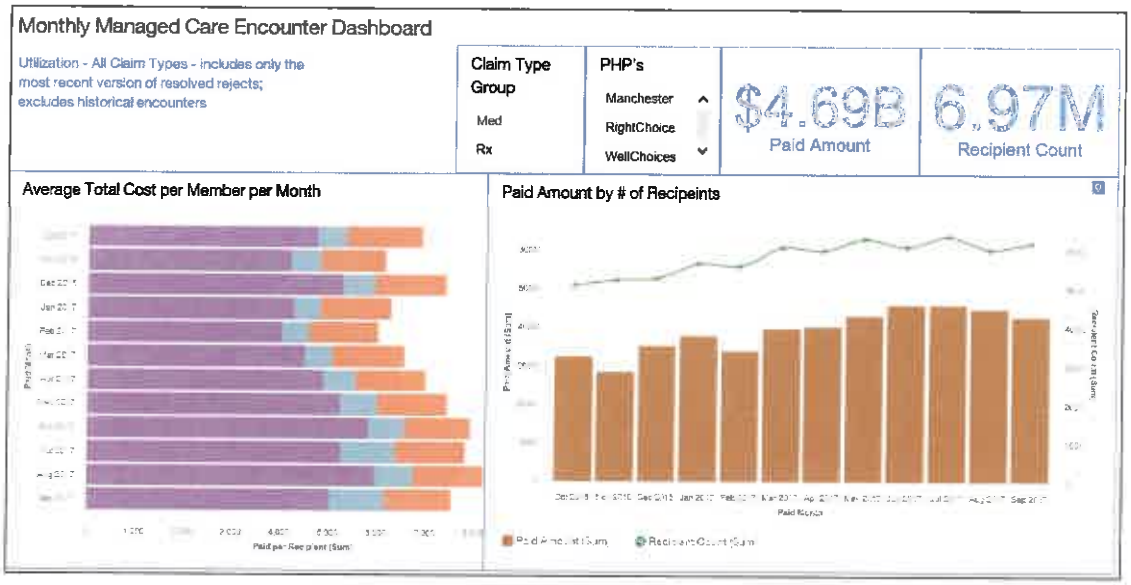
DD207	The solution should provide an interactive, summary-level dashboard without the need for authorized solution user programming or extensive training

The Watson Health solution includes Cognos Analytics. Cognos Analytics dashboard capabilities allow users of all skill levels to access, interact, and personalize content in a way that supports the unique way the user makes decisions. Authorized users can assemble and personalize dashboard views to support individual preferences and cognitive styles. Users drag and drop trusted content, including charts, graphs, summarized data, maps, filters, and other content (RSS, HTML, text, and images). They can modify and arrange layout, add colors and text, add comments, and personalize widgets. Our solution allows users to change displays, add calculations, filter/prompt, drill up/down, and sort data. Users can leverage information from all time horizons (past, present, and future) for a complete view of the WV EDS programs. With our WV EDS solution, DHHR can explore data and design dashboards in ways that exceed its current capabilities to provide insight into the entire enterprise. Users can forecast the impact of policy changes, pinpoint local barriers to access, identify unnecessary or underutilized services, thwart fraudulent claims, predict the risk of increased resource consumption, and identify and reward high-quality providers on the basis of clinical quality metrics.

The Medicaid Insights Dashboards and Reports will provide summary metrics and trends on multiple topics, as discussed in OP022. Custom Dashboards will be developed to meet specific DHHR business needs and the current DW/DSS Tableau dashboards will be transitioned to Cognos Analytics during DDI.

Dashboards will be delivered throughout DDI and operations, as discussed in DD209.

Figure 56. Dashboards. *Users can create dashboards or easily interact with production dashboards to gain insight for Medicaid program management.*



DD208	The solution's data access component should support the needs of authorized solution users to execute basic canned queries and canned reports via a dashboard

The DHHR solution will include IBM Cognos Analytics, a suite of query and reporting tools to support analysis and reporting on any subject for which data exists in WV EDS. Cognos Analytics reporting includes visually rich reports, interactive dashboards, queries, parameterized or prompted reports, detailed reports with cross-tabulations along multiple dimensions, and flexible ad hoc reporting. Cognos users can execute content via the Team Content or My Content folders, as well as from the Recent list from the Cognos Analytics Portal page.

The My Content folder provides the user with direct access to the content he or she has saved. This is content owned by the user and may be viewed only by the user. The Team Content folder contains all the published enterprise and shared content the user has permissions to view. Content can be easily accessed by order of most recent use.

DD209	The solution should provide a suite of high-level and/or general-level reports designed to provide indicators and general trends within and across the member population

The WV EDS solution provides authorized users access to a suite of pre-defined and custom reports and dashboards, along with their documentation and artifacts, that present trends and provide insight to support program, policy, and financial management. Reports and dashboards incorporate analytic content and methods, such as evidence-based quality measures and IBM Flexible Analytics for grouping, risk scoring, population health analysis, and benchmarking. Medicaid Program Insights provides a standard set of reports and dashboards focused on key topics important to executive Medicaid oversight, as discussed in OP022. The Analytic and BI teams will work with DHHR to identify business needs and priorities and recommend a set of custom dashboards and reports to be delivered during DDI and throughout operations.

Table 30. A Suite of Reports and Dashboards Available to Inform Decision-Making

Report Type	Description	Delivery
Medicaid Program Insights Standard Reports and Dashboards	Library of pre-defined intuitive and interactive reports and dashboards providing actionable information on Medicaid trends and treatment patterns	Delivered during DDI
Custom Dashboards	DHHR defined dashboards to support program, care, and financial management. Dashboards include various visual components across multiple topics to provide insight.	DDI will provide up to 10 dashboards, which includes new and existing DW/DSS Tableau dashboards of varying complexity. Up to 10 additional dashboards of varying complexity will be delivered throughout operations.
Custom Reports	DHHR defined reports to support program, care, and financial management. Reports provide a focused and detailed view of a specific topic	DDI will provide 20 reports of varying complexity. During operations, custom reports will be defined and managed per the annual analytic agenda.
CMS SUD Waiver Reports	CMS required reporting for the 1115 SUD Waiver	Ongoing quarterly and annual delivery of metrics sourced from the EDS in the CMS-approved 1115 SUD Monitoring Protocol Plan.
Program Management and SURS MECT Reports	Artifacts required per MECT checklists for CMS certification	Delivered per CMS certification requirements during DDI and operations.

Dashboard complexity is defined based on factors such as number of components, filters, data sources, and tabs. During DDI, up to 5 low, 3 medium, and 2 high complexity dashboards will be delivered. During Operations, 5 low, 2 medium, and 3 high complexity dashboards will be delivered on a timeline agreed to during annual business planning.

DD210	The solution should provide a mature, intuitive, easy-to-use, web-based Commercial-Off-The-Shelf (COTS) tool that addresses the data access requirements in this Request for Proposal (RFP) with an integrated comprehensive tool suite

Authorized users will have access to Business Intelligence powered by Cognos Analytics for the Data Analytics and Reporting components of the WV EDS solution. We chose this commercial off-the-shelf (COTS) web-based software on the basis of its reputation for being powerful, intuitive, simple to use, and easy to configure. Cognos users can create ad hoc and parameter-based queries, design dashboards and scorecards from predefined templates, perform geospatial analyses, and perform exploratory analysis with natural language queries, pattern detection and suggested visualizations. Building an interactive dashboard with dropdowns, sliders, and other visual cues is intuitive and provides highly graphical visualizations of your data.

ESRI ArcGIS allows users to create "on the fly" drive time analysis and geospatial reports on the data within the WV EDS. ESRI allows Advanced/Power users to create new reports and dashboards and publish the content to the ESRI Portal for end user consumption.

In addition, power users are able to use IBM Data Studio to directly access their authorized data in any EDS data store and manipulate these data along with any user-imported data with virtually unlimited flexibility in the analytic sandbox. We have also included IBM Cloud Private for Data (ICP for Data) with Watson Studio to provide a robust toolkit of essential statistical procedures.

Users who prefer tools outside of the proposed toolkit that have the option of connecting using Open Data Base Connectivity (ODBC). The WV EDS architecture and platform is tool and technology agnostic. We can connect any COTS-based tool and software as agreed on with DHHR.

DD211	The solution's data access component should have the ability to perform impact analyses due to proposed changes of the solution

We have carefully selected MotioCI to integrate with Cognos for saving and version control of Cognos Analytic reports. MotioCI's Version Control captures many types of changes (including deletions and

content deployments) and provides the ability to roll back to a previous version. Users can not only revert to a previous version but they can also recover deleted reports. MotioCI's Version Control gives users a safety net for their work in Cognos. In addition, MotioCI allows users to do an impact analysis to examine the effects of moving Cognos content into a new environment before going live with the deployment.

DD212	The solution's data access component should have the ability for authorized solution users to create their own static or dynamic joins between tables

The Cognos Analytics tool comes with Data Modules—a feature that gives advanced report authors the ability to access and shape data from the EDS and blend them with external sources of information not readily available in the EDS. A Data Module can be used as a source for dashboards and reports and published so that other users can create content over the Module. Data Modules can be combined with other Data Modules for reusability and efficiency.

DD213	The solution's data access component should have the ability for query editing to support authorized solution users with query development and modification

The IBM Cognos Analytics Query Explorer provides an alternative way to modify queries. For example, Query Explorer can be used to—

- Improve performance by changing the order in which items are queried from the database or by changing query properties to allow the report server to execute queries concurrently where possible
- View or add filters and parameters and modify their properties
- View or add dimensions, levels, and facts
- Incorporate SQL statements that come from other reports or reports that the user writes
- Create complex queries using set operations and joins

DD214	The solution's data access component should have the ability to sort, filter, and find data in query results

The Cognos Analytics report and dashboard capabilities allow users to change displays, add calculations, filter/prompt, drill up/down, and sort data. In addition, conditional formatting allows users to highlight data meeting pre-defined criteria. This allows data in query results to be easily found.

DD215	The solution's data access component should have the ability to show table structure, relationships, and built-in expression-builders, or a natural-language interface in which the authorized solution user can enter a query and the system converts it into Structured Query Language (SQL) or other code

The WV EDS, powered by Cognos Analytics, has the ability to show table structures and relationships and to build expressions within an intuitive, natural language interface. In Cognos, report and dashboard development is a drag and drop experience, with no SQL skills required. The Data Modules feature allows report authors to access and shape data from the WV EDS table structures, blending it with personal or external data uploaded from their desktops. Data modules are a powerful and flexible way for users to quickly model, share, and analyze data sets that would otherwise require IT resources and development activity. This approach requires no SQL skills.

Data modules are intuitive and do not require deep knowledge of the underlying database structures to use. Through intent-driven modeling, a user can type in the intent of their analysis and Cognos will search and find the appropriate tables and associated relationships. For example, if you intend to build a data module for Benefit Plans, simply type "Benefit Plan" and the system will return tables related to Benefit

Plans based on table metadata. Intent-driven modeling proposes tables to include in the module and infers relationships between the tables based on matches between the terms you supply and metadata in the underlying sources. While you are typing in keywords for intent-driven modeling, text from column and table names in the underlying data sources are retrieved. As you type your intent, a type-ahead list is used to suggest terms that are found in the source metadata.

You can also join external data to the WV EDS data within a data module, allowing you to integrate data sources not readily available in the WV EDS. Perhaps you have some benchmark data for Benefit Plans in a spreadsheet that you want to compare to enterprise data in the WV EDS. You can upload the benchmark data into a data module and join it to the Benefit Plan tables in the WV EDS database.

Once created, a data module can be used as a source for dashboards and reports. It can also be published so other users can create content over the data module. Lastly, data modules can be combined with other data modules for reusability and efficiency.

DD216	The solution's data access component should have the ability to support, at a minimum, complex "and/or/not" logic

Cognos Analytics is the primary BI tool for creating and deploying complex queries. Logical operators such as And, Or, and Not are among the many available operators.

DD217	The solution's data access component should have the ability to calculate unduplicated counts of, at a minimum, members, providers, claims, claim lines, and services
DD218	Members
DD219	Providers
DD220	Claim lines
DD221	Services
DD222	Others as defined by the Department

Cognos Analytics is the primary BI tool for creating and deploying complex queries. Cognos Analytics can complete unduplicated, or distinct, counts on members, providers, claims, claim lines, services, and more as defined by DHHR.

DD223	The solution's data access component should have the ability to support parameter-based queries

Cognos users can create ad hoc and parameter-based queries, design dashboards and scorecards from predefined templates, perform geospatial analyses, and perform exploratory analysis with natural language queries, pattern detection, and suggested visualizations.

DD224	The solution's data access component should have the ability to support including, but not limited to
DD225	Inner joins
DD226	Outer joins
DD227	Unions
DD228	Claims
DD229	Intersections
DD230	Minus operations of multiple datasets
DD231	Others as defined by the Department

The WV EDS, powered by Cognos Analytics, is capable of joining and merging data by utilizing inner, outer, union, union all, minus operation (i.e., the except operator), and intersect joins. Cognos Analytics will support other data integration operations as defined by the Department as supported by the tool.

DD232	The solution's data access component should have the ability to support correlated sub-queries

Cognos Analytics is capable of handling correlated subqueries. Reports can be built on the basis of user-written SQL.

DD233	The solution's data access component should have the ability to support current American National Standards Institute's (ANSI) Structured Query Language (SQL) standards

Cognos Analytics is ANSI SQL compatible.

DD234	The solution's data access component should have the ability to apply, at a minimum, weighting and ranking in analyses

Cognos Analytics is capable of simple and weighted averages, as well as, ranking analysis.

DD235	The solution's data access component should have the ability for linear programming

Advanced users can mine the data using a broad array of advanced data mining and machine learning techniques available in the R and Python open-source statistical tools. There are many libraries in the Python ecosystem for linear programming and discrete optimization problems.

Statistical users can access various R or Python packages within Watson Studio that provide advanced predictive modeling capabilities and pull the results back into Watson Studio for easy visualization and iterative analysis.

DD236	The solution's data access component should provide predictive modeling capabilities

IBM Watson Studio is a collaborative environment with AI tools that your Data Scientists can use to collect and prepare training data, and to design, train, and deploy machine learning models for predictive analytics. IBM Watson Studio empowers organizations to tap into data assets and inject predictions into business processes and modern applications and then optimize business value with visual data science and decision optimization.

Open source tools within IBM Watson Studio, such as R Studio, Python, Spark, and Scala, support predictive modeling and forecasting functions. Python and RStudio are two of the languages that are most commonly used for developing predictive analytics applications and both are extremely popular among data scientists and analysts. Statistical users can access various R or Python packages within Watson Studio that provide advanced predictive modeling capabilities and pull the results back into Watson Studio for easy visualization and iterative analysis.

DD237	The solution's data access component should support random number assignment of members and providers

The IBM InfoSphere Optim Data masking tool is available to deidentify data. During deidentification, hashing encryption is used for pseudonymizing names and addresses on all database constructs. This tool features multiple data-masking techniques and algorithms to ensure randomization, while maintaining the original nature of the data and preserving referential integrity. It also includes specialized, built-in content and rules for common sensitive fields such as name, address, and Social Security Number. Masked data are stored in tandem with the unmasked data. Access to the unmasked data is based on user privilege as defined and approved by DHHR.

DD238	The solution's data access component should provide multi-dimensional reporting abilities that would include slice and dice, drill down, drill up, drill across, and pivot result

Cognos Analytics empowers users of all skill levels to create or view visually rich reports, including interactive dashboards and reports with pivot table capabilities. Users are empowered to slice, dice, and drill down to other reports directly from a Cognos dashboard. Filters and dynamic visualizations allow users to hover over and select various visualizations that focus in on specific segments of the data. Additionally hyperlinks within a dashboard direct a user to a more detailed view of the underlying data via drill-down report capability.

Our solution provides management- and executive-level dashboard reports that present summary-level data highlighting trends and anomalies. The interactive nature of our solution enables these executive users to explore the data further using filters, drill paths, and so forth, to help them answer specific questions of interest. Drill paths allow users to move from summary-level reports down to the detail level.

Authorized users are able to design and create dashboards with drag-and-drop interactions, instead of having to export and manipulate data to make them presentation-ready. Dashboards allow users to ask more questions and drill down into the data and can be made shareable with other users. Business and advanced/power users can generate these types of reports within Cognos Analytics easily and with support from our training programs and analytic consultant teams.

DD239	The solution's data access component should have the ability to provide pre-defined logical drill paths such that the authorized solution user can move up or down in levels without defining a new query

Our solution provides management- and executive-level dashboard reports that present summary-level data highlighting trends and anomalies. The interactive nature of our solution enables these executive users to explore the data further using filters, drill paths, and so forth, to help them answer specific questions of interest. Drill paths allow users to move from summary-level reports down to the detail level without defining a new query.

DD240	The solution's data access component should have the ability to summarize grouping functions

Cognos Analytics provides summary and detail grouping functions.

DD241	The solution's data access component should support stratified random sampling with appropriate statistics and generate random sampling with associated statistics

Open source tools within IBM Watson Studio such as R Studio, Python, Spark, and Scala, support random sampling functions. Python and R are extremely popular among data scientists and analysts. R has many built-in methods which make data sampling simpler. Python calls these methods via packages and including a method that returns a certain proportion randomly sampled rows from a source. This method makes the code much more concise.

Statistical users can access various R or Python packages within Watson Studio and pull the results back into Watson Studio for easy visualization and iterative analysis.

DD242	The solution's data access component should have the ability to build custom formulas and derivations

Cognos Analytics allows for the creation of derived fields and formulas.

DD243	The solution's data access component should support what-if and reverse analyses

In addition to standard production reports that we develop during design, development, and implementation (DDI), your staff will also have access to user-friendly reporting and analytic tools to create their own cost trend reports, financial forecasts, and what-if modeling scenarios.

Advanced users can mine the data using a broad array of advanced data mining and machine learning techniques available in the R and Python open-source statistical tools. Python and R and are extremely popular among data scientists and analysts. Both offer "what if" predictive modeling and forecasting functions and also reverse scoring to correct relative data values for later statistical analysis.

Statistical users can access various R or Python packages within Watson Studio can pull the results back into Watson Studio for easy visualization and iterative analysis.

DD244	The solution's data access component should have the ability to aggregate or summarize rules based on pre-defined, static reports and data filters

Cognos Analytics is our choice for data visualization and advanced analytics reporting. Users can slice, filter, and aggregate data with a few clicks. This includes sourcing report data from other reports. In addition, predefined filters can be created in the metadata model for use in dashboards and reports.

DD245	The solution's data access component should support descriptive text and have the ability to search for elements, derivations, tags, and reports

Cognos Analytics provides a search feature that gives users the ability to find elements, derivations, tags, and reports.

DD246	The solution's data access component should have the ability to index authorized solution user-created tables in user libraries to drive queries

Cognos Analytics Data Modules allows for the creations of tables that are optimized for performance internally using columnar data storage formatting.

DD247	The solution's data access component should have the ability to generate alerts when business thresholds have been exceeded

Cognos Analytics provides automated, user-defined alerts to help identify changes that merit further investigation and take timely corrective actions. Alerts can be created and modified to direct report notification and delivery options. These tools enable reports to be produced with the optimal level of flexibility and efficiency.

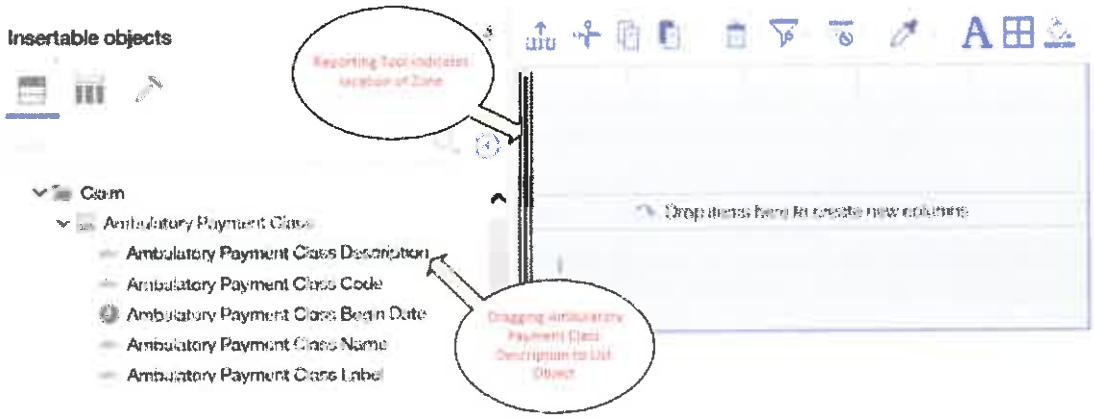
DD248	The solution's data access component should have the ability to terminate runaway queries

Cognos Analytics allows for users to terminate executed queries; in addition, there are property settings to auto-kill queries exceeding a predefined time per report, per batch, and queue wait time.

DD249	The solution's data access component should support the needs of authorized solution users to perform simple queries based on point-and-click technology

Cognos Analytics provides an intuitive, visually interactive interface with drag-and-drop report creation features to enable rapid, iterative analysis.

Figure 57. Drag and Drop Report Creation. *Items can be dragged from the left pane to the right pane to build new report items.*



DD250	The solution's data access component should have the ability to version reports and queries

We have carefully selected MotioCI to integrate with Cognos for saving and version control of Cognos Analytic reports. MotioCI's Version Control captures all sorts of changes (including deletions and content deployments) and gives the user the ability to roll back to a previous version. In addition to reverting to a previous version, the user can recover deleted reports. MotioCI's Version Control gives the user a safety net for work in Cognos.

Standard capabilities are also available directly within Cognos, where users can save a report first to their "My Content" folder. As they develop and finalize their report, they can then publish the report to the "Team Content" folder, where other users can access the report. For do-it-yourself versioning, users can take an existing report and save it with a different name so that they can modify the report tailored for their own needs.

DD251	The solution's data access component should provide flexible filtering or "sub-setting" to specify the selection criteria for reports

Cognos Analytics allows for filtering from a dimensionally modeled data mart. Additionally, Cognos Analytics Data Modules allows for the creation of subsets stored internally as columnar file formats for increased performance.

DD252	The solution's data access component should provide modifiable ready-to-use subsets

Cognos Analytics provides the ability to create and modify data sets. In Cognos Analytics, datasets are cached and can be used to for increased performance, reducing workload on the database, as well as keeping a point-in-time view of the data. The datasets are stored in columnar format and stored in the content store for quick access. If space is an issue, the datasets can be stored in an external object store. Datasets can also be scheduled for refresh to keep the data up to date.

DD253	The solution's data access component should have the ability to create, save, modify, publish, and share queries

Cognos users can create ad hoc and parameter-based queries, save those queries to their My Content folder for future modification, and publish those queries to the Team Content folder to share the queries.

DD254	The solution's data access component should provide pre-defined templates upon request

Cognos Analytics comes with a set of predefined templates out of the box; additional user requested templates can be created upon request.

DD255	The solution's data access component should have the ability to provide eligibility indicators at a summary level

The Cognos Analytics component of our WV EDS solution aggregates and reports on any type of data available in the system, including any type of program indicator defined by DHHR. The tool has the capability to present summary-level dashboard reports that highlight trends and anomalies for specific data elements. These interactive dashboards allow users to explore the data in detail using filters, drill paths, and other tools for selecting a type of data from the summary level and exploring the data in greater detail.

The solution allows users to generate a summary-level dashboard report of eligibility indicators. These can be summarized and reported by categories (Medicaid Expansion, Aged and Disabled, Foster Children, etc.), demographics, specified subpopulations (Medicaid Waiver Participants—Substance Use Disorder, Intellectual and Developmental Disabilities, Traumatic Brain Injury, etc.) plans (Fee for Service, Managed Care), and broader programs (Medicaid, Children's Health Insurance Program, Public Employer, Medicare, Commercial, etc.). For each of the potential indicator categories, reportable metrics for eligibility indicators include unique counts of members, member enrolled months, and average enrollment.

DD256	The solution's data access component should have the ability to provide financial indicators at a summary level

The Cognos Analytics component allows users to generate a summary-level dashboard report of financial indicators that can be used to drill down to the detail level for any data reported. DHHR's typical metrics for financial indicators include claim payments, encounter claim payments, capitation payments, claim adjustments, drug rebates, bulk adjustments, and incentive payments.

DD257	The solution's data access component should have the ability to provide utilization indicators at a summary level

The Cognos Analytics component allows users to generate a summary-level dashboard report of utilization indicators that can be used to drill down to the detail level for any data reported. DHHR's key metrics for utilization indicators center on the number of claims paid, unique counts of members who received services, number of prescriptions, and number of providers.

DD258	The solution's data access component should have the ability to provide other indicators, as defined by the Department, at a summary level

The indicators that DHHR measures and maintains are derived from metrics that Watson Health is already familiar with as your current provider. We are already familiar with the data environment for West Virginia's Medicaid environment, and the Cognos Analytics component allows the new WV EDS solution to aggregate and report on any type of data available in this environment, including any type of program indicator defined by DHHR. As DHHR identifies new indicators, we work with you to define them and derive summary reports and dashboards that you can use to explore the data in greater detail.

DD259	The solution's data access component should have the ability to provide access-to-care indicators at a summary level

IBM Cognos Analytics component allows users to generate a summary-level dashboard report of access-to-care indicators that can be used to drill down to the detail level for any data reported. We have direct experience with West Virginia metrics data for access to care and can work with DHHR to derive the most appropriate data set for access-to-care indicators—which could include CMS quality measures,

providers-per-member figures, individuals who use primary care, or standardized screening rates (mammograms, colon cancer screens, diabetes checks).

DD260	The solution's data access component should have the ability to notify the authorized solution user when user-defined criteria have been met

Cognos Analytics users can set up alerts to automatically notify users when preset exception thresholds have been exceeded, avoiding the tedious process of sifting through reports.

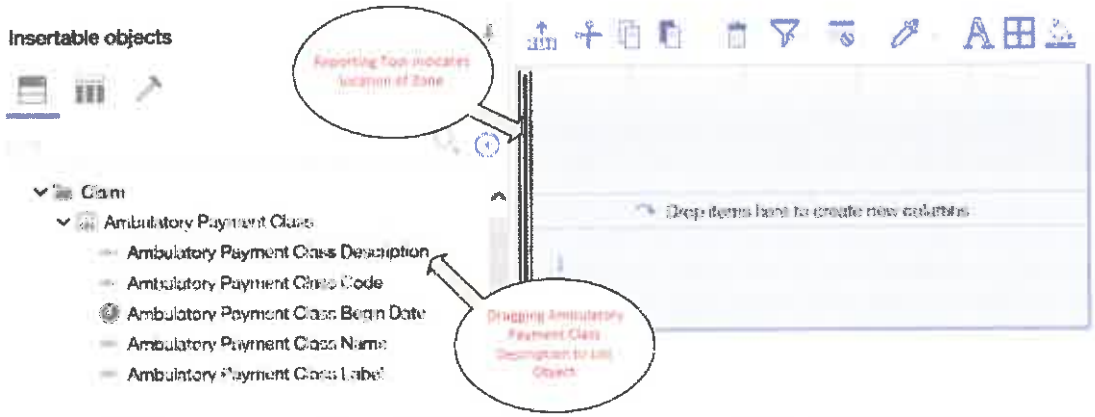
DD261	The solution's data access component should have the ability to provide an alert system to notify authorized solution users of emerging trends, detection of excessive costs, and achievement of goals

Cognos Analytics users can set up alerts to automatically notify users when preset exception thresholds have been exceeded, avoiding the tedious process of sifting through reports. Preset expressions can be created to monitor for emerging trends, rising costs, or goals being met. Alerts can be delivered within the Cognos Analytics portal and/or sent via email or text message to a mobile device.

DD262	The solution's data access component should have the ability to apply selections as flexible objects that can be inserted, moved, or removed through drag-and-drop technology to make cross-tabular and multi-tabular reports

Through Cognos Analytics, business analysts and power users across the enterprise have access to highly flexible, visually intuitive ad hoc reporting. The Cognos interface has easy-to-use report design features, such as point-and-click and drag-and-drop capability. Analysts can quickly construct their own reports and dashboards, and even perform complex analyses containing the information they want to see in the format they want it displayed. Once reports are created, users can save their designs for later reuse as a template for other users to use in creating their own reports. Cognos Analytics supports advanced formatting and pivots; users can design ad hoc analyses and reports using OLAP pivoting functionality when reporting on multidimensional data. Users can pivot data in crosstab and chart formats. Report authors can also include URLs in their reports or analyses results as quick access links for research.

Figure 58. Cognos Analytics Supports Drag-and-Drop Report Authoring Functionality. *This example shows how users can drag and drop data elements into a List Object in Cognos Analytics.*



DD263	The solution's data access component should have the ability to allow flexible pivoting of rows to columns and columns to rows

Cognos Analytics users can create visually rich reports and interactive dashboards with pivot table capabilities. Users can easily take a list report and with the click of a button pivot the rows to columns or columns to rows.

DD264	The solution's data access component should have the ability to import metadata from the database catalog and other external sources

Importing Metadata to IBM Cognos Analytics

Cognos Analytics has the ability to import metadata from relational data sources that are defined in Cognos Content Manager. First, the data source connection is created in Cognos as a Cognos Content Manager data source. Next, the metadata are imported one schema at a time from a star or snowflake schema data source. When the user imports metadata from a relational database, he or she can import all the metadata or select particular object types such as tables, columns, views, synonyms, stored procedures, and functions.

IBM Cognos Framework Manager Model

Cognos Analytics includes Framework Manager, a metadata modeling tool to create a business-level model and view of metadata derived from the data sources to be used for analytical reporting and analysis. The Cognos Framework Manager reporting model is a collection of metadata that includes physical information and business information for one or more data sources. It helps enable reporting users to understand the data without any technical complexities, analyze them, and assemble reports.

To create models in Cognos Framework Manager, one must import metadata. One can import metadata from a variety of data sources, both relational and dimensional into a new or existing Cognos Framework Manager model.

Our solution includes pre-built Cognos Framework Manager models derived from our data marts. These models provide a logical view of the available data and their relationships in a business context. The Cognos Framework Manager data model view is easy for business intelligence (BI) users to understand and facilitates easy analysis and reporting.

Metadata Propagation to Cognos Analytics

As an added benefit, we have developed automated processes that easily share the business metadata across different tools. For example, we can take the field and table definitions initially captured in our ERwin data modeling tool and propagate those to the Cognos Framework Manager model. Thus, business analysts and other report developers have access to the metadata directly in the reporting tool without having to refer to an outside document. This facilitates report development and improves communication about what is available for reporting in the BI tool.

DD265	The solution's data access component should have the ability to export metadata to other external sources

Within Cognos Framework Manager, a user can export the Framework Manager model as a Common Warehouse Metamodel (CWM) file. CWM exchanges metadata between different data warehouse tools and repositories. Each instance of the CWM metamodel is exchanged using XMI (.xml metadata interchange) documents. When one exports a Cognos Framework Manager model as a CWM file, joins, folders, namespaces, prompts, and calculations are not exported. Only query subjects, query items, and functions are exported. The default Cognos Framework Manager Specific Export Options optimize the metadata export.

The Framework Manager model is portable from one database environment to another. The model can be moved from one identical database to another on the same platform. Or it can be moved to another database from a different vendor.

DD266	The solution's data access component should have the ability to provide ease of maintenance of metadata updates

During the lifetime of a project, metadata may change and new requirements may develop that require one to update models and data sources. Cognos Analytics provides a method to synchronize the project's metadata in Cognos Framework Manager with data sources using log files. Project synchronization runs the complete action history of the model and updates the model's metadata. If the data source is a relational database, the user can update only the query subjects and does not need to perform a full project synchronization. After synchronizing, one can choose to accept the new changes and create a new project or return to the original project. If the new changes are accepted, the original project and Cognos Framework Manager metadata model is replaced.

DD267	The solution's data access component should provide authorized solution users with the ability to create and/or import user-defined values or other driver data to inform querying and reporting

Authorized users are able to directly access their authorized data in the WV EDS data stores and manipulate these data along with any user-imported data with virtually unlimited flexibility within the analytic Sandbox environment. Power users can upload or import external data to their Sandbox schema and join them with data from the WV EDS. Within the Sandbox environment, these users have the freedom to create and update user-specific data marts and tables with data from any data sources to which they have access. Once in the Sandbox, external data can be used as criteria or dimensions to inform queries and reports or to filter data through parameterization. Authorized users have full access to write SQL via the query, reporting, and analytics tooling on their Sandbox data marts through native SQL or Cognos Analytics.

DD268	The solution's data access component should have the ability to import and save user-defined data

Authorized users are able to import data with virtually unlimited flexibility within the analytic Sandbox environment. Power users can upload or import external data to their Sandbox schema, save them in user-defined tables and join them with data from the WV EDS. Within the Sandbox environment, authorized users have the freedom to create and update user-specific data marts and tables with data from any data sources to which they have access.

DD269	The solution's data access component should have the ability to access data from external sources in native form

Users also are able to extract data using alternative BI tools. They can set up connections to other data sources and access them in their native protocol or over Open Database Connectivity/Java Database Connectivity (ODBC/JDBC). For example, a user can connect to other databases (either natively or over ODBC/JDBC), Excel workbooks, or flat files to combine information across data sources into a single dashboard for executive consumption. Power users have increased reporting and metadata management capabilities, such as—

- Ability to import and save user-defined data that can be used as part of the filtering criteria against the WV EDS
- Ability to use imported lists of user-defined values in an "include" or "exclude" query in their report design
- Ability to create and access large in-database objects such as user-defined tables and indexes in a Sandbox location

DD270	The solution's data access component should have the ability to use data that has been stored in user-defined tables with a parameter that is used to join to the data warehouse to drive queries

Authorized users are able to directly access their authorized data in the WV EDS data stores and manipulate these data along with any user-imported data with virtually unlimited flexibility within the

analytic Sandbox environment. Power users can upload or import external data to their Sandbox schema, save them in user-defined tables and join them with data from the WV EDS.

DD271	The solution's data access component should have the ability to import a list of user-defined values into the user library

Power users have increased capabilities to import user-defined values into user-defined tables within the Sandbox environment. The following are examples of such capabilities:

- Ability to import and save user-defined data that can be used as part of the filtering criteria against the WV EDS
- Ability to use imported lists of user-defined values in an "include" or "exclude" query in their report design

DD272	The solution's data access component should have the ability to import external data into tables

Authorized users are able to import data with virtually unlimited flexibility within the analytic Sandbox environment. Power users can upload or import external data to user-defined tables in their Sandbox schema. Within the Sandbox environment, these users have the freedom to create and update user-specific data marts and tables with data from any data sources to which they have access.

DD273	The solution's data access component should have an online/contextual help function

IBM Cognos Analytics has an online help menu available from anywhere in the user interface. Within the Cognos Analytics Reporting function, visual aid options (e.g., Show Hidden Objects) help a user when designing reports in the layout. Visual aids can be enabled or disabled by accessing the Visual aids menu item in the toolbar.

The Cognos Transformer user interface supplements the more task-oriented topics, providing context-sensitive help that can be accessed directly from the product. With context-sensitive help, the Help button on dialog boxes opens the online help in HTML format so the user can scroll to the required topic.

Figure 59. IBM Cognos Analytics Help Menu. *The "?" Help icon displays a list of resources for the user to get help.*



DD274	The solution's data access component should have the ability to add, delete, or develop measures from any report available without needing knowledge of Structured Query Language (SQL) or other complex query language

In the WV EDS, powered by Cognos Analytics, users can add or delete measures or descriptions without any knowledge of SQL. Creating a new measure or description is a simple process of adding a query item to an existing query subject and editing the new query item's expression. Query subjects are automatically generated as reports are populated with visualizations. For example, when a simple list report object is dragged onto a report, a query subject is created by Cognos. As that list report object is populated with descriptions and measures by dragging those descriptions and measures into the list report object, the new query subject gets populated. Users can then access the new query subject and edit, delete, or add new measures and descriptions to it without any knowledge of SQL.

DD275	The solution's data access component should provide a menu of view-ready and print-ready summary-level reports, charts, maps, and graphs

Our WV EDS solution develops and maintains a report menu that accesses all reports maintained by and within the solution in a report registry. The registry retains important metadata—including the report name, a detailed description of the report, report creation date, last execution date, most recent users, and frequent users. In addition, the registry is searchable and allows users to view and print reports through a browser-based interface.

Our WV EDS solution's tools support the complete continuum of reports, from high-level executive dashboards to detailed cross-tabulations to output summaries of statistical models and forecasts. Management- and executive-level dashboards and reports present summary-level data highlighting trends and anomalies. Users are able to view and print reports in a full range of formats, including dashboards and animated storyboards, and with a variety of visuals and objects. These include graphs, charts, tables, lists, maps, images, logos, and live embedded applications that can be linked to the information. Reports can be produced at any level of summary or detail. We work with DHHR to define the types of reports, level of summarization, cross-tabulations, sort formats, layouts, frequency, and media required to support specific business needs.

DD276	The solution's data access component should have an application menu that utilizes point-and-click functionality

In our WV EDS solution, Cognos Analytics is our tool for data visualization and advanced analytics reporting. Users can slice, filter, and aggregate data with a few clicks. Users can use existing report widgets to create their own custom dashboards with dropdowns and sliders, with intuitive visual cues providing highly graphical visualizations of your data.

The interactive nature of our solution enables executive users to explore the data further using filters, drill paths, and so forth, to help them answer specific questions of interest. Drill paths allow users to move from summary-level reports down to the detail level. User can drill up or down within a report on dimensionally structured data or drill through to another report that uses a different data cube.

In the Cognos Workspace, for lists and crosstabs, drillable items are identified by hyperlinks when the pointer pauses over the data item. In charts, the pointer changes to a hand when the user pauses it over a drillable item, and a tooltip indicates what is being drilled on. Users can point and click on icons to Drill Up, Drill Down, or Drill Through to another report or data cube.

DD277	The solution's data access component should have the ability to graph reports and make the reports presentation-ready without the need to export the data to third-party software

Within Cognos Analytics, users can create reports containing a full range of formats, including dashboards and animated storyboards, and with a variety of visuals and objects, such as graphs, tables, lists, maps, images, logos, and live embedded applications that can be linked to the information. The unified interface exposes functionality in context as it is needed, which empowers users of all abilities and expertise levels to engage in creating reports with rich visualizations and interactive experiences for maximum impact. Users can intuitively create presentation-ready reports with advanced graphical content, all within the Cognos Analytics interactive GUI. Although not required for advanced graphical visualizations, users can also export their created reports into their favorite formats for offline analysis or integration with other tools.

DD278	The solution's data access component should have the ability for online maintenance of reports including adding, deleting, editing, copying, and pasting actions

Cognos Analytics reports are created in the IBM Cognos Analytics - Reporting component. Cognos Analytics - Reporting is a web-based report authoring tool that professional report authors and developers

use to build sophisticated, multiple-page, multiple-query reports against multiple databases. The Reporting tool is a comprehensive, online tool with graphical features for developing and maintaining reports. Users can expand the scope of an existing report by inserting additional report items, or they can focus on specific data by removing unnecessary report items. After a report is created, it can be changed or enhanced. Reports can also be effectively copied and pasted by opening an existing report, changing it, and saving it using another name.

Our Watson Health analytic team includes Reporting Specialists/BI Developers experienced in designing, developing, and maintaining dashboards and reports. The group's mission is to provide consistent, high-quality BI architecture and dashboard/reporting services with excellent client satisfaction. Advanced users and professional report authors tend to prefer Cognos Analytics - Reporting for designing dashboards, scorecards, and animated storyboards, because they can select from dozens of standard visualization templates and they can easily integrate multiple data sources in a single data module to speed report development. When data providers inform of us of changes, we evaluate data mapping/data lineage to determine whether load scripts, other than inbound, are affected. We communicate the changes to the report development team, so the team can review any impact on existing reports.

Our report development team creates and documents a set of production reports for business needs including federal reporting, program management, and provider and recipient profiling. We leverage the enterprise data and advanced reporting capabilities of Cognos Analytics - Reporting to make desired enhancements such as—

- Expanding the types of data included in specific reports
- Automating or otherwise increasing the efficiency of producing reports and data exports
- Adding prompt-based reports for frequent use by a broad range of nontechnical users
- Enhancing the visualization and interactive capabilities of standard reports

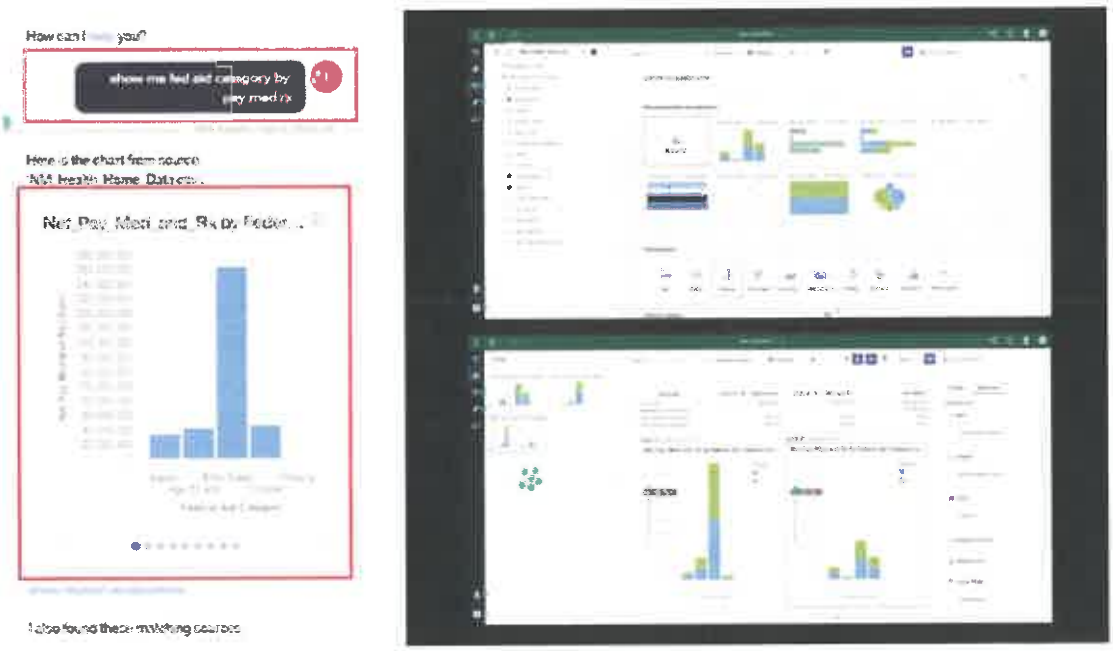
DD229	The solution's data access component should support data visualization techniques

Our WV EDS solution includes a broad range of advanced visualization capabilities and state-of-the art visualization features. Visualizations in Cognos Analytics - Reporting make reports easy to interpret, with geocoded data visualization and geospatial analyses and visualizations. The Toolbox tab in the Cognos Analytics - Reporting component contains various objects that the user can add to a report, such as visualizations, text, layout objects, and prompts. One can also add advanced objects such as custom controls and hyperlinks.

Cognos Analytics - Reporting delivers all the functions of traditional BI but augments them with many artificial intelligence (AI)-driven elements, such as natural language dialog, guided analytics, pattern detection and smart visualizations—all of which facilitate advanced data exploration. An embedded AI assistant lets the user enter text-based input to help gain quick insights into the data and simplify the analytics.

The AI assistant applies natural language processing so the user can pose questions about the data in plain language and receive intelligent responses. The built-in AI assistant understands the intent of the question and intelligently presents the visualization using the most appropriate graphical display for the nature of the data and the user's perspective. For example, with geolocation (latitude/longitude) data, the system recognizes the most appropriate visualization as a map, adding geospatial mapping of the entire globe, an individual neighborhood, or anything in between. Cognos Analytics also guides the user by presenting other visualizations that are directly related to what is being viewed.

Figure 60. IBM Cognos Analytics Visualization from the AI assistant. *The Cognos Analytics AI assistant provides users with the capability to ask Cognos about their data, with recommended visualizations and deep exploration capabilities.*



DD280	The solution's data access component should have the ability to schedule Department-specified reports for execution and route the reports automatically through email

Report Scheduling

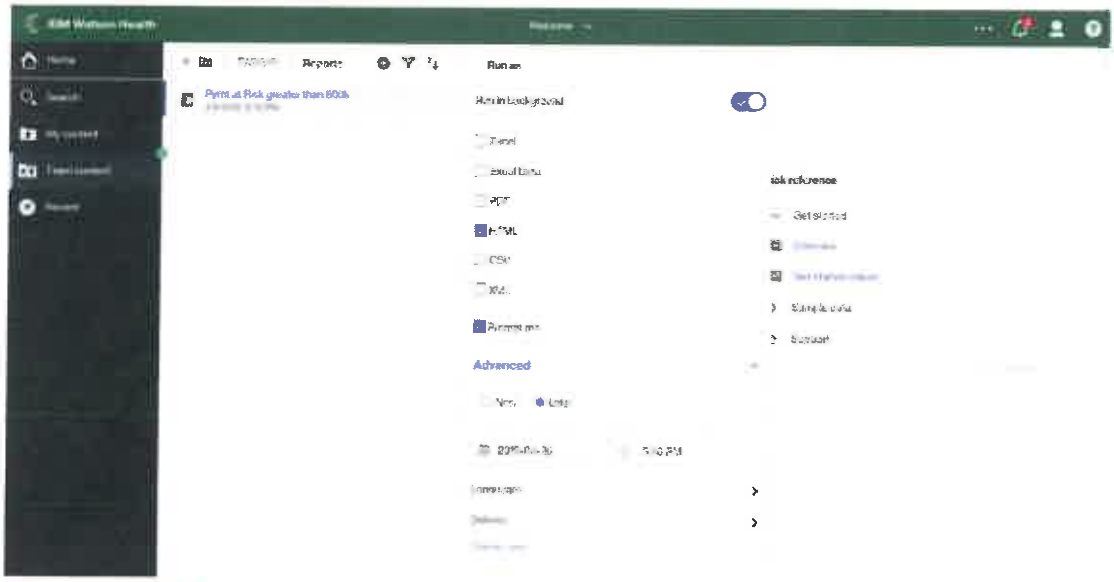
With the WV EDS solution, authorized users can schedule reports and dashboards to run automatically at a desired frequency. Authorized users are able to schedule predefined reports or ad hoc reports using Cognos Analytics - Reporting. Predefined reports can be scheduled to run on any given day, at any time and interval (e.g., weekly, monthly).

For example, if a user wants to run a report on new data added the previous night, it can be scheduled to run early each morning and the results emailed to the user. Users can also set an event to monitor the table, and the report can be run any time that new rows are added.

Report Distribution

Cognos Analytics - Reporting provides several options for delivering report results, whether the report is scheduled or run on demand. Scheduled reports can be distributed to private or public folders, bursted (i.e., results divided, and subsets distributed to multiple recipients), subscribed to, or delivered through other distribution channels, including email, web, or mobile distribution methods. Using burst reports, for example, a report author can send each health plan the section of the report containing only that plan's information. Authors can specify the distribution of reports by email or to a saved folder for viewing. Additionally, users can subscribe to reports to receive push notifications via email when updated reports are available.

Figure 61. IBM Cognos Analytics Scheduling Interface. *Users can schedule reports to run at a time that is convenient for them.*



DD281	The solution should have the ability to build, name, and save multiple user-defined searches and sort parameters to allow authorized solution users to repeat the same search/sort queries

In Cognos Analytics, queries can be built, published, and shared so that visualizations, dashboards, and other analytic components can be derived from queries. In addition, users can save a report for individual use or as a shared template for other users. Queries, parameters, and custom fields can be reused with different report templates, providing both reusability and consistency. This approach allows Sandbox users to copy production SQL queries and table structures to the Sandbox environment and also reuse the queries, custom fields, parameters, report templates, and visualizations embedded in a report, either in the Sandbox or in production as the basis for another query or report. Finally, users can effectively reuse an entire report by opening an existing report, changing it, and saving it using another name.

With evolving business needs and program requirements, reusable business logic is critical to the efficiency of your analytic operations as well. We advocate building measure definitions and logic in the reporting layer of the WV EDS whenever possible so that users access the same definitions and logic across tools and domains. Our proposed solution, however, supports reuse of logic that is not already available in the underlying data, but rather is created by users in the course of their day-to-day analysis. In Cognos Analytics - Reporting, users can define new Calculated Fields or Groups that combine separate values of a data element as needed for a specific study or report. The resulting logic can be saved and/or shared for reuse to promote consistency and add new insights in dashboards or other reports.

From a metadata perspective, authorized users can search, browse, and query the metadata repository powered by InfoSphere Information Governance Catalog (IGC) to determine whether a specific report, analysis, or metric already exists before creating something new. This approach allows users to find reports on the basis of the actual data they use versus looking at a list or metadata in the report registry.

DD282	The solution should have the ability to capture and incorporate into queries and reports any date-sensitive occurrences that may impact analytics and reporting, including, but not limited to:
DD283	Rate changes
DD284	Policy changes

DD285	Health plan changes
DD286	Legislation
DD287	Others as determined by the Department

We recognize that Medicaid rates (e.g., resource-based relative value scale [RBRVS] rates, relative value unit [RVU] rates, diagnosis-related group [DRG] rates, and resource utilization group [RUG] rates) change every year because of the introduction of new codes, actuarial adjustments, and/or adjustment made through policy changes. In addition, a member may choose to change his or her health plan during yearly open enrollment. Other data elements such as member's benefits, member's mailing address, or member's family gross income may also change over their enrollment period. WV EDS data model address such data elements through a data modeling technique called Slowly Changing Dimensions (SCDs).

Our data models are designed and maintained to support standard Type 2 SCDs. With Type 2 SCDs, the dimensions (e.g., rates, health plans) are attributed with Start and End Date columns. When a change occurs, a new record is created to represent the changed data with a new start date and an unspecified end date. The old record is ended with an end date that is before the start date of the new record. Therefore, the original and the new records together represent the change that happened over time. This approach maintains a history of change for retroactive reference. Using Type 2 SCDs enables tracking incremental, effective-dated changes to the attributes of a dimension over time.

Dimensional changes are either transparent or opaque to an end user via properly designed data marts. On the basis of a specific user's needs, data marts may be built with extracts that inherently take the change into account and present only the current data to the end user. This is done to facilitate easy querying of data without the complexity of changing dimensions. Data marts may also be built to explicitly demonstrate such temporal changes to the end user, if required. The WV EDS uses best practices in healthcare data with SCDs for effectively managing date-sensitive criteria based on clearly defined requirements.

DD288	The solution should have the ability to capture and incorporate into queries and reports any data field in the Medicaid Management Information System (MMIS)

Watson Health has extensive experience in modeling the complexities of Medicaid Management Information system (MMIS) and has developed an in-depth understanding of (1) the data that drive and are needed to support delivery of care and (2) the payment and monitoring of invoices associated with care. Our Core Data Model (CDM) provides the in-depth understanding of Medicaid data and the relationships among key entities that are needed to support analysis of access to care, services delivery and payment, and health outcomes.

We have been working with MMIS vendors for the past 3 decades to receive their data, address data quality issues, and work together to deliver value to our clients. Although our CDM can store every data element supported in an MMIS, we recommend that we store only the data elements that are relevant to analysis, reporting and monitoring of service delivery, payment, care management, and health outcomes. Our model also accommodates clinical data and social determinants in addition to administrative data associated with MMIS. We closely work with DHHR to define the exhaustive list of elements that would be relevant to delivering value to the members of DHHR Medicaid.

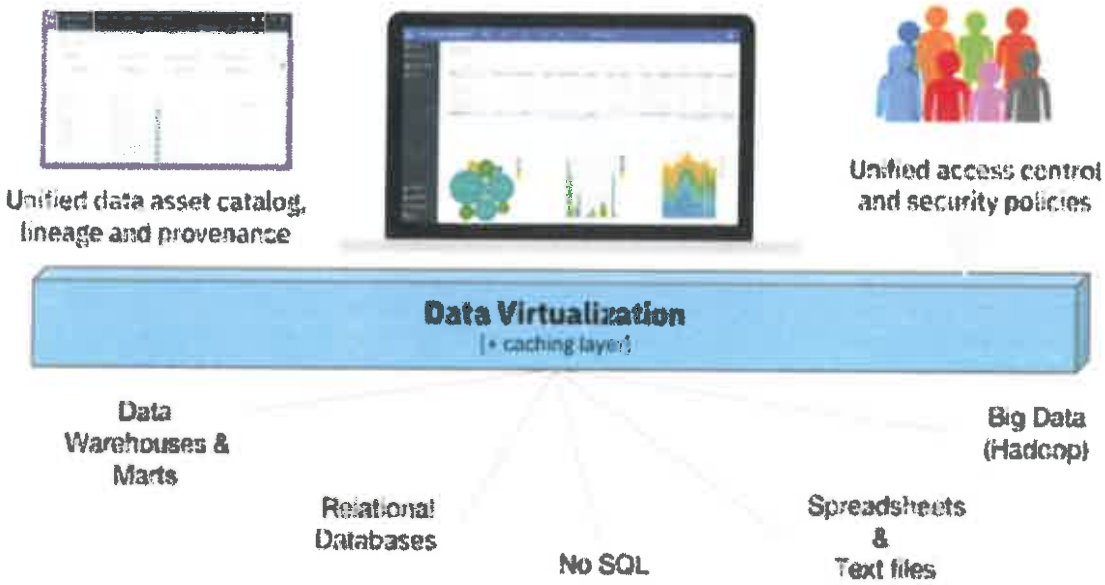
DD289	The solution should have the ability to link external data to any structured data field in the solution to serve as a search/sort query parameter

Power users are able to use IBM Watson Studio to directly access their authorized data in any WV EDS data store and manipulate these data, along with any user-imported data, with virtually unlimited flexibility in the analytic Sandbox environment. The Sandbox data store is a user-owned schema within

the database that enables power users to develop schemas that contain imported external data that can then be joined to any of the user-accessible WV EDS data stores. Within the Sandbox, power users have complete flexibility to create tables, views, and data marts; to import external data into tables of their own creation; to join their schemas to other tables; and to import or join to external tables. They can explore the WV EDS data, along with external data sources, to discover new relationships and create data extracts for any purpose.

In addition to importing data from external sources and creating new tables in the Sandbox, the Data Virtualization capability in the IBM Cloud Pak for Data allows users to connect to these sources and create a consolidated, virtualized view that can be manipulated for further comparison and analysis as though it were a single, local data source. Data Virtualization is a unique new technology that connects heterogeneous data sources as a single self-balancing collection of virtual, federated data sources. It supports queries by using standard SQL through common interfaces including IBM Watson Studio and Cognos Analytics.

Figure 62. IBM Data Virtualization. *Data virtualization brings together disparate data sources from user files, the WV EDS, and external sources to which a user has access.*



Data Virtualization allows users to explore unstructured data that reside in other data repositories or file systems. A common weakness in enterprise data warehouse (EDW) environments is the lack of integration between the unstructured data stores and the data in the EDW model. With our WV EDS, authorized users can access our intuitive data exploration interface to dig deeper into unstructured data. For example, with Data Virtualization, users can explore clinical data and tie them back to related claims to understand the nature of a member's condition.

DD290	The solution should maintain a library of reports organized in a manner that facilitates the use of and secure access to these reports

We develop and maintain a Report Registry that stores information for all reports maintained by and within the WV EDS solution. The registry retains important metadata including the report name, a detailed description of the report, report creation date, last execution date, most recent users, and frequent users. Additionally, the registry is searchable and allows users to view and print reports through a browser-based interface.

We create a library of indexed and searchable folders for organizing reports so they can be located easily. Intuitive and fully featured search functions support user queries and search parameters. Reports can be uploaded, downloaded, and "checked out" with document management controls that log users' activities and dates. Security functions enable protection of library contents throughout the project life cycle.

DD291	The Vendor solution should provide the functionality to view the results of wild card searches including, but not limited to, both single character and string wild card search for all searchable fields.

Wildcards in queries provide a powerful way of searching and filtering data. Our solution supports queries using both single-character and string wildcard searches against the available data elements. For example, the user can use the question mark (?) character to represent exactly one character. All the other characters specified are required in the matching. In such case, ab?d.jpg matches the files abcd.jpg, abed.jpg, and abfd.jpg. Or the user can specify that the asterisk character (*) represents zero or more characters. In this example, *.txt matches the files abc.txt and x.txt. These wildcard criteria are supported in all searchable fields.

DD292	The solution should have the ability to utilize all data, queries, analyses, and reporting in the solution to produce geospatial analytics and maps.

Our WV EDS solution provides the ability to store Geographic Information System (GIS) information such as street addresses, postal codes, counties, and latitude and longitude coordinates within the WV EDS data stores. These GIS data can be used for geospatial analysis and map visualizations by our solution's analytical tooling. By visualizing program data in the context of location analytics, DHHR has a more complete view of the impact of WV programs across geographical regions and gains insights that add value to your decision-making process.

Cognos Analytics and Watson Studio provide built-in geospatial analysis that serves basic visualization needs for many end users. For advanced geospatial analysis, users can access ESRI ArcGIS, a complete GIS application that allows users to produce maps and perform advanced geospatial analytics (such as distance calculations) using geographic data and quickly identify relationships, patterns, and trends. Users can use ArcGIS to access data directly from the data warehouse, without the need to manually import data. Maps generated in ArcGIS can be integrated with Cognos Analytics, creating a comprehensive story and bringing transformative healthcare perspectives such as geospatial patterns of member participation and expenditures.

DD293	The solution should have the ability to perform statistical analyses on geospatial data

Our WV EDS solution supports advanced functionality for statistical analysis of historical and current data and a variety of methods for statistical profiling and geospatial analysis of data. Analytics users can leverage the capabilities of BI and statistical tools, such as Cognos Analytics and the tools in the Watson Studio package (R, Python, and Jupyter Notebooks).

Advanced users can mine the data using a broad array of advanced data mining and machine learning techniques available in the R and Python open-source statistical tools. Statistical users can access various R or Python packages within Watson Studio that provide advanced predictive modeling capabilities and pull the results back into Watson Studio for easy visualization and iterative analysis.

Table 31. Common Machine Learning Algorithms. *Machine learning algorithms are applicable to almost any data problem.*

Common Statistical and/or Machine Learning Algorithms Available in R and Python	
• Linear regression	• Neural networks
• Logistic regression	• Support vector machines

Common Statistical and/or Machine Learning Algorithms Available in R and Python	
• k-nearest neighbors	• k-means clustering
• Decision trees	• Hierarchical clustering
• Random forest	• Dimensionality reduction algorithms
• Naive Bayes	• Gradient boosting algorithms

The WV EDS solution supports a broad range of reporting and analysis techniques on statistical data, including the following:

- A geospatial perspective of historic trends and future forecasts of enrollment, utilization, and costs
- Statistical evaluations of new programs and policy initiatives to foster continuous improvements
- Advanced data mining techniques that detect anomalies and aberrant patterns for further analysis
- Geospatial analysis to detect "hot spots" for focused intervention

DD294	The solution should have the ability to identify, query, analyze, and report on episodes of care or bundled services

Our proprietary grouping methodology is a rigorous, clinically rich episode construction methodology that uses complex analytic modeling and grouping methodology to incorporate inpatient, outpatient, and drug experience into clinically relevant episodes of care. Users can perform claims/encounter analysis, including what-if analysis, of episodic care or other bundled services/payments to provide richer insights that can lead to sounder decisions. Users are able to produce high-impact graphical information such as interactive dashboards/stories, parameter-based queries, and geospatial reports. Reports can be enhanced with rich data elements such as health risk scores, episodes of care, and evidence-based healthcare performance measures.

DD295	The solution should have the ability to develop and calculate fee-for-service (FFS) rates, actuarially-sound managed care rates, bundled fee-for-service and managed care rates, and others as determined by the Department

Some of the most common uses of our analytics in Medicaid are for reimbursement policy, pricing, and rate setting. Our WV EDS solution supports the full range of reporting and analytic needs in these areas, including modeling future rate changes, evaluating the impact of past rate adjustments, analyzing cost drivers under managed care, evaluating the appropriateness of capitation rates, and generating reliable data that actuaries can use to calculate appropriate capitation rates.

Our WV EDS solution supports the planning, design, and evaluation of alternative payment models, including shared savings/risk models and bundled payments. The following are examples of our experience in other states:

- **Compare benchmark Medicaid/Medicare fee-for-service (FFS) rates to other payers.** We developed a reporting process that allowed a state Medicaid agency to compare Medicaid and Medicare rates by procedure and perform what-if modeling scenarios for various provider specialties to guide discussions and decision-making on rate adjustments. We have also supported Medicaid clients in comparing FFS provider rates for specific provider specialties to commercial norms in their states using data drawn from our IBM MarketScan Research Databases, which the states used in their FFS Access Monitoring Review Plans.
- **Assess and adjust capitation rates for managed care organizations' (MCOs') relative health risk.** We have helped our Medicaid clients address an MCO concern that they are being

underpaid because "my patients are sicker" than the patients in other plans. We analyzed the support for this claim by using relative health risk scores to compare illness burden across plans.

- **Evaluate regional Home and Community-Based Services (HCBS) provider cost factors.** We helped the Minnesota Department of Human Services account for regional wage variation for HCBS services in the Disability Waiver Rate System, as mandated by the legislature. We subsequently completed a follow-up study of nonwage cost factors for HCBS services based on a survey of providers.

We work with DHHR to determine the scenarios for rate evaluations and develop sound rate calculations based on our analysis. These engagements to evaluate and develop rate calculations are pursued as directed and approved via Change Requests as defined by our Change Management process.

DD296	The solution should have the ability to calculate travel distance including, but not limited to, member's home and relevant provider locations

Our WV EDS solution includes advanced geospatial analytical capabilities such as calculating distances and drive times using the ESRI ArcGIS application. ESRI ArcGIS is a complete GIS application that allows users to produce maps and perform geospatial analytics using geographic data. ArcGIS includes algorithms for routing and determining provider network adequacy for patients who live an unreasonable distance (x or more miles) from their primary care provider. From a provider perspective, the algorithms identify outliers within a peer group on the basis of geocoding of provider and patient addresses—for example, providers with many patients who live an unreasonable distance (x or more miles) from the provider's address on the basis of geographic latitude and longitude coordinates (centroid of ZIP Code). Routing can be calculated using straight-line, drive time, or drive mileage through ESRI's Business Analyst extension for ArcGIS. The maps generated in ArcGIS can be integrated with Cognos Analytics, creating a comprehensive perspective of relative distance between providers and members and other travel distance scenarios.

DD297	The solution should have the ability for authorized solution users to create and view all reports and maps on mobile devices in accordance with Department, State, and federal security and privacy policies and procedures

Cognos Analytics also supports efficient and effective report delivery through web and mobile distribution methods. A method is used only if it is secure for the content of the report. The most common means of access is for reports to be published and available online, via desktop internet browser or mobile device, through the Cognos Connection web applications. With Cognos Analytics, visualizations such as graphs, charts, plots, tables, maps, summarized data, or any other visual representation of data, can be displayed in dashboards or stories that communicate insights and analysis on a desktop or mobile device.

Our solution provides two options to create and view dashboards, reports, and maps on mobile devices. Using an Apple iPad tablet, users can access the Cognos Analytics' browser-based user interface just as they would from a web browser on a desktop device or laptop. Using the Cognos Mobile app, users have secure access to view reports on a mobile device with a touch-friendly experience. The app runs on iPads, Apple iPhones, and Google Android-based smart phones and tablets. Reports can be downloaded to one's device for disconnected usage as well.

DD298	The solution should have the ability to display to authorized solution users the number of pages to be printed before the authorized solution user proceeds with printing a report

Cognos Analytics reports and dashboards to be printed are exported to a PDF format, thereby allowing the page number to known before printing.

DD299	The solution should allow authorized solution users the ability to add comments to reports

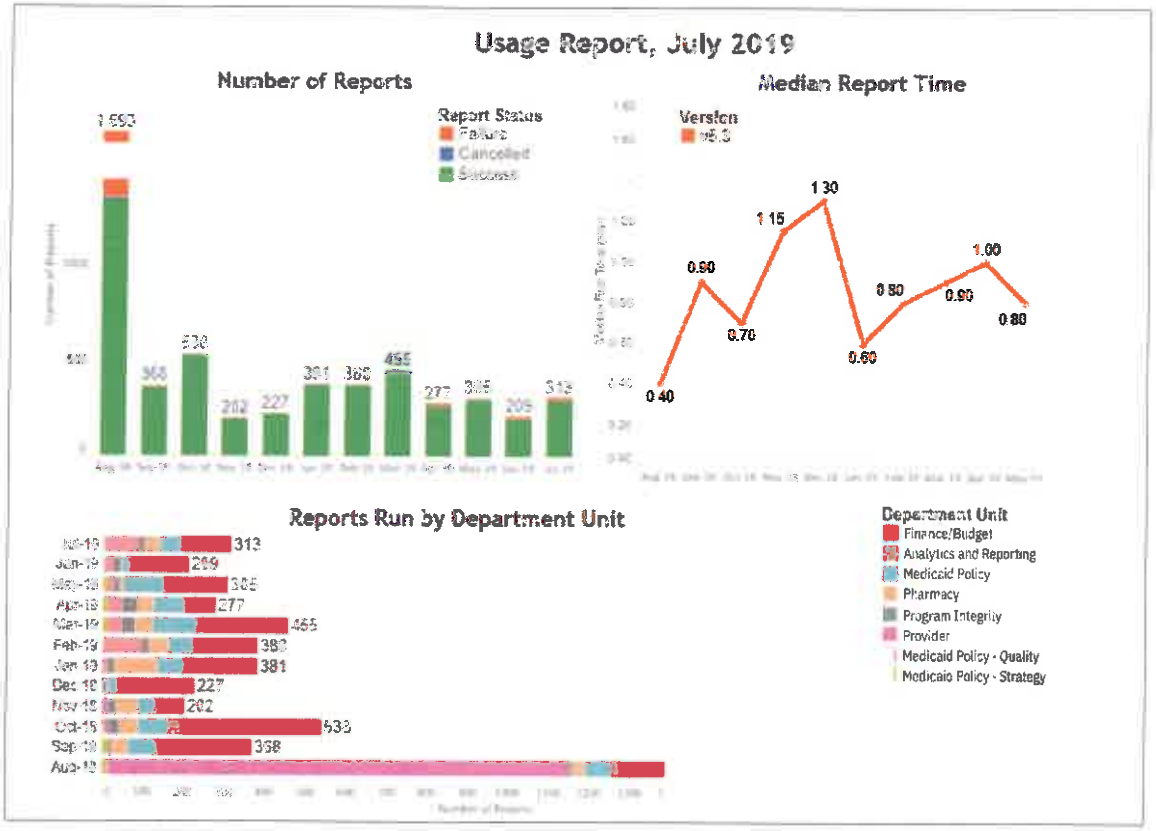
Comments can be added to a report widget for all report display types. Within a list or crosstab, the user can also add comments to individual cells.

A comment is specific to the context of the report, as well as to the cell or prompt value. For example, if the user selects January as the prompt value for the month and month is included in the report, any comment that is applied is specific to January. If the user later changes the prompt value to February, the previous comment from January still exists but is not visible on the report. That said, a new comment can be added for February, if required.

DD300	The solution should have the ability to capture and report on solution response time

System availability, report response time, timeliness of data loads, and timeliness of problem resolution all are monitored within the WV EDS solution. Our monitoring solution logs historic query run times in a usage database. We create usage reports on these data to monitor and analyze query performance over time and to build a library of expected performance benchmarks. The WV EDS solution includes full monitoring tools integrated into the design; these tools allow for granular reporting and alerts on network availability, throughput, bandwidth, and response time.

Figure 63. Sample Report Time Metrics. *Dashboard showing Report Usage by Number of Reports, Median Report Time, and Reports Run by Department Unit for the Month of July 2019.*



We track and maintain application-specific response time requirements, measurements, and reporting. Monitoring output includes usage tracking utilities to review analytic application report generation times and basic system statistics such as central processing unit (CPU) utilization. The utilities provide an excellent high-level view of key user metrics, such as the number of reports run by specific users, how long each report ran, and average statistics (e.g., median report time). Standard reports can be modified to

meet your specific usage reporting needs, and custom reports can be developed to support enterprise-wide process evaluations. Our findings are be summarized and reported to DHHR with the appropriate recommendations.

DD301	The solution should have the ability for authorized solution users to view, print, export, and analyze audit data through an integrated component of the solution.

System, application, and database auditing are implemented, providing historical evidence of all points of access to data. Our centralized log management tool collects fine-grained database logs and retains a historical record of activity within the solution. We have a standard set of reports and records that demonstrate compliance with federal and state regulations. We provide DHHR and other authorized users access to these records, as required.

In addition to the many useful reports pre-built into the auditing systems, custom reports can be developed to fulfill specific user needs. Although all reports can be run on request, most reports can also be configured to run automatically on schedule and are available in several formats, including TXT, CSV, PDF and XML, depending on the system and report. Authorized users can print a set of search results or a formatted report (that displays a table or visualization) and generate a PDF file for export and distribution. In addition, reports and dashboards can be scheduled for automated email delivery. The auditing data can be retrieved for visualization, exploration, and analysis to monitor trends and identify anomalies by using IBM Cognos Analytics or the IBM Watson Studio tooling.

DD302	The solution should provide the ability for all solution forms, documents, data files, data, and manuals to be accessible online, indexed, and content-searchable with version control

Metadata Solution and Accessibility

Our WV EDS solution's Core Data Model (CDM) comes out the box with a data dictionary and business glossary of healthcare-specific terminology and business terms to describe the data elements within our model. Furthermore, the WV EDS solution is built on the foundation of a common metadata repository. Our IBM InfoSphere Information Governance Catalog (IGC) component provides an online accessible, current, indexed, metadata solution with metadata management tools for accessing the glossary of business terms and the definitions and relationships of all data assets. The data element metadata clearly define fields, field locations, tables, reports, data relationships, and formulas. The metadata provide information on the source, value, and characteristic attributes of all WV EDS tables and data elements. The solution's common metadata repository becomes the cornerstone for accessible data-related information throughout the WV EDS data and applications.

In addition, we export and embed the WV EDS metadata directly in Cognos Analytics to share and provide easy access to the lineage of any data element that appears on a report. As a result, business analysts and other report developers have access to the metadata directly in the reporting tool without having to refer to an outside document or another tool. This feature accelerates report development and improves understanding and trust in the data.

Data and Content Accessibility

The WV EDS solution contain tools that support query capabilities on all WV EDS data and data files, both structured and unstructured forms. Users may extensively analyze text data from both structured and unstructured sources. Cognos Analytics can be applied to structured data, as well as unstructured language content, to help DHHR recognize and extract the intent, context, and meaning and obtain a more complete understanding of all WV EDS data.

In addition, WV EDS reporting is executed in accordance with mutually agreed-on requirements, forms, and templates, submitted per the required schedule and accessible from the WV EDS online portal.

System Design Document

The System Design Document (SDD) documents and tracks the information required to fully define the architecture specifications and system design. It provides guidance and structure for the development team, facilitates operations and maintenance, and informs other project stakeholders. In addition, the SDD describes the design goals and considerations, provides a high-level overview of the solution architecture and describes the data design associated with the system, as well as the human-machine interface and operational scenarios. Detail-level information on the data, sources, and reporting is provided in the SDD appendices. The SDD also describes how the functional requirements and the preliminary data design are transformed into technical system design specifications from which the system is being built.

Product Support Documentation

All solution product manuals and documentation are available online via our Product Support Portal. Users can find all product information and version-controlled updates, find solutions to common product issues using the Knowledge Base, and access time-sensitive information via Product Bulletins. Users can access a robust library of product documentation and search a knowledge base containing relevant product use information, such as answers to frequently asked questions (FAQs) and actionable information to help them with product issues.

DD303	The Vendor should employ a Relational Database Management System (RDBMS) or Object Oriented Database Management System (OODMS) that is easily configurable and role-based.

WV EDS Relational Database Management System Component

Our WV EDS solution is built on the IBM Db2 Warehouse on Cloud service. IBM Db2 Warehouse on Cloud is a fully managed, elastic cloud data warehouse that delivers independent scaling of storage and compute. The IBM Db2 Warehouse on Cloud service runs on the Db2 relational database management system (RDBMS) engine. The Db2 RDBMS is easily configurable and comes with tools such as an automatic memory configuration feature and a Configuration Advisor to obtain recommendations for the initial values of the buffer pool size, database configuration parameters, and database manager configuration parameters.

Db2 Warehouse on Cloud is a fully automated cloud service, with physical database administration supported by a world-class IBM DevOps team. Day-to-day operations for Db2 Warehouse on Cloud—including database monitoring, uptime checks, and backups—are fully automated, so our Watson Health deployment team can focus on delivering the highest-quality data structures for DHHR instead of database administration. Our Watson Health deployment team performs the database and data administration activities specific to WV EDS on the cloud service. The Db2 support tools package (aka dbtoolkit) contains a number of scripts and utilities that can help with many of these common database administration tasks. A web console is available to perform many key tasks, such as loading data, working with tables, running SQL, and monitoring. A command-line user interface (aka CLPPlus) is also available to define, edit, and run statements, scripts, and commands.

RDBMS Role-Based Access Control (RBAC)

Standard database security using Db2 role-based access control (RBAC) protects data when accessed through the RDBMS. Comprehensive RBAC is implemented to confirm that only those with proper authorization have access to the data. When accessing data in the WV EDS, security views associated with the user's role are applied. Security views can be as granular as required. At the column level, sensitive data can be masked completely from view and can be paired with a hashed value where necessary. Row-level security can restrict records returned on the basis of any number of criteria, (e.g. substance abuse). Finally, access to entire areas of the database (tables, schemas, etc.) can be restricted to specified user groups. RBAC controls also provide audit logging, recording all access to sensitive data.

DD304	The solution should have the ability to support analytic techniques including, but not limited to
DD305	Predictive modeling
DD306	Machine learning
DD307	Data mining
DD308	Others as defined by the Department

Our WV EDS solution supports advanced functionality for statistical analysis of historical and current data and a variety of methods for statistical profiling and analysis of data. Analytics users can leverage the capabilities of BI and statistical tools, such as Cognos Analytics and the tools in the Watson Studio package (R, Python, and Jupyter Notebooks).

Open source tools within IBM Watson Studio, such as R Studio, Python, Spark, and Scala, support predictive modeling and forecasting functions. Python and R Studio are two of the languages that are most commonly used for developing predictive analytics applications and both are extremely popular among data scientists and analysts. Statistical users can access various R or Python packages within Watson Studio that provide advanced predictive modeling capabilities and pull the results back into Watson Studio for easy visualization and iterative analysis.

Advanced users can mine the data using a broad array of advanced data mining and machine learning techniques available in the R and Python open-source statistical tools.

Table 32. Common Machine Learning Algorithms. *Machine learning algorithms are applicable to almost any data problem.*

Common Statistical and/or Machine Learning Algorithms Available in R and Python	
• Linear regression	• Neural networks
• Logistic regression	• Support vector machines
• k-nearest neighbors	• k-means clustering
• Decision trees	• Hierarchical clustering
• Random forest	• Dimensionality reduction algorithms
• Naive Bayes	• Gradient boosting algorithms

The WV EDS solution supports a broad range of reporting and analysis techniques on statistical data, including the following:

- A geospatial perspective of historic trends and future forecasts of enrollment, utilization, and costs
- Statistical evaluations of new programs and policy initiatives to foster continuous improvements
- Advanced data mining techniques that detect anomalies and aberrant patterns for further analysis
- Geospatial analysis to detect "hot spots" for focused intervention
- IBM Watson Studio is a collaborative environment with AI tools that your Data Scientists can use to collect and prepare training data, and to design, train, and deploy machine learning models for predictive analytics. IBM Watson Studio empowers organizations to tap into data assets and inject predictions into business processes and modern applications and then optimize business value with visual data science and decision optimization.

DD309	The solution should have a single point of entry for all authorized solution users

The IBM Cloud Identity-as-a-Service component serves as the single online portal to all the available applications within our WV EDS solution. When accessing WV EDS, users provide their unique account and password, along with a unique two-factor code to validate their identity. IBM Cloud Identity-as-a-Service validates location and authorized role before granting access to any WV EDS assets. Our solution provides single sign-on (SSO) access to all the web-based tools in our WV EDS solution, including Cognos Analytics and Watson Studio. Via this central access portal, users have ready access to the business intelligence (BI) tools in our solution. The IBM Cloud Identity-as-a-Service serves as the central access point for user reporting and can be expanded to include any new applications or tools that DHHR may choose to add in the future.

DD310	The Vendor should provide a data access component that works efficiently in the enterprise data solution (EDS) environment.

Our solution provides a robust and efficient data access tool through IBM Cognos Analytics. A Cognos Analytics enabled WV EDS solution delivers all the functions of traditional BI and augments them with many artificial intelligence (AI)-driven elements, such as natural language dialog, guided analytics, pattern detection and smart visualizations.

DD311	The solution should have the ability to distribute reports and/or information from the enterprise data solution (EDS) portal chosen by the Department

Cognos Analytics supports efficient and effective report delivery through web and mobile distribution methods. When users develop reports, they can distribute and share them with other business users in different formats, languages, and locations. For example, users can easily make their content available to others, either directly through the Internet-accessible portal or by distributing reports via email, fax, or mobile. Furthermore, report authors can burst a report to distribute its contents to recipients (*bursting* is the process of running a report once and then dividing the results for recipients, each of whom views a subset of the data). For example, a report author can use burst reports to send each health plan the section of the report containing only that plan's information. Authors can specify the distribution of reports by email or to a saved folder for viewing in other Cognos software. Access to reports and dashboards is role-based, allowing DHHR to define what content is accessible through the user, member, and provider portals.

DD312	The solution should provide the ability to allow authorized solution users to view, manipulate, download, and save reports locally

IBM Cognos Analytics allows users to create reports containing a full range of formats, including dashboards and animated storyboards, and with a variety of visuals and objects. These include graphs, tables, lists, maps, images, logos, and live embedded applications that can be linked to the information. Users can export their created reports into their favorite formats for offline analysis or integration with other tools.

Users can save reports or report components in a variety of industry formats, including HTML, XML, PDF, Excel, and CSV (and to multiple tabs within a single workbook). They can also export reports into delimited formats; such as tab delimited, XML or CSV, for easy import into another application (such as Microsoft Access), or to ship a dataset to another user. The saved reports can reside within the Cognos Content Explorer portal in public or private folders or can be downloaded to a local or network drive. Reports saved in the Cognos metadata store can be set to archive on a chosen interval, on the basis of last modified or last run date.

DD313	The solution should have the ability to maintain report inventories for authorized solution users

Report Registry

We develop and maintain a Report Registry that stores information for all reports maintained by and within the solution. The Report Registry contains a library of indexed and searchable folders for organizing reports so they can be located easily. The registry retains important metadata including the report name, a detailed description of the report, report creation date, last execution date, most recent users, and frequent users. In addition, the registry is searchable and allows users to view and print reports through a browser-based interface. Intuitive and fully featured search functions support user queries and search parameters. Reports can be uploaded, downloaded, and "checked out" with document management controls that log users' activities and dates. Security functions enable protection of library contents throughout the project life cycle. We create and maintain a log of system-generated or other Watson Health-developed reports within the Report Registry. This log includes descriptive metadata and is fully accessible and searchable.

Cognos Content Store

In addition to what is stored on the Report Registry, the Cognos Content Store in Cognos Analytics contains its own content library—an online, searchable index of all reports, queries, and artifacts. All objects such as folders, reports, dashboards, and templates are available in a searchable repository providing direct, immediate access to report inventories and content within the reporting tool itself.

DD314	The solution should track Medicare deductibles and coinsurance paid by Medicaid for all crossover claims, by Member and program type, and by other data elements as defined by the Department

We understand that dually eligible individuals are a key beneficiary group of any Medicaid program, and Medicaid coordinates care with Medicare through crossover claims. Although Medicare is always the first payer for these patients, Medicaid also does a fair share through extended home health, community, and long-term skilled nursing home care coverage. In addition, Medicaid often covers premium payment, coinsurance, and deductibles for these patients. Therefore, Watson Health fully understands the importance of capturing the deductible and coinsurance paid by Medicaid for crossover claims. Our Core data model (CDM) takes this into account and captures Medicare deductibles and premiums across various dimensions such as eligibility program, patient, and services.

DD315	The solution should provide a tool for managing data sharing requests from both internal State agencies and external entities

For tracking and reporting on data sharing requests from both state internal and external entities, we log all user inquiries in our Product Support Portal. For state agencies and external entities, we also help DHHR establish Data Use Agreements (DUAs) as defined by DHHR data governance process to receive and/or exchange data with state agencies and external entities for defined purposes and only under specified terms, for example, periodically with logging of disclosures and uses and any physical movement or transmittal of data. We are committed to supporting DHHR in complying fully with all federal (e.g., Health Insurance Portability and Accountability Act, Health Information Technology for Economic and Clinical Health Act, American Recovery and Reinvestment Act) and state laws, rules, and regulations. Our Analytic Team supports DHHR in fulling the data sharing requests on the basis of priorities set forth by DHHR data governance. Because data extract time frames vary greatly on the basis of the complexity and volume of data, it is important to establish definitions and guidelines upfront for properly categorizing these requests. Progress on each request is also tracked on the Product Support Portal.

Data Quality

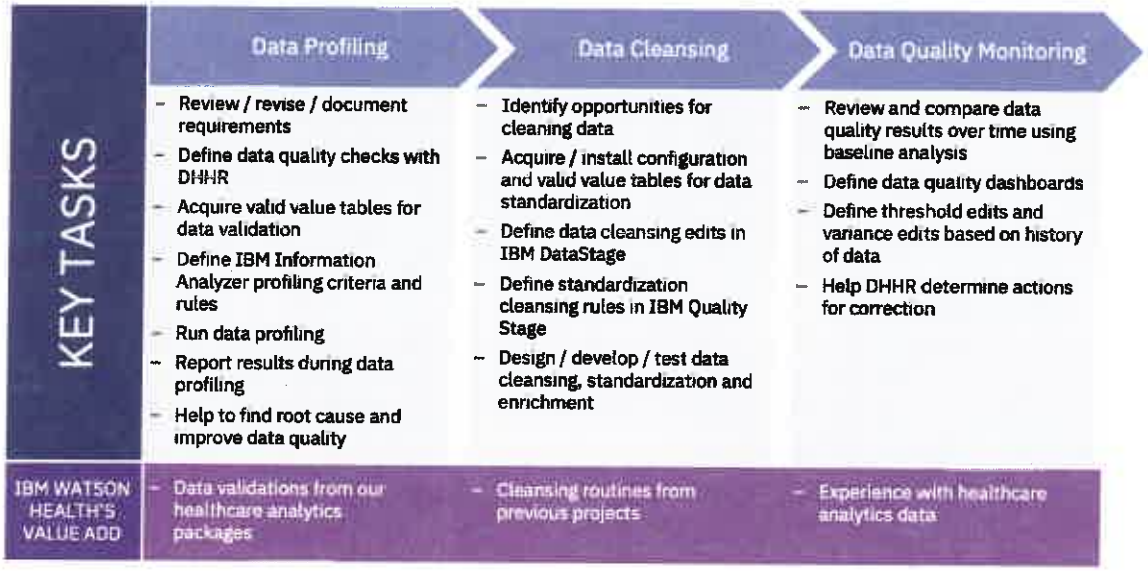
DQ001	The Vendor should provide Data Quality Management for all data coming into the solution

Data Quality Assurance

Our emphasis on data quality and our proven processes for evaluating data quality—and improving it where necessary—means that the Agency's analytic databases are reliable and complete. Our data quality checks are based on more than 35 years of experience transforming data for healthcare analytics. Although some solutions check quality by simply verifying counts and sums and looking for blanks, our data quality checks use more than 350 rules, such as the validation of codes against your healthcare reference data and providing an analytically ready set of data. From data acquisition to extract, transform, load (ETL) and finally to destination, data quality checks verify that data received are as expected, complete, and accurate.

We have an established and comprehensive standard framework to drive design, development, and implementation of enterprise data quality. The data quality process consists of data profiling, data cleansing, and continued data quality monitoring to institutionalize data quality with ongoing data validation as an integral part of the data intake process.

Figure 64. Key Tasks in the Data Quality Process. *Profiling, Cleansing, and ongoing Quality Monitoring.*



In addition, our Analytic Consultants support data quality and data management maturity efforts and provide consulting services to the entire user community (e.g., supporting client inquiries, requests for ad hoc reporting assistance, miscellaneous research, and advice on analytic methods). Watson Health's Analytic Consultants train and support system users, sharing knowledge and best practices.

Data Profiling

Data profiling assesses the completeness, conformity, consistency, integrity, duplication, and accuracy of data before they are ingested and refined in the warehouse. Our WV EDS solution leverages IBM's InfoSphere Information Analyzer data profiling tool and customized, automated scripts to perform data profiling. DHHR Data Stewards can set thresholds on acceptable quality and study variances in data during the data profiling process. Watson Health applies the quality rules and thresholds to scrutinize the

data including checking for completeness, conformity, consistency, accuracy, validity, and reasonableness. Data quality is evaluated across six primary dimensions:

1. Completeness—identifying data that are missing or unusable
2. Conformity—finding data that are stored in a nonstandard format
3. Consistency—locating data with conflicting values
4. Accuracy—identifying out-of-range or incorrect data including inappropriate values in fields with standard values sets (e.g., diagnosis code, procedure code, procedure modifier, revenue code, or drug code fields)
5. Duplication—inappropriate data that are repeated in the data set
6. Integrity—finding data or keys that are missing or not properly referenced

During the data profiling phase, we work with DHHR to explore, validate, and resolve any data quality issues. We spend time familiarizing ourselves with the data relationships and content, and start conceptualizing how the data will be modeled and how they relate to other content. Our approach to data quality begins with (1) establishing quality thresholds and variances during requirements sessions; (2) then applying the quality logic in the data profiling tool to scrutinize the data; and (3) checking for completeness, validity, reasonableness, accuracy, and duplication via automated Data Rules with defined thresholds and variances to easily gauge the quality of the data. The data profiling tool allows users to set thresholds on key data values, run an automated data profiling analysis and study variances in data columns on the basis of these values. The process also allows value and format checks and data/code value checks.

Standard or custom edits can be selectively applied to a single data source or multiple data sources. We propose to work with DHHR to add custom edits and apply additional data edits during the data profiling stage. Our Flexible Analytics component makes changes to industry standard code sets faster by providing a single source for updates and simpler by allowing code set data access through a single consistent set of representational state transfer (REST) application programming interfaces (APIs). At the end of data profiling, we either accept a file for further processing or reject it on the basis of the number of failed quality checks.

We also leverage data profiling for checking data validity or reasonableness. Validations relating to data reasonableness look at the relationship between two or more columns, between columns across different data files, or between a column and "normative" data to ensure that they are reasonable. The following are examples of reasonableness checks:

- Comparison of diagnosis to age, diagnosis to sex (e.g., pregnant and male), and charge to payment
- Percentage of total services that are surgical
- Percentage of diagnoses that are non-specific
- Average cost per service by procedure code ranges

Further, we automate data profiling activities to continuously provide comprehensive information and statistics on source data files over the life cycle of the project. This helps assess data quality over time and creates quality benchmarks for continuous improvement.

Data Cleansing

As an industry leader, we anticipate and support states' emerging needs for data quality and data cleansing. For example, with the advent of managed care, we wrote a guidebook on encounter data for CMS, which focuses on data quality pitfalls and how to improve encounter data quality. CMS hired us to

conduct a multiyear evaluation of the quality of encounter data being submitted by the states in their Medicaid Statistical Information System (MSIS) files, and we helped nearly 20 states with their managed care programs and encounter data quality and completeness.

Our data quality processes validate incoming data and reconcile them with source systems, so that the reporting data meet defined standards for accuracy, currency, cleanliness, transformation, enhancement, and completion. We develop ETL processes that include data quality checks for accuracy and completeness so that the data we load provide users confidence that the reports and insights generated from the WV EDS are accurate. We are confident that our data quality assessment processes are the best in the industry. We have invested heavily in an automated, rules-based approach that focuses on data quality from an analytic- and improvement-oriented perspective.

IBM Infosphere DataStage is the data integration component of Information Server that provides a graphical framework for developing the jobs that move data from source systems to target systems and the specific transformations that are applied as part of data cleansing. IBM Infosphere QualityStage runs on and uses the same design interface as InfoSphere DataStage, providing additional capabilities for performing data quality-centric tasks on data. InfoSphere QualityStage is the component that standardizes and cleanses the data. Data standardization is the critical process of bringing all common data elements into a common and consistent data format so that they can be accurately compared with each other. Rule sets that are provided with InfoSphere QualityStage can be copied and modified, or an entirely new quality rule set may be created for data comparison. As defined by DHHR business criteria, duplicates from multiple data sources are resolved and data cleansing logic survives a transformed golden record.

InfoSphere DataStage and InfoSphere QualityStage enable a single approach to access, cleanse, transform, and deliver data without resorting to hand coding. The underlying platform scales to support large data volumes and meets enterprise demands for security and performance.

Data Quality Monitoring

We follow detailed steps to confirm that files from the sources are migrated, converted, transformed, and loaded appropriately. After each data migration from a source to a target layer, the data are checked for quality. Data quality checks include the following:

- **Balancing.** Does the target match the source for record counts, dollar amounts, and/or units? At a minimum, record count balancing is completed for data migrating from one layer to another.
- **Completeness.** How much of the data are null or missing?
- **Standards.** Are the defined business rules being followed?
- **Analytic validity.** Are the data representative and/or as expected?
- **Control totals.** These include record counts and/or document/file counts and are checked throughout the ETL data streams.

Content is analyzed for accuracy and supported with data quality reports. Our data quality assessments validate that data taken into the warehouse balance properly internally and with the source systems. If we discover discrepancies, exception handling captures any rejected data and reference log files to indicate which, if any, jobs had load failures and why. Authorized users also have access to view data exception results. We work with the appropriate DHHR Data Stewards to identify the causes of any data discrepancies or data migration failures and rectify them. We generate reports for DHHR on data quality statistics, data migration jobs, and any data exceptions at run time.

DQ002	The solution should have the ability to provide data conversion as needed to feed the solution

Building a data warehouse is a complex process, and two of the most important tasks for ensuring data quality across the solution are data conversion and data migration. Identifying the appropriate data

conversions and data migration approach for each data source and ensuring accurate and intentional resolution of content conflicts are critical steps in the solution.

Watson Health Experience With Medicaid Data Conversion

At Watson Health, our experience with numerous Medicaid data conversions informs our understanding of the types of data that must be converted and how to perform the appropriate retrieval, mapping, transformation, and loading of those data into the WV EDS. Our approach accounts for and addresses the quality of data in legacy systems, ensuring that the condition of the data is understood and that any issues are documented and if possible, addressed *before* the data are transferred into the WV EDS.

Over the years, we have learned that having experience integrating, converting, and managing data from multiple sources is only the tip of the iceberg. Having experience with MMIS is the true risk reducer. For example, vendors may process claims adjustments dramatically differently. Watson Health not only has experience managing the data but understands the underlying business processes around those data that we believe make us more successful in performing the appropriate data conversions.

We have translated source data from DXC MMIS systems into health analytics for our state clients 16 times, including for Idaho and Maine, allowing us to leverage lessons learned on system interfaces, data structures, data extracts, data sources, and DXC operations. Further, our experience as your current vendor gives us an unparalleled knowledge of your data and the business rules that are embedded in those data. This knowledge results in lower risk and a decreased burden on your staff to educate our team.

We have honed our approach for data conversion and migration over many engagements. Our processes have been quality tested for accuracy and streamlined with the appropriate tools and methods to ensure that—

- Data are properly profiled and mapped in the planning phases
- Data are accurately extracted, converted, and loaded in the execution phases
- All designated data are transferred by applying both bulk transfer and transactional replication approaches, ensuring no data loss
- Outages are minimized during migration and cutover activities
- Existing data from current and legacy sources are accurately converted and transferred to the WV EDS

Watson Health brings experience with many other related data sources beyond MMIS that are critical to an analytical understanding of Medicaid enterprise data. This table outlines various types of data sources and our relevant experience with them.

Table 33: Watson Health Medicaid Enterprise Data Source Experience

	Watson Health Data Source Experience
Medicaid data	We have integrated medical and pharmacy claims data with member and provider data within our solutions for more than 35 years
Managed care organization (MCO) encounter data	We integrate MCO encounter data for states with managed care and have provided in-depth encounter data collection, validation, and analytic support to 15+ states
Vital statistics	We integrate birth and/or death records with Medicaid data for other states with measures of quality of care and conduct fraud and abuse analysis
Medicare data	We provide states with technical assistance integrating Medicare and Medicaid data to coordinate care for the dually eligible population in financial alignment demonstrations through a project with FEi Systems and CMS
Hospital and facility encounters	We have served as the Agency for Healthcare Research and Quality's general contractor for the Healthcare Cost and Utilization Project for more than 30 years, we

	aggregate hospital data from 45 states and perform research on the State Inpatient Databases and State Emergency Department Databases
Aging data	We support CMS and state Medicaid agencies in assessing various dimensions of Long-Term Services and Support (LTSS) for the Aging population using CMS 64 expenditures, Minimum Data Set assessments, and other data. Under a contract with CMS, we provided technical support to state grantees of the Testing Experience and Functional Tools (TEFT) Demonstration, we successfully developed and tested the cross-disability Home and Community-Based Services (HCBS) Experience of Care (EoC) Survey.
Supplemental Nutrition Assistance Program (SNAP) and Temporary Assistance for Needy Families (TANF) program data	Our IBM Curam Social Program Management (SPM) solution provides integrated eligibility and enrollment for Medical Assistance, TANF and SNAP in 10 states. Additionally, we load SNAP and TANF data for several state enterprise data warehouse (EDW) clients.
Health information exchange (HIE) data	Watson Health serves as the statewide HIE in four states. We load Admission, Discharge, and Transfer (ADT) data from the Colorado Regional Health Information Organization (CORHIO) in the Colorado EDW solution.
Cancer registry data	For one state, we linked Medicaid and state employee health plan eligibility and claims data to cancer registry data to provide university researchers with integrated, deidentified data for studies on the Breast and Cervical Cancer Prevention and Treatment Act.
Public university and health plan data	We implemented and maintain healthcare decision support systems for public university sponsored health plans in several states. The solution integrates claims data, eligibility and provider data, and other data as may be available from health risk assessments, wellness programs, and so forth.
Other multipayer claims data	We have extensive experience with multipayer data integration. For example, we have served as the All Payer Claims Database (APCD) data aggregator for two states. We have also supported multipayer value-based purchasing initiatives. We maintain the IBM MarketScan® Research Databases, one of the largest multipayer claims databases in the nation.
Prescription drug data	Our Behavioral Health Research practice includes subject matter experts on prescription drug monitoring programs.

Data Conversion and Migration Plan

Watson Health proposes to develop and submit a Data Conversion and Migration Plan inclusive of all designated data sources by DHHR. The Data Conversion and Migration Plan will include the following:

- A list of all the legacy data sources, including subsystems
- A description of the data discovery and evaluation process for legacy and source system data
- A recommendation of the scope of the data conversion based on our discovery and evaluation of the source data
- A plan for DHHR's participation in the data conversion process
- A list of migration requirements, including validation of the functionality of third-party tools and/or systems
- The metrics of the conversion at the success/failure level
- A description of any post-data migration clean-up activities
- A description of the final validation and acceptance procedure
- Emergency rollback contingency procedures, if applicable

Upon approval of the Data Conversion and Migration Plan, Watson Health works with DHHR to define specific data conversion requirements and associated data conversion plans. We create source-to-target documents to map source data to their target data structures within the solution. This includes documenting any necessary data transformations to make the information useful. We conduct Data Summit sessions and data profiling activities on the designated data to ensure that we thoroughly understand their intricacies, including any potential quality issues.

Data Conversion Tooling

Our data conversion approach uses Infosphere DataStage to provide data extraction, conversion, transformation, and migration between sources and targets when migrating data to the WV EDS. Pre-built, reusable data connection and transformation logic solve common and complex data conversions. This modular design ensures that the same transformation logic is applied in all jobs when a given transformation stage is used, ensuring consistency of the logic. The design also makes it easier to maintain the logic and reuse the same logic across all jobs. InfoSphere DataStage provides data movement and integration on a highly scalable software architecture that ensures that large volumes of information can be processed quickly. Its architecture scales to support large data volumes and meets enterprise demands for security and performance.

When the data conversion processes find quality issues in the data, exceptions are generated and stored. All InfoSphere DataStage and QualityStage jobs that generate exceptions create a new exception event and trigger an application to send exception sets to the Data Quality Exception Console. The Data Quality Exception Console then displays the exception sets and their associated exception detail records. Within the console, users can specify which exception sets are to be managed. Data stewards can use the console to monitor and manage the priority of data quality issues. Data stewards can then send those exception sets and all subsequent ones of the same filter conditions to the IBM Stewardship Center.

Within InfoSphere Information Server, the IBM Stewardship Center provides Data Stewards with a central browser-based interface where they can collaborate on and manage data quality issues and data exceptions that arise. Authorized DHHR users have online access to the IBM Stewardship Center, with the InfoSphere Data Quality Exception Console providing a view of relevant metadata and profiling results. Authorized users also have online access to the InfoSphere Data Quality Exception console and are able to view relevant metadata and data exception results.

The Subscription Manager is a notification service that authorized users can use to subscribe to exception events and specify the action to take when an event is generated. An authorized user can subscribe to receive notifications for exception events for data quality rule violations or other exception events. Sample email templates for exception events are provided with Information Server and can be customized for specific email content and format requirements.

DQ003	The Vendor should develop a process to rectify source data quality issues via data checks and edit procedures as data is extracted from the solution data sources with limited impact on the data source vendors

Minimizing Data Source Disruption

Each data source has a tailored data extract and migration plan to ensure that the data content is migrated completely and accurately to the WV EDS. Connections, interfaces, and conversion strategy are determined for each data set depending on the source requirements and constraints. The individual data source strategies accommodate the current technical climate of each supplier and the requirements for the data content they contain. The strategy and plans are flexible to accommodate the timeline and requirements for each data source extract and migration so as not to disrupt source system operations. Protecting and minimizing disruption to source systems is a focus during all phases of ETL and data quality checking.

Data Quality Check and Edit Procedures

We use the Infosphere Information Analyzer data profiling component of Information Server to scrutinize the data, checking for completeness, validity, reasonableness, accuracy, and duplication via automated and customizable Data Rules with defined thresholds to easily gauge the quality of the data. The data profiling tool allows users to set thresholds on key data values, run an automated data profiling analysis and study variances in data columns on the basis of these values. The process also allows value and format checks and data/code value checks.

Data rules are built to test and evaluate for specific data conditions. Collectively, data rules can be used to measure all of the important data quality conditions that need to be analyzed as data are extracted from solution data stores. We establish a benchmark for data rule results against which the system compares the actual results and determines a variance. Data rule analysis can be used on a one-time basis or executed on a periodic basis to track trends and identify significant changes in the overall data quality condition over time.

Information Analyzer provides a mechanism by which multiple data rules that use the same source data can be grouped into a data *rule set*. Rule sets provide support for evaluating data on the basis of many data rule conditions. And they provide scoring of all rules for each record in the set so that results can be viewed in multiple dimensions. On the basis of all of the individual data rule results, the data rule set also produces overall statistics that apply to the analyzed source data in addition to the statistics resulting from the individual data rules. The rule set support in Information Analyzer allows assessment of the individual component rules first and then assessment of all rules together holistically so that problems with any or all conditions emerge.

Standard or custom edits can be selectively applied to a single data source or multiple data sources. We work with DHHR to add custom edits and apply additional data edits during the extraction process. Data quality thresholds are established for the different data sources to ensure the health of the data entering the solution. Wherever possible, automated error handling is applied to correct common data errors that may be present. In addition, wherever possible, data are automatically cleansed and conformed as they enter the WV EDS (e.g., correcting addresses to comply with U.S. Postal Service standards). Finally, we perform automated post-ETL checks and balances to make sure that our ETL processes have moved and translated the data successfully.

Data quality assessments ensure that data taken into the warehouse balances properly internally and with the source systems. If we discover discrepancies, we work with the appropriate DHHR Data Stewards following the appropriate Data Governance process for those data. As appropriate, we establish a feedback loop with the data suppliers to address data anomalies at the source or in the extraction process.

DQ004	The Vendor should ensure data integrity is checked throughout the term of the contract as an integral part of operations to ensure quality data

Data Quality Assessment Over Time

Maintaining the integrity of historical data is a critical underpinning of meaningful analytic solutions. InfoSphere Information Analyzer is the tool used for data profiling to easily gauge the quality of the data. Data quality analysis and monitoring are implemented by a set of capabilities within InfoSphere Information Analyzer designed to evaluate data against specific DHHR-defined criteria. These rule evaluation criteria can be used repeatedly over time to see important changes in the quality of the data being validated.

Our approach to data quality begins with establishing quality thresholds and variances during requirements gathering in collaboration with DHHR. We implement the quality logic in the Information Analyzer data profiling tool to scrutinize the data, checking for completeness, validity, reasonableness, accuracy, and duplication via automated Data Rules. InfoSphere Information Analyzer allows users to set

thresholds on key data values and study variances in data columns on these values. The process also allows value and format checks and data/code value checks. Data quality is evaluated across six primary dimensions.

Table 34. Dimensions of Data Quality Evaluated by InfoSphere Information Analyzer Data Profiling. *Our WV EDS solution continuously performs these checks during data intake over time.*

Data Quality Dimensions	
Completeness	Data are not missing or unusable
Conformity	Data are not stored in a nonstandard format
Consistency	Data are complete and without conflicting values
Accuracy	Data are not out-of-range or incorrect
Duplication	Data are not repeated
Integrity	Data are not missing or improperly referenced

Automating defined thresholds and variances in InfoSphere Information Analyzer allows for efficient gauging of the quality of data over time. The InfoSphere Information Analyzer tool performs data profiling and monitoring continually during data intake. Quality conditions and statistics are continually tracked on all data received from the various sources to help ensure that acceptable quality is maintained. We use InfoSphere Information Analyzer as a platform for continual, automated updates to data edit criteria and data quality assessment reports as changes are made to the existing edit criteria or new data profiling checks are identified over time.

DQ005	The Vendor should develop processes to maintain data integrity, consistency, accuracy, and timeliness of the solution data

Maintaining Data Quality and Timeliness

Our WV EDS solutions processes manage WV's information assets in a manner that maintains its integrity, consistency, accuracy, and timeliness. Our data quality and cleansing processes validate incoming data and reconcile them with source systems, so the reporting data meet defined standards for accuracy, currency, cleanliness, consistency, transformation, enhancement, and completion, ensuring the integrity of the WV EDS data content.

We develop ETL processes that include ongoing data quality checks for accuracy and completeness so that the data we load provide users confidence that the reports and insights generated from the WV EDS are accurate. Our data quality and cleansing processes within the InfoSphere DataStage and QualityStage components standardize and cleanse the data. From source data extract through transformations, aggregations, and destinations along the way, data quality checks verify that data received are as expected, complete, and accurate.

The timeliness of data loads and report delivery are monitored within your solution to adhere to the SLA's established by DHHR. Our data management processes ensure that we integrate data from all manner of disparate source systems into our WV EDS according to business-appropriate time frames so that the data used for the State's decision-making are always fit for its purpose.

DQ006	The solution should have the ability to provide an audit trail on all changes to tables including, but not limited to
DQ007	Business and system dates
DQ008	Begin date
DQ009	Effective date

DQ010	End date
DQ011	User-ID and assignment/enforcement in all tables that can be modified

Data Model Date Fields

The WV EDS physical data model solution uses the Data Vault modeling method. This modeling approach maintains the history when data are coming in from multiple data sources. Each row in a data vault table includes record source and load date/time attributes. These are system dates indicating when the data were loaded or updated and are independent of the business dates associated with each record. This information supports auditing and tracing of data. The auditing data can be retrieved for visualization, exploration, and analysis to monitor trends and identify anomalies by using Cognos Analytics or the Watson Studio tooling.

In addition, the WV EDS data models are designed and maintained to support standard Type 2 Slowly Changing Dimensions (SCDs) associated with the main fact tables. With Type 2 SCDs, the dimensions (e.g., rates, health plans) are attributed with Start and End Date columns. When a change occurs, a new record is created to represent the changed data with a new start date and an unspecified end date. The old record is ended with an end date that is before the start date of the new record. Therefore, the original and the new records together represent the change that happened over time. This approach maintains a history of change for retroactive reference. Using Type 2 SCDs enables tracking incremental, effective-dated changes to the attributes of a dimension over time.

Auditing Data Changes

System, application, and database auditing are implemented, providing historical evidence of all points of access to data. Our centralized log management tool collects fine-grained database logs and retains a historical record of activity within the solution. We have a standard set of reports and records that demonstrate compliance with federal and state regulations. We provide DHHR and other state and federal auditors access to these records, as required.

To track system activity at a specific process or individual user level, including data usage anomalies and users who may have misused the system, we use a combination of system event logs, application logs, and database audit logs. Our solution supports a single sign-on capability across the enterprise for authentication, authorization, and audit purposes. We use database monitoring solutions as well, capturing all user data access events. Logs can include identifying individual user logins, failed logins, and data that were accessed. Database audit logs capture information on not only the connecting user, date, and time but also the object being accessed and SQL activity. The logs can identify individual user logins, failed logins, fields accessed, and data obtained (via reports).

User Access to Table Data

Watson Health proposes to work with the Agency to develop a security matrix of users, applications, and data to keep your data secure and accessible on the basis of business need, authorization, and data classification categories. Using controls such as authentication, authorization, encryption, and role-based access control, we implement the policies defined by DHHR for data security. Our solution validates location and authorized role before granting a user access to any WV EDS assets. Our combination of automated techniques, policy implementation, and manual processes prevent inappropriate access to the data residing in the WV EDS solution.

DQ012	The solution should provide a tool that supplies data profiling abilities that obtain comprehensive and accurate information on the content, quality, and structure of data in the source systems as an ongoing process

InfoSphere Information Analyzer

Data profiling assesses the completeness, conformity, consistency, integrity, duplication, and accuracy of data before they are ingested and refined in the warehouse. We leverage IBM Infosphere Information Analyzer and customized automated scripts to perform data profiling. DHHR can set thresholds on acceptable quality and study variances in data during data profiling. InfoSphere Information Analyzer applies the quality rules and thresholds to scrutinize the data, checking for completeness, validity, reasonableness, accuracy, and duplication to easily gauge the quality of the data. Data quality is evaluated across six primary dimensions.

Table 35. Dimensions of Data Quality Evaluated by Information Analyzer Data Profiling. *Our WV EDS solution continuously performs these checks during data intake over time.*

Data Quality Dimensions	
Completeness	Data are not missing or unusable
Conformity	Data are not stored in a nonstandard format
Consistency	Data are complete and without conflicting values
Accuracy	Data are not out of range or incorrect
Duplication	Data are not repeated
Integrity	Data are not missing or improperly referenced

We also leverage data profiling for checking data validity or reasonableness. Validations relating to data reasonableness look at the relationship between two or more columns, between columns across different data files, or between a column and "normative" data, to ensure that they are reasonable. The following are examples of reasonableness checks:

- Comparison of diagnosis to age, diagnosis to sex (e.g., pregnant and male), and charge to payment
- Percentage of total services that are surgical
- Percentage of diagnoses that are non-specific
- Average cost per service by procedure code ranges

In addition, the unified InfoSphere Information Analyzer interface provides a collaborative platform for quick resolution of data issues by DHHR Data Stewards and the Watson Health team.

DQ013	The solution should provide a tool that continually monitors the data quality within the solution and internal analytic applications

We have an established, comprehensive standard framework to drive design, development, and implementation of enterprise data quality. The data quality process consists of data profiling, data cleansing, and continued data quality monitoring to institutionalize data quality with ongoing data validation as an integral part of the data intake process.

We use the InfoSphere Information Analyzer data profiling tool to scrutinize the data, checking for completeness, validity, reasonableness, accuracy, and duplication via automated Data Rules with defined thresholds and variance to easily gauge the quality of the data. InfoSphere Information Analyzer allows users to set thresholds on key data values and study variances in data columns on these values. The process also allows value and format checks and data/code value checks.

Automating defined thresholds and variances in Information Analyzer allows for efficient gauging of the quality of data over time. The Information Analyzer tool Data performs profiling and monitoring continually during data intake. Quality conditions and statistics are continually tracked on all data received from the various sources to help ensure that acceptable quality is maintained. We use InfoSphere Information Analyzer as a platform for continual, automated updates to data edit criteria and data quality assessment reports as changes are made to the existing edit criteria or new data profiling checks are identified over time.

Further, we automate data profiling activities to continuously provide comprehensive information and statistics on source data files over the life cycle of the project. This helps assess data quality over time and creates quality benchmarks for continuous improvement.

In our internal analytic application processing, we apply a series of proven, automated data quality checks at each stage of the data management process -- after intake, data load, transformation, integration and enhancement, and aggregation. The checks include such advanced data quality testing as rate-based calculations across file types with trending and comparison to external benchmarks, and validity checks on the output from enhancements such as episodes and quality measures. We thoroughly document methods for all data quality checks performed against the data to provide full transparency to DHHR data stewards and data suppliers in understanding the checks that were applied and resolving any data issues.

DQ014	The solution should support audit and control processes that identify, report, and summarize errors in the data

All InfoSphere DataStage and QualityStage jobs that generate exceptions send exception sets to the Data Quality Exception Console. Exception handling references log files to indicate which, if any, jobs had load failures and why. Metadata, such as the source system name and the date the record was loaded, are captured when data are loaded. We report the statistics of all ETL exception reports to DHHR. Authorized users also have online access to the Data Quality Exception console and are able to view relevant metadata and data exception results.

DQ015	The solution should provide a tool that includes error/exception handling processes that identify/isolate the errant data

When quality issues are found in source data, exceptions are generated and stored. For example, a Data Rule generates an exception set for all records that do not meet the conditions of the Data Rule. All InfoSphere DataStage and QualityStage jobs that generate exceptions also create a new exception event and trigger an application to send exception sets to the Data Quality Exception Console. The Data Quality Exception Console then displays the exception sets and their associated exception detail records. Within the console, users can specify which exception sets are to be managed. Data stewards can use the console to monitor and manage the priority of data quality issues.

Our ETL jobs ensure that our ETL processes have moved and translated the data successfully. Levels of errors that can be encountered are identified, and a method for error handling and communication required for each level of error are defined.

DQ016	The Vendor should maintain a process to identify and track all errors and discrepancies found in the solution pursuant to Service Level Agreements (SLAs)

Data movement is reconciled across all layers of the WV EDS from source through to the final target location. We follow detailed steps to confirm that files from the sources are migrated, converted, transformed and loaded appropriately.

Data Error and Discrepancy Tracking

After each data migration from a source to a target layer, the data are checked for quality. Content is analyzed for accuracy and supported with data quality reports. Our data quality assessments validate data taken into the warehouse balances properly internally and with the source systems. Interfaces use detailed exception handling with logs and alerts as to which jobs failed, when they failed, and why they failed. If we discover discrepancies, exception handling captures any rejected data and reference log files. Authorized users also have access to view data exception results. We work with the appropriate DHHR Data Stewards to identify the causes of any data discrepancies or migration failures and rectify them.

Data Reconciliation

Reconciliation ensures that all records and values have propagated in the subsequent data layer as appropriate on the basis of the specific requirements for each data source. To verify our data synchronization processing, we use two approaches to make sure that our processes have moved and translated the data successfully:

- **ETL reconciliation** confirms that everything that was expected to be loaded was properly loaded into the WV EDS, from a batch job, a messaging service, or a replication process.
- **System-to-system reconciliation** compares source with target at a high level. This process ensures that any errors outside the ETL process are discovered. The primary cause would be an error in a data source replication or a data source extract. This process compares postprocessing counts, control totals, and other high-level metrics to verify accuracy and consistency.

When reconciliation problems happen, it is critical to know not only that there is a problem but also how to resolve the problem as quickly as possible. Our processes use multiple steps to ensure that reconciliation of data happens as they are loaded, before they reach the end users. We capture source metadata—such as the source system name, source record counts, and the date the record was loaded—as they are loaded. The reconciliation process makes sure that all records and values have propagated to the subsequent data layer as intended, on the basis of the defined data source transformation steps. Our processes emphasize data quality and system-to-system reconciliation, including automated financial balancing. We incorporate more than basic row counts and dollar validation for data loads. We use data profiling and data assessment to ensure data quality and to illuminate any potential impacts to the analytics derived from data. We conduct quality checks and data reconciliation to confirm that all ingested data meet quality standards to ensure quality in analytics and reporting. We work with DHHR to define and establish the appropriate data reconciliation processes and checks and report the statistics of all ETL reconciliation reports to DHHR.

SLA 008: Data Quality Performance Standards and KPIs Reporting

Our procedures compare the monthly control totals used to complete the WV EDS Quarterly Expenditure Report with the control totals produced from the weekly and monthly files produced through the MMIS. We reconcile the EDS data 100 percent to control totals. Any and all discrepancies are reported to DHHR within 24 hours of discovery and associated database corrections applied to the WV EDS within 24 hours of receipt of instructions from DHHR. If necessary and as instructed by DHHR, we restore the data to the original point-in-time state before the erroneous load using our local site database recovery procedures.

DQ017	The Vendor should maintain a process to notify the Department of errors and discrepancies found in the solution pursuant to Service Level Agreements (SLAs)

Data Quality Statistics Tracking

In addition to sending exception sets to DHHR Data Stewards for handling and processing, quality statistics are tracked on all data entering the WV EDS from the various sources. Data stewards use these statistics to identify opportunities to fix the data at the source, in addition to trying to fix the data as they

enter the warehouse. A feedback loop is established with the data suppliers so they can remain informed of the quality of the data they are providing and work to fix the data at the source proactively rather than continuing to fix them reactively during the ETL processes.

Operational Metadata

The operational metadata about the sources, targets, and the job runs themselves are all captured automatically at run time and stored in the common metadata repository. The metadata can be viewed and investigated later as necessary to understand the ETL process that occurred. We generate reports for DHHR on data quality statistics, migration jobs, and any data exceptions at run time.

SLA 008: Data Quality Performance Standards and KPIs Reporting

Our procedures report any and all data discrepancies and data quality defects to DHHR. We track the time periods between discovery and reporting to DHHR, between reporting to DHHR and receiving data correction instructions from DHHR, and from receipt of those instructions until the corrections are applied to the WV EDS database.

On a monthly basis, the following details and tracked time durations are reported to DHHR: (1) all identified data discrepancies or data quality defects including the time periods between discovery and reporting of each to DHHR, (2) a description of each correction applied to the database and the time period between receiving instructions from DHHR and applying the correction, (3) any discrepancies or data quality defects not reported to DHHR within 24 hours of discovery, (4) any discrepancies or data quality defects not corrected within 24 hours of receiving instructions from DHHR and an explanation as to why the discrepancies were not corrected in that time frame, (5) any discrepancies not resolved within 10 calendar days of the monthly table feeds, and (6) corrective action plans for any of the Data Quality KPI metrics not achieved during the month.

DQ018	The Vendor should provide recommendations for proposed resolution/fixes for identified issues within a timeline approved by the Department and pursuant to Service Level Agreements (SLAs)

DHHR Data Stewards and other authorized users have online access to our tool's Data Quality Exception console and Stewardship Center and are able to view relevant metadata and profiling results generated from our ETL and data quality processes. When quality issues are found in the data, records that cannot be repaired automatically are queued up and submitted for assessment and correction. Exceptions are generated and stored in the Data Quality Exception Console. DHHR Data Stewards and other authorized users can use the Data Quality Exception Console to monitor and manage the priority of these data quality issues. They can send selected exception sets and all subsequent ones of the same filter conditions to the Stewardship Center. The exception sets can then be managed in the Stewardship Center by designing a standard process that, for example, routes tasks that are related to systematic errors to a team that is responsible for resolving these issues.

SLA 008: Data Quality Performance Standards and KPIs Reporting

When data discrepancies or data quality defects are discovered, it is critical to determine the best approach and resolve them as quickly as possible. Our data quality processes use multiple steps that can apply known corrective data updates as the data are loaded, before they reach the end users. Standard or custom edits can be selectively applied to a single data source or multiple data sources. We work with DHHR to add custom edits and apply additional data edits during the data profiling stage and automate these data edits during the ETL and data quality processing. This approach provides the best method for meeting the timelines for correcting and resolving any data discrepancies and data quality defects immediately using instructions provided by DHHR in advance. Any data discrepancies that cannot be resolved automatically are reported to DHHR within 24 hours of discovery and associated database corrections manually applied to the WV EDS within 24 hours of receipt of instructions from DHHR.

Watson Health not only has experience managing the data but understands the underlying business processes around those data that we believe make us more successful at performing the appropriate data quality corrections and fixes. We have experience with resolving data discrepancies and issues over many engagements and provide experienced-based recommendations to DHHR. Our processes have been quality tested for accuracy and streamlined with the appropriate tools and methods to provide the most accurate correction of data via automated processes. Through established data quality practices, experienced recommendations for data fixes, and automated edits for timely corrective data updates, the WV EDS solution provides DHHR and all stakeholders with information they can trust and rely on for timely decision-making throughout the life of the WV EDS.

DQ019	The solution should support data integrity through system controls for software program changes and promotion to production

Watson Health has an industry-leading established set of structured processes for change and release management, along with testing, validation, and sign-off. We strictly adhere to our processes and extensively vet a solution before any changes to the solution are moved into production. We test and validate any changes and ensure appropriate backout plans are in place in case there is an issue associated with the change. As part of testing, we also test for data integrity and quality. Our data quality testing includes field-level comparisons to source records, cardinality verification against source systems to ensure that values are correct and mapped correctly to metadata, and database validation to ensure that data samples are correctly loaded and balance to the source. These checks and balances ensure the integrity of data when modules are promoted to production.

DQ020	The solution should include an integrated automated logging and tracking component for all inquiries between authorized solution users and Vendor staff that includes, but is not limited to
DQ021	The date and time of inquiry
DQ022	The form of inquiry (phone, email, and instant messaging)
DQ023	The ability to create a summary level nature of the inquiry
DQ024	The ability to document details of the nature of the inquiry
DQ025	The authorized solution user
DQ026	The Vendor staff member
DQ027	The response details
DQ028	The date and time of the response
DQ029	The applicable notes on the resolution of the inquiry
DQ030	Other details as determined by the Department
DQ031	Reporting on all inquiries as requested by the Department

IBM uses Salesforce-hosted Product Support Portal to track, review, audit and report on inquiries submitted by our clients. In the portal, our clients can initiate and manage inquiries, access a robust library of product documentation, and search a knowledge base containing relevant product use information, such as answers to frequently asked questions and actionable information.

As part of the inquiry logging, we collect data on time of inquiry, submitter's information, summary and detail of inquiry, form of inquiry, member assigned from Watson Health to resolve the inquiry, the resolution, and any related details. Periodically, we report back to our clients and provide them with statistics to understand the nature of inquiries about data. We extend the same capability to DHHR as part of our solution.

DQ032	The solution should provide the ability to automate meta-tagging including, but not limited to
DQ033	Reports
DQ034	Queries
DQ035	Maps based on their contents
DQ036	Other elements as requested by the Department

IBM Cognos Analytics auto tags the metadata for all user created content including reports, queries, and maps. This allows for searching all existing content within the Cognos Analytics portal on the basis of the autogenerated, indexed, and stored metadata tags.

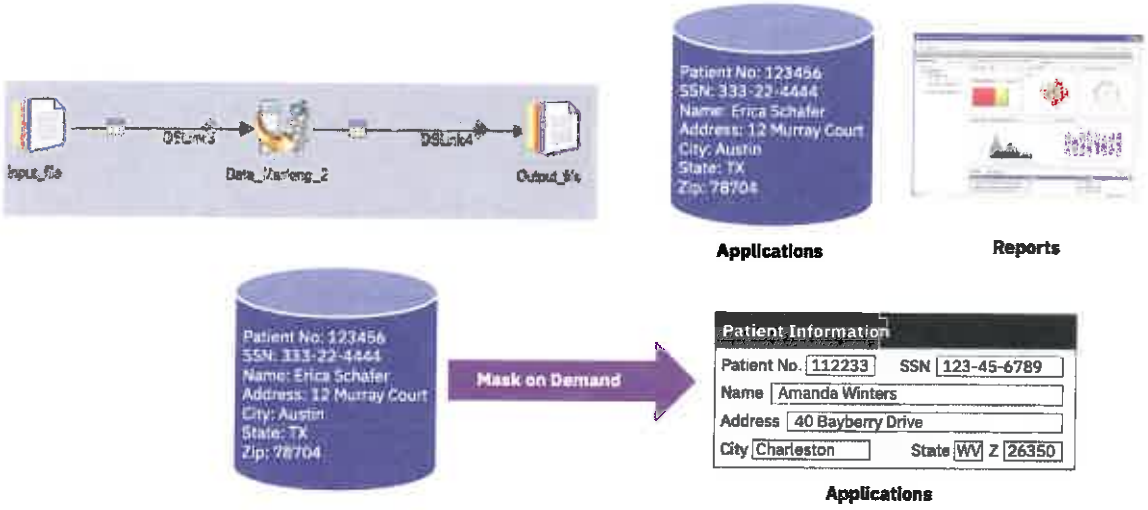
DQ037	The solution should have the ability to de-identify and re-identify data within the solution as needed

Data Deidentification and Masked/Unmasked Content Access

Our WV EDS solution uses the IBM Infosphere Optim Data Privacy tool to deidentify data on demand, masking sensitive data on reports and on any digital media where the data is placed. The InfoSphere Optim Data Privacy masking tool is available to mask sensitive data on reports, dashboards, maps, and any digital media where they exist. At the column level, sensitive data can be masked completely from view and can be paired with a hashed value where necessary. During deidentification, hashing encryption is used for pseudonymizing names and addresses on all database constructs. Masked data are stored in tandem with the unmasked data.

Comprehensive role-based access control is implemented to confirm that only those with proper authorization have access to the masked or unmasked data. When data in the WV EDS are accessed, security views associated with the user's role are applied. Security views can be as granular as required with data fields masked at the column level. Access to the unmasked data fields are based on user privilege as defined and approved by DHHR.

Figure 65. InfoSphere Optim Data Privacy for Data Element De-identification. *Data are masked in real time to protect sensitive data and promote a role-based approach to data access.*



Deidentifying Sensitive Information in Data Extracts

Data movement tools such as InfoSphere DataStage can perform data extracts from the WV EDS data stores invoking the InfoSphere Optim Data Privacy algorithms to deidentify data in extracts for external

release and thereby protecting sensitive information by masking it in-flight to meet Health Insurance Portability and Accountability Act (HIPAA) Safe Harbor criteria.

The Data Masking tool also includes specialized, built-in content and rules for common sensitive fields such as name, address, and Social Security Number. To protect confidential data, a variety of transformation techniques substitute sensitive information with realistic, fully functional masked data. The following are examples of the masking techniques:

- Substrings
- Arithmetic expressions
- Random or sequential number generation
- Random or sequential number generation
- Data aging

Maintaining Referential Integrity in Deidentified Data

InfoSphere Optim Data Privacy features multiple data-masking techniques and algorithms to ensure randomization, while maintaining the original nature of the data and preserving referential integrity. For example, if a masked data element, such as a telephone number, is a primary or foreign key in a database table relationship, then this newly masked data value must be propagated to all related tables in the database or across data sources. If the data are a portion of another row's data, that row must be updated with the same data as well. The contextually accurate masking capabilities help masked data retain a format similar to that of the original information. This feature enables DHHR to maintain data integrity for aggregate analysis even after anonymization has occurred.

DQ038	The solution should provide the ability to review and report on data quality metrics including, but not limited to:
DQ039	Data completeness
DQ040	Data consistency
DQ041	Data validity
DQ042	Data conformity
DQ043	Data accuracy
DQ044	Data integrity
DQ045	Others as defined by the Department

Data Quality Dimensions

Our WV EDS data quality process consists of data profiling to assess the completeness, conformity, consistency, integrity, duplication, and accuracy of data before they are ingested and refined in the warehouse. Our WV EDS solution leverages the InfoSphere Information Analyzer data profiling tool and customized, automated scripts to perform data profiling and report on data quality metrics. Watson Health applies quality rules and thresholds to scrutinize the data including checking for completeness, conformity, consistency, accuracy, validity, and reasonableness. Data quality is evaluated across six primary dimensions:

- Completeness—identifying data that are missing or unusable
- Conformity—finding data that are stored in a nonstandard format
- Consistency—locating data with conflicting values

- Accuracy—identifying out-of-range or incorrect data including inappropriate values in fields with standard values sets (e.g., diagnosis code, procedure code, procedure modifier, revenue code, or drug code fields)
- Duplication—inappropriate data that are repeated in the data set
- Integrity—finding data or keys that are missing or not properly referenced

We use InfoSphere Information Analyzer as a platform for continual, automated updates to data edit criteria and data quality assessment reports as changes are made to the existing edit criteria or new data profiling checks are identified over time.

We also leverage data profiling for checking data validity or reasonableness. Validations relating to data reasonableness look at the relationship between two or more columns, between columns across different data files, or between a column and "normative" data, to ensure that they are reasonable. The following are some examples of reasonableness checks:

- Comparison of diagnosis to age, diagnosis to sex (e.g., pregnant and male), and charge to payment
- Percentage of total services that are surgical
- Percentage of diagnoses that are non-specific
- Average cost per service by procedure code ranges

Further, we automate data profiling activities to continuously provide comprehensive information and statistics on source data files over the life cycle of the project. This helps assess data quality over time and creates quality benchmarks for continuous improvement. Content is analyzed for accuracy and supported with data quality reports.

Data Quality Reports

We have created several standard reports and dashboards for monitoring data quality when implementing large scale data warehouses. These reports become a baseline for our proposed solution. We work with DHHR to customize these reports and generate additional reports as per requirements defined during the design, development, and implementation phase.

Table 36. Key Categories and Descriptions of Data Profiling Reports From InfoSphere Information Analyzer. *These baseline reports provide comprehensive Data Quality metrics as well as reports of exceptions and quality rule violations in the data.*

Key Data Profiling Report Categories and Descriptions	
Baseline analysis reports	• Determines whether the structure or content of data has changed between two versions of the same data. This helps measure quality improvement over time
Column analysis summary statistics reports	• Reports on an individual column's comparison variance, threshold, statistics, and so forth. Structural information about columns are also reported during column analysis.
Column inference reports	• Reports on the column deviation from predefined standard values, changes in data type, changes in expected length, percentage of null or undefined values, and precision of numerical fields.
Column summary reports	• Reports on column frequency, format violations, column value frequency, column profile before cleansing, column profile after cleansing, and column summary statistics
Cross-domain analysis reports	• Reports on referential integrity between input files and conformity to any defined relationship within the same file
Data quality reports	• Reports can be generated to gather information about all aspects of data quality

Foreign key analysis reports	• After a foreign key analysis completes, a report shows a summary of the defined foreign keys and candidate foreign keys in your data. Defined foreign keys are keys that were already defined in your data before the analysis. Candidate foreign keys are keys that were inferred during analysis. This helps discover additional relationships within a data file or between two data files.
Primary key analysis reports	• After a primary key analysis completes, a report shows a summary of the defined primary keys and candidate primary keys in your data. Defined primary keys are keys that were already defined in your data before the analysis. Candidate primary keys are keys that were inferred during analysis.

We propose to generate reports for DHHR on data quality statistics, data migration jobs, and any data exceptions at run time including the statistics of all ETL exception reports. Authorized users also have online access to the Data Quality Exception Console and are able to view relevant metadata and data exception results. We work with DHHR to define and establish the appropriate data reconciliation processes and checks and report the statistics of all ETL reconciliation reports to DHHR as well.

Finally, the operational metadata about the sources, targets, and the job runs themselves are all captured automatically at run time and stored in the common metadata repository. The metadata can be viewed and investigated later as necessary to understand the ETL process that occurred and to generate reports on any aspect of the operational metadata.

DQ046	The solution should support production of X12N 270 transactions to query other payer eligibility files and ability to process responses

We have included the IBM Transformation Extender Pack for Healthcare, a product with tight integration to InfoSphere DataStage for managing the ETL of healthcare-related data. The Transformation Extender Pack's data transformation capability enables us to quickly add new data sources and readily integrate message formats such as Health Level Seven (HL7), EDI X12, and National Council for Prescription Drug Programs (NCPDP).

Our solution accepts data from all 5010 HIPAA X12N transactions, including but not limited to the following:

- 270/271—Eligibility verification request and response
- 276/277—Claims status request and response
- 834—Eligibility roster
- 835—Remittance advice
- 820—Capitation payment
- 837 Institutional (I), Professional (P) and Dental (D)—Claims and encounter transactions
- 275—Prior authorization
- NCPDP transactions (S1, S2, S3, B1, B2, B3, etc.)

DQ047	The solution should comply with relevant standards including, but not limited to National Information Exchange Model (NIEM), CAQH-CORE, Health Level Seven International (HL7), X12, EDI, and HIPAA for data interchange

Our WV EDS solution's Core Data Model (CDM) aligns to national healthcare standards such as HL7 Reference Information Model (RIM) datasets, National Information Exchange Model (NIEM) datasets, and the Federal Health Information Model (FHIM), where applicable.

Our WV EDS data architecture and modeling methodology, Data Vault, incorporates a hybrid data management strategy that supports a variety of formats, such as structured (e.g., 3NF, Kimball dimensional models), semi-structured (e.g., NIEM XML, JSON, FHIR HL7), and unstructured (e.g., PDFs, Excel, image, audio) datasets.

Our WV EDS conforms to the Accredited Standards Committee (ASC) X12 Technical Reports Type 3 (TR3), Version 005010 and supports the adoption of Council for Affordable Quality Healthcare's (CAQH) Committee on Operating Rules for Information Exchange (CORE®) Phase I, II, and III as stipulated by HIPAA Transactions Operating Rules.

A key component of our solution, the Transformation Extender Pack for Healthcare, allows us to easily receive and integrate message formats such as EDI, HL7, X12, NCPDP, and HIPAA, supporting both International Classification of Diseases, Ninth and Tenth Revision, codes, for data interchange. The Transformation Extender Pack for Healthcare handles a wide variety of source and target systems, including industry-standard messaging and file systems, out of the box. Data transformation libraries include (1) an EDI-X12 library, which implements the generic X12 standard; (2) the HL7 library, which implements the HL7 messaging standard used in the health service industry and, in addition to transformation, has extensive message validation and acknowledgement features (e.g., HIPAA is based on the X12 standard); and (3) the NCPDP data transformation library, which supports the standards for handling pharmacy claims.

DQ048	The Vendor should support each phase of Council for Affordable Quality Healthcare - Committee on Operating Rules for Information Exchange (CAQH-CORE) rules

Our WV EDS supports the adoption of the CAQH CORE® Phase I, II, and III as stipulated by HIPAA Transactions Operating Rules.

Hardware and Infrastructure

IN001	The solution should have the ability to retain a historical record of all reports created within the solution including, but not limited to
IN002	Report parameters
IN003	Date created
IN004	The authorized solution user who created the report
IN005	All fields included in the report
IN006	Others as defined by the Department

Watson Health implements system, application, and database auditing, providing historical evidence of all points of access to data. From Splunk—our centralized log management tool indexing our server logs—to Db2 Audit Facility, which collects fine-grained database logs, we retain a historical record of activity within the EDS, including report fields. We develop the necessary reports and records to demonstrate compliance with federal and state regulations. We provide required access to these records for the Department and other state and federal auditors.

Additionally, Watson Health uses a combination of system event logs, application logs, and database audit logs to track system activity at a specific process or individual user level. We use standard application configuration tools to monitor and check for conditions that violate security rules. For incident reporting and mitigation, we capture system-level and user-level events in central audit logging systems. We generate and review scheduled reports on auditing events of interest, including failed logins and elevated login activities (e.g., *su/sudo, root*).

IN007	The solution should ensure an authorized solution user experience that meets the response time goal for system latency of no more that 20 milliseconds for each workload interaction

Watson Health monitors all aspects of the solution and uses real-time analysis on report delivery workflows and service usage to ensure optimal performance and quality within the solution and to meet

system latency requirements of 20 milliseconds. We implement appropriate tools to determine latency at the database server level and supply results monthly to the state. Within our internal environment, we also deploy several Oracle Enterprise Manager (OEM) tools to monitor database server latency in detail.

IN008	The solution should provide tools for maintaining and managing changes and modifications made by authorized solution users to queries and reports

Watson Health works with the Department to establish a change control process within the framework of the Department-approved process for receiving, initiating, and executing all data, reporting, and analysis work requests. This process includes the following:

- Acknowledging and logging the receipt of the request within 1 business day
- Providing proposed dates for delivery of deliverables after a complete analysis and review with stakeholders
- Accounting for negotiable deadlines for on-demand/priority requests

This approach helps enforce a consistent approach to the change management process. To achieve continuous process improvement, adjustments may be made to processes, reports, and/or specific metrics being reported based on mutual agreement between the Department and Watson Health as part of the change management process.

IN009	The solution should have the ability for hardware, operating system, database management software, and other infrastructure software to meet capacity needs including, but not limited to
IN010	Bandwidth
IN011	Central processing unit processors and speed
IN012	Cache size
IN013	Data storage capacity
IN014	Retrieval speed
IN015	Others as defined by the Department

Watson Health monitors the Department's environment through the SolarWinds Orion Platform, a market leader in information technology (IT) management software and monitoring tools. Our solution can monitor, alert, and report on key hosting and application metrics. It also provides seamless integration with ServiceNow our Incident Management Tools for Event track environment issues and alert administration staff of events needing immediate attention.

SolarWinds Orion includes capacity utilization and planning out of the box. We can easily predict when critical system or device capacity such as storage will be exhausted and quickly react to make the necessary changes before outages occur.

In addition to immediate alerts when system or application events are triggered, Orion stores system details for ongoing historical and trend analysis to assess current resource capacity utilization, evaluate current system health, and forecast usage trends. This information allows us to manage and assess current and future system capacity needs.

IN016	The solution should have workflow processes that prevent shifting architecture inefficiencies to manual processes performed by authorized solution users

As part of the learning analysis, we gather information about the various user roles, their current workflow processes, and how those processes will be affected and improved by new system functionality. The output from those conversations are documented in two ways:

- Workflow diagrams are prepared.
- Specific step-by-step procedures are developed to explain workflow diagrams in greater detail. Links to more detailed training content or detailed user guides are provided where appropriate.

IN017	The Vendor should specify to the Department the hardware, software, main operating system (OS), and configurations necessary to run the solution on client devices

The WV EDS uses Lenovo hardware for servers for the VMware ESX hosts and all physical servers. Our solution provides both Windows and Red Hat Linux for operating systems. We provide a list of all hardware and software necessary to run and maintain the WV EDS.

IN018	The solution should have business intelligence that adheres to the Department's business policies and procedures

The EDS provides industry-proven business intelligence (BI) and analytic tools as well as finely tuned reports and data extracts to support the Department's decision-making. We enable the Department to schedule queries and report delivery according to your specifications and to allow data and reports to be delivered/exported in a variety of formats. Our proposed solution includes IBM Cognos Analytics.

IBM Cognos Analytics empowers users of all skill levels to create or view visually rich reports, including interactive dashboards, parameterized or prompted reports, detailed reports with cross-tabulations along multiple dimensions, and flexible ad hoc reporting. Cognos' analytic governance and efficient report delivery make it ideal for production reports. Users can subscribe to reports pulled in from multiple sources, have them refreshed daily, and set specific reports as their home page, without having to involve IT staff—while still operating within the guardrails of effective data governance. Cognos Analytics delivers all the functions of traditional BI but augments these functions with artificial intelligence (AI)-driven elements, such as natural language dialog, guided analytics, pattern detection, and smart visualizations. These capabilities make it easy to unearth insights—and make the insights easy to comprehend.

In Cognos Analytics, reports can be built, published, shared, and used to build report templates from the same report specification. Users can save a report for individual use or as a shared template for other users. Queries and custom fields can be reused with different report templates, providing both reusability and consistency, thus adhering to the goals and objectives of the Medicaid Information Technology Architecture (MITA) and the Seven Conditions and Standards framework.

IN019	The solution should be a service-oriented architecture (SOA) with reusable and interoperable components and services

Our solution is built around the principles of an open, standards-based Service-Oriented Architecture (SOA), enabling the Department to share access to data across the enterprise. We follow the Center for Medicaid & State Operations (CMSO) initiative for MITA to encourage integrated data transformation across the enterprise and improve Medicaid administration. Using these standards promotes the presence of open interfaces and exposed application programming interfaces (APIs).

Our solution's technical architecture is scalable, extensible, and modular. The system is SOA-based and MITA compliant to facilitate expansion. Because of its modular MITA-aligned design, our solution can grow over time to meet the evolving needs of the Department with minimal impact to the overall solution and other vendor modules.

Our solution uses and exposes reusable, modular services for preparing and presenting information. Web services accommodate data access and sharing from any of the supported interfaces, including Simple Object Access Protocol (SOAP), Representational State Transfer (REST), Extensible Markup Language (XML), and JavaScript Object Notation (JSON). Our IBM InfoSphere Information Server components for

data quality and data transformation (DataStage and QualityStage) are capable of interfacing directly with available services using standard web service protocols (SOAP, REST, etc.) as well as publish/subscribe methods with message queues.

IN020	The Vendor should document a holistic, multi-dimensional data view that includes pictures, diagrams, and flow charts of the architecture requirements at the summary and detail levels for suppliers, the Department, and authorized solution users to visualize the solution components and interactions

Watson Health provides documentation showing a holistic, multidimensional view of the solution, including diagrams and flow charts of the architecture at the summary and detail levels.

IN021	The Vendor should ensure the architecture and application design used for the solution allow for the volume, frequency, and variety of data to be scalable, added and updated as needed by the Department

We procure, host, operate, and maintain the system infrastructure (environments, interfaces, and tools) and maintain all necessary end user software, ensuring that version consistency is maintained across all system components with our team delivering support. We use technologies that are rapidly upgradable, scalable, and expandable to allow for a variety of data be added and updated. Our infrastructure design can adapt to changing business requirements and business growth while taking advantage of the latest technology offerings.

Because our model is a complete solution and not just a software offering, Watson Health provides all software maintenance and support. Our support for data warehouse clients minimally encompasses security updates/patches, ongoing system maintenance, software/system upgrades, Help Desk support for users, report development support, and training.

IN022	The Vendor should provide independent application environments to support unit testing (software), system integration testing (SIT), user acceptance testing (UAT), and production deployment

We provide independent environments for testing, including SIT, UAT, and production.

IN023	The Vendor should provide independent application environments (sandboxes) to support authorized solution user testing and training

We provide independent application environments to support authorized user testing and training.

IN024	The Vendor should provide a solution that minimizes the cost of changes to business rules and business processes

To meet the Department's goal to minimize the cost of changes, we use the "Build Once, Reuse Often" strategy—that is, our solution supports reusable business logic. Modularity and reusability require use of business rules and separation of the rules from actual code, aiming for configuration over customization. We accomplish this using business rules for extract, transform, load (ETL) processes that are separate from actual code. Flexible, configurable, rules-based logic govern key functions of the EDS such as data transformation, healthcare performance measurement, and other derived fields and formulas in the data warehouse layer of the architecture.

IN025	The Vendor should provide a solution that integrates new technology in a way that minimizes any negative impact to the solution and authorized solution users

Our goal is to meet the Department's needs for new technology integration. We work with the Department to create an implementation plan with minimal impact to users and their work.

IN026	The Vendor should provide modular components and processes that lengthen the solution's life span when components are updated and/or replaced.

Our modular approach to data model development means we configure the model to add new data sources and fields by simply mapping the new data to existing entities or, when necessary, creating new entities. When new data sources need to be added, new Data Vault constructs can be added and then further linked to existing Data Vault structures without any change to the existing data model. As we integrate data sources during the Implementation Phase, additional subject areas can be added. Because of the modular design, adding subject areas will not add stress or complexity or interrupt existing functionality. A truly flexible model is designed to grow and scale with your organization, lengthening the solution's life span.

IN027	The Vendor should provide a solution that is adaptable and extensible to accommodate business and technology changes.

The EDS is a flexible and comprehensive platform with an interoperable, scalable, and easily adaptable technology framework. The solution supports Department's goal for a customized solution that adheres to evolving industry standards and integration requirements. As the number and variety of data sources grow and evolve, it is imperative that the underlying technology be architected in a manner that supports and adapts to that evolution without disrupting or introducing unnecessary complexity to aspects of the technology already in place. Our solution is designed to consume data from all manner of data sources in a variety of formats, protocols, and methods. Our objective is to marry the data from widely varying data sources—traditional and nontraditional, internal and external, commercial off-the-shelf (COTS), and custom—in an accurate and meaningful way, while adhering to evolving industry standards and introducing new technology capabilities emerging in the industry.

IN028	The Vendor should provide the ability for authorized solution users to run multiple sessions concurrently and have multiple views in the same environments, application, and solution components.

To manage a shared resource environment, we sized the amount of computing power to support multiple concurrent Sandbox users, leveraging a clustered architecture that is designed for high throughput analytics. Automated monitoring and Operational Performance Dashboards ensure adequate performance and quickly alert power users and system administrators if a problem arises.

IN029	The solution should have the ability to provide a toolbar with common toolbar utilities including but not limited to
IN030	Highlight
IN031	Copy
IN032	Paste
IN033	Zoom
IN034	Others as defined by the Department

Our cloud-based solution provides the ability for users' current browser selection to use the common tool sets in the toolbar to highlight, copy, paste, and zoom as needed.

IN035	The Vendor should document the solution's architecture and clearly define service end points where system abilities can be added and/or modified without requiring changes to the end points of the solution

Our solution is architected using modular components to allow for future expansions and updates. We provide documentation to show the service end points where system abilities can be added.

IN036	The Vendor should develop a solution where all components return the same results when the same parameters are used

Our solution allows for reports to be consistent regardless of the component used when applying the same parameters.

IN037	The Vendor should work collaboratively with the Department to minimize existing barriers internally and externally, as defined by the Department

We work with the Department to ensure that existing barriers, internally and externally, are minimized.

IN038	The solution should provide components that deliver asynchronous communication, timely alerts and notifications, and support social and collaborative environments

Our solution provides components to support asynchronous communication, provide timely alerts and notifications, and support collaborative environments.

IN039	The Vendor should document the solution's architecture and clearly define service end points where system abilities can be added and/or modified without requiring changes to the end points of the solution

Our solution is architected using modular components to allow for future expansions and updates. We provide documentation to show the service end points where system abilities can be added.

IN040	The Vendor should develop a solution where all components return the same results when the same parameters are used

Our solution allows for reports to be consistent regardless of the component used when applying the same parameters.

IN041	The solution should provide the ability for concurrent use of the solution by other applications, components, and/or software

Our solution is designed to handle large volumes of data, concurrent usage, and high performance across the environment, including the use of other components and software.

IN042	The Vendor should provide a solution that is compliant with the Medicaid Information Technology Architecture (MITA) Standards and Conditions

Our experience, technical capabilities, and product development efforts are aligned with MITA and the Seven Conditions and Standards frameworks and your own architecture standards guidelines. We understand MITA's impact on the industry, which is why we collaborate with clients in Medicaid and Medicare agencies to help them advance in their MITA maturity levels.

IN043	The Vendor should provide a solution that maintains a holistic view of emerging technologies, and aligns with Department, State, and federal health information technology (HIT) standards

Watson Health analytic consultants anticipate and prepare for industry changes by participating in national standard-setting organizations and industry work groups on topics including health information technology, Medicaid enterprise systems, program integrity, payment reform, and others. In addition, our Knowledge Management team keeps staff apprised of important industry developments. Our account team provides the Department with advance notice of changes that are needed to maintain compliant, relevant, timely, and accurate reporting.

IN044	The Vendor should maintain data governance to enable efficient, effective, correct, and relevant decision-making regarding all aspects of data related to the solution

Our approach to data governance is to work with the Department to understand your data governance policies and procedures and data stewards and liaisons to identify gaps, weaknesses, or areas for improvement. We then apply our approach, disciplines, and tooling, making recommendations and defining a roadmap for establishment of an ongoing data governance program across the organization. The Data Governance Assessment is part of a standardized approach and process that we use as a best practice on any data governance project.

IN045	The Vendor should monitor the solution and anticipate maintenance needs and scheduling

Watson Health provides system administrators, reporting specialists, and data engineers who keep all components of the EDS operating as designed. We perform the automated and manual functions needed to ensure that all standard reports are produced accurately and on schedule. System administration and operational monitoring enable our staff to continually validate that data loads, system environments, and reporting tools are available to users and that processes are running as planned. This reporting system is proactive, measurable, and a key component of our quality assurance program.

IN046	The Vendor should develop a process to coordinate with the Department on batch control, balancing of input with data source vendors, scheduling extract, transform, load (ETL) processes, and data load cycles

During Design, Development, and Implementation (DDI), we work with the Department to develop processes for batch controls, balancing input of data source vendors as well as all ETL processes.

IN047	The Vendor should provide the ability for authorized solution users to reset passwords through a self-service password reset option

Our IBM Cloud Identity Single Sign On (SSO) solution provides options for self-service password resets.

IN048	The Vendor should provide the ability for authorized solution users to self-report issues with solution components as an alternative to calling for support

We provide an alternative option to calling into a support center for users to self-report issues with the solution components.

IN049	The Vendor should define and document a process by which the Department and Vendor define new/ desired solution features and/or functionality

Our goal is to partner with the Department to ensure desired functionality is met. When new features or functionalities are needed, we have a documented process available to request enhancements.

IN050	The Vendor should provide the ability to participate in an online discussion forum to share information related to the solution including, but not limited to:
IN051	Post inquiries
IN052	Respond to other participants
IN053	Create topical threads on problems
IN054	Moderate the posts and threads
IN055	Search posts and threads by date or relevance
IN056	Others as defined by the department

We provide Jira for users to participate in online discussions. Jira allows users to post questions, talk with other users, and create threads. The tool is searchable, allowing users to find a previous post quickly by date or topic.

IN057	The Vendor should provide a schedule for updating solution hardware and software

As part of our Platform as a Service (PaaS), we procure, install, configure, and operate hardware and software for the solution. We manage, maintain, and support the solution throughout the life of the contract. Postimplementation support is part of our Operational Plan for all general activities and tasks for the solution, including operations, administration, maintenance, and technical support. This plan includes providing additional support for every hardware and software release.

Our services include the ongoing administration necessary for software updates, patches, data partitioning, indexes, statistics updates, file vacuuming, and scaling. Software upgrades and licenses are maintained for the environment.

We provide system maintenance, which includes the following at a minimum:

- Data maintenance for table updates
- Deficiency tracking and correction
- Monitoring the system to meet performance requirements and, when required, system tuning
- Monitoring and maintaining current data, tables, programs, and documentation
- Tracking and maintaining changes to scripts or system parameters concerning frequency, number, sorting, and media of reports
- Updating new values and changes resulting from approvals in the change management process
- Monitoring the ELT, ETL, and data interface to ensure the highest quality of the data possible is ingested into the WV EDS.

System-level alerts are monitored 24/7 by our data center staff. A suite of monitoring and management tools keep production running smoothly. These tools help us load, test, and implement software updates and patches in the environment. They manage, monitor, and alert us when capacity or performance thresholds are exceeded. We use them proactively, so we can identify and resolve issues before your users are even aware of them.

We notify you when a software update is to be scheduled and request approval before beginning the work. Working in conjunction with the Department, we agree on the timing to install the upgrade.

IN058	The Vendor should develop, implement, and maintain standards for software installation in coordination with the Department to streamline the installation and maintenance of software

During DDI, in coordination with DHHR, we define software installation standards to streamline the installation of software.

IN059	The Vendor should handle scheduled or on-demand requests to refresh the data from production with a full or referentially intact subset of data within two (2) business days

Upon request, Watson Health refreshes the data from production using the full set or a subset within 2 business days.

IN060	The Vendor should monitor network availability, throughput, bandwidth, response time, and network congestion between authorized solution users and the solution

Watson Health deploys multiple services and tools to monitor network performance and security and check for perimeter vulnerabilities. We use SecureWorks Intrusion Detection Services (IDS) on our networks. We use WebSense to block unauthorized or inappropriate services, protocols, and websites. We use FireEye to monitor network traffic for "day one" malicious code associated with advanced persistent

threats (APTs). We use these same tools to profile normal network activity to understand how well our network is performing, and we report issues and trends to our Operations and Account teams.

IN061	The Vendor should supply the Department with recommendations to develop the solution to support new industry standards, features, and/or functionality as needed

We strive to drive improvements and efficiencies throughout the life of our relationship with the state. On a schedule to be agreed to by the Department, and at least annually, we review the portfolio of standard reports to identify opportunities to revise, enhance, add, or sunset reports to meet your evolving needs and leverage any new data sources or technology improvements. We proactively research, evaluate, and recommend potential sources of data for reporting activities to support your initiatives.

IN062	The Vendor should test and troubleshoot interfaces with other contractors or vendors for information exchange

Our approach to the multivendor implementation environment is to collaborate with all vendor parties to deliver a successful solution across all environments that meets the needs of the state. We identify integration requirements, perform impact analysis of changes, document our analysis results, and establish and test any required interfaces. We can adapt our proven PMO processes to align with the state's and all other vendors' processes while still ensuring the quality and rigor needed for successful integration implementations. The Capability Maturity Model Integration (CMMI) process and templates foster effective communication and collaboration among all project stakeholders and provide transparency for the state.

IN063	The Vendor should provide a data access component that works efficiently in the enterprise data solution (EDS) environment

Data access is accommodated from any of the supported interfaces, including SSH File Transfer Protocol (SFTP), Java, XML, and messages. All our software components provide the capability to expose application programming interfaces (APIs) and web services. The IBM InfoSphere Information Server is capable of interfacing directly with available web services using standard web service protocols (SOAP, REST, etc.) as well as publish/subscribe methods with message queues. Within our Interoperability layer, we implement a Java Messaging Service (JMS) technology stack using Apache ActiveMQ. ActiveMQ is the most popular and powerful open-source messaging and Integration Patterns server. The application server provides high performance and scalability, is simple to deploy and manage, and guarantees delivery of messages to downstream consumers. In addition, for transferring of files, we configure our SFTP server to push and pull data on demand.

Our infrastructure design can adapt to changing business requirements and business growth while taking advantage of the latest technology offerings. Integration of virtual technologies provides interoperability between current and future technologies. Our WV EDS platform and data access interface are technology agnostic so that a variety of COTS-based tools can be applied for data extracts, reporting, BI, and all manner of analytics processing as new products, capabilities, and user preferences evolve over time.

IN064	The Vendor should provide a data access component that allows for integration with tools in current or future use by the Department including, but not limited to
IN065	Microsoft Project
IN066	Microsoft Word
IN067	Microsoft Excel
IN068	Portable Document Format (PDF)
IN069	Microsoft Access

IN070	Cognos
IN071	Tableau
IN072	Others as defined by the Department

Watson Health's data access components can integrate with a variety of tools used by the state. We work with DHHR to ensure access and compliance with current and future tools and test components for assurance in meeting your needs.

IN073	The Vendor should describe and document in the Security, Privacy, and Confidentiality Plan the proposed approach to hosting and operating the solution including, but not limited to, production and back-up systems in a secure environment

Watson Health's Security, Privacy, and Confidentiality Plan documents our approach to hosting and operating the solution, including production, nonproduction, and the model for backups and recovery.

IN074	The Vendor should describe and document the operating platform including, but not limited to
IN075	Hardware
IN076	Databases
IN077	System software
IN078	Application software
IN079	Telecommunications
IN080	Others as defined by the Department

Our solution uses industry-leading hardware from Lenovo for physical servers and VMware virtual hosts. Our databases are IBM Db2 for system databases, and our system software runs both Windows and RedHat Linux. The solution uses a combination of application software using IBM Cognos, R, Python, and IBM J-SURS for data analytics, IBM Infosphere for data management, and IBM Cloud Identity for data access.

IN081	The Vendor should describe and document how the platform is shared and how the Department's data is partitioned from other customers' data

Our private cloud platform is designed exclusively for healthcare analytics systems. The platform implements the physical and technical safeguards required by the Health Insurance Portability and Accountability Act (HIPAA) and the National Institute of Standards and Technology (NIST) 800-53 R4 to protect and control access to sensitive patient and customer information within our data centers.

Our multitiered/multilayered approach incorporates security mechanisms that provide a high degree of physical and logical segmentation standard in private cloud implementations. These physical and logical segregation policies include the implementation of demilitarized zones (DMZs) and gateways between systems or networks with different security requirements (security domains). Multiple methods such as criteria-based segmentation and access rules for traffic flow (traffic filtering) have also been incorporated into the solution design to satisfy the strictest risk control management provisions.

IN082	The Vendor should document and describe the operational support of the solution including, not limited to
IN083	Disaster recovery
IN084	Data/system back-up
IN085	Staffing and management of data center

IN086	Data loading
IN087	Data validation
IN088	Data cleansing for the proposed solution
IN089	Others as defined by the Department

Watson Health's operational activities consist of operating, supporting, and maintaining the state's WV EDS solution, including the following:

- Maintaining and supporting the data marts and data warehouse
- Performing Department-approved changes and modifications (testing, documentation, and so forth), which go through the established change management process
- Performing routine software enhancements and updates
- Backup and recovery
- Monitoring system availability, network infrastructure, interfaces, ELT/ETL, data quality, and so forth
- Monitoring performance and tuning the system components
- Resolving system defects (record, track, resolve, report)
- Disaster recovery and business continuity planning
- Staffing and management of data centers
- Managing security
- Maintaining documentation and version control
- Data loading, cleansing, and validation
- Cooperating and complying with state and federal audits

We want to optimize the investment West Virginia has made in a modern EDS. To that end, Service-Level Agreements (SLAs) and Key Performance Indicators (KPIs) set clear, shared expectations and measures for service delivery and system performance. Collaborative processes such as problem resolution help ensure accountability and compliant operations, and change management validates the benefit, impact, and cost of a proposed change.

IN090	The Vendor should describe its approach for installing the technical infrastructure, making any facility alterations (including upgrades), and establishing necessary telecommunications links in the Security, Privacy, and Confidentiality Plan

Watson Health includes in the Security, Privacy, and Confidentiality Plan our approach for installing infrastructure, including physical and virtual systems, network and storage, and telecommunications.

IN091	The Vendor should provide a site that fully supports all physical needs of the solution including, but not limited to
IN092	Hardware
IN093	Electrical
IN094	Cabling
IN095	All other physical needs of the system

IN096	Others as defined by the Department

Watson Health hosts the state's EDS environments in two of our state-of-the-art data centers. Our primary data center is in Dallas/Fort Worth, Texas. Our secondary data center for nonproduction and disaster recovery is in Sterling, Virginia. The data centers are TIER III fully compliant and have the Uptime Institute Stamp of Approval.

IBM data centers offer world-class facilities for power management, heating/ventilation/air conditioning (HVAC), fire suppression, seismic engineering, physical security, high-speed internet connectivity, and access to the Intelligent IP and IP Multiprotocol Label Switching (MPLS) network. The data centers are also Statement on Standards for Attestation Engagements (SSAE) 18 Service and Organization Controls (SOC) 1 and SOC 2 certified annually. Our data centers are a global leader in cloud infrastructure and hosted information technology (IT) solutions for enterprises.

IN097	The Vendor should ensure all component hardware supporting the solution database structures contain an adequate number of parallel threads for authorized solution user needs

The WV EDS is a high-performance, easy-to-deploy, cloud-ready, and purpose-built appliance for advanced querying. It exploits the IBM Common Structured Query Language (SQL) Engine, DB2's columnar technology, and flash storage standard. It is preconfigured and optimized (developed, tuned, and tested) for massively parallel processing of large data volumes to support the broadest array of workload options for structured and unstructured data.

IN098	The Vendor should ensure bandwidth between data acquisition and the solution database servers supports refreshes of the solution database with minimal disruption

The Watson Health network infrastructure employs a fully redundant and scalable design providing performance and redundancy as well as allowing for fast and low-risk expansion of the network. We achieve network security, compliance, and accountability by using Checkpoint Firewalls that provide performance, redundancy, granular-access control, and monitoring in and out of the data warehouse. Full monitoring tools are included and integrated into the design; these tools allow for granular reporting and alerts on network availability, throughput, bandwidth, and response time.

External connectivity runs atop the fully switched and multipath Verizon MPLS network. Circuits of 10 Gbit/s provide ample bandwidth and low latency for user access, fast data-source acquisition, site-to-site backup services, and additional site-to-site communications.

In addition to the network infrastructure, Watson Health network engineers design, construct, test, and tune the state's network components during DDI, and our network analysts support optimal operation of the system in subsequent phases.

IN099	The Vendor should ensure solution hardware and software is compatible with internet browsers including, but not limited to
IN100	Microsoft and Apple products
IN101	Google Chrome
IN102	Firefox
IN103	Internet Explorer (IE 7 or greater)
IN104	Others as defined by the Department

Our solution is compatible with a variety of internet browsers, including Google Chrome, Microsoft Internet Explorer, Apple Safari, and Firefox. As dependencies of other browsers emerge, Watson Health will work with DHHR to test and verify compatibility to meet your needs. Additionally, our web-based

applications are designed to be responsive or configured to automatically adapt to support all standard desktop, tablet, and phone screen sizes.

IN105	The Vendor should ensure hardware and operating systems are certified with recent major versions (1 0, 2 0, etc) of the solution software

Watson Health's hardware and operating systems are monitored for compliancy to the latest supported versions. Our version/upgrade strategy includes the ability to push updates during maintenance windows, or sooner if needed, in conjunction with DHHR's preferred downtime windows.

IN106	The Vendor should maintain compatibility with hardware and software for the term of the contract

Watson Health reviews major and minor hardware and software updates with DHHR, and we work with you on update plans and schedules. We have a standard software policy to maintain software to at least the most recent previous major version, or "N-1." Initial major version upgrades can have compatibility issues that require careful planning, and they typically contain bugs and performance problems that are resolved within the first few minor releases. We review documentation carefully, and we follow standard software testing and promotion practices for all releases. Our goal is to maintain a current, secure, high-performing system for DHHR.

IN107	The Vendor should provide the Department with an inventory of all solution hardware and software

Watson Health supplies the Department with a bill of materials list that includes an inventory of hardware and software used in the WV EDS.

IN108	The Vendor should coordinate and communicate in writing with the Department regarding the delivery, installation, repair, and maintenance of hardware updates, upgrades, and patches

We coordinate all hardware maintenance with DHHR. This includes the regularly scheduled updates as well as the delivery and repair of any hardware. We coordinate the timing of such update activities with the Department.

IN109	The Vendor should coordinate and communicate in writing with the Department regarding the delivery, installation, repair, and maintenance of software updates, upgrades, and patches

We coordinate all software maintenance with the Department. This includes regularly scheduled patching and updates. We coordinate the timing of such update activities with the Department.

IN110	The Vendor should provide server and storage hardware with the proven ability to support the processor, memory, input/output subsystem bandwidth, and storage for the solution

Our solution is built with performance in mind. We have architected a robust infrastructure to meet the needs of the WV EDS. Our solution is similar to that of several other Medicaid Enterprise Data Warehouse solutions we currently manage, and our server and storage hardware has proven to exceed to the requirements necessary to support the processing and bandwidth needs of the Department.

Our teams of engineers are fully responsible for monitoring the performance of all the components of the infrastructure. Because our core business is fully focused on healthcare, our data centers, staff, experience, domain expertise, and commitment to healthcare are at your disposal as we work to deliver a world-class infrastructure. IBM engineers are fully responsible for managing the cloud computing resources, storage, and the network infrastructure as well as connectivity to your data, software, and related technology services.

IN111	The Vendor should provide server and storage hardware with the capacity to handle the average and peak demands of the authorized solution user community with no performance degradation

The state's EDS environment is built on a highly scalable hardware infrastructure designed with our choice of servers, storage, and networking as well as the software components that reside on this infrastructure. All layers of the solution are designed with performance, scalability, and redundancy in mind, while also allowing for low-impact changes and expansion if requirements change.

To manage a shared resource environment, we sized the amount of computing power to support multiple concurrent users, leveraging a clustered architecture that is designed for high throughput analytics. Automated monitoring and Operational Performance Dashboards ensure adequate performance during peak times and quickly alert power users and system administrators if a problem arises.

Sufficient storage for all data is made available within the storage tier using Tier 1 storage. Space allotments are adjustable and can be sized according to the state's requirements and per the state's approval. We can set limitations on the allocated disk space per your directives and approvals. To monitor disk space, we generate reports for each authorized user, showing them each object in their schema and how much space is being used. These reports are automated and sent to each authorized user and the database administrators (DBAs).

IN112	The Vendor should provide component hardware supporting the solution that has a proven record that is comparable to the Department's needs

The solution uses IBM servers with a proven track record of high performance, VMware hosts, and IBM storage. Our data centers and hosting infrastructure feature clustering and redundant systems at each layer. More than 400 customers depend on Watson Health to host the analytics environments that are critical to their daily operations.

IN113	The Vendor should install, configure, enhance, and maintain all hardware and software and should provide services for the Vendor's local area network (LAN) up to the point of connection with the Department's wireless area network (WAN) and LAN network

We procure, host, and maintain the system infrastructure (environments, interfaces, and tools). It is our responsibility to install hardware upgrades and manage software updates, with the state's approval. Our team completes upgrades and updates to support acceptable response time and system availability. We install hardware and software upgrades in accordance with the approved change management process and adhere to the testing, deliverable submission, review, and approval process in doing so.

We work with DHHR to configure connections necessary to access the environment, including network points of connection and configurations of the single sign-on solution.

IN114	The Vendor should establish agreements with telecommunications network vendors to install secure data lines to its data center

The data centers hosting the WV EDS solution are designed in accordance with TIA-942, developed by the Telecommunications Industry Association (TIA) to define the planning and building of data centers, particularly cable systems and network designs. Data transmissions into the system are encrypted in flight and at rest in staging areas. Data are accessible only by authorized administrative personnel where elevated accounts are audited monthly and activity is monitored.

IN115	The Vendor should provide and maintain servers

We procure, host, and maintain the system infrastructure (environments, interfaces, and tools). It is our responsibility to install hardware upgrades and patches, with the state's approval.

IN1116	The Vendor should provide and maintain applications, web pages, and secure sockets layer (SSL) devices to support hypertext transfer protocol security (HTTPS)

The WV EDS solution uses HTTPS and SSL devices, and Watson Health maintains the servers, appliances, and web pages.

IN117	The Vendor should submit the proposed plans for all connections to the network to the Department for its review and approval prior to implementation

During DDI, we provide DHHR with proposed plans for all connections to the network for review and approval.

IN118	The Vendor should ensure authorized solution users are able to access the network and any necessary equipment located in the Vendor's data center from the Department's facilities

Watson Health ensures that authorized users can access the network and solution components and any necessary equipment hosted within our data centers.

IN119	The Vendor should ensure that authorized solution users have the ability to access the solution environments remotely

Our solution provides access from remotes sites, giving authorized users the flexibility to connect remotely.

IN120	The Vendor should have the ability to provide a firewall solution and proxies between its private network and the connection to the Department's network

The Watson Health network infrastructure employs a scalable design providing performance and redundancy as well as allowing for fast and low-risk expansion of the network. We achieve network security, compliance, and accountability by using Checkpoint firewalls that provide performance, redundancy, granular-access control, and monitoring in and out of the data warehouse. Full monitoring tools are included and integrated into the design; these tools allow for granular reporting and alerts on network availability, throughput, bandwidth, and response time.

External connectivity runs atop the fully switched and multipath Verizon MPLS network. Circuits of 10 Gbit/s provide ample bandwidth and low latency for user access, fast data-source acquisition, site-to-site backup services, and additional site-to-site communications.

IN121	The Vendor should have a firewall solution and proxies in accordance with Department, State, and federal requirements

Our Checkpoint firewalls follow Department, state, and federal requirements.

IN122	The Vendor should allow Department authorized solution users access into the Vendor facilities

Upon request, our primary and disaster recovery backup sites will be accessible to DHHR authorized individuals, as mutually agreed upon between our organizations and set forth in the Business Continuity and Disaster Recovery Plans.

IN123	The Vendor should provide network support for the solution that handles a minimum of 75 authorized solution users

Our solution provides access for 75 authorized users and can accommodate additional users as well.

IN124	The Vendor should provide network support for the solution that handles 40 authorized solution users accessing the system concurrently

To manage a shared resource environment, we sized the amount of computing power to support multiple concurrent users, leveraging a clustered architecture that is designed for high throughput analytics. The

WV EDS solution sizing will meet the need for a minimum of 40 concurrent users, and the hardware and network bandwidth allows for future expansion should it be requested.

IN125	The Vendor should provide network support for the solution that handles ten percent (10%) growth per year in the total number of authorized solution users and concurrent authorized solution users

The cloud-based platform is scalable and flexible for all aspects of growth, including the network, to avoid architectural overhauls as the infrastructure grows. We use technologies that are rapidly upgradable, scalable, and expandable. Our infrastructure design can adapt to changing business requirements and business growth while taking advantage of the latest technology offerings and can handle the estimated 10 percent (or higher) growth per year of authorized solution users and concurrent solution users.

IN126	The Vendor should assist in the resolution of solution-related issues

Watson Health does not expect the state to provide direct support for maintenance and monitoring of the EDS system. Our engineers work with the Department stakeholders to understand and remediate problem areas. We ask stakeholders for their help encouraging users to provide detailed information when performance issues arise and connecting our engineers to other Department and vendor subject matter experts (SMEs) to understand how to begin to address problems. We may also need data from networks, or source or destination systems, that we do not manage.

IN127	The Vendor should manage versions, acquire associated software patches and fixes, apply fixes, and test all applied fixes

Our maintenance services include the ongoing administration necessary for software updates, patches, and fixes of our infrastructure and hardware. Per our approach to upgrading and maintaining the versioning, upgrades for each component of the solution could be driven either by requests for new functionality from DHHR or emergency fixes such as quarterly updates by the software vendors. In all cases, the process for upgrading a specific module in the solution follows the established software development life cycle (SDLC) and change management process. Upgrades are performed at the lower environments and are tested before releasing to Production.

IN128	The Vendor should assist with analysis of Department requests for new software and hardware for appropriateness to the overall solution and architecture

Watson Health works with the Department for analysis or modification and maintenance requests as part of the change control process. This includes requests for new hardware and software.

IN129	The Vendor should develop and maintain an inventory of software including, but not limited to
IN130	Active versions
IN131	Licensing requirements
IN132	Interdependencies to assist with overall management of software upgrades
IN133	Others as defined by the Department

Watson Health's operational activities consist of operating, supporting, and maintaining the WV EDS solution, including activities such as maintenance documentation, version controls, and licensing.

IN134	The Vendor should develop and implement standards for software installation including, but not limited to
IN135	Data set names
IN136	Architecture names

IN137	Volume names to streamline installation and maintenance of software
IN138	Others as defined by the Department

We work with DHHR in the planning and implementation stages to determine the standards for naming of the architecture, datasets, volume names, and others the Department may request.

IN139	The Vendor should manage scheduling of operating system upgrades to accommodate processing schedules and system availability needs of the Department

We work with the Department to determine appropriate agreed-on times for operating system upgrades to accommodate processing schedules and system availability needs.

IN140	The Vendor should provide a plan for the physical security of the solution facilities including, but not limited to these topics
IN141	Designated responsible person(s)
IN142	Defined perimeter and protocols for secure access
IN143	Security of the communication network and solution components
IN144	Administrative controls

Our security solution employs a "defense-in-depth" strategy that eliminates any single path to unauthorized access of your data. Overlapping controls ensure detection and denial of attempts at intrusion.

- **Physical security.** The first line of defense is physically securing our data centers. Guards monitor our centers 24x7x365 with closed-circuit television (CCTV) and physical barriers, including mantraps and biometric scan devices. Only those providing hands-on support are allowed access.
- **Network security.** Our redundant Checkpoint firewalls and network segmentation securely isolate functional systems (e.g., web servers, application servers, and database servers), as well as our internal network. We employ third-party Intrusion Detection and Protection Services (IDS/IPS) that monitor traffic both in and out of our network perimeter 24x7x365. Malware and virus protection services also provide constant surveillance within our systems, blocking potential threats.

Watson Health provides security services required by the Department for the project with our own personnel. We have carefully reviewed the requirements of the Request for Proposal (RFP) regarding project scope, technologies, and support services, and we have determined that our company has the capability to deliver the security you require and fulfill the Department's solution goals. We have expertise and experience in all the security components of the solution, including administrative controls and solution components.

IN145	The Vendor should provide and maintain encrypted network connections that align with State, federal, and Department requirements

Our network staff are tasked with enforcing network security, which they perform using Checkpoint 12600 and Checkpoint 12200 firewalls. SecureWorks iSensor appliances, which connect to the network using a Gigamon infrastructure, provide Intrusion Protection Services (IPS) functionality.

IN146	The solution should prioritize business intelligence data retrieval over batch extract, transform, load (ETL) processes

To ensure the best chance of meeting overall workload throughput goals with concurrent data warehouse workloads all competing for the same computing resources, an efficient workload management system is critical. Our WV EDS's data warehouse component, Db2 Warehouse, includes sophisticated workload management features for prioritizing and controlling computing resource assignments to logical workloads such as ETL processes or query activity. In Db2 Warehouse, our database administrators can create different service workload classes to provide the execution environment for different types of work based on priorities determined by DHHR.

Db2 Warehouse allows the assignment of identified workload to service super classes and subclasses. This execution environment allocates available resources and can include thresholds that maintain stability in the system by identifying and managing workload that behaves abnormally. This control also permits a workload to have some of its resources controlled by an operating system workload manager such as Linux workload management. With Linux workload management, you can control the amount of central processing unit (CPU) resource assigned to a workload by setting shares for each service class relative to the Linux default class. The service class can also be assigned prefetcher and buffer pool priority to prioritize input/output (I/O) activity for its workload, and the concurrency of incoming work can be controlled using concurrency thresholds applied with a work action set defined on the workload. These advanced features allow our solution to prioritize specific workloads over other concurrent workload activity to support workload throughput objectives within the WV EDS.

IN147	The Vendor should describe and maintain the solution's interface design in interface control documents that are readily available to authorized solution users

During planning and preparation for the startup of this project, we identify interface requirements regarding Department systems, document the results, and establish and test any required interfaces. We use our central project repository to effectively manage data and documentation, including versioning, controls, and maintenance of required deliverables and any dependencies with other vendors.

IN148	The solution should have a web-based browser interface that provides seamless integration to the full solution for authorized solution users

The cloud-based solution comprises browser-accessible packaged applications delivered and managed in a Software-as-a-Service (SaaS) model with an integrated stack of middleware components deployed as a Platform-as-a-Service (PaaS), all running on a virtual computing Infrastructure-as-a-Service (IaaS) with the security and authorized controls necessary for government cloud deployments. Our solution provides access via your web browser of choice into our IBM Cloud Identity platform

IN149	The solution network architecture, network hardware, and software should be compliant with
IN150	All policies and procedures issued by the West Virginia Office of Technology (WVOT)
IN151	National Institute of Standards and Technology (NIST) Special Publication 800-53, or the most recent NIST publication
IN152	Applicable requirements under the Office of the National Coordinator for Health Information Technology (ONC) certification criteria for electronic health record technology
IN153	Others as defined by the Department

The solution complies with all applicable state and federal privacy and security standards, including those prescribed by CMS, the Social Security Administration (SSA), NIST Special Publication 800-53 security and authorized controls, and the Office of the National Coordinator for Health Information Technology (ONC) and those issued by the West Virginia Office of Technology. We are confident in our ability to securely receive, store, host, extract, deidentify, mask, recover, and otherwise protect electronic healthcare data.

IN154	The solution should have open application programming interfaces (APIs)

Our solution adheres to Medicaid Information Technology Architecture (MITA) 3.0 principles by using web services and industry-standard protocols. It uses and exposes reusable, modular services for interoperability across the enterprise. It is built around the principles of open interfaces and exposed APIs, enabling the Department and other external partners from the Medicaid Enterprise System (MES) to interface as necessary.

IN155	The Vendor should ensure that backups of reports and queries performed by authorized solution users are stored on a single shared drive in the solution

Backups of reports and queries will be stored using our Storage Area Network (SAN) storage.

IN156	The solution should leverage existing Department systems to achieve the desired to-be environment detailed within this Request for Proposal (RFP)

DHHR's solution is a cloud-based solution in the Watson Health data centers. Existing systems in use by the Department will remain in use during the transition to the new infrastructure during DDI.

IN157	The solution should leverage existing Department services to achieve the desired to-be environment detailed within this Request for Proposal (RFP)

Our solution architecture adheres to the principles of shared services, reusable components and modularity. During DDI, we work with the Department to identify existing services that can be leveraged.

IN158	The solution should allow for intra- and inter-state leverage and reuse

The Watson Health solution is designed to allow for access by multiple state agencies for leverage and reuse. We work with the Department to determine access needs and define the role-based access for users where needed.

IN159	The solution's technical architecture should enable flexibility and adaptability to respond quickly to changing business needs or regulatory requirements

The Watson Health cloud-based solution is architected to be flexible to meet future expansion needs and adapt to the state's needs to meet regulatory requirements. We work with DHHR to ensure adherence to changing needs and inform the state of altering requirements when updates are needed.

IN160	The solution's underlying technical hardware and software architecture should promote shared use across the enterprise, including, but not limited to
IN161	N-Tier service-oriented architecture (SOA), or multi-tier architecture, with multiple architecture layers enabling complete separation of the data, application, and presentation tiers
IN162	Standards-based interoperability technologies that include Web Service Definition Language (WSDL), Simple Object Access Protocol (SOAP), Extensible Markup Language (XMS), and Java
IN163	Others as defined by the Department

Our solution is built around the principles of an open, standards-based Service-Oriented Architecture (SOA), enabling the state to share access to data across the enterprise. We follow the Center for Medicaid & State Operations (CMSO) initiative for MITA to encourage integrated data transformation across the enterprise and improve Medicaid administration. Using these standards promotes the presence of open interfaces and exposed APIs.

Our solution's technical architecture is scalable, extensible, and modular. The system is SOA based and MITA compliant to facilitate expansion. Because of its modular MITA-aligned design, our solution can

grow over time to meet the evolving needs of the state with minimal impact to the overall solution and other vendor modules.

Web services accommodate data access and sharing from any supported interface (Java, XML, .NET). SOA is employed as appropriate to deliver accessible data using publish and subscribe methods and standard HL7G Web Services Description Language (WSDL), XSD, Java classes, and XML formats.

We maintain adherence in our products and solutions to federally adopted standards, and we invest our corporate research and development resources in keeping our products current with those and other industry standards. This commitment results in tangible value for our clients. Examples include HIPAA; the International Classification of Diseases, Tenth Revision (ICD-10); data and information standards (we are active members of several standards-setting organizations such as the American National Standards Institute, X12 Committee, and the National Committee on Prescription Drug Plan); and technology standards (e.g., XML, SOAP, Online Analytical Processing [OLAP], SQL, Multidimensional Expressions [MDX], Java Database Connectivity [JDBC], Open Database Connectivity [ODBC], Security Assertion Markup Language [SAML], Lightweight Directory Access Protocol [LDAP], and SSL). We continually monitor organizations such as NIST and W3 for changes to technology standards that need to be adopted by our solutions.

IN164	The Vendor should maintain and support data management governance, data security, and data quality to ensure all data received from the Enterprise Data Solution (EDS) Interfaces and Exchanges maintains the data's integrity throughout the Extract, Transform, Load (ETL) process

We believe data governance is the foundation of data quality and analytical integrity. Our approach is to work to understand your data governance policies and procedures and work with your data stewards and liaisons to identify gaps, weaknesses or areas for improvement. We will then apply our approach, disciplines and tooling, making recommendations and defining a roadmap for establishment of an on-going data governance program across the organization.

Our solution is rooted in sound data management practices to ensure users have trust in the data they work with. Our analysts ensure data integrity throughout the WV EDS operations and will work with DHHR to ensure the analytic validity of the reports on an ongoing basis.

We understand the need to validate and standardize the data used for analysis across all systems and agencies sending data to the WV EDS. In order to achieve this, our Data Integration engineers will work closely with the established DHHR Data Governance board/committee to ensure data standards, business rules, and policies are applied prior to the data entering the production database.

The WV EDS will apply ETL edit standards to all data files that enter the WV EDS for processing into the production database. IBM Infosphere DataStage and QualityStage are the data integration and data quality components, respectively, of IBM InfoSphere Information Server (IIS). IIS provides a graphical framework for developing the ETL jobs that move data from source systems to target systems.

Our processes include analytic validity checks that are focused specifically on healthcare quality business rules. Our data quality testing is based on more than 35 years of experience transforming data for use in complex healthcare analytics. While some solutions check quality by simply verifying counts, sums, and looking for blanks, our data quality checks utilize over 350 rules, such as the validation of codes against your healthcare reference data, to provide an analytically ready set of data.

All data received into the WV EDS system are recorded and tracked from the data acquisition step including data transmission events, to staging, during the ETL process to final load to the target database. Watson Health Operations staff monitor all data streams ensuring complete and accurate data processing. From data acquisition to ETL, and then finally to destination, data quality checks verify that data received is as expected, complete, and accurate.

IN165	The Vendor should ensure the data received from the Enterprise Data Solution (EDS) Interfaces and Exchanges is consistent with the Physical Data Model and Data Dictionary

The data received from the EDS interfaces and exchanges will have consistency with the Physical Data Model and Data Dictionary.

IN166	The Vendor should be prepared to assist the Department with discussions as they pertain to data management, data governance, and/or data sharing

Data management and data sharing will be provided through the WV EDS data store and by providing the data needed to support the analytics. This includes promoting, for example, data standardization, standards-based interoperability, data privacy and security, and data governance. Through this layer, data is shared with those authorized to view it.

During design, development and implementation (DDI), we work with DHHR to assist with any discussions in relation to data management, data governance, and data sharing.

Security Management

SM001	The solution should have security controls, safeguards, and alerts to prevent, monitor, and detect potential and actual violations in accordance with Department, State, and federal security and privacy laws, policies, and/or procedures

At Watson Health, we focus on securing the data our clients entrust to us for safekeeping, and we routinely check and improve our processes and measures. Physical and logical protections rigorously control who has access to data in the solution. Our WV EDS has strong security controls, safeguards, and alerts to prevent, monitor, and detect potential and actual violations. Using controls such as authentication, authorization, encryption, and role-based access control (RBAC), Watson Health intends to meet or exceed compliance with policies and laws for data security. Our combination of administrative, physical and technical controls prevent inappropriate access to the data residing in the WV EDS, because they currently protect the data residing in the DSS we provide to West Virginia.

We will operate the WV EDS in accordance with Department, state, and federal security and privacy laws, policies, and/or procedures, as we currently do with the DSS solution we provide to West Virginia. Watson Health's privacy and security policies are founded on the Health Insurance Portability and Accountability Act (HIPAA) Privacy and Security Rule requirements. We are a Business Associate to our Covered Entity clients and are regulated as such by the HIPAA Privacy and Security Rules. We fully comply with all HIPAA and Health Information Technology for Economic and Clinical Health (HITECH) requirements.

Watson Health follows the security framework recommended by the National Institute of Standards and Technology (NIST). Specifically, NIST Special Publication 800-53 Revision 4 recommends the security and privacy controls that should be in place for the protection and safeguarding of systems and information. NIST also is the underlining source of requirements for the Federal Information Security Management Act (FISMA) followed by federal and state agencies. Our policies and controls are aligned with NIST and FISMA requirements.

Dedicated Security Staff

Our Chief Information Security Officer (CISO), Corporate Security Officer (CSO), and Security Management team are responsible for making sure that our systems maintain compliance with HIPAA and NIST 800-53 rev4 standards. They have the authority to enforce the company's security policies and procedures. The Watson Health Data Security Governance Committee, consisting of representatives from various company segments and functions, reviews and approves company policies and procedures on an annual basis, or more frequently at the discretion of the CISO and CSO.

A "Defense in Depth" Security Strategy

Watson Health uses a Defense in Depth Strategy with multiple layers of security to protect against unauthorized access to systems and data. Security controls are documented in the Security, Privacy, and Confidentiality Plan (SPCP) that we submit for DHHR approval, which includes subject areas such as laws and regulations (HIPAA, HITECH, NIST, Federal Information Processing Standards [FIPS], state and departmental policies), roles and responsibilities, system description, and detailed descriptions of implemented security controls, including those for specific West Virginia policies, typically structured from the NIST SP 800-53 rev4 framework. Our SPCP covers all environments from development through production.

We use third-party intrusion protection services (IPS) to monitor traffic both in and out of our network perimeter 24 hours per day, 7 days per week. We protect our network using redundant Checkpoint Firewalls and establish network segmentation to securely isolate functional systems (e.g., web servers, application servers, database services), as well as our internal network. Advanced malware and antivirus protection services also provide constant surveillance within our systems, blocking potential threats and unauthorized access attempts and notifying our administrators.

Standard database security protects data when accessed through the DBMS. All data are protected by encryption both in transit and at rest using, as required by Department, state, and federal regulations, federal standard FIPS 140-2 compliant cryptography. At rest, data are encrypted in all staging and storage locations. In addition, data in databases are encrypted at the tablespace level. For traffic traversing external networks, including the internet and other networks outside of the internal network, we use secure transport protocols that include SSH File Transfer Protocol (SFTP) and HyperText Transfer Protocol Secure (HTTPS). For data traversing internally, we encrypt network connections to the database. Our Extract, Transform, Load (ETL) solution supports encryption to protect the security of data throughout the ETL data stream. For transmitting data extracts, we have written procedures and controls in place, so the data are protected and transmitted securely. We track all disclosures of protected health information (PHI) and personally identifiable information (PII).

System security design is presented to the Watson Health Security Review Board (SRB) to validate the EDS as designed meets all our company's security and privacy policies and procedures. Once the design is approved by the SRB, it is passed to the Watson Health CISO for final approval before beginning development. Before "go-live," the system again is presented as built to the SRB for final review. This review cycle includes results from a third-party system penetration test and again is presented to our CISO for review. Only after final CISO approval is the system internally cleared for production. After go-live, any changes to the system that include a change to security risk requires review by the SRB and approval from the CISO. Even if no changes occur, an annual SRB review and CISO approval with a third-party system penetration test is required.

Figure 66. The Watson Health "Defense in Depth" Strategy. *Our comprehensive layers of security protections secure the Department's data at multiple levels.*



In addition, Watson Health engages a third party to perform annual advanced penetration test on the network perimeters of our data centers. Vulnerabilities are captured, categorized, evaluated, and remediated on the basis of the risk exposure. The data centers are retested after 90 days to verify any vulnerabilities are remediated. Reports from security testing are available to DHHR on request.

Risk and Security Assessments

By continually assessing risk, we can identify and mitigate any potential security issues. Watson Health conducts regular risk assessments of the critical applications, servers, networks, and operational processes connected to the flow of confidential healthcare information. Our security assessments identify threats and vulnerabilities that could affect the availability, confidentiality, and integrity of the data and information systems.

SM002	The Vendor should deliver a Security, Privacy, and Confidentiality Plan within 30 calendar days of contract startup

Watson Health routinely develops a tailored SPCP for our state healthcare clients, specific to the solution and services we provide. We did so for the DSS and propose to do the same for the WV EDS, delivering a template within 30 calendar days of contract startup.

SM003	The Vendor should submit an updated Security, Privacy, and Confidentiality Plan to the Department for review and approval 30 business days prior to the start of solution operations

When the SPCP is updated, Watson Health submits it to the Department for review and approval 30 business days before the start of WV EDS operations.

SM004	The Vendor should perform a review of the Security, Privacy, and Confidentiality Plan annually and submit to the Department for review and approval within 30 calendar days of the review

We recognize and understand the importance of continual updates to the SPCP and other system documentation. After we receive the Department's initial sign-off, we review the Plan annually and submit it for your review and approval within 30 calendar days of completing the annual review.

SM005	The Vendor should submit substantive change(s) to the Security, Privacy, and Confidentiality Plan for review and approval within 30 calendar days of the proposed change(s)

When a change is made to the WV EDS that includes a substantive change in security risk, Watson Health updates the SPCP and submits it for Department review and approval within 30 calendar days of the proposed change(s). Changes to the WV EDS system follow our configuration management process that includes internal risk assessment and approvals.

SM006	The Vendor should maintain a Department-approved Security, Privacy, and Confidentiality Plan that details how the solution complies with applicable Department, State, and federal security and privacy laws, policies, and/or procedures

The SPCP we submit for Department approval before the start of Operations will detail various aspects of security controls and permissions as they relate to the WV EDS environment, software, reports, dashboards, and other core components, including security controls, security assessments, and risk assessments. During joint application design sessions, we review and document the security policies for each system program and component.

In addition to encompassing Department, state, and federal security policies, standards, security initiatives, and regulations, the SPCP addresses processes and/or data collection activities such as—

- Privacy Impact Analysis, which identifies the data elements of the system that expose West Virginia members to potential privacy threats and the system controls in place to mitigate private data disclosure risks
- A security event notification process, event evaluation and escalation procedures, and security event response procedures
- A complete network diagram showing servers, firewalls, intrusion prevention systems, network security device internet connections, and any other network connected device
- A detailed plan for system log collection and monitoring
- An antivirus deployment/maintenance plan
- A software maintenance plan, including operating system and third-party software updates
- Procedures to limit access to information to those individuals who need such information for the performance of their job functions and ensuring that those individuals have access to only the information that is the minimum necessary for the performance of their job functions
- A description of implemented physical controls using appropriate devices and methods (alarm systems, locked files, guards, or other devices reasonably expected to prevent loss or unauthorized access to data)
- A description of the steps taken to prevent unauthorized password use
- A description of access logs, badges, or other methods designed to prevent loss of or unauthorized access to electronically or mechanically held data

SM007	The solution should maintain an audit trail that can be used to identify unauthorized attempts to access the solution and log the IP address from where the intrusion attempt occurred, in accordance with Department, State, and federal security and privacy laws, policies, and/or procedures

We use third-party, real-time IPS to monitor traffic both in and out of our network perimeter 24 hours per day, 7 days per week. We protect our network using redundant Checkpoint Firewalls and establish network segmentation to securely isolate functional systems (e.g., web servers, application servers, database services), as well as our internal network. Advanced malware and antivirus protection services

also provide constant surveillance within our systems, blocking potential threats and unauthorized access attempts and notifying our administrators. We generate alerts and notifications according to defined parameters and rule sets. We collect information from remote nodes and send them to a central server for reporting and forensic purposes, among others. Among the many attributes collected in the logs are IP addresses, date and time stamps, and other event details.

We use Splunk Enterprise Security to perform centralized audit logging and Security Information and Event Management (SIEM) services. Daily reports provide ongoing reviews of systems activity. Example reports include failed logins and privileged user monitoring. We use database monitoring solutions as well, capturing all user data access events. Logs can include identifying individual user logins, failed logins, and data that were accessed.

SM008	The solution should provide an audit of all attempts to access or use sensitive data, consistent with Health Insurance Portability and Accountability Act (HIPAA), Centers for Medicare & Medicaid Services (CMS), and other Department, State, and federal laws and regulations

Quickly identifying an abnormal change to data enables a faster response to mitigate any negative impact such as a security breach, data corruption, or misuse of information. Consistent with HIPAA, CMS, Department, state, and federal laws and regulations, Watson Health uses a combination of system event logs, application logs, and database audit logs to track system activity at a specific process or individual user level, including data usage anomalies and users who may have misused the system.

Using standard application configuration tools, we monitor and check for conditions that violate security rules. For incident reporting and mitigation, we capture system-level and user-level events in our SIEM tool, Splunk Enterprise Security. Daily reports that identify unauthorized or malicious behavior are reviewed for follow-up, including monitoring of failed logins and usage of privileged user accounts. We share these reports with the Department.

ePHI and other sensitive data will be not only protected from unauthorized use but also audited throughout its existence in the WV EDS. From the moment they are received via data acquisition to their destination in the data warehouse, and finally outbound to external recipients, all data access and system events are logged and stored, providing a complete historical audit record of all access and activities. No Watson Health staff are empowered to override system security alerts and edits unless they have been authorized by DHHR to do so.

SM009	The solution should have the ability to prevent, monitor, and detect malicious software and code

The WV EDS prevents, monitors, and detects malicious software and code through IPS, advanced malware, and antivirus protections that are part of Watson Health's overall security system. We have installed multiple detection points at various locations within our networks and conduct industry standard security testing such as external penetration and application security testing. On an annual basis, from operational go-live, we engage a third-party firm to perform a risk assessment, which includes network penetration testing. Our security practices are audited annually for compliance as well; our staff and technology pass the tests, year after year.

Real-time IPS are part of the Watson Health overall security system partnering with SecureWorks, a third-party vendor in the "Leaders" quadrant of the Gartner Magic Quadrant for Managed Security Services, provides around-the-clock IPS protection, correlating network traffic events and identifying potential threats.

Alerts and notifications are generated according to defined parameters and rule sets. We collect information from remote nodes and send them to a central server for reporting and forensic purposes, among others. Any event that is detected as suspicious is analyzed and classified. Depending on the severity, our Security Operation Incident Response staff are notified either by email or phone.

We use FireEye devices to monitor network traffic 24/7 and block our network from malware threats. FireEye devices are positioned at the network egress points of our data centers to detect suspicious activity.

Trend Micro Deep Security provides antivirus protection to servers. It automatically retrieves daily signature updates, immediately scans new files when placed on a server, and performs complete server scans every Friday. We install and actively use comprehensive commercial off the shelf (COTS) antivirus protection software on servers installed to operate the Watson Health FL Education Data Warehouse and routinely update this software when we release updates.

Defined parameters and rule sets generate alerts and notifications. System logs and events are sent to Splunk Enterprise Security, our SIEM solution, deployed on dedicated and separate servers. Our Security Operations team manages the security infrastructure, monitoring, and response to detected events.

We use Veracode to perform static and dynamic Application Security Testing on our proprietary code. As part of this testing, our applications are scanned to identify vulnerabilities, including those identified by the Open Web Application Security Project Top 10, a regularly updated report outlining security concerns for web application security, focusing on the 10 most critical risks. If any vulnerabilities are identified, the Watson Health Security Management team works with Product Management and Development to remediate them, as part of the Software Development Life Cycle (SDLC).

Using Nessus Security Center, we perform weekly vulnerability scans on all external-facing servers and monthly scans on all internal-facing servers. The Watson Health Security Management team owns any report results that identify any specific patches or other corrective actions. To remediate vulnerabilities, this team distributes the report results to groups with responsibility for maintaining different parts of our infrastructure.

We engage a third-party firm to perform network penetration testing. Similar to the vulnerability scanning, penetration vulnerabilities are captured, categorized, evaluated, and remediated in a timely manner, on the basis of risk exposure (critical, high, medium, etc.). Vulnerabilities are remediated within 90 days of the initial scan after which a rescan is performed to validate resolution. Remediation of any issues related to the WV EDS are coordinated with the Department.

SM010	The solution should have the ability to provide security incident reporting and mitigation mechanisms according to State and federal requirements and in accordance with the Department's Incident Reporting and Response Policy including, but not limited to:
SM011	Terminating access and generating a report when a potential security violation is detected
SM012	Preserving and reporting specified audit data when a potential security violation is detected
SM013	Others as defined by the Department

In accordance with state and federal requirements and the Department's Incident Reporting and Response Policy, Watson Health captures system-level and user-level events in central audit logging systems and retains the log data in compliance with DHHR requirements. Real-time alerts and daily reports are generated on the basis of predefined reports and suspicious activity. If we detect a potential security violation, we immediately engage our Cyber Security Incident Response Team in accordance with the Watson Health Cyber Security Incident Response Plan. Analysis of forensic data supported by audit logs may result in immediate termination of access to mitigate further risk. Upon confirmation of a security violation, we immediately notify the DHHR followed by a formal report including root cause analysis and remediation. All audit logs are preserved and secured for future reference and analysis.

SM014	The Vendor should ensure that any and all security and privacy breaches, incidents, and/or unauthorized disclosures are reported according, to State and federal requirements and in accordance with the Department's Incident Reporting and Response Policy

At Watson Health, we define a "data security incident" as any accidental or intentional release of client data that violates our Data Privacy, Security, and Confidentiality Policies and Procedures and/or applicable state or federal laws.

We follow a documented incident management process, which contains an escalation and notification process to be followed when an incident related to the infrastructure occurs. Our process lays out the rules of engagement between several groups that may be involved in responding to an incident. We track incidents using our incident tracking system, which categorizes incidents by four levels: Urgent; High; Medium; and Low. We create incident reports explaining the nature of the incident, the impact on the business, remedial actions, and so on. We share these reports with key stakeholders from both the technology and business teams.

The backbone of our security compromise identification process is our staff. Our entire organization is retrained and recertified annually on HIPAA and our related confidentiality and security practices and policies. Additionally, we have Local Security Managers (LSMs) throughout the organization who are specially trained to recognize incidents and act as resources for staff. Should an incident occur, it is the job of the employee or LSM to forward the incident to our CISO to determine whether a breach has occurred. If a breach has occurred, our CISO oversees all necessary communication.

We align our notification process with DHHR's Incident Reporting and Response Policy. In general, alerts from third-party security firm or internal alerts are generated and directed to Security Management. Our CISO is then notified and is in charge of and responsible for the incident investigation and response. Alternatively, the suspected security alert notification may be provided by an employee who notifies his or her manager or LSM, who in turn immediately notifies the CISO. The CISO then handles the internal business and appropriate customer notifications, as required by law or contractual agreement.

As part of the CISO's investigation, we may perform one or more of the following actions:

- Immediately interrupt access to the affected application, server, or network
- Notify the incident management team(s), along with authorities as appropriate, and implement emergency response procedures
- Save forensic information and use it as needed
- Direct users to other resources, warm-site backup, or an alternate production server

Notifications to DHHR about a security-related event go out from our Product Support department to the Client Leader or Analytic Manager responsible for your account. That person then notifies you. Specific time frames and liability related to security incidents, including reportable breaches of PHI, are defined within the services agreement.

SM015	The solution should have the ability to log all authorized solution user activity and correlate, analyze, and report on all logged user events and associated data

We use a combination of system event logs (e.g., Microsoft® Windows® events), application logs (e.g., high-level user experience tracking; detailed user audit activity logs), and database audit logs (e.g., detail user audit activity logs) to log authorized user activity. All logs track system activity to a specific user with attributes to determine who accessed what data and when.

SM016	The solution should have the ability to provide a report of authorized solution user activity as determined by the Department in the Design, Development, and Implementation (DDI) phase

During Design, Development, and Implementation (DDI), Watson Health works with DHHR to develop a matrix of functional user groups and security roles that control access to applications and data. These controls are governed by the "need to know" and "minimum necessary" principles required by law.

We perform reviews of user access to the WV EDS quarterly, or as frequently as DHHR requires, and review privileged access monthly. Privileged system accounts are limited to the system administrators who are required to have the elevated access as part of their job function. Other authorized privileged users include installation consultants and database administrators (DBAs).

System administration/privileged user activity logs (e.g., root or accounts with *su* or *sudo* access) are reviewed daily, and other user activity logs are reviewed monthly. The Watson Health Account Team participates in these regular access reviews and coordinate with the Department to produce monthly reports on user access, especially regarding any deactivated accounts, so that access by all users is appropriate and current. These reports are maintained per HIPAA requirements.

SM017	The solution should provide an audit trail of record changes, including authorized solution user, date, and time of change

We perform audit logging at the system, database, and application levels. Security and system event logs are sent to a central audit logging solution. Alerts and logs are generated and used for reporting of data access related events including all user queries. Audit logging captures activity by users connecting to the WV EDS database and reporting solution, including access to PHI or other protected fields. Database audit logs not only capture information on the connecting user, date and time, but also the object being accessed and SQL activity. The logs can identify individual user logins, failed logins, fields accessed, data obtained, and changes to records and other objects.

SM018	The solution should have the ability for audit trails to allow information on source documents to be traced through the processing stages to the point where the information is finally recorded

All data received into the WV EDS system are recorded and tracked from the data acquisition step including data transmission events, to staging, during the ETL process to final load to the target database. Watson Health Operations staff monitor all data streams ensuring complete and accurate data processing.

SM019	The solution should have the ability to trace data from the final place of recording back to its source of entry

Watson Health's data processing includes audit data attributes that provide a record of lineage of data in the target database back to the point of origin during data acquisition.

SM020	The solution should continuously monitor, authorize, document, and allow access only through controlled interfaces for all connections originating from outside the security boundary of the system in accordance with Department, State, and federal security and privacy laws, policies, and/or procedures

All data received into the WV EDS system are restricted to only data exchange interfaces that have been developed, tested, and formally implemented. The system boundary is protected from any non-established access point.

SM021	The solution should ensure remote connection is performed using multi-factor authentication in accordance with Department, State, and federal security and privacy laws, policies, and/or procedures

Watson Health provides a single online portal to all the available applications within the WV EDS. Users must access the system with their unique account and password, along with a unique two-factor code to validate their identity. Our solution validates location and authorized role before granting a user access to any WV EDS assets. Password settings, including their complexity, expiration, passwords remembered, failed login limits, session timeouts, and password changes all are managed by our central identity and access management solution. We will provide single sign-on access to all WV EDS web-based tools (e.g., Infosphere, Cognos, ArcGIS, ICP for Data).

Users who do not supply a proper user ID and password combination or who provide an invalid two-factor token combination are redirected back to the login page. The authentication mechanism leverages the default settings of the Active Directory in terms of user ID lock-out, expiration, and so forth, and it accepts the ID domain format as a valid method of identification.

SM022	The solution should limit data sharing to only those entities and individuals located in the United States and/or U.S. territories that maintain a current data sharing agreement with the Department consistent with Department-required agreements and security and privacy policies and procedures

We provide data management, analytic, development, and other support/services at our Ann Arbor, Michigan, and other designated Watson Health locations in the United States. For all services and functions, we receive and house client data at our U.S. data center. Your data will not be physically transmitted to or stored on servers located outside of the United States. Before any external data exchange, both inbound and outbound, Watson Health verifies that Data Use Agreements are in place.

SM023	The solution should have the ability to control access rights to data and system functions based on authorized solution user role-based access

The web-based components of the WV EDS use RBACs. Data are accessible based on implementation of the Department's security policies and procedures and role assignments. We have the ability to restrict access via various levels of security within the WV EDS applications. These levels can be defined as granular as your requirements dictate. Entire areas of the database can be restricted to specific groups based on function (e.g., financial data, drug rebate data). Column-level security masks PHI, obscuring those fields from view for users that do not need to see them, providing "minimum necessary" access. Row-level security can be applied to restrict access to records that are deemed sensitive (e.g., behavioral health, substance abuse).

Once successfully authenticated, users are granted access to application components, system files, and data defined by their assigned security profile. The profile includes granular security roles for all levels of access.

SM024	The Vendor should work with the Department to define the process for access to the solution in the Design, Development, and Implementation (DDI) phase

Working with DHHR during DDI, Watson Health defines the user profiles, roles, groups, and positional levels that control access to the WV EDS. We use these security profiles, in conjunction with the downstream application and systems configuration, to restrict access to the WV EDS data and applications. This information is captured in the SPCP. We train DHHR on the process to request new user access, the provisioning process (e.g., identifying the appropriate roles, profiles, and access controls), and gaining final approval of user access.

Watson Health maintains a list of authorized users and their security profiles, updating it as new users are added or existing users are terminated. All requests for granting new, modifying, or removing user access are tracked within our Product Support Portal. All actions taken during the provisioning/deprovisioning process are captured and can be viewed in real time by authorized personnel via our Product Support Portal.

The Watson Health Account Manager or the IBM Security and Compliance Manager must approve all requests for new user account prior to the account creation. Once approved, Product Support creates the user's account and initial credentials (user ID and temporary initial password. The system administrator then assigns the account to the appropriate role-based security view(s)/group(s). The user ID and associated password are then synced to Active Directory. Terminated user accounts are disabled or deleted from the system; accounts are disabled by default rather than deleted.

SM025	The solution should support role-based user access

All security within the WV EDS relies on role-based authorization, and group membership is tracked via our governance processes. Watson Health proposes to work with DHHR to define the access roles and associated privileges needed by WV EDS users to perform their analytic work. This role-based security is applied in every environment, keeping your data secure while providing users with the information they need.

Additionally, column- and row-level restrictions can be applied regardless of which application is being used. This type of security is at the lowest level within the EDS and gives users "minimum necessary" access so they only see and work with the data they need.

SM026	The solution should provide an interactive, adjustable time-out feature for authorized solution user inactivity in accordance with Department, State, and federal security and privacy laws, policies, and/or procedures

The WV EDS solution is based on COTS software and is configurable to implement session timeouts due to user inactivity requiring reauthentication. The timeout periods are determined by business needs and comply with Department, State, and federal security and privacy laws, policies, and/or procedures.

SM027	The solution should provide alerts to authorized solution users that inactivity will result in being timed out after the specified period of inactivity in accordance with Department, State, and federal security and privacy laws, policies, and/or procedures

The IBM Cloud Identity single sign on solution bridges the Departments on-premise Identity and Access management solution to Watson Health applications, services, and data centers via the cloud. The solution provides a notification to the end users that their session has expired.

SM028	The solution should have the ability to enforce password policies for length, character requirements, and required updates in accordance with Department, State, and federal security and privacy laws, policies, and/or procedures

Password policy enforcement (minimum length, complexity/composition, and expiration) is incorporated and enforced in association with the Web Portal architecture and integration with the Web Portal Microsoft Active Directory. Passwords must conform to the following strong formatting requirements:

- Passwords must be at least 15 characters long.
- Passwords must be different from the user ID.

Passwords must contain characters from three of these classes:

- English upper case letters (e.g., A, B, C, … Z)
- English lower case letters (e.g., a, b, c, … z)
- Numbers (e.g., 0, 1, 2, …9)
- Special characters (e.g., ~, @, #, $, %, ^, &, *)
- No more than two characters may be repeated sequentially

SM029	The solution should store passwords in encrypted form in accordance with Department, State, and federal security and privacy laws, policies, and/or procedures

All passwords are transmitted and stored in encrypted form and are masked from view during user entry during authentication. At no time are passwords available or presented in clear text within the WV EDS system.

SM030	The solution should permit system administrators to reset authorized solution user passwords

Only Watson Health administrators and Product Support staff are authorized to reset system and user passwords.

SM031	The solution should allow authorized solution users to reset their own passwords at any time by following system-defined standards in accordance with Department, State, and federal security and privacy laws, policies, and/or procedures

The Watson Health Product Support team issues new passwords to users who need a password reset. They maintain records of the following user information, which they use to verify the identity of the individual requesting a new password from them: full name, account name, corporate email address, corporate phone number. If desired, additional challenge question and responses can be verified.

When our Product Support team receives a request for a password reset, they first verify the caller's identity. Once verified, Product Support assigns a temporary password and emails it to the user at the user's corporate email account or calls the user at the phone number on record. The User ID associated with the password is never included in the email or phone call. When the user logs on to the system with the temporary password, it must be changed as part of the login process. Passwords must conform to our strong formatting requirements.

Password self-resets are available to authorized users within the WV EDS web portal after account initialization and configuration of security questions.

SM032	The solution should permit authorized solution users to set and modify user security access profiles

Watson Health will work with DHHR to define the identity management processes for users accessing the WV EDS, including the ability to permit supervisors or other designated officials to set and modify user security access profiles. Our standard process for creating and updating profiles is described in SM024.

SM033	The solution should have the ability to supply authorized data sets to authorized solution users

Data extracts from the EDS or data marts are de-identified to protect sensitive, private information by masking them in flight to meet HIPAA Safe Harbor criteria. Outbound data extracts and reports destined for external parties must be authorized by DHHR and are implemented in production only after testing and sign-off. Once authorized by DHHR, data will be transmitted only by secure transport (SFTP or HTTPS).

SM034	The solution should have the ability to provide an audit log that identifies amendments to the designated record set for an authorized solution user

Watson Health records and collects all access and activity to the database and elements. Any creation, modification or deletion of data, including a designated record set is audited and retained for reference.

SM035	The solution should have the ability to store audit logs of authorized solution user activity in a location determined by the Department in the Design, Development, and Implementation (DDI) phase

All audit logs related to the WV EDS system are retained and stored in secure locations accessible by only authorized administrator and security staff. Watson Health will collaborate with the Department to deliver reports to location(s) determined by the Department. The reports can be security related (e.g., failed login attempts) or related to system utilization listing user activity.

SM036	The solution should establish responsibilities and procedures for remote use in compliance with Department security policy

Watson Health implements controls restricting remote access to systems it hosts and manages and will work with DHHR to implement responsibilities and procedures for remote use to comply with Department policies.

SM037	The solution should block pop-ups, spam, advertisements, and malware

The WV EDS system is based on COTS software whose web tier components restrict the user interface to only functionality required by the application. There will be no spam or advertisements presented to users. Watson Health implements advanced malware and anti-virus protections throughout the system.

SM038	The solution should have the ability to remove or disable systems, services, components, and modules as defined by the Department.

Watson Health maintains infrastructure, platform and application administrative teams that will build, deploy and manage the WV EDS system and components. Systems, services, components, and modules will be disabled upon direction from the Department.

SM039	The solution should have secure transmission and data integrity controls to detect improper modification of transmitted information

Personally identifiable data in the WV EDS will be accessed, transmitted, and transported using secure transport protocols that encrypt and confirm complete unaltered exchanges. We offer various methods of securely disseminating data:

- SFTP for established interfaces with data sources and recipients.
- HTTPS for all web interfaces
- Voltage Secure Email to exchange small data files between authorized system users or our staff.

SM040	The solution should use Secure Sockets Layer (SSL) certificates that are consistent with State and federal requirements for data in transit

We enable authorized system users and Watson Health staff to securely access to system applications, reports, and dashboards via workstations, smart phones, tablets, and mobile operating systems. Users access the WV EDS through a Secure Sockets Layer (SSL)-encrypted session over the internet. Sessions initiate from a browser and terminate on a server in our network. We secure all data using HIPAA-approved 128-bit encryption. You must configure your firewall to allow outbound SSL traffic (using port 443) to our website URLs hosted at our data center.

SM041	The solution should have the ability to restrict release of sensitive data

The WV EDS system implements the ability to restrict release of sensitive data only to those explicitly authorized by the department. The system includes the ability to deidentify reports and extract either by HIPAA Safe Harbor or data aggregation.

SM042	The solution should support data integrity by preventing and detecting unauthorized alteration or destruction.

From when data enter the WD EDS system boundary to when they leaves, all access is strictly controlled to only authorized users and processing. Techniques including encryption, RBAC, and auditing protect WV EDS data and systems from unauthorized alteration.

SM043	The Vendor should maintain procedures that ensure all emergency and non-emergency production system changes follow a Department-approved change control process, including a risk analysis

We propose to work with DHHR to obtain your approval of our process for system changes. To effectively manage configuration/systems changes, Watson Health follows a configuration management process that is monitored to protect system and data integrity. All changes to production systems, including configuration, software upgrades, and patches require documented Change Request Tickets (CHG) using our ServiceNow solution.

The CHG ticket involves implementation plans, verification, and rollback tasks that are documented within the ticket. All CHG tickets require approvals from the business, technology, and security teams before peer review in Change Advisory Board (CAB) meetings, which occur twice weekly. Watson Health Security Management analyzes changes to the information system to assess risk and determines potential security impacts before change implementation. Changes are implemented when all CHG approvals are granted and clearance from CAB is received.

SM044	The solution should support record. database, table, and field-level access

All WV EDS system users are provided "minimum necessary" access to applications and data as their role(s) dictate. The role-based access is extended to both current and historic data within the database. All access to data including access by users, ETL processes, and applications first are authenticated with, at a minimum, an identifier and password within our Microsoft Active Directory (AD). Security group and role attributes are stored in the AD and, in the case of a user, passed to the BI tool for application level access control.

Comprehensive RBAC is implemented to ensure that only those with proper authorization have access to sensitive data or to the descriptive information about sensitive data. When accessing data in the EDS, security views are applied that are associated with the user's role. Security views can be as granular as required. At the column level, sensitive data can be masked completely from view and can be paired with a hashed value where necessary. Row-level security can restrict records returned on the basis of any number of criteria (e.g., substance abuse). Access to entire areas of the database (tables, schemas, etc.) can be restricted to specified user groups.

SM045	The solution should support secure file and folder access

The WV-EDS will enable the storage and recovery of reports on the basis of user credentials via role-based security settings. We propose to work with DHHR to define user profiles, roles, groups, and positions to restrict access to the EDS databases and applications based on a user's job function. Access can be granted at various levels. For example, multiple groups can be added to a single folder, allowing wider access for reports and data shared across the Medicaid Enterprise. Alternatively, if a group needs only to be able to view reports but not to edit them, they can be granted read-only access.

Access permissions are applied regardless of how users access the system, whether through a web browser from their desktop or from a mobile device. WV EDS provides a solid mix of security and flexibility so that authorized users can access the data they need, when they need it.

SM046	The solution should support workforce privacy and security awareness through such methods as security reminders, training reminders, online training capabilities, and/or training tracking

The Watson Health CISO conducts annual privacy and security awareness training as required by the HIPAA Security Rule. This training reinforces employee and contractor responsibilities for protecting confidential data and informs them of any new policies, regulations, or threats to information security. It is updated every year. All employees and contractors are required to attend security awareness training annually, as well as an additional session on hiring. All employees also are required to reaffirm receipt and understanding of the Business Conduct Guidelines annually. Records of completion are maintained.

All IBM employees are required to complete Cybersecurity & Privacy training on an annual basis. This is completed through the IBM online learning portal and progress and completion status are tracked by the

global CISO security education team and by local and functional managers, to ensure course completion by all employees and contractors. This course educates employees and contractors on the latest cybersecurity threats and emphasizes the critical role that individuals play in protecting themselves, their network of friends and family, IBM, and IBM's clients from these threats. The scope of this course also addresses IBM's information privacy guidelines and programs.

SM047	The Vendor should collaborate with the Department to determine a security approach that integrates with other solution components to supply role-based single-sign-on access

Controlling access to DHHR data is a cornerstone of Watson Health's enterprise security approach, because it is imperative for you to know what information users can access. Sound enterprise security access management practices are included in all architecture decisions, including that of Single Sign-On (SSO) access.

To this end, the WV EDS uses the IBM Cloud Identity-as-a-Service offering, IBM Cloud Identity. This offering enables DHHR to adapt to the current cloud computing era and future-proof your Identity Access Management (IAM) programs against the next generation of innovations. IBM Cloud Identity supports users' need for seamless access to applications, DHHR leaders' need for security, and IT requirements to rapidly respond to changes. It is a comprehensive platform of IAM capabilities for SSO, multifactor authentication, and identity governance.

Using any of a variety of supported web browsers, DHHR users connect to the Cloud Identity Portal. The Portal, acting as a Service Provider, requests a Security Assertion Markup Language (SAML) token. This request returns through the user's web browser, authenticates to the Department's ADFS server and returns a SAML token to the Portal. Once authenticated, applications are presented on the basis of each user's role within ADFS. We work with the ADFS administrators to determine the correct user role access. The tool's SSO capabilities include the following:

- Thousands of pre-built connectors to federate to popular software as a service (SaaS) applications
- Pre-built templates to help integrate legacy and on-premises applications
- Employee-facing launchpads to access any application
- A seamless user experience to access any application with one username and password
- A cloud directory for organizations that do not already have a user directory
- The ability to sync on-premises directories such as Microsoft AD for use with cloud applications
- Support for multiple federation standards, including SAML, OAuth, and OpenID Connect (OIDC)

SM048	The solution should have the ability to provide authorized solution users access to view and audit records of changes to free-form text data fields by capturing information including, but not limited to
SM049	The name of the authorized solution user who updated a field
SM050	The date and time a field was updated
SM051	Others defined by the Department

As described in SM017, Watson Health collects audit logging at the system, database, and application levels. Security and system event logs are sent to a central audit logging solution. Audit logging will capture activity by users connecting to the WV EDS database and reporting solution, including access to PHI or other protected fields. Database audit logs not only capture information on the connecting user, date and time but also the object being accessed and SQL activity including free-form text data fields.

SM052	The solution should have data encryption standards in accordance with Department, State, and federal security and privacy laws, policies, and/or procedures

Watson Health uses encryption standards that align with Department, state, and federal security and privacy policies and regulations. We protect all data by encryption both at rest and in transit.

- At rest, data is encrypted using FIPS 140-2 compliant cryptography in all staging and storage and database areas,
- In transit, data traversing external networks uses secure transport protocols that include SFTP and HTTPS, again using FIPS 140-2 compliant cryptography.

SM053	The Vendor should provide documentation on how the solution governs the confidential nature of information about applicants and members, including the legal sanctions that can be provided, to the State, applicants, members, and other persons and agencies to whom information is disclosed

The SPCP includes sections describing the regulations and policies that govern the handling and use of confidential information. Assertions of codes of conduct and rules of behavior are stated within the SPCP along with sanctions for noncompliance.

SM054	The Vendor should be prepared to demonstrate how the solution of interest supports regulations governing the safeguard of information about applicants and beneficiaries including, but not limited to
SM055	Names
SM056	Addresses
SM057	Medical services provided
SM058	Social and economic conditions or circumstances
SM059	Agency evaluation of personal information
SM060	Medical data, including diagnosis and past history of disease or disability
SM061	Any information received for verifying income eligibility and amount of medical assistance payments
SM062	Any information received in connection with the identification of legally liable third party resources
SM063	Others as defined by the Department, State, and federal security and privacy policies
SM064	Others as defined by the Department

Watson Health's implementation of the WV EDS will define in the SPCP, third-party audits and security assessments, the safeguards implemented to protect confidential information about applicants and beneficiaries, including PII, PHI, and other data elements defined by the Department.

SM065	The Vendor should be prepared to demonstrate that the solution supports safeguarding income information that is received from the Social Security Administration (SSA) or the Internal Revenue Service (IRS)

Watson Health proposes to support any assessment requirements related to data received from the Social Security Administration or the Internal Revenue Service.

SM066	The solution should disable accounts after three consecutive invalid log in attempts and protect against further user authentication attempts using a Department approved lock-out mechanism

If a user attempts to log in to an account and fails three consecutive times to provide the correct password, the account for that username is locked for a certain period of time. This lockout period helps prevent

unauthorized users from accessing the system by repeatedly guessing passwords. Watson Health will obtain DHHR approval of our lock-out mechanism.

Assumptions

Table 37. Attachment H Assumptions

Assumptions
The IES vendor will provide an MDM solution. Our WV EDS will receive the Master Client Index (MCI) and Master Provider Index (MPI) keys from this IES vendor's Master Data Management (MDM) solution and use them to establish a single "golden record" in the WV EDS.
New data source interfaces and changes to existing data source interfaces will be handled via the WV EDS Change Management process.
New structural changes to source data are handled via the WV EDS Change Management process.
New data sources are accommodated via change requests as defined by our WV EDS Change Management process and are integrated into the documentation as they are integrated into the solution.
New database environments will be handled via our WV EDS Change Management process.
Other export formats may be accommodated as appropriate per discussions with DHHR and as approved via Change Requests (CR's) as defined by our WV EDS Change Management process.
We will evaluate new date-sensitive dimensions and whether they qualify to be designed as Slowly Changing Dimensions (SCD's) as directed and approved via Change Requests (CR) as defined by our WV EDS Change Management process.
Engagements to evaluate and develop rate calculations will be pursued as directed and approved via Change Requests (CR) as defined by our WV EDS Change Management process.
Compliance with **SLA 008: Data Quality Performance Standards** requires timely receipt of instruction from DHHR to restore the data to the original point-in-time state before the erroneous load within 24 hours of the erroneous load.
Compliance with **SLA 008: Data Quality Performance Standards** requires timely receipt of instruction from DHHR for database discrepancies to be corrected resolved within 10 calendar days of the transfer of the monthly automated EDS tables.
Compliance with **SLA 008: Data Quality Performance Standards** requires timely receipt of instruction from DHHR and/or approval of Watson Health's recommendations for manually correcting and resolving database discrepancies within 10 calendar days of the transfer of the monthly automated EDS tables.
Initial implementation of the WV EDS solution will contain the existing data sources residing in the DSS/DW (MMIS, PEIA, HSC) in the current layouts/formats received from the data source suppliers to provide immediate and early value to DHS on the new modular EDS platform. Additional data sources will be handled via change request post-go-live.
Scope for interfaces includes all existing systems within the DSS/DW (Advantage Suite), which includes the MMIS, PEIA, and HHSC systems.
Data Suppliers will make SMEs available throughout implementation to assist with data collection, validation and reconciliation.
To support ongoing data loads, IBM will receive ongoing data feeds from the Data Suppliers in the same formats defined and utilized during the implementation.
For Transformation Extender, IBM is only providing the tool and capability - any interfaces requiring EDI translation (e.g., HL7, X12, 837, etc.) will require change management.

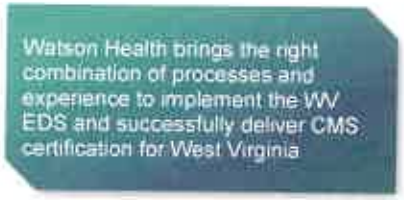
ATTACHMENT I IMPLEMENTATION SPECIFICATIONS APPROACH

Project Management Methodology

Delivery Excellence

The Watson Health team has been delivering solutions to Medicaid and other healthcare payer clients for more than 35 years. During that time, we have learned many valuable lessons that are incorporated into the Project Management (PM) approach we bring to the WV EDS project. The Watson Health PM approach is consistent with the CMS Expedited Lifecycle and includes elements of plan-driven, phased development to support CMS certification requirements, as well as tactical work management techniques, such as iterations, to showcase and provide client value early in the project timeline.

We intend to launch the Watson Health WV EDS project with a standard set of Project Management Plan (PMP) templates that can be easily configured to integrate into existing WV PM standards, while bringing our expertise to help guide and facilitate where necessary. This enables the project to hit the ground running with communications and training on processes up front rather than spending many weeks or months customizing PMP documents and training late in the project timeline.



We work collaboratively with WV subject matter experts (SMEs) on an iterative approach throughout the requirements and design phase, so that SMEs have a complete understanding of what is being designed and can validate that their business needs will truly be met. During the execution phase of the project, during which development, testing, and user acceptance testing (UAT) occurs, we work collaboratively with WV stakeholders on an iterative approach to show progress incrementally on the solution. Throughout the project life cycle, communications with project team members and stakeholders are proactively managed, as are change control processes and deliverables. We tie all deliverables back to the contract via the Requirements Management Process and Requirements Traceability Matrix (RTM) for transparency and insights into how and what we are delivering aligns with the contract. We keep the WV stakeholders informed and/or involved every step of the way.

Our PM approach results in less stress on your SMEs, more predictable outcomes, and compliance with the appropriate state and federal expectations for the project.

Project Management Approach

The Watson Health PM framework drives consistent planning and monitoring throughout the entire project life cycle, from initiation and planning to implementation and operations. It is the foundation for our release schedule, operational readiness planning and verification, postimplementation planning, and operational monitoring. We view WV stakeholders as key partners in our planning and execution processes. In this way, we confirm that we meet their expectations and that communication is flowing through the entire WV project team.

We use an iterative approach to develop each product and required deliverable. Consistent and continual feedback, a key aspect of our PM approach, along with close partnerships with WV stakeholders, helps us adapt to change and drive results that meet expectations. Our repeatable processes enable us to validate that the project stays on track through effective project monitoring and governance, frequent and planned backlog refinement and elaboration, schedule management, and change control. These rigorous, proven

processes provide excellent delivery quality and meet contract and CMS certification documentation requirements.

We approach each project with an eye on PM governance and structure. We align the PMP and subplans to support each client's unique environment and processes. We launch the project with a standard set of PMP templates that can be easily configured to integrate into existing WV PM Standards, while bringing our expertise to help guide and facilitate where necessary.

Our Project Management Office (PMO) project team is structured to support the client environment and the solution being delivered. We structure projects by workstreams in which project managers and scrum masters proactively manage work execution for a subject area. For example, for the Watson Health WV EDS, workstream project managers and scrum masters own one or more subject area, such as Data Acquisition, Integrations, Reporting, Content Management, Infrastructure, and Security.

Our PM tool suite provides transparent, current information on project progress and manages all daily work identified for each release planned and scheduled in our baselined Project Plan.

- We use JAMA® for requirements management, documenting all contract requirements and establishing the baseline of requirements to trace back to an RTM.
- Our work management tool, JIRA, supports detailed technical work management status of project features, user story progress, blockers, and priorities. JIRA also helps manage and identify potential issues and risks earlier in the software development life cycle (SDLC). Because updates are made in real time in JIRA for changes, the impacts are reflected in the monitoring dashboards and the PMO team can understand the impacts.

Watson Health's iterative development process and PM approach provides WV EDS with benefits that reduce implementation risk.

- Early progress is visible to all stakeholders, which enables our team to keep the project on schedule with reduced risk.
- Project complexity is managed effectively through timely and reasonable changes to avoid overwhelming the implementation process with very long or complex design steps reducing cost and risk.
- Early solicitation of DHHR feedback and participation in refining the features and priorities for upcoming releases engages and motivates the project team members and state partners to focus on outcomes that address your needs.
- Early risk reduction decreases the overall costs and enables us to make earlier, more realistic, and more accurate estimates of task time and project outcomes.
- Any design challenges are resolved using the problem decomposition process, which saves DHHR time and money and minimizes risk, as compared with less-structured approaches.

Daily huddles empower team members to be accountable for what they deliver, as well as accountable to each other. WV stakeholders benefit from a partnership with Watson Health that emphasizes an environment that fosters close communication, a team approach to problem identification and resolution, and a continuous focus on the project objectives.





An integral part of our PM framework and governance model is our Project Management Methodology (PMM), which is deployed to govern the Design, Development & Implementation (DDI) and support operations. The PMM provides a solid foundation for the PM schedule. It encompasses standard methods and procedures for managing a large-scale system implementation such as the WV EDS. It also is flexible and adaptable to project changes and can be tailored to fit the engagement size and client needs.

Our PMM is based on our SDLC standards and processes. The PMM contains a library of our best practice methods and procedures, plans, templates, and outlines for project artifacts; standards for deliverables; and other tools such as sample agendas, checklists, status reports, test matrices, and test procedures. We leverage these materials and plans to produce the PMP and subplans. During the Planning Phase of the project, our library can be easily integrated into the WV Enterprise Program Management Office (EPMO) PM Standards with only a few changes. The PM Standards become the guiding processes to achieve a successful project.

Our project execution PM plans and standards align with the CMS Expedited Lifecycle and are tailored to meet the unique client needs for each system implementation. All documents, including plans and standards, are to be stored and maintained within the WV project central document repository.

During the project life cycle, Watson Health applies and manages to three phases in order to minimize project risk and potential miscommunication between our team and DHHR. A summary of the three critical phases with full descriptions follow.

Summary of Project Phase Activities

Initiation and Planning Phase

In this phase, the PM team performs tasks that lay a strong foundation for the rest of the project efforts.

- Baseline the defined project documentation and schedule
- Establish the project infrastructure
- Review contract deliverables
- Establish project scope statement and project charter at project kickoff
- Establish PMP and subplans, as well as staff training and communication on project processes
- Produce first iteration of the project Scope Definition Document and DDI Release Roadmap
- Establish the Project Management Overview document and introduction of the PMO workstream structure
- Identify internal and external dependencies, including the processes and communication paths with other data/suppliers
- Develop a project Meeting Matrix and participate in project governance (status/ risk/issue/action item/change management/lessons learned meetings)

Execution and Control Phase

In this phase, the PM team proactively manages and executes the overall project schedule and scope. Specifically, the team conducts the following activities:

- Perform a 90-day elaboration of the project schedule, with weekly updates and schedule refinement occurring every 30 days to maintain a detailed 90-day outlook
- Review current and future deliverables and monitor project progress
- Manage workstreams to adhere to project schedule and scope, driving the execution of the project
- Remove barriers to success
- Communicate with all project stakeholders as agreed
- Participate in the established governance processes
- Circulate status and other reports as agreed in the status report process, including the key schedule metrics—Schedule Performance Index (SPI) and Cost Performance Index (CPI)
- Execute PMPs and assess contract compliance
- Participate in issue and risk assessment reviews and updates
- Maintain the Change Request Log and Issues Log
- Update project plans with actual time and revised estimates

Closing Phase

In this phase, the PM team brings the project to an orderly completion through phase-out activities:

- Final knowledge transfer
- Identify and share lessons learned
- Update project documentation and the project schedule as planned
- Update tracking logs
- Complete and properly file all project documentation

Full Description of Project Phase Activities

Initiation and Planning Phase

The Initiation and Planning Phase begins with baselining project documentation, establishing the project infrastructure, reviewing contract deliverables, and conducting the project kickoff. These initial steps inform the detailed PMPs.



The PM team performs several tasks at the start of the project that lay a strong foundation for the rest of the project efforts. The documents produced during this phase serve as guides for the entire team to clarify the project scope, responsibilities, and goals.

Included in these documents is a PMP. Our standard PMP describes a process for governing all phases of the project and producing the deliverables outlined in the project artifacts list. Watson Health submits the PMP on the date in the project schedule, and the PMP proceeds through the deliverable review and approval cycle(s) as outlined in the Document Management Plan. We create additional

required PM subplans leveraging our existing library of plans and integrate them with the DHHR PM Standards.

One of the key subplans within the PMP is the Project Management Overview document that describes all PMO processes and ongoing project governance. It clarifies the roles and responsibilities across the WV EPMO and Watson Health PMO team and introduces the PMO workstream structure. This subplan is used as a communications tool during the Planning Phase, as well as an informative onboarding subplan for onboarding new staff throughout the life of the project.

The PM team proposes to tailor our standard PM processes and plans for the WV EDS project and work collaboratively with WV team members and stakeholders to support the specific requirements for the integrated EDS, integrating into existing DHHR PM Standards. Watson Health's standard PM plans adhere to industry standards outlined in PMI PMBOK, 6th edition, and have been used effectively on numerous implementations. Our standard DEDs include an outline and are updated to identify WV reviewers for each deliverable document.

Documentation development and management is a very important aspect of project success, supporting CMS certification as well as effective management and controls. Timely and complete documentation development, leveraging prior project assets within our template library, has proven to be a key to success in similar projects.

The Initiation and Planning Phase also involves identifying tasks, timelines, work activities, deliverables, dependencies, risks, goals, and milestones, with subsequent development of the initial project schedule and WBS. In this phase, Watson Health organizes resources into workstreams to begin the project. Project managers and scrum masters will own one or more workstreams, proactively managing to the schedule, removing blockers, assisting in the resolution of issues, and mitigating risks for their respective areas. We create and maintain a work breakdown framework to accomplish the project's objectives. The Watson Health PMO Manager leads this effort with guidance and review from DHHR's senior project managers and applicable stakeholders.

Time management is one of a project's triple constraints (time, cost, and scope) and is critical to meeting the WV EDS Project implementation timeline. Our schedule management methodology is Project Management Body of Knowledge (PMBOK)-aligned and is the optimized approach to implement the WV Medicaid Enterprise Data solution within the schedule set out in the RFP. Our submission will include a separate document listing the assumptions and constraints that were factored into the development of the Project Schedule. Our Project Work Plan and work breakdown structure (WBS) includes the following components and activities and demonstrates the soundness of our management approach and our ability to oversee the WV EDS project schedule:

- Tasks, deliverables and milestones are defined
- Start and end dates and duration estimates are identified
- All sequencing and dependencies are known, and the project critical path established
- Resource allocation for the duration of the project
- Program lifecycle processes

Microsoft® (MS) Project® is the schedule management tool. MS Project allows the Watson Health PM team to establish an initial schedule, set a baseline schedule, apply actual work completed to the schedule, and monitor the schedule. The tool provides stakeholder transparency into how the work is being completed and the timeliness with which it is completed. MS Project contains several dashboards and reporting functions that the PM team uses to create standard and customized reports for each project. Our weekly status reports include schedule information exported from MS Project.

The DDI Release Roadmap is developed during this phase. The roadmap is incorporated into the Project Management Overview to further elaborate the project schedule. Working collaboratively with WV, the Watson Health team baselines the initial project plan, which completely elaborates the first 90 days and provides high-level estimates for remaining tasks. The Watson Health team then begins the elaboration process of the next 90 days, with the refinement of the project schedule occurring every 30 days to maintain a detailed 90-day outlook. This iterative elaboration process gives DHHR the flexibility to change priorities without significantly affecting the project schedule.

The PMO confirms that all standard processes are aligned for communications and integrated with the WV EPMO processes, including the project central document repository, which contains all the templates used for meetings, documents, risk/issue/action items, decisions, and change management logs. We assess how the Watson Health WV EDS project aligns into the existing WV PM standards and governance, and we educate project team members on these processes. The PMO begins participation in the risk, issues, action items and the change management processes in this phase.

Status meetings, status reporting, and Change Control Board meeting cadence are confirmed during this phase. The meeting cadence and roles are included as part of the Communications Plan, with a published meeting matrix posted in the project central document repository for project-wide visibility. Because the success of the EDS project has external dependencies, the entire project team and stakeholders, including external suppliers, must be onboard for project success. These relationships and processes are outlined and defined in an Operational Roadmap document generated during this phase.

Execution and Control Phase

The Execution and Control Phase encompasses the project oversight work performed by the Watson Health PM team. Our team engages in the project's day-to-day operational activities, reviews current and future deliverables and work products, monitors project progress, and participates in the management of the project through activities such as issue and risk management and contract compliance assessments.

The workstream Project Manager's primary functions in the delivery aspect of the Execution and Control phase include performing tasks to facilitate the workstream team's high productivity in pursuit of the project goals and execution of the Release Roadmap. The Watson Health PMO performs the following ongoing tasks:

- Managing workstreams to adhere to project schedule and scope, driving the execution of the project
- Removing barriers to success
- Providing communication to all stakeholders as agreed
- Participating in the established governance processes
- Circulating status and other reports as agreed in the status report process including the key schedule metrics: SPI and CPI
- Participating in issue and risk assessment reviews and updates
- Maintaining the Change Request Log and Issues Log
- Updating project plans with actual time and revised estimates

As part of the control aspect of the Execution and Control phase, we apply the concept of Triple Constraint (Cost, Scope, and Schedule) to confirm that the project is progressing as planned. The primary constraint for the WV project's individual DDI phases is scope. The PM team's oversight confirms that project objectives are met by monitoring and reporting progress against the plan. As the project progresses, the project team updates the schedule to reflect the current expectations per the control aspect

of this phase. Any changes in scope, scheduled delivery, or updates to key milestones must have WV approval to become effective (and the Change Management process will be used).

Lessons learned are integrated into the project's daily activities, as well as at scheduled intervals as agreed by the project team. This process is a key element contributing to continuous improvement throughout the project life cycle.

Closing Phase

The Closing Phase is the final phase of the project plan and brings the project to an orderly completion through phase-out activities. Project phase-out activities include final knowledge transfer, identifying lessons learned, updating the Project Plan and schedule, updating tracking logs, and completing and properly filing all documentation.

Project Management Methodology

PM034	The Vendor should submit each deliverable to the Department in final form and be ready for signature approval

Deliverable Quality

Watson Health confirms deliverable quality by—

- **Documenting acceptance criteria (formal deliverables).** DEDs are provided for each deliverable. DEDs contain an outline of the content to be written, as well as general and specific acceptance criteria for the deliverable. A walkthrough of the DED will be held with the WV team before the creation of the full deliverable's content. During the walkthrough, WV will have the opportunity to review, modify and approve the acceptance criteria, as well as see an overview of the structure and format of the deliverable to be written.
- **Conducting peer reviews.** Each deliverable undergoes an internal peer review before submission. Watson Health management and/or technical staff review each deliverable, so we provide consistently high-quality documents.
- **Conducting the DHHR review cycles.** Formal submission of the document begins the formal review cycle. Deliverables are submitted via the project central document repository , and DHHR is notified when the document is posted. Watson Health will support WV's recommended timings for the review cycles, allowing 10 days for the first DHHR review, 5 days for Watson Health to respond, and 5 days for DHHR final review.

Watson Health has extensive experience with deliverable review processes for review and approval of our deliverables. We plan to use proven industry and best practice standards and templates to support the deliverable review process for the WV EDS project. We use a systematic work product review process that builds on the Project Management Institute (PMI), Capability Maturity Model Integration (CMMI), and Institute of Electrical and Electronics Engineers methodologies to create the work products and incorporate standardized editorial review criteria.

Baseline draft and final deliverable work products are subject to the Watson Health QA/QC process before submission to the DHHR. The QA/QC process meets strict standards of quality, ranging from the basics of proper grammar, punctuation, and spelling to more complex areas of internal document consistency, alignment with applicable standards, industry best practices, and the overall message that is being communicated. Our teams are committed to providing high-quality services and products that exceed DHHS expectations and are in line with the project's charter.

Timely and quality review of deliverables is key to confirming that the project remains on schedule and that project requirements are met. Deliverables form the basis for future project activities and are one means of ensuring contractor compliance to contract and business requirements.

To address the management of the solution specifications—including identifying inconsistencies between the specifications, project deliverables, and/or artifacts—each deliverable has a Deliverable Expectation Document (DED) that contains an outline and acceptance criteria for each section. Watson Health develops and/or customizes our standard DEDs before submitting them to DHHR stakeholders for review and approval. Once the DED is approved per the Deliverable Management Plan, the Watson Health team develops the deliverable and begins the review and approval process. Deliverables are updated per the frequency schedule identified on the master project plan schedule. The Deliverable Management Plan outlines the formal deliverable reviews and the process for requesting and delivering a formal walkthrough to assist in the reviews. The plan includes a process for advance review of interim deliverables to confirm that Watson Health is working toward completion and acceptance of deliverables per the project plan. The document provides direction on how feedback from the DHHR should be given and addressed and how approvals are collected and filed. The plan describes the process to address any rejected deliverables, including review meetings with DHHR stakeholders to clarify the findings and perform all revisions before resubmitting the "signature ready project deliverables" for final review and approval.

Each deliverable document, as defined by the contract, will be approved in accordance with the following procedures (adjusting the number of days for DEDs to 3-2-2):

- For each deliverable, Watson Health expects DHHR to either approve the deliverable or provide a written list of requested changes to the Watson Health Project Manager or Deliverable owner within 10 calendar days of Watson Health submitting the deliverable. If no response from DHHR is received within 10 days, the deliverable will be deemed approved by DHHR.
- If a written list of requested changes is received by Watson Health Project Manager or Deliverable owner within 10 calendar days of submission of a deliverable, Watson Health will make the appropriate revisions and will, within 5 calendar days, re-submit the updated final version to the DHHR. DHHR will have 5 calendar days to provide approval. If no response from DHHR is received within 5 days, the deliverable will be deemed approved by DHHR.
- Any further Deliverable review cycles requested are outside of the scope and will be handled through the WV EDS change management process

PM035	The Vendor should submit each project deliverable to the Department in accordance with each date in the project schedule

Watson Health agrees to submit each deliverable to DHHR on the dates specified in the project schedule. Each of the review cycles, with dates and durations, along with approval dates, also is detailed in the project schedule for each deliverable. Please also see the detailed description of our proposed Document Review and Approval Cycles in the Lessons Learned section in Attachment I.

PM036	The Vendor should work with the Department to develop acceptance criteria for each project deliverable

DEDs are provided for each deliverable. DEDs contain an outline of the content to be written, as well as general and specific acceptance criteria for the deliverable. A walkthrough of the DED is held with the WV team before the creation of the full deliverable's content. During the walkthrough, WV has the opportunity to review, modify and approve the acceptance criteria, as well as see an overview of the structure and format of the deliverable to be written.

PM037	The Vendor should work with the Department's project management vendor regarding all project related activities

The Watson Health PM team works with DHHR's PM vendor, as well as key DHHR staff, on all project related activities. Watson Health requests that DHHR provide appropriate staff to all requested meetings, document reviews, and communications in order to keep communication channels open and keep the project progressing according to the schedule.

PM038	The Vendor should conduct deliverable walk-throughs for all project deliverables prior to their submission, unless otherwise approved in writing by the Department

Watson Health provides a DED for each deliverable and meets with the WV team to review it before any submissions of the actual deliverable. The meeting reviews the format and structure of the content to be included and allows WV to collaborate with Watson Health on the acceptance criteria for that deliverable. The DED walkthrough constitutes the walkthrough for the actual deliverable. Please also see the response on PM036 above.

PM039	The Vendor should submit all meeting materials to the Department 24 hours prior to each meeting

Watson Health agrees to provide all meeting materials to DHHR at least 24 hours before each meeting. Materials may include agendas, Microsoft PowerPoint® slides, reference documents and other items. All documents are to be posted to the WV project central document repository , and a notice is sent to the WV team of the location of the materials.

PM040	The Vendor should capture meeting minutes at each meeting

Watson Health agrees to capture and document meeting minutes during each scheduled meeting and provide a notice to the WV team when they have been posted to the WV project central document repository .

PM041	The Vendor should distribute meeting minutes within 48 hours after a meeting occurs

Watson Health agrees that all meeting minutes will be posted to the WV central document repository within 48 hours after the meeting occurs. We agree to provide notice to the WV team when minutes have been posted to the project central document repository .

PM042	The Vendor should store and maintain all project documentation in an agreed upon document repository such as a SharePoint location

All project deliverables and any other documents are posted to the WV project central document repository . When any document is posted to the project central document repository, a notice is sent to the appropriate WV team members of its availability and location on the repository .

PM043	The Vendor should make all project documentation accessible to all stakeholders identified by the Department

Watson Health works with the WV team to ensure that all stakeholders on the project are given the appropriate access rights to the project central document repository . If any documentation is not able to be posted to project central document repository because of protected health information or personally identifiable information in its contents, Watson Health collaborates with the WV team on the best solution for storing these documents.

Work Plan

PM058	The solution should be developed and implemented in accordance with the project work plan

Our proven methodology uses the project schedule as the basis for all work being executed during the deployment. The schedule will created and baselined, then on an ongoing basis, it will be used for:

- Defining all work in the project – tasks, timing, resources, milestones, deliverables, etc.
- Work progress will be tracked by the PM team by keeping the project schedule up to date with % complete.
- Each workstream will have a Project Manager who will monitor and update the tasks for their workstream in the plan as work progresses.
- Weekly status meetings and reports will reflect the latest progress recorded in the project schedule. The frequency and methods of all project communications (including status) will be documented in the Communication Plan.
- Deliverable reviews will be detailed with tasks in the schedule, showing resources for each review, timing of each review cycle, and expected timing of acceptance.

When the project schedule is developed, all assumptions and decisions are also documented. These items will be recorded in the tracking logs for Decisions and Assumptions and stored on the project's central document repository . They will be referenced and maintained throughout the life of the project's execution.

Please also see section Attachment I PM131 for more details on our methodology, SDLC, etc. for this project.

Issue Management

The Watson Health PM framework supports a comprehensive approach to managing issues. We recognize that a risk that is not properly mitigated may become critical and that issues not properly addressed may pose a risk to project success.

Watson Health understands the importance of consistent quality issue management. During the initiation and planning phase, we configure our Risk & Issue Management Plan to the specific needs of the WV EDS project, including alignment with the WV PM Standards.

We use an Issue Log that is maintained in the WV project central document repository for recording and reporting on issues for the project, which are entered and managed through the entire project life cycle. We have the ability to use central document repository workflows to automate issue/risk management. We can leverage existing templates and integrate them into the existing WV issue/risk management standards, in collaboration with stakeholders and subcontractors.

Any project stakeholder or team member who identifies an issue that may negatively or positively affect the project reports on that issue to the applicable Watson Health Project Manager, who records and documents the issue per the Risk & Issue Management Plan. For these issues, the Watson Health Project Manager validates the applicability of the issue, checks for duplication in the Issue Log, and, if applicable, works with the WV project management office (PMO) to update the Issue Log per the WV PM Standards process.

Watson Health assigns an issue owner for each issue identified. The owner is responsible for analyzing the response strategy, planning the response, and managing the issue.

The ultimate objective of any issue management effort is to be proactive in identifying and resolving issues at the earliest point to minimize impacts to schedule, scope, and cost. To actively identify and manage issues that threaten the WV EDS project development, we systematically identify emerging issues, make the WV team aware of them, develop plans to resolve each issue; and confer with WV in doing so. We regularly participate in assessment reviews and manage issues per our documented issue management process. Project issues are identified, evaluated for their impact, addressed in resolution plans, resolved, and finally monitored.

The Watson Health Project Manager will frequently and thoroughly assess any new project issues, previously identified issues, and potential issues (typically documented as risks) in collaboration with WV and will communicate any changes in an issue. We frequently evaluate any adjustments or updates, as well as any newly added issues, against the Department's strategy, priorities, and the project impact throughout the project life cycle and then adjust our resolution plan accordingly. Reports will be available at any time to all team members by using the views created on the project central document repository Issue Log. Metrics and analysis will be discussed during the periodic calls as needed.

When an issue has been resolved or is no longer applicable, it will be discussed during the risk & issue management call with WV to gain agreement, then closed in the Log by the Project Manager or issue owner. Watson Health issue management processes are aligned with the WV PM Standards and integrated into the WV PMO processes, including issue complexity and standards.

Issues that are resolved but are out of scope become part of the change management process. Issues that cannot be resolved or are resolved incompletely become risks. Project-related issue collection, review, and resolution are set to begin immediately, supported by routine meetings for review and discussion among the team. Our Risk and Issue Management processes become part of the weekly project status meetings, allowing ample time for review of the risk and issue tracking logs.

We propose to use a project central document repository to enter and categorize issues, assign them to Watson Health and DHHR staff, and establish the expected resolution date. We update the Portal issues database regularly and use it to produce management reports on all due, past due, and open issues. Using a single tracking mechanism allows users to see the complete history of an issue, assignments made, and actions taken from the initial establishment of an issue through possible elevation to risk or change request to disposition.

When a potential issue is identified, it is entered into the Portal.

Table 38. Issue Log Data

Data	Description
Issue number	Issue ID or key
Issue title	Short name by which the issue is known
Task number	Work product to which the issue is related
Date received	Date the issue was received or entered
Due date	Date issue resolution is due
Issue category	Classification of issues for reporting purposes
Issue status	Current status of the issue: New, Assigned, Resolved, Closed
Issue description	Long description of the issue. This can reference an issue paper.
Source of issue	Person or process that generated the issue
Assigned issue owner	Person assigned to obtain resolution of this issue
Severity	Level of impact if the issue is not resolved

If a problem, issue, action, risk, deficiency or dispute arises that cannot be resolved at the project level, Watson Health uses an escalation process to raise it to a higher level of management. The resolution process is defined in terms of the circumstances under which items are to be escalated, who should be informed, and how the items are tracked until successful resolution is achieved. Escalation usually is

governed by fixed time frames, such as if resolution cannot be reached in a set number of days, the item is then escalated to the next level of management, which then also has a fixed amount of time to address the problem.

Risk Management

The Watson Health PM framework supports a comprehensive approach to managing risk. We recognize that a risk that is not properly mitigated may become a critical issue and may affect project success. The Watson Health Project Management Office (PMO) also works with our Chief Information Security Officer (CISO) to proactively identify and manage (1) cybersecurity vulnerabilities and risks and (2) applicable mitigation and management of those risks.

Watson Health understands the importance of consistent quality risk management. During the initiation and planning phase, we configure our Risk and Issue Management Plan to the specific needs of the WV EDS project, which includes alignment with the WV PM Standards. We also have incorporated into our process the proactive identification of "positive" risk statements recommended in the newest version of the Project Management Body of Knowledge (PMBOK).

We use a Risk Log that is maintained in the project central document repository for recording and reporting on risks for the project, which are entered and managed through the entire project life cycle. We can leverage existing templates and integrate into the WV project management standards.

Any project stakeholder or team member can identify risks, and any items with potential for risk to the project should be identified and reported to the applicable Watson Health Project Manager, who records and documents them per the Risk and Issue Management Plan. For these risks, the Watson Health Project Manager validates the applicability of the risk, checks for duplication in the Risk Log, and, if applicable, works with the WV PMO to update the Risk Log per the WV PM Standards process.

Identified risks that may affect the project typically are organized into high-level categories. These categories are well-defined and reflect common sources of risk for the business or application area.

Table 39. Risk Categories and Examples

Category	Examples
Technical	Reliance on unproven or complex technology, unrealistic performance goals, changes to the technology proposed, integration with existing systems, and changes to industry standards during the project. Technical risks also can occur if a viable product does not exist in the marketplace.
Schedule	The ability of the project team to meet key deliverable dates in cases of scope changes and/or resource unavailability. The overall accuracy of the planned project schedule may not be acceptable.
Cost	Higher costs required to allocate additional or different staff resources, changes in approach that require additional resources (staff and dollars), and costly design, application program, or operational problems. Challenges in this category depend heavily on the schedule.
Project Management	Misallocation of time and resources, incomplete Project Plan, and shortage of Project Managers.
Quality	Little or no allocation of resources to quality assurance-related tasks such as establishing and documenting Project Management Plans, defining deliverable and staffing expectations, conducting interim and final deliverable reviews, ensuring independent testing, or adhering to defined industry-accepted standards and methods. Lack of clear processes for quality assurance and resource individuals who are unfamiliar with those processes can also be key factors.
Organizational	Cost, time, and scope objectives that are internally inconsistent, little or no prioritization of tasks or projects, inadequate or interrupted funding, and resource conflicts with other projects in the organization. The lack of an executable communication plan and/or Organizational Change Management plan also can be key.
Other	Issues related to a shifting legal or regulatory environment at the state or federal levels or changing priorities within state or federal clients. This category also can be used to identify any specific

Category	Examples
	vendor contract issues (e.g., contractor relationships, type of contract, and contractor responsibilities) in cases of underperformance on project deliverables.

Watson Health assigns a risk owner for each risk identified. The owner is responsible for analyzing the response strategy, planning the response, and managing the risk.

Our risk management methodology is divided into the major components described in detail below.

- Risk Identification
- Risk Analysis
- Risk Response Planning
- Risk Monitoring, Controlling and Reporting

Our approach to risk management is to systematically identify, analyze, and then respond to risk. In a project environment, the successful removal or mitigation of risks can reduce schedule delays, decrease cost overruns, and improve product quality. The Watson Health risk management approach is a proactive process that provides several benefits.

Risk Identification

The project team and appropriate stakeholders systematically engage in risk identification on a biweekly basis. Collaboratively they evaluate environmental factors, affected technology components, and organizational culture. Careful attention is given to PMP components including project scope, schedule, cost, quality. deliverables, assumptions, constraints, WBS, cost/effort estimates, resource plans, and other key project documents.

Methods to assist in risk identification include the following:

- Past experienced or specific events that may have triggered risk
- Brainstorming as a group
- Interviewing SMEs
- Reviewing strengths, weaknesses, opportunities, threats (SWOT) analyses
- Analysis of existing projects, policies, and procedures through prior Lessons Learned activities
- Confidentiality, Integrity, and Availability (CIA) analysis for system inputs and outputs.

Risks and issues documentation (also known as Risk Events), which is described below.

Risk Analysis

Identified risks are evaluated using a qualitative risk analysis. Each risk is prioritized on the basis of its probability of risk occurrence and its expected level of impact to the project, which is assessed with input from the project team.

Probability ratings are as follows:

- High—Greater than 70% probability of occurrence
- Medium—Between 30% and 70% probability of occurrence
- Low—Below 30% probability of occurrence

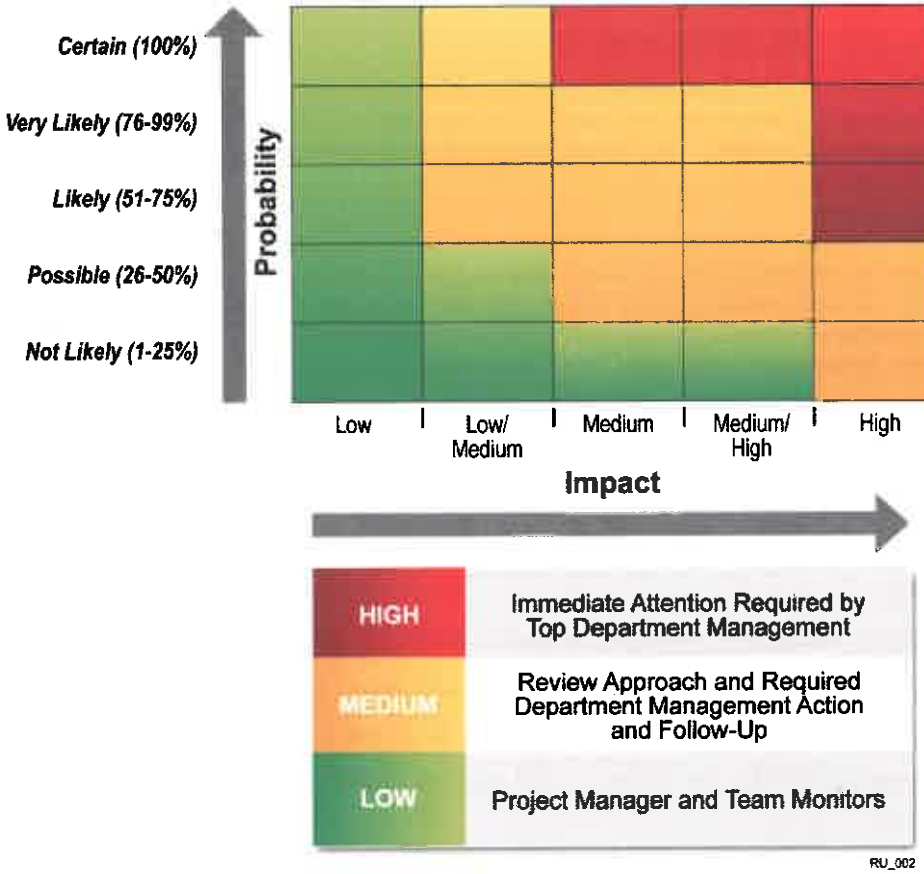
Impact ratings are as follows:

- High—Risk that has the potential to greatly affect project cost, project schedule, or performance
- Medium—Risk that has the potential to slightly affect project cost, project schedule, or performance
- Low—Risk that has relatively little effect on cost, schedule, or performance.

Risks that fall within the RED and YELLOW zones require a risk response plan that includes both a risk response strategy and a risk contingency plan.

Risk Response Planning

Figure 67. Risk Probability and Impact Assessment



Each risk falling in the RED and YELLOW zones (Major Risk) is assigned to a risk owner for monitoring and control purposes to verify that the risk does not "fall through the cracks." For each of these risks, one of the following methods must be selected to determine how the risk will be addressed:

- Avoid—Eliminate the threat by eliminating the cause
- Mitigate—Identify ways to reduce the probability or impact of the risk
- Accept—The costs to avoid or mitigate the risk outweighs the benefit of a nonresponse
- Contingency—Define actions to be taken in response to risks

- Transfer—Shift the consequence of a risk to a third party together with ownership of the response (buy insurance, subcontract, etc.)

The project team will continually advise the DHHR on mitigation options and choices, as needed. Such options may include prototyping, adding tasks to the project schedule, or adding resources. Any secondary risks that result from a risk mitigation response are documented and follow the same risk management protocol as the primary risk.

We will outline a course of action for each major risk and establish a threshold. The risk threshold or trigger is an event-based occurrence that describes the parameters of an event in enough detail that it is easily understandable that the risk has materialized. Risks that materialize based on a trigger event become issues and are handled according to the issue management methodology described in the section on Issue Management in Attachment I.

Risk Monitoring, Controlling, and Reporting

The level of risk on the project is tracked, monitored, controlled, and reported throughout the project life cycle. A risk log is maintained to support this need. Risks can be added to the log at any time.

Project Risk Communication

When a RED zone risk becomes an actual issue, this change in status immediately is communicated to the project team, including the risk owner and other appropriate stakeholders. Less serious changes and updates are communicated at the weekly project status meeting and included in meeting agendas, presentations, and minutes. The Project Team supports the DHHR project manager to help manage and communicate these changes.

Closing a Risk

A risk is considered closed when it meets the following criteria:

- The DHHR Project Manager and risk owner have determined that the risk no longer exists.
- The DHHR Project Manager has determined that the risk generated an issue (risk event), so the risk is closed, and the issue will be tracked to resolution.

Risk Management for Risks Related to Security

To effectively manage security-related risk, Watson Health participates in the following activities:

- Assessing risk, including the likelihood and magnitude of harm, from the unauthorized access, use, disclosure, disruption, modification, or destruction of the information system and the information it processes, stores, or transmits
- Documenting risk assessment results in the annual Security Program
- Reviewing risk assessment results annually
- Updating the risk assessment annually or whenever there are significant changes to the information system or operations environment (including the identification of new threats and vulnerabilities), or any other conditions that may affect the security of the system

The Risk Assessment typically includes the following topics. Watson Health will work to address any modifications that relate to—

- Access control
- Auditing
- Change control
- Vulnerability scanning
- Business continuity
- Data security

Watson Health aligns to the National Institute of Standards and Technology (NIST)-published Risk Management Framework (RMF) 2.0 and Cybersecurity Framework (CSF) to identify, assess, communicate, and manage shared cyber risk. We conduct regular internal risk assessments of the critical applications, servers, networks, and operational processes and procedures involved with the flow of confidential healthcare information. The purpose of these assessments is to identify potential threats and vulnerabilities that could affect the availability, confidentiality, and integrity of healthcare data and information systems. The risk assessments may be conducted by internal or external entities.

Upon completion of a risk assessment, Watson Health conducts a management review to prioritize the needs and implement remediation measures and controls to address the security risks and vulnerabilities identified in the assessment.

To help mitigate cyber risks and part of the continual cyber risk management process, Watson Health incorporates and aligns to the Three Pillars of Cybersecurity:

- **People**—Employees can create some of the greatest risks to cybersecurity. However, when they are well informed, they also can be an asset and a first line of defense. Often, cybercriminals will specifically target employees as an attack vector on the basis of their lack of knowledge of security best practices. For example, cybercriminals might target employees with phishing emails designed to get them to click on a malicious link or divulge credentials.
- **Processes**—This layer of cybersecurity ensures that information technology (IT) teams have strategies in place to proactively prevent, and respond quickly and effectively in the event of, a cybersecurity incident such as an incident response plan and business continuity and disaster recovery plan. These "processes" expedite response and provide a step-by-step "how to."
- **Technology**—Selection of tools that compliment an organization's overall security posture, based on their ability to be integrated and automated to facilitate the rapid detection and mitigation of threats. For example, Watson Health uses several security tools that automate monitoring and auditing of the system (i.e., system access and access to protected health information [PHI]).

To ensure consistent privacy and security controls and methodologies, Watson Health implements a holistic security approach that spans the multiple implementation workstreams and components. The approach is documented in the Information Security Plan (ISP) and addresses data security, application security, system access security, auditing and monitoring, secure data movement, enhanced training, and security oversight.

Please refer to Attachment H, SM001-066 for more details around security and incident reporting.

Quality Management

PM033	The Vendor's quality management approach should be consistent with the Department's policies and procedures

For Watson Health, quality management is an integral philosophy that is integrated throughout all phases of the WV EDS project. As a result of this philosophy and approach—which has been appraised at Capability Maturity Model Integration (CMMI) Level 3— we deliver a high-quality solution that drives results for DHHR and your stakeholders.

Our quality management process requires that we conduct routine compliance checks, use established checklists to help us exit stage gates, and audit our delivery procedures. Extensive testing processes and the use of checklists and peer reviews results in DHHR receiving high-quality products and deliverables. Our quality assurance (QA) process and procedures are documented in the Quality Management Plan (QMP) we deliver for DHHR approval.

Watson Health continually and regularly monitors quality of delivery to ensure that the program is proceeding effectively throughout the project life cycle. To further promote continuous quality improvement, we develop quality improvement recommendations with corrective actions as needed, and we proactively manage these actions until they are complete.



As described in this section, Watson Health proposes to actively collaborate with DHHR and your stakeholders to achieve and maintain quality system and operational services in accordance with approved performance metrics and benchmarks and in compliance with the requirements in the RFP.

Quality Management Plan

Working with DHHR, Watson Health develops and maintains a QMP that conforms to industry best practices and standards, such as the Project Management Body of Knowledge (PMBOK). Once approved by DHHR, Watson Health implements performance improvements consistent with industry best practices and standards.

The QMP defines the enterprise framework for managing and delivering quality processes, procedures, services, and products for the life of the contract. It defines the level of quality in identified key performance indicators, while describing how Watson Health provides this level of quality in WV EDS project deliverables and work processes. The QMP also addresses some of the challenges that are common in a multi-supplier, integrated systems solution like the WV EDS, such as communicating across vendors and stakeholders, aligning schedules, and working to receive timely data.

- Quality management activities outlined in the QMP include the following:
- Quality objectives
- Key project deliverables and processes to be reviewed for satisfactory quality level
- Quality standards
- Quality planning
- Quality control and assurance activities
- Quality roles and responsibilities
- Quality tools
- Defined plan and process for reporting quality control and assurance problems
- Defined Corrective Action Plan framework and processes

Our approach to quality management is based on PMBOK, which integrates process improvement by applying CMMI principles. Using this integrated approach requires that all stakeholders identify, assess, respond, monitor, and control project quality. The Watson Health quality program defines, measures, and improves quality with two primary focus areas:

- **Process quality.** Focuses on how contract activities, work products, and deliverables are developed, monitored, and evaluated. Meeting this objective verifies that project participants adhere to internal processes, produce the desired results, and meet contract requirements.
- **Product solution quality.** Focuses on contract deliverables, solution requirements, and data quality. Meeting this objective verifies the completeness and accuracy or fitness for use of work products.

Annually, Watson Health reviews the QMP with the DHHR and updates it as needed as the project proceeds through each stage of implementation and operations/maintenance. Lessons learned are captured at the end of each phase and used to improve project and document standards. This includes incorporating any feedback related to process received from DHHR or the WV project team.

Quality Management Staff



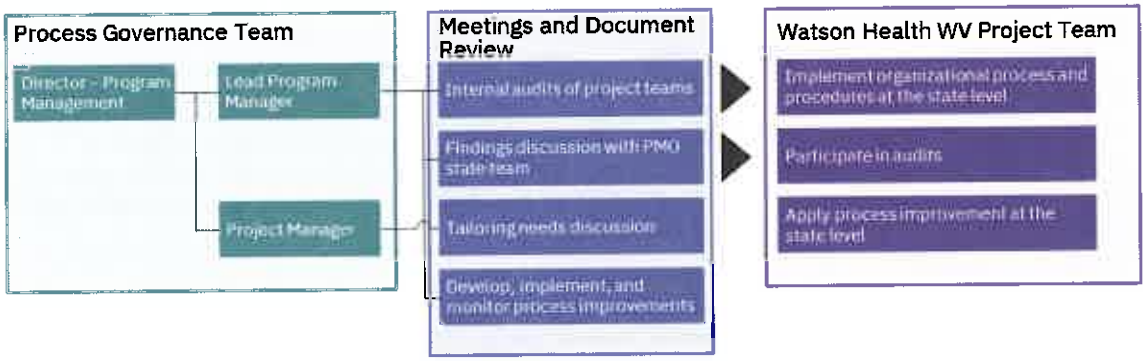
The Watson Health Project Management Office (PMO) includes a Quality Manager. The Quality Manager is responsible for ensuring that the deliverables and solution being delivered are of the best quality and satisfy the requirements documented. The Quality Manager may collaborate with others on the Watson Health Team when (1) subject matter expertise (e.g., data conversion) may be needed and (2) account team members with knowledge of the area under review. The Quality Manager role is complemented by the Testing Team assigned to each project. Our testers are separate from the development team but perform critical quality control activities as they test system functionality. With support from the PMO, our Quality Manager oversees execution of process improvements across the WV EDS project that are consistent with PMBOK, CMMI, and Continuous Quality Improvement principles and standards.

A Dedicated Process Governance Team (PGT)

The Watson Health Process Governance Team is responsible for creating, maintaining, and using quality processes and measures for all phases of the WV EDS project. The Quality Manager actively collaborates with the PGT and with DHHR and all DHHR identified suppliers/partners to achieve and maintain quality system and operational services in accordance with DHHR-approved performance metrics and benchmarks.

The Watson Health PM Team, under the direction of our Quality Manager, develops a clear understanding of DHHR needs and requirements in order to review our deliverables against those needs and requirements, as well as against professional standards for content, accuracy, clarity, formatting, and overall quality as we implement, monitor, and address all QA and improvement activities required under the QMP.

Figure 68. The Watson Health PMO and Process Governance Teams. *Working closely with the Account Team to ensure that quality management occurs in support of the successful operation and performance of the WV EDS project and related West Virginia Medicaid enterprise-wide systems and services.*



Using the CMMI framework, the Watson Health PGT conducts project audits and performs regular QA throughout the project lifecycle to ensure that we meet all defined responsibilities. Although the PGT takes a leadership role, we expect each Watson Health team member to follow our QA practices for every deliverable and activity we provide.

Cooperation and coordination with your stakeholders are imperative for many activities in the WV EDS project. We treat such interactions as service-based deliverables, ensuring clear communication and timeliness when interacting with other parties. Our PMO staff members obtain and incorporate stakeholder feedback before finalizing products. For example, we submit both a template/outline and final

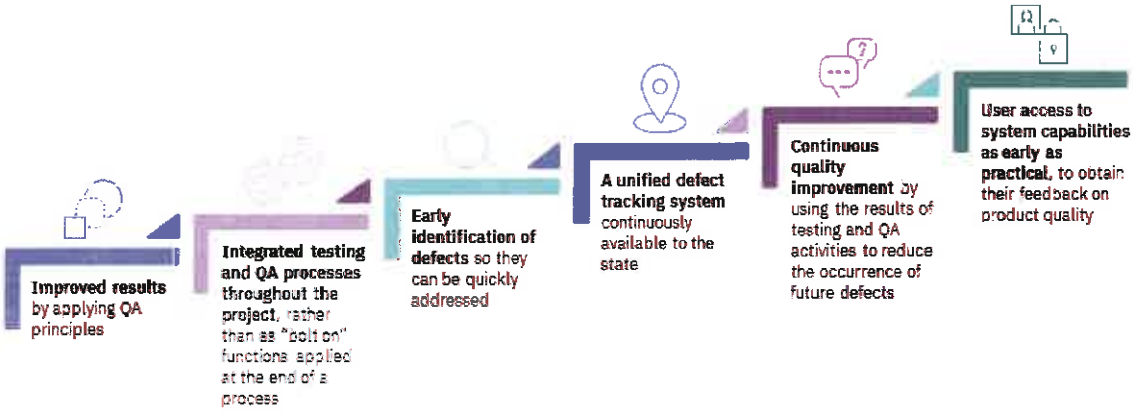
versions of all deliverables to be sure that they meet your expectations and to establish consensus on the structure, content, length, and style of the deliverable. This also gives DHHR technical staff members early access to draft documents so they can provide guidance before we finalize them.

Quality Management Process

Watson Health follows quality processes that have been assessed as compliant with CMMI Maturity Level 3. One of the goals of these quality processes is to proactively identify and address quality control issues within the WV EDS and in support of the West Virginia Medicaid enterprise-wide operations in the effort to meet or exceed performance benchmarks and metrics for DHHR.

Our QA methods include Quality Assurance Planning, Issue Resolution, Continual Quality Improvement, and Quality Control, resulting in the benefits.

Figure 69. Our QA Method. *Providing a defined QA and issue resolution protocol. We work closely with our customers to proactively identify and resolve problems, with our solutions informed by user feedback.*



Planning for and Defining Project Quality

The first step is quality planning for each of the WV EDS system components and deliverables—how they will be controlled and managed in different but complementary ways throughout the project life cycle. In partnership with DHHR, we—

- Develop and agree to methods for measuring and monitoring quality
- Define QA measures for DHHR satisfaction, process design, and staff training
- Ensure that key performance indicators are integrated with the quality measures
- Identify methods to evaluate, monitor, and communicate project performance

Figure 70. Plan Quality Management. *Watson Health's approach to managing quality focuses on the inputs, tools, techniques, and outputs required for comprehensive QA throughout the project.*



Measuring Project Quality

Defined metrics reduce subjectivity when assessing and controlling project quality by providing a quantitative basis for making decisions. Metrics do not eliminate the need for human judgment in their evaluation; however, metrics do have clear benefits. They make quality (or lack thereof) visible and actionable. The following are some key metric types:

- **Process metrics,** which can be used to improve project execution, software development, and maintenance.
- **Product or solution metrics,** which describe the characteristics of the product such as compliance with requirements and performance.

As requirements are confirmed, quality baseline measurements can be determined. Measuring quality ensures that the project, products, and procedures adhere to DHHR requirements. We identify, collect, analyze, and report on metrics. Working with the project team members, we refine the metrics throughout the project lifecycle.

We review metrics throughout the project lifecycle in weekly status meetings. In later WV EDS project phases, we share System Integration Testing (SIT) and User Acceptance Testing (UAT) progress metrics with DHHR on an agreed-on cadence. Watson Health has provided a list of metrics that are used to monitor quality on the WV EDS project.

Table 40. Watson Health Project Metrics

Category	Metric	Purpose	Description
Project Management	Schedule and Progress	Monitors progress and is based on the percentage complete field and milestones completed in the project schedule	Reports progress on the task's duration (how much time has passed) Reports project milestones that have been met or missed by comparing planned finish dates with actual finish dates.

Category	Metric	Purpose	Description
	Total Action Items	Provides information about the number of total actions for the project throughout the span of the project	Trend of Action Items by Status (Open, Closed)
	Open Action Items by Impact	Provides information about the number of open actions over time	Trend of Open Action Items by Impact (High, Medium, Low)
	Schedule Performance Index (SPI)	Provides information about the schedule performance of the project. SPI is the efficiency of the time spent on the project.	A measure of schedule efficiency expressed as the ratio of earned value to planned value. The formula to calculate SPI is SPI = Earned Value (EV)/Planned Value (PV).
	Effort Variance	Analyzes the efficiency of effort planning; also helps to determine the nature and extent of variances and related impact analysis on project budget and schedule. The goal is also to measure overdue project tasks against deadlines.	The difference between total estimated hours of all the tasks and total actual hours spent on the tasks.
	Earned Value	Provides the planned value of all the work completed (earned) to a point in time, usually the data date, without reference to actual costs. EV=sum of the planned value of completed work.	The measure of work performed expressed in terms of the budget authorized for that work
	Resource Utilization	Shows the time resources spent on various tasks. The goal is to measure planned hours of work vs. actual hours of work.	Measures planned hours versus actual hours
	% Work Complete	Measures progress how much work is done. The goal is to show the percentage of tasks completed.	Reports progress on the hours completed
	Total Change Requests	Provides information about the number of change requests being processed	Provides information about the number of change requests being processed
	Change Request by Status	Provides information about the status of change requests being processed	Reports the number of change requests in a specific status
Requirements	Requirements Volatility	Assesses the nature of requirements changes. May be an indicator to perform root cause analysis (RCA)	Number of initial requirements, number of deleted requirements per month, number of added requirements per month, and number of modified requirements per month
Quality	Number of Defects by Test Activity—SIT/UAT	Evaluates whether defects are escaping to UAT and perform RCA if needed	Number of defects found in SIT and UAT.

Category	Metric	Purpose	Description
	Test Case Pass/Fail Rate by Test Activity (SIT/UAT)	Shows the overall quality of the solution	Number of test cases Pass/Fail/Blocked grouped by test events
	Aging of Defects	Evaluates the effectiveness and productivity of fixing defects	The difference in time between the date a defect is detected and the current date (if the defect is still open) or the date the defect was fixed (if the defect already is fixed).
	Critical Defects	Evaluates the rate at which the most important defects are being fixed	Number of critical defects
	Defects Density	Evaluates whether a given feature, set of features, or deliverable is ready for release or needs rework.	Number of defects for a given project, feature, or deliverable
	Deliverables timeliness	Evaluates whether deliverables are being delivered by the expected date	Difference between expected date and actual date of submission

Managing Project Quality

Managing quality is focused on managing the processes used during implementation. QA activities include conducting audits, updating lessons learned, reviewing work products, and implementing best practices. In addition to quality improvement activities (e.g., lessons learned, root cause analysis), the Watson Health approach to managing quality on the WV EDS project involves the following:

- Schedule quality
- Deliverable quality
- Requirements management
- Assessments, audits, and reviews
- Risk/issue management
- Configuration management
- Defect management
- Change management

Schedule Quality

Schedule quality involves the following:

- **Baselining the project schedule.** Watson Health measures project quality by baselining the schedule and then tracking the variance to that baseline.
- **Reporting progress.** We report progress in the Weekly Project Status Report using heat maps and milestone reporting.
- **Making schedule available and transparent.** The project schedule is made available to DHHR on the WV EDS central document repository and updated weekly.
- **Improving tasks based on planned versus actual.** We follow processes to continuously improve our estimates by evaluating planned versus actual during the life of the project and after each project phase, so that subsequent phases have the most current information.

Deliverable Quality

Watson Health confirms deliverable quality by—

- **Documenting acceptance criteria (formal deliverables).** Deliverable Expectation Documents (DEDs) are provided for each deliverable. DEDs contain general and specific acceptance criteria for the deliverable.
- **Conducting peer reviews.** Each deliverable undergoes an internal peer review. Watson Health management and/or technical staff review each deliverable, so we provide consistently high-quality documents.
- **Conducting DHHR review cycles.** Formal submission of the document begins the formal review cycle. Deliverables are submitted via the project collaboration site, and DHHR is notified when the document is posted.

Requirements Management

QA activities related to Requirements Management are as follows:

- **Baselining the requirements.** Watson Health measures project quality by baselining the requirements in a Requirements Trace Matrix (RTM) and then tracking the variance to that baseline.
- **Documenting acceptance criteria.** During the Requirements Analysis Sessions (RAS), acceptance criteria are proposed, discussed, and agreed on for each requirement. RAS is a key process for confirming that Watson Health fully understands each requirement.
- **Making requirements (RTM) available and transparent.** The RTM is made available to DHHR on the WV EDS project central document repository and updated regularly during RAS sessions.
- **Reporting status.** We report progress on Requirements sessions during RAS. We track the volatility of requirement changes (see Watson Health Project Metrics above) and later, during testing phase, progress on testing for requirements (completions, defects, etc.).

Risks / Issues Management

The following are QA activities related to Risk and Issue Management:

- **Risk identification and prioritization.** We maintain a Risk Log that is available to all project team members and hold a weekly risk and issue meeting to identify, discuss, and prioritize risks.
- **Risk ownership.** We confirm that the risk owner is clear and control actions are producing the expected results.
- **Risk closure.** We monitor risks to verify they are closed in a timely manner.
- **Issue identification.** We monitor risks to determine whether a risk has occurred and if so, convert the risk to an issue.
- **Issue ownership.** We confirm that the issue owner is clear and that control actions are producing the expected results.
- **Issue closure.** We monitor issues to verify that they are being closed in a timely manner. If not, we consider escalating the issue.

Change Management

The following are QA activities related to Change Management:

- **Change identification and prioritization.** We maintain a change request log that is available to all project team members. Our weekly change management meeting identifies new change requests and discusses the status of current change requests.

- **Change request ownership.** We confirm that the change owner is clear and control actions are producing the expected results.
- **Change request closure.** We monitor change requests to verify that they are moving through the change process in a timely manner.

Watson Health maintains a QMP and systematically applies our rigorous, proven quality processes to confirm that our solution and performance meet or exceed DHHR requirements and comply with relevant industry standards.

Change Management

PM044	The Vendor should utilize a change management methodology that is based on industry standards and best practices and is approved by the Department



Watson Health has been working alongside state agencies and Medicaid Enterprise vendors for more than 35 years to manage and implement changes for our customers. During this time, we have developed a robust and mature change management process and a system to track, manage, schedule, and document potential changes to solutions like the WV EDS. In addition, our Account team previously supported WV with the legacy DW/DSS solution. We have the processes and the experience that the DHHR requires and expects. The successful change management process we implemented in our current DHHR contract has ensured successful implementation of desired changes.

Controlling and managing change is a key factor for successful execution of the WV EDS solution. It can mean the difference between a successful comprehensive solution implementation and a disjointed delivery. The change management process in any project covers the entire life of the project—beginning after contract signing and ending when the project has been turned over to DHHR. The change management process approaches change as a formal, systematic, and defined process by which we can identify business and technical changes needed to improve the project itself within the confines of the Change Control Board (CCB) and as outlined in the Change Management Plan (ChMP).

PM045	The Vendor should propose a change management methodology including, but not limited to:
PM046	Approach across all project phases
PM047	Roles and responsibilities
PM048	Tools necessary to support change management
PM049	Reporting
PM050	Others as defined by the DHHR

Change Control Process

The change control process is described below:

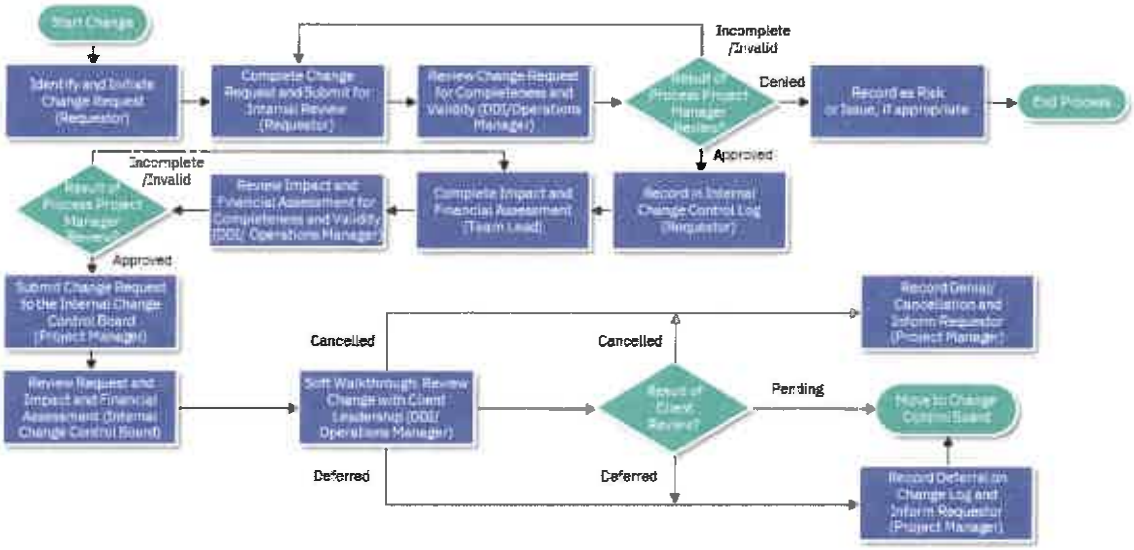
- Watson Health reviews each request internally and collects more information if needed from the requestor.
- If a request would be more appropriate as a risk or issue, it is added to the Risk Log or Issue Log, rather than to the Change Log.

- Once confirmed as a change, each request is added to the Change Log and then assessed for impact—schedule, effort, cost, and so forth. These details are documented in the Change Log.
- Watson Health internal CCB reviews and approves the impact analysis results, which were documented before review with the joint CCB (with DHHR and Watson Health members combined).
- The status of each request is kept updated in the log as it moves through the process.
- Approved requests are added to the planned work for the project and once complete, are marked as closed in the log.

Change Control Process

Our change methods reflect industry best practices and the Project Management Institute's Project Management Body of Knowledge (PMBOK) guide's integrated Change Control connection between configuration management and change control processes.

Figure 71. Change Control Process. *Our standard Change Control process consists of a condensed set of repeatable actions.*



Change Management Plan

Watson Health has developed a standard ChMP that defines the protocol and structured, repeatable change management processes used during all stages of the WV EDS project, which will be submitted for the DHHR approval.

The process allows confirmation that requested changes are documented, tracked, managed, and implemented in a timely manner and at an expected cost.

The ChMP has been developed to achieve these objectives:

- Confirm that changes are prioritized in accordance with the DHHR business values and needs
- Confirm that changes are consistent with business and technical plans and strategies
- Confirm that the required level of technical and management accountability, including applicable reviews and approvals of proposed changes, is maintained for each type of change

- Support the efficient and prompt handling of changes
- Monitor the number, type, and associated risk of and reason for changes
- Provide accurate and timely information about changes
- Enforce a consistent approach to managing changes
- Confirm that changes are made with minimum disruption to customer services
- Establish a change management process to minimize the number of changes that need to be backed out of the system
- Determine the CCB members from Watson Health, the DHHR, and other vendors, as well as the tools, metrics, and reporting for change requests

As part of continuous process improvement, adjustments may be made to processes, reports, and/or specific metrics being reported on the basis of mutual agreement between the DHHR and Watson Health as part of the change management process.

In addition to detailing how we manage and implement change including release management, the ChMP also provides detailed information about how we manage scope, schedule, and costs. The ChMP defines the protocols we follow to ensure that (1) we have fully analyzed and documented each change request and (2) we have identified all potential impacts and obtained approval before we begin work. It defines and identifies roles and responsibilities within the Watson Health change management process and outlines policies, guidelines, and procedures necessary for managing change within a project.

Although the ChMP defines our standard practices, we recognize that the DHHR may have additional requirements for change control. We assume that the effort needed to modify our ChMP to meet the DHHR requirements before requesting the DHHR approval is small. Modifications to the ChMP detail everything that all stakeholders need to have a clear understanding of when managing change requests.

Watson Health proposes to deliver a comprehensive ChMP that follows industry project management standards and best practices for DHHR approval on the date listed in the approved project schedule. We provide updates on an agreed-on schedule before Operations start and within an agreed-on timing of any change. The process for documentation delivery and approval is separate.

Partnering With the DHHR

Watson Health proposes to actively partner with the DHHR and all the DHHR-approved suppliers and subcontractors to pursue, engage, and collaborate with the DHHR to identify system/non-system-based changes, maintenance, or modification efforts, tasks, or projects that make systems or operations more streamlined, organized, and/or efficient.

Any revisions or edits that Watson Health determines are necessary to the success of the project are submitted to the DHHR for approval. These revisions or edits can include any business requirements affected by approved system changes, maintenance, modifications, or other work requests. We submit any changes affecting the contract to the DHHR within 10 business days before the change is implemented.

In addition, we categorize all system changes by (1) software modifications, (2) enhancements, or (3) defects. Once the changes are categorized, the DHHR reviews, approves, and prioritizes them in accordance with the Change Control process.

Once an approved work request has been completed, we document and implement the request per the priorities, quality standards, and approval/completion/close-out processes established by the CCB.

Changes can include addition of new data fields in existing data feeds; enhanced extract, transform, load (ETL) programming; addition of data not previously in the existing WV DW/DSS; and new and updated analytic reports. In any case, the requested change is captured, scoped, and then analyzed in terms of

resources, impacts, and timing. The DHHR approval is obtained for cost, scope, and timing before any such changes are undertaken.

Roles, Responsibilities & Reporting

Watson Health provides a Process Project Manager as part of the Account Project Management team who leads all change management activities for the WV EDS project. The Process Project Manager role is fulfilled by one of the workstream Project Managers assigned to the project. The Process Project Manager is responsible for working with the internal Watson Health Project Management Office (PMO) as well as with the DHHR and all the DHHR's vendor Project Managers.

The Process Project Manager manages the Change Management process and works with the DHHR to determine the appropriate change management tools and processes for managing, overseeing, developing, and implementing of all phased activities of the WV EDS project.

The PMO's responsibilities include the following:

- Preparing maintenance staffing configurations for maintenance and defects work, modification pool work, and modification add-on work that allows for prompt response, performance, oversight, development, implementation, testing, and maintenance of all active, planned or upcoming, and/or newly proposed or approved work efforts as they relate to the continuous effective and efficient operation of the supplier's systems.
- Establishing and maintaining distinct teams with appropriate business area knowledge to separately handle all activities approved by the DHHR and in accordance with the approved Software Development Life Cycle (SDLC). Individuals assigned to specific work teams do not engage in other work assignments without prior approval from the DHHR. This includes dedicated maintenance staff, modification staff, and additional staff resources for which the DHHR pays.
- Informing and seeking the DHHR approval before any configuration change in the overall the DHHR-approved staffing configuration (e.g., maintenance staffing performing modification work).
- Creating and distributing (at a minimum) a monthly change, maintenance, and modification staffing report that provides resource-level detail concerning modification efforts of all proposed, active, and newly completed modification efforts/projects.

Communication of Changes

Change requests are reviewed in the weekly CCB meeting and recorded in the published meeting minutes. All change requests also are recorded in the Change Log for stakeholders to reference at any time from the project portal, WV EDS Central. In addition, any time a change is implemented, an email notification is sent to the appropriate stakeholders. If the DHHR should have further requirements for communicating changes, our PM team works with you to ensure that those requirements are added to the ChMP and the Communication Plan.

In addition, on a monthly basis or as requested by the DHHR, Watson Health provides to the DHHR-designated entity a report to show all current systems work or at the request of the DHHR.

At the discretion of the DHHR, each contract year Watson Health coordinates, facilitates, and documents a meeting with the DHHR to review the Operational Maintenance and Support Release Roadmap and Enhancement Release Roadmap and provide all documentation within 10 business days after the meeting. This meeting occurs as part of the CCB so that any revisions to the maintenance and modifications schedule is agreed on and documented as part of a Change Request.

Establishing the Change Control Board

Our standard Change Control process helps establish a CCB that manages and monitors change requests from project initiation to project closure. The CCB prioritizes categorized change requests on the basis of the total needs of the program, and Watson Health completes those requests per the established CCB priorities. Some changes can be implemented with minimal financial impact to the DHHR. Each change requires an impact analysis to evaluate and verify that there are no adverse effects to WV EDS or other modules. We share the results of the impact analysis with the DHHR and other stakeholders so that their input can inform the appropriate course of action.



Watson Health is an active participant and works collaboratively with the DHHR staff as well as the other module vendors on the weekly CCB.

Watson Health Project Internal Review

Changes affecting the project, such as changes to specific business rules, templates, and system documents are submitted to and evaluated first by Watson Health's management team, including the Account Manager, the Implementation Manager and/or Operations Manager, and the workstream Project Managers. The changes are categorized as either maintenance, a modification, or a defect.

Change Control Board Joint Reviews

Upon review and agreement by the Watson Health management team that the request is, in fact, a change, the change request then is reviewed with the WV project team. Next, it is presented to the CCB for disposition and prioritization if applicable. The jointly staffed CCB comprises the DHHR-designated representative(s), as well as Watson Health's Account Manager, Design, Development & Implementation (DDI) Manager, and Operations Manager. This CCB is facilitated by the Process Project Manager, who captures all the notes, updates the Change Log with the decisions, and works others to ensure this process runs smoothly.

This CCB is responsible for governing the WV EDS modularized system change management processes through a formal process that includes the board reviewing, approving, prioritizing, and completing changes as they arise. Some of the benefits of a combined CCB include minimizing contention, increasing commitment, improving performance, reducing costs, and providing an environment for innovation.

Vendor Hosted Versus SaaS Based Models

It is important for the DHHR to understand which components of the solution are specific to WV EDS and others that are provided to the DHHR in a SaaS module. Typically, a customized or dedicated installation of a product allows more flexibility in making software changes to meet unique requirements of DHHR, whereas SaaS is centrally hosted and may serve the needs of multiple customers. Therefore, some software products are much more difficult to change, and it may not be feasible to support change requests under those circumstances.

Other Change Management Needs

Watson Health collaborates with the WV project team on any additions or modifications to our standard change management methodology as needed and documents such items as part of the ChMP.

Organizational Change Management

PM051	The Vendor should propose an organizational change management methodology in support of the Enterprise Data Solution (EDS) implementation

At Watson Health, we understand that the implementation of a new system can be disruptive to current Department operations. It is not easy managing organizational change, and it can rarely be accomplished with a cookie-cutter approach. A successful rollout requires a communication plan with the right message, from the right source, sent at the right time to build the right awareness and desire. Then, the change message needs to be supported by knowledge transfer through flexible training plans and materials that can continuously enable stakeholders to confidently maximize their usage, familiarity, application, and comprehension of all aspects of the solution. Finally, to ensure that change sticks, an appropriate reinforcement system needs to be in place to monitor and encourage ongoing usage. Our training team understands that guiding WV's end users and stakeholders to the desired future state is a collaborative effort and needs to be supported with relevant and accurate learning resources that are readily accessible. Watson Health will work with the Department to implement the training needed to equip WV EDS users with the knowledge, skills, and instruction needed to master the new environment.



Organizational Change Management Plan

Watson Health proposes to develop the Organizational Change Management Plan in accordance with the DHHR's Organizational Change Management (OCM) Team. We coordinate with the DHHR's OCM Team to use the appropriate tools, templates, and standards for the related artifacts. We recognize that the department will request that these activities be completed across the life cycle. The OCM Plan is focused on the impact of changes to people in the organization.

The Organizational Change Management Plan (includes Training Plan) details the Vendor's approach to provide change management and training to the stakeholders for the solution. Deliverables include the Communications Approach and Plan, Training Plan, Training Materials, Training Schedule, User Training Completion, User Manual, and Desk Level Procedures.

The creation of a new WV EDS represents what may be a profound change to the way DHHR and the state of West Virginia currently manage their reporting requirements. Communication is a vital component of the OCM Plan because with targeted communication and key messages, the DHHR's stakeholders can remain involved and engaged throughout design, development and implementation (DDI) and into Operations and Maintenance.

The OCM Plan includes a section on our communications approach specific to organizational change management. We propose to work with the Department to identify the key communication messages and principles, communication channels, key stakeholder groups, and risks. This information guides us in fulfilling this component of the project. The OCM communication approach is a tactical plan for formally defining who receives specific messages, when the messages should be delivered, and the communication channel to be used.

Additional desk level procedures, particularly those that provide a transition between the old system and the new, are to be included in the Training Plan that is a part of the Organizational Change Management Plan. The Training Plan identifies agreed-upon training parameters and user roles for the Watson Health WV EDS. We provide hard copy training manuals for classroom training, with electronic copies available. Each session includes hands-on activities with coaching from our staff.

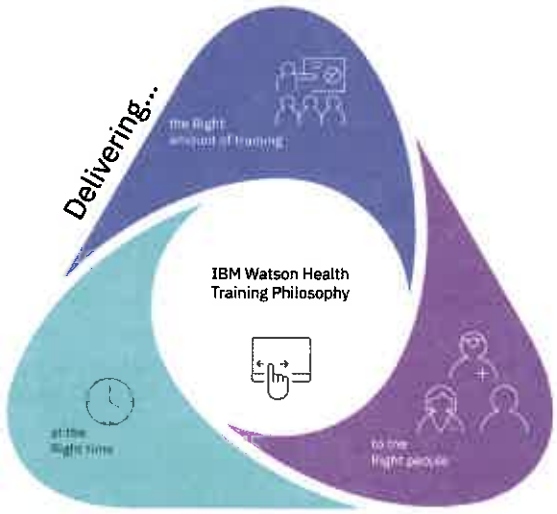
Training specific to report conversion is instrumental, as we know from lessons learned. Change can be difficult under the best of circumstances. Users must be trained on the new system—learning how to get to the reports and learning each specific report so they get the maximum benefit of the tools, reports, and dashboards as early as possible. As your current DSS partner, we are uniquely prepared to help users transition from reporting in the legacy DSS system to leveraging the modernized and expanded capabilities in the EDS to meet their specific business needs.

To ensure a successful transition and minimize resistance, Watson Health engages DHHR's user base during requirements development and validation for the project. We also provide newsletters as the project progresses, and once under operations, send emails to users when new or improved system functions become available. We create system-specific user manuals and other associated documentation to support the successful rollout of any new dashboard, measure, standard report, or other new capability. These communications, along with our comprehensive training, provide assurance to the users that the new system will allow them to, at a minimum, generate the same outputs as the legacy system(s), and identify new features and improvements for their benefit.

From Colorado to Delaware to Alaska to Idaho to all points in between, we have delivered solutions and provided a comprehensive training approach to ensure that users maximize the value of the system and minimize the frustration of not knowing how to get to that value. We do this by using our onsite staff, an organization focused solely on training, and a multifaceted approach that gets continuous learning opportunities to the DHHR.

A Collaborative Approach to Training Design

Figure 72. Watson Health Training Philosophy: *Just in time; just right.*



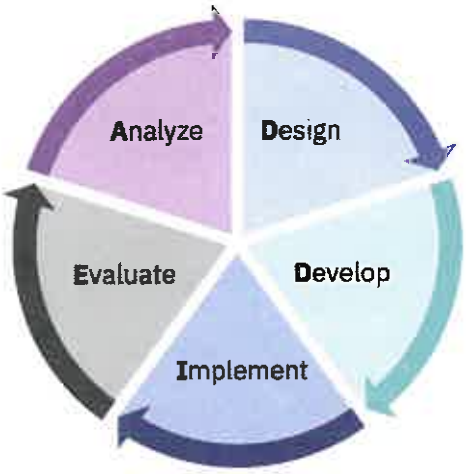
For the DHHR training, we will integrate the expertise of key contributors to design an efficient and effective training solution for end users in a timely manner. Given our decades of experience in healthcare data transformations and analysis, we are able to jump-start the training design and development process leveraging best practices in adult learning principles and instructional design. Establishing an iterative feedback and approval process with DHHR and setting milestones helps our training team implement the approved training and change management plan with the right objectives, message, and operational standards over the life of the contract. Watson Health offers a training approach tailored to your executive, business, and advanced users. We also offer highly effective eLearning programs, engaging webinars, and top-quality instructor-led training. These resources leverage advanced, proven learning techniques, tools, and methods that specifically address the complexity of large Medicaid system implementations. We have assumed that DHHR has a Learning Management System (LMS) in which all applicable training courses and material are maintained.

Iterative Training Development Process

In developing the curriculum for the identified user roles, the team uses the Analyze, Design, Develop, Implement, Evaluate (ADDIE) model of instructional design to propose, produce, publish, deliver, and improve the initial and ongoing training materials to meet the needs of DHHR as the program changes evolve. The Watson Health Account Team has more than 20 years of experience delivering training programs.

The analyze phase will be the start of each iteration. By working closely with the Department to understand the needs of the DHHR and agency stakeholders and monitoring key training performance metrics, our training team identifies gaps in knowledge and skill on an annual basis over the life of the Contract.

Figure 73. ADDIE Model Meets the needs of DHHR.



During the design phase, our team considers the learning styles and current competency levels of all training participants and the unique needs and workflow processes of each security role. Our training focuses not only on teaching the fundamental use of reporting analysis applications but also on developing stronger analysts who are able to effectively use the information to make business decisions.

The insights gathered from each assessment will be converted into a Training Plan that will be submitted to DHHR for review and approval before implementation in DDI and annually during Operations. The Training Plan will outline all stages of the project as well as ongoing training approaches, tools, timing, and durations. We will train authorized users, ranging from business and technical specialist to managers and directors, as well as approved third-party vendors. Once we have a final breakdown of your user groups and their business needs, we will develop a detailed training calendar that indicates the training dates, times, courses, and locations. We will post the training calendar, related news, reference guides, pre- and post-classroom exercises, and other appropriate training materials on-line. The Training Plan identifies agreed-on training parameters and user roles for each of the WV EDS components.

Our training team will be responsible for developing, implementing, and evaluating the approved plan. We will create milestones throughout the process with the appropriate checkpoints to continually solicit feedback from DHHR WV EDS project leads to confirm that our visions align. This approach has proven to help us stay on schedule and reduce the need for unnecessary rework—and it also keeps the end users at the heart of our decisions.

Following each training session, we conduct an evaluation survey. We use the feedback to support continuous quality improvement in training conduct and instructor expertise and performance.

Training Approach

TN001	The Vendor should provide a sandbox training environment for authorized solution users within the solution that uses de-identified data and is compliant with the Health Insurance Portability and Accountability Act (HIPAA), Department, and other State and federal regulations

For training on the WV EDS project, we will leverage the user acceptance testing (UAT) environment. To ensure that we are compliant with HIPAA and all other Department, state, and federal regulations, we will use deidentified data. Using the UAT environment for training will allow us to train on WV EDS-specific data and contextualize the training to datasets that the users will actually use, while maintaining HIPAA compliance.

TN002	The Vendor should develop and maintain a sandbox environment for training that mirrors production

The WV EDS UAT environment will mirror all the data models and datasets used in production as well as users' level of data access to provide training. Any data that enter production must first move through the UAT environment, which will ensure that the two environments mirror each other.

TN003	The solution's training environment should have the capacity to support all components of the solution

The WV EDS UAT environment will support all components of the solution. All business intelligence (BI) tools will be able to access the data within the UAT environment.

TN004	The Vendor should ensure that no aspect of training uses protected health information (PHI), personally identifiable information (PII), or federal tax information (FTI), and that the training materials and environments are compliant with the Health Insurance Portability and Accountability Act (HIPAA), Department, and other State and federal regulations

No aspect of training will use PHI, PII, or FTI during the WV EDS project.

TN005	The Vendor should provide the necessary training and ongoing support to all Department authorized solution users participating in data conversion validation and user acceptance testing (UAT) of the solution components, reporting options, and data structure

Our first wave of trainees will be users who have been authorized to participate in user acceptance training. We provide education and training on the tools and data models to be tested. We then work with User Acceptance Test scripts and user stories to provide at-the-elbow training during the validation of the build. This approach allows users to successfully navigate UAT and validate any associated build.

TN006	The Vendor should provide initial and ongoing training and associated reference documentation to authorized solution users for the duration of the contract, at the request of the Department

Watson Health supports a continuous learning approach. We provide both initial and ongoing training and corresponding user documentation over the life of the contract. Our approach to training leverages multiple formats to provide the right training at the right time to the right user, including e-learning modules, classroom instruction, train-the-trainer, and account team support. We support knowledge transfer of best practices through user groups within DHHR and multi-client webinars.

Table 41. Comprehensive Competency-based Training

What We Do	Outcomes Achieved
Provide multi-phased (DDI and Operations) instructional training focused on advancing tiered levels (beginner, intermediate, advanced) of user proficiency along the expertise continuum	Move end-users of data and tools along and upward in understanding the data, tools and how they can be used to address analytic constructs supporting operational and policy related information needs
Focus our training on understanding the data, tools and policy needs within DHHR	Expertise in all aspects of delivering high quality analytic outcomes
Share best practices from our established user community	Promotes additional analytic constructs and context considering Watson Health experience across the country as well as potential policy impacts

The Training Plan identifies user roles and course offerings, format, frequency, and schedule. We will offer training as agreed on throughout the contract duration to ensure that users are familiar with all updated or new functionality and business processes related to the proposed solution.

TN007	Throughout the duration of the contract, the Vendor should provide regular training sessions for authorized solution users on updated or new functionality and/or business processes related to the solution, at the request of the Department

We will provide training with each new system enhancement or upgrade throughout the life of the contract to help DHHR fully maximize use the WV EDS capabilities. Depending on the extent of changes, we may hold user group meetings to introduce new features and functionality, or we may deliver

this information through formal instructor-led sessions. We also provide train-the-trainer training, which will give DHHR staff the knowledge and education necessary to train peers on the various parts of the solution. To encourage continual learning, we provide internet-accessible content with analytical guides, job aids, tips and tricks, and frequently asked questions.

TN008	The Vendor should track and provide confirmation of attendance at all training sessions and report on which versions of training materials were presented at the training

To track training completion, we will use available scheduling tools and create a Master Training Matrix to track training completion. This enables DHHR to assure that various program areas are engaging with the solution and that staff are gaining requisite system knowledge.

TN009	The Vendor should provide evaluation feedback forms to training participants at the end of each training and provide summaries of these evaluations to the Department

We will leverage training feedback surveys to update training content and delivery and we will provide summaries to the Department as necessary. If the Department does not have a readily available LMS, we will leverage SurveyGizmo to solicit feedback from each of the trainings via a standard feedback form.

TN010	The Vendor should provide hands-on, in-person, remote, and/or online training

To accommodate the various learning needs of our end users and the various solution tools, we leverage in-person, instructor-led, virtual, and remote training modalities. The content of these trainings will be created with DHHR's input and approval and address all components of the solution. We will provide printed copies as well as digital copies of all trainings that can be accessed online.

TN011	The Vendor should provide Department-approved, commercially-available training and/or guide books addressing all components of the solution and provide to the Department at least four (4) copies of each book for distribution as well as online electronic copies

Watson Health will provide Department-approved training materials and/or guide books for all solution components. Commercially available materials and user guides are available for all training sessions regardless of training medium. We also provide comprehensive solution manuals for each solution in both digital and printed formats as requested.

TN012	The Vendor should ensure that all Department-approved training documentation for the solution is posted where authorized solution users can access it on demand

We will post training documentation (training plan, user guides, manuals, etc.) on a DHHR-designated site. Should DHHR wish to load learning materials, including eLearning content, to a state-administered LMS, we will format these to the appropriate Sharable Content Object Reference Model (SCORM) file type and meet all state and federal accessibility requirements for people with disabilities.

TN013	The Vendor should propose a role-based training approach

A key tenet of our approach to system training is to provide users with the information they need to effectively apply training in work-specific applications. Training often incorrectly focuses on system functionality in isolation, thereby delivering a standard training approach. Our team avoids this pitfall through role-based training, which is the most effective approach because it puts training in the context of each individual job role.

We deploy a comprehensive, competency-based user training program that focuses on each user's end-to-end workflow. A high-level training matrix by broad user types.. We recognize that there is a range of skills and business needs that drive reporting and analytic applications.

Figure 74. Training Matrix

Domain	Description	Executive	Business User	Power User
WV EDS Overview	Solution overview of key components and analytics functionality	●	●	●
Reporting	• Dashboards • Standard reports • Prompted reports • Ad hoc reporting	●	●	●
Analytics	• Flexible Analytics methodologies • Predictive / statistical analysis • Fraud, waste and abuse detection • Geo-spatial analysis		●	●
Data Model Overview	• Data conversion, data sources • Best practices for linking data, indexing • Data model and data structure		●	●
Analytic Sandbox	• Importing data • Flexible data manipulation • Data extracts			●

We are experienced in working with large, diverse user communities, and we will actively collaborate with you to target and meet the needs of your users. By working closely with your staff, we can align our training approach to the needs and various learning styles of the end users. For example, we provide courses on:

- **WV EDS Solution Overview –** a high level summary **to familiarize** users of all types with solution components and functionality
- **Specific Analytic and Reporting tools** – courses targeted to specific user types and levels, for example, business users learn about standard and ad hoc reporting, while power users learn how use the analytic sandbox to import data.
- **Data Model Overview** – detailed information on data sources, data transformations, and data model for analytic users and data stewards

Training on the solution tools covers everything from logging into the system to applying functionality relevant to the user's job responsibilities. Users practice with training data that produce predictable results. Each session features hands-on activities with coaching from our staff; we examine specific case studies identified during business analysis, such as monitoring managed care organizations or detecting provider fraud and abuse. To facilitate instructor interaction, we typically limit the hands-on training to 10 users per session.

TN014	The Vendor should develop training materials that support each training

We provide both on-site classroom training and web-based training. We provide hard-copy training manuals for classroom use, with electronic copies available. Each session includes hands-on activities with coaching from our staff. Users can practice with training data that produce predictable results.

TN015	The Vendor should conduct training evaluations that provide feedback on the effectiveness of each training

As the session ends, users complete an anonymous survey assessing the effectiveness of the training program and instructor. We will compile the surveys and deliver them to you. Watson Health uses this feedback to update or enhance training content and evaluate trainer effectiveness.

TN016	The Vendor should provide as-is necessary the training facilities and equipment to best ensure the training's success

We have available training space at our IBM office location to host instructor-led training sessions. However, if there is space available at DHHR's office and it is more convenient for you, we are happy to host training sessions there. Our assumption is that DHHR should provide laptops for each user in order for them to access necessary course materials and the training environment.

TN017	The Vendor should provide user acceptance testing (UAT) training

For users who will be involved in UAT testing, we provide training on the UAT process and project tooling so that UAT testers are familiar with our defect management tool and project repository. Additionally, we provide documentation and training on any reference materials such as data models, business rules, or datasets that are in scope for testing to ensure that testers are familiar with what is being tested and how it relates to the overall goals and desired outcomes of the project. Furthermore, to ensure a successful UAT experience, we provide a user access and setup lab prior to the start of UAT to prevent any connectivity issues.

TN018	The Vendor should provide train-the-trainer training sessions

We offer train-the-trainer training to provide identified subject matter experts (SMEs) with the solution knowledge and training materials they need to support and mentor their peers. We encourage them to assist with end user training and complete a "teach back" before providing end user training on their own. This enables DHHR the flexibility to train new staff when needed. We find that having knowledgeable expert users within your user groups promotes ongoing learning and developing, because staff learn best from their peers through daily use of the overall solution.

TN019	The Vendor should support all aspects of training that the Department and Vendor agree are key towards the trainings delivery

Our Training Plan will capture all training needs and audiences required for the scope of the contract. The Department will have final signoff and approval of all training that is required. Watson Health will support all aspects of training that both groups agree are key to the training delivery.

TN020	The solution's training environments should be reflective of real-world data

We will train end users utilizing the UAT environment, which will contain DHHR-specific data, so that users can learn on real-world data and real-world scenarios. Each user's security level will mimic what they have access to in production. We will also ensure all PHI data are deidentified and HIPAA compliant.

TN021	The solution's training environments should include end-to-end training on processes during applicable phases of the project

We deploy a comprehensive, competency-based user training program that focuses on each user's end-to-end workflow. Training includes education on aspects of the WV EDW solution and associated implementation and operational processes that users require to be effective in their day to day work. For example, our Data Warehouse Overview describes our data quality processes so that data stewards understand the information they will have available to follow up with data suppliers.

Implementation Methodology

Requirements Analysis and Solution Design Methodology

PM002	The solution's initial data load should consist of all data contained within the existing data warehouse decision support system (DW/DSS) at the time of the implementation of the Enterprise Data Solution (EDS)

Data Migration and Initial Data Load Strategy

Watson Health's experience with the risks, complexities and competing challenges of a data migration project informs our approach to a successful Data Migration Strategy for the WV EDS. We share your collective goals for this undertaking and will achieve these goals by performing a comprehensive analysis of all data contained within the current WV DW/DSS, as evaluated within our requirements validation JAD sessions with DHHR. This data will consist of the current data sources in the WV DW/DSS (MMIS, PEIA and WV HSC), and other data source data within the WV DW/DSS at the time of the WV EDS implementation that have been evaluated by our requirements validation sessions and that have been approved for migration into the WV EDS via the WV EDS Change Management process.

Data from the Core MMIS and other systems will be modeled and integrated into our Watson Health Core Data Model (CDM) for WV EDS reporting and analytics. Our experience deploying solutions using the MMIS data from DXC means that we have many of the required customizations pre-built, creating efficiencies for DHHR. We have translated source data from DXC MMIS systems into health analytics for our state clients 16 times. And, as your current vendor, we will rely on our team's knowledge of your MMIS and the data and structures of your existing DW/DSS. By completing these actions, we will ensure the completeness, quality and accuracy of the data migrated to the WV EDS platform and data stores.

We understand and acknowledge the challenges in migrating historical data from source data systems into a new repository with different structures and relationships. Source data comes from transactional, registry, commercial-off-the-shelf (COTS), custom, legacy, vendor-hosted, internal, and external systems. It comes from technologically disparate systems, each presenting different challenges in retrieving, translating and storing the data accurately, accessibly and in a historically meaningful context. Maintaining the integrity of historical data is a critical underpinning of meaningful analytic solutions. Conforming data as consistently as possible to a data model designed for reporting and analytics will provide the most historically meaningful and analytically flexible solution to DHHR.

To ensure the data migration and conversion is in alignment with DHHR expectations, a Data Conversion Plan will be provided to DHHR for review and approval before performing any specific data conversion and migration technical development activities. Each data source within the WV DW/DSS will have a tailored conversion plan to ensure the data content is converted correctly to the new data model and overall solution. The strategy and plans will be flexible to accommodate the timeline and requirements for conversion and migration of each logical set of data without disruption of current WV DW/DSS operations.

The data will be converted and migrated into the WV EDS Data Staging area for cleansing, transformation and enrichment activities. The data migration jobs will translate business rules into generated code for implementation and perform the data manipulation and conversions required within the data migration and initial load process. This approach enables the migration and initial data load to be built and performed more quickly and consistently and minimizes requirements for custom coding which can be prone to error.

PM003	The solution's initial data load should be inclusive of all data sources identified by the Department

Data Conversion Plan

Watson Health will develop and submit a Data Conversion Plan inclusive of all designated data sources for loading into the WV EDS. The Data Conversion Plan will include a list of all current data sources in the WV DW/DSS, (MMIS, PEIA and WV HSC), plus additional data sources identified within the WV DW/DSS at the time of the WV EDS implementation that have been evaluated by our requirements validation sessions and that have been approved for migration into the WV EDS via the WV EDS Change Management process.

We understand there will be a variety of data sources designated by DHHR for conversion and loading into the WV EDS. Validation starts at the very beginning of the process when we identify the systems requiring data conversion and migration. Our Data Conversion Plan will address the scope of the data conversion based on our discovery and evaluation of the source data and DHHR's direction on defining data relationships, mappings and transformation requirements. The current WV DW/DSS data sources (MMIS, PEIA and WV HSC) will be evaluated for conversion into the WV EDS. New data sources identified during the project implementation phases will be accommodated via Change Requests (CR) as defined by our WV EDS Change Management process and will be integrated into the solution as approved by this process.

PM004	The solution should support daily, weekly, monthly, and as needed data loads from all data sources identified by the Department

The WV EDS solution depends on consistent data flowing into the WV EDS Data Staging layer and integration and transformation logic being accurately applied to the data in the data stores and data marts. We will work with each individual data source supplier to develop and execute an Extract-Transform-Load (ETL) Plan that will allow both the supplier and Watson Health to validate and confirm operational readiness to load data into the WV EDS on a designated schedule as identified by DHHR. We will receive data from all data suppliers based on a mutually agreed to schedule/project plan, including both historical and incremental data loads. This schedule will support daily, weekly, monthly or as-needed load frequencies to accommodate data refresh and latency requirements as defined by DHHR and supported by the data source suppliers.

Data Load Approach

The following commitments and activities will contribute to our approach to data loads:

- We will verify that all the data sources can be received, stored, transformed and loaded into the WV EDS.
- We will work with DHHR and all source suppliers to develop an ETL Plan that optimizes the WV EDS loading process while minimizing system impact to the users. As an example, our plan might include bulk file extracts for initial analysis and population of some source data into the WV EDS. We can copy these extracts into the Data Staging layer and use those copies as the migration source for the downstream data stores rather than working directly from the data source systems.
- We will work with DHHR to define specific business needs and performance criteria to determine the level of latency that is acceptable in the WV EDS production environment. We will design our data load strategy to best accommodate specific business requirements across the WV EDS.
- We will work with DHHR to define and order how the conversion and migration processes will progress.

- We will conduct checks and balances at various steps throughout the data conversion and migration process to validate accurate and successful results. We use data reconciliation reports to confirm that all the data was loaded correctly.
- We will monitor all the data load processes and create SLA reports around data loads.

Operational metadata will be automatically captured from all load jobs and will be retained in the Infosphere Information Server metadata repository. Data loaded into the WV EDS will be identified by the source system from which it came, and data lineage will be maintained throughout all data processing activities. The operational metadata about the sources, targets, and the job runs themselves is all captured automatically at run time and kept available for review in the common metadata repository.

PM005	The Vendor should assist the Department in obtaining, integrating, and maintaining data that includes but is not limited to
PM006	Medicaid data
PM007	Medicare data
PM008	Commercial payer data
PM009	West Virginia Children's Health Insurance Program (WVCHIP) data
PM010	Managed Care Organization (MCO) data
PM011	Higher education facilities and universities data
PM012	Administrative Services Organization (ASO) data
PM013	Health Statistics Center (HSC) data
PM014	Public Employees Insurance Agency (PEIA) data
PM015	West Virginia Health Information Network (WVHIN) data
PM016	Hospital Data
PM017	Others as defined by the Department

Data Integration Strategy

Watson Health routinely integrates with Medicaid Management Information System (MMIS) vendors and other data suppliers to receive inbound data feeds and accept outbound data feeds. During DDI, we create detailed Source to Target Mapping (STM) of all inbound and outbound data feeds. The Watson Health Data Integration workstream works directly with the other vendors to create, review, and finalize these STM documents. For the Colorado BIDM project, we have integrated with more than 80 individual data feeds and their suppliers including with the state's MMIS vendor, all-payer claims database, Colorado Benefits Management System, Department of Corrections, Department of Education, Vital Statistics, Accountable Care Organizations, and various other program-based data feeds.

IBM provides a comprehensive and robust data model that accommodates different types of data ranging from claims, encounters, Medicare claims for dual eligibles, and crossover claims. The data model integrates birth and death registries, immunization registries, and vaccination data from vital statistics. It also assimilates data from administrative service organizations like dental management (e.g. Doral dental), non-emergency transportation claims (e.g. LogistiCare), behavioral claims (e.g. Magellan) and pharmacy claims (e.g. Catamaran). In addition, it models clinical data such as laboratories and hospital admission, discharge and transfer (ADT) data. Lastly, it models social determinant data (e.g. Juvenile incarceration, education data). The model is built not only to provide immediate value to a Medicaid organization but also to help an organization create a comprehensive view of its members over the lifespan of the program for better care delivery.

In addition, Watson Health develops data integration and quality reports that are used during operations to monitor the quality of the data feeds and to reconcile data to the source. As the Watson Health team moves into operations, the operational support and maintenance workstreams continue to monitor the data feed quality. Using these reports, Watson Health's operational support and maintenance workstreams detect and communicate any data quality issues to DHHR and the supplier prior to integration in the WV EDS solution.

Coordination Across Vendors and Suppliers

Watson Health coordinates operational enhancements and maintenance with other suppliers using the Operational Support and Maintenance Release Roadmap and the Enhancement Release Roadmap. Watson Health includes other suppliers in the planning sessions for the initial development and requests input from these suppliers related to scheduling activities. DHHR benefits from this approach because the early planning reduces schedule conflicts. In addition to the early planning, as Watson Health works with DHHR to adjust the release roadmaps, the suppliers are also brought in to discuss any potential changes to the WV EDS release roadmaps that may affect them and to contribute any source changes that may in turn affect these release roadmaps. These coordination discussions happen at least quarterly during the Operations phase.

Although West Virginia is using multiple suppliers to deliver different pieces of the solution required to manage the Medicaid population, the overall solution delivery must act like a single solution. Watson Health has worked with other vendors to bring cohesive delivery of the solution needed by our customers. For example, for the New Mexico EDW project, Watson Health has worked with solution integrator and data suppliers to create a single integrated project plan. With a single integrated project plan, the New Mexico Human Services Department has understood dependencies and reduced risks across vendors; and the overall delivery has become a single integrated solution. Watson Health has found that the key to building a successful integrated plan and solution is through open communication. We work with a solutions integrator and other suppliers to communicate our dependencies and constraints. This open communication allows all pieces of the project plan to fit together and become one integrated plan.

Based on our experiences working to improve communication between suppliers, Watson Health recommends using an enterprise Change Control Board (CCB). An enterprise CCB brings all the suppliers together to review upcoming changes and to understand the interdependency between planned efforts. The enterprise CCB ensures that risks to operational changes and enhancements are discussed and mitigated during planning. Through this risk mitigation process, DHHR can be better assured of a stable and high-quality solution.

Also, Watson Health recommends that a combined single status report and template be developed for effective communication. In New Mexico, Watson Health has worked with the solution integrator and other suppliers to develop a single status report from all suppliers. This single status report ensures consistent and high-quality status communication from all data suppliers. DHHR will benefit from the single source of truth for solution delivery status.

During operations, Watson Health continues working with the other data suppliers to ensure open communication and coordinated efforts for release roadmaps, integrated project plans, and all operations maintenance and enhancement activities to deliver consistent solution health to DHHR.

PM018	The solution should support the integration, management, and use of data from the following data sources including, but not limited to
PM019	Medicaid data
PM020	Medicare data
PM021	Commercial payer data
PM022	West Virginia Children's Health Insurance Program (WVCHIP) data

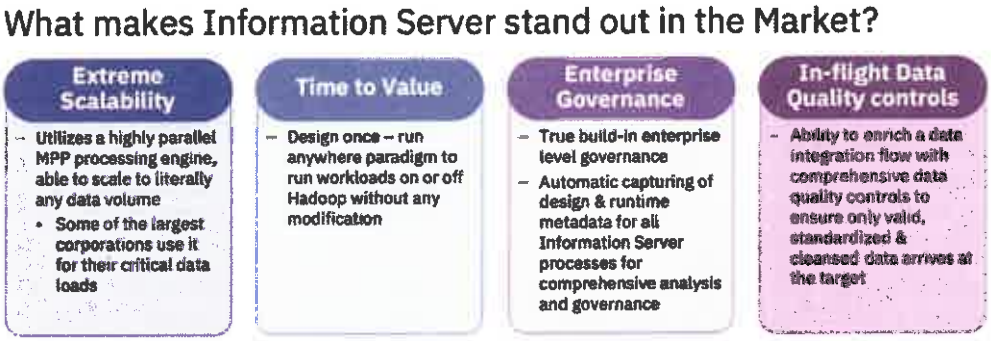
PM023	Managed Care Organization (MCO) data
PM024	Higher education facilities and universities data
PM025	Administrative Services Organization (ASO) data
PM026	Health Statistics Center (HSC) data
PM027	Public Employees Insurance Agency (PEIA) data
PM028	West Virginia Health Information Network (WVHIN) data
PM029	Hospital Data
PM030	Others as defined by the Department

Source Data Integration

The ultimate success of our solution depends on its ability to be interoperable with numerous clinical and administrative data sources, both traditional and those of new types and formats. Our approach to data integration maximizes flexibility and scalability in the solution by building a foundation that can meet varied and changing demands for reporting and data usage. Data is made available in all forms. Data from different sources such as Medicare, Commercial payers, Health Information Network, etc. is obtained, integrated, conformed, and maintained to support sophisticated decision making for beneficiaries, administrators, providers, and/or partners. Provided DHHR has appropriate business associate agreements and/or data sharing agreements with various data source agencies, we will ensure that DHHR can integrate and maintain the above-mentioned data sources into the WV EDS.

Our solution utilizes the IBM Infosphere Information Server suite of tools to provide data exchange, transformation, and integration capability. Infosphere Information Server is a data integration software suite that helps derive more value from the complex, heterogeneous information spread across systems. Each tool in the suite shares a common metadata repository. Information Server provides a common framework of shared services that enables users to understand and collaborate about their data, cleanse data, monitor its quality, transform it and deliver it as trustworthy information.

Figure 75. IBM InfoSphere Information Server Leading Capabilities. *Gartner positions IBM InfoSphere Information Server as a Leader in the Magic Quadrant for Data Integration, Data Quality and Metadata Management Tools.*



IBM is continuously positioned as a Leader by Gartner in the Magic Quadrant for Data Integration tools, Data Quality tools and Metadata Management solutions, for its ability to execute and completeness of vision. [For Data Integration & Data Quality tools] Most recently, IBM was highly recognized in the Critical Capabilities report for Data Integration.

Sources: Gartner Magic Quadrant for Data Quality Tools, Saul Judah, Mei Yang Selvage, Ankush Jain, 23 November 2016. Gartner "Magic Quadrant for Metadata Management Solutions", Guido De Simoni, Roxane Edjlali, 15 August, 2016, Source: Gartner "Magic Quadrant for Data Integration Tools", Mark A. Beyer, Eric Thoo, Ehtisham Zaidi, Rick Greenwald, 8 August 2016 Gartner does not endorse any vendor, product or service depicted in its research publications, and does not advise technology users to select only those vendors with the highest ratings or other designation. Gartner research publications consist of the opinions of Gartner's research organization and should not be construed as statements of fact. Gartner disclaims all warranties, expressed or implied, with t respect to this research, including any warranties of merchantability or fitness for a particular purpose.

Infosphere DataStage is the data integration component of Information Server that provides a graphical framework for developing jobs that move data from source systems to target systems. Infosphere QualityStage runs on and uses the same design interface as DataStage, providing additional "stages" that perform data quality centric tasks on data. These data integration tools are the foundation of our data integration solution and using these tools, we are confident in our ability to integrate and manage the cited data sources.

Master Data Management (MDM) is an area of functionality within the WV EDS that provides "golden" records for the core data entities, which are essential to the overall operation of the organization. Our WV EDS will receive the Master Client Index (MCI) and Master Provider Index (MPI) from the Master Data Management (MDM) solution provided by the IES vendor. We will use this identifier to identify each unique Client (Member) and Provider and will merge data from multiple sources into a single "golden record" in the WV EDS. This approach provides a firm foundation on which to build information related to Members, Providers, and other claims-related master entities, such as Facilities or Locations. A golden record will be established for the defined core entities that exist in the WV EDS based on guidelines established in collaboration with DHHR. We will receive the master identifiers for all core entities from the IES vendor identifying the master record for any claims-related information we receive. The golden records combined with real-world linkages between entities will enable DHHR to conduct the important analysis that will assist them in managing a modern Medicaid agency.

PM031	The solution should have the ability to support data quality assurance and control activities

Data Quality Assurance

Building a data warehouse is a complex project, and two of the most important tasks for ensuring data quality across the solution are data conversion and data migration. Our solution has multiple checks and

balances built into the process to ensure the end results are of high quality and meet expectations. We will conduct testing at various steps throughout the data conversion and migration process to ensure accurate and successful results.

Our data quality assessments ensure data taken into the warehouse balances properly internally and with the WV DW/DSS extracts. If we discover discrepancies or errors, we will work with the appropriate DHHR data stewards to identify their causes and rectify them. We will immediately correct any process errors identified as root causes. Quality issues will be documented and reported to DHHR as specified in the Quality Management Plan. We will also establish a triage process with DHHR and the data source agency to timely resolve any issues. For discrepancies in the data at the source, we will establish a feedback loop to proactively work to fix these issues in the extraction process rather than continuing to fix it reactively during the data conversion process.

Quality conditions and statistics are continually tracked on all data received into the WV EDS to help ensure that data in the WV EDS data stores upholds acceptable quality conditions. The solution will manage and maintain data quality throughout its life cycle. The result of this process will be data that has been migrated, converted and stored in the WV EDS at a level of quality suitable for all types of analytical processing and decision-making support.

PM052	The Vendor should conduct requirements analysis sessions with the Department during which the Vendor will review, refine, and seek approval for all requirements included in this Request for Proposal (RFP)

Watson Health recognizes the importance of requirements analysis and management as well as understanding the detailed data and analytic needs of our customers. We dedicate an entire workstream to Requirements Management for our data warehouse and analytics projects. This workstream gathers and organizes Request for Proposal (RFP) requirements, decomposes requirements into detailed requirements, documents requirements, and creates and maintains the Requirement Analysis Document (RAD) and the Requirement Traceability Matrix (RTM) document. Watson Health uses JAMA as a tool to assist in capturing and managing these requirements and associated reports.

The Requirements phase is dedicated to fully capturing all functional and nonfunctional requirements, including the compliance with the Medicaid Information Technology Architecture (MITA), the Centers for Medicare & Medicaid Services (CMS) Standards and Conditions, as well as applicable CMS Certification Medicaid Enterprise Certification Toolkit (MECT) criteria. Our proposed solution follows the Center for Medicaid & State Operations (CMSO) initiative for MITA to promote integrated data transformation across the enterprise and improve the administration of Medicaid. Watson Health will use MITA standards applied in other states toward efficient reuse and compliance with the CMS Standards and Conditions.

During the Requirements phase, our Requirements Management workstream facilitates sessions in our process with DHHR subject matter experts (SMEs), Watson Health's Requirements Workstream Leader, other business analysts, and members from our technical team directly involved in eliciting, documenting, validating, and gaining final approval on all requirements. Watson Health calls these sessions Requirements Analysis Sessions (RASs). During RASs, if gaps are identified, new requirements are added and will follow our standard change management process for disposition and next steps. The output of our Requirements Management workstream includes documentation that drives how the system is designed to meet technical requirements and expectations, as well as long-term use and reuse.

PM053	The Vendor should work with the Department to design the system in accordance with the following design phases
PM054	Preliminary System Design
PM055	Detailed System Design

PM056	Final System Design

The Design phase involves interpreting the requirements into an approach and tactical solution for our development team. The primary goals are to (1) create a detailed understanding of what should be developed, (2) ensure that the system design is well documented and has received staff buy-in, and (3) submit the information to key stakeholders for their approval in preparation for development, testing, and eventual deployment. This is a major phase in the program, and it is clarified and refined through multiple reviews and approvals. Within this process we create the deliverable—the Detailed System Design document (DSD). This document is developed and reviewed iteratively throughout the releases as the individual solution pieces are complete. Our collaborative documentation design, development, and approval process gives DHHR the confidence that Watson Health will meet all project specifications.

The outcomes of this process also include detailed design elements, such as the Data Dictionary and other key deliverables detailed in the release schedule. We also assemble test plans for subsequent phases so that they synchronize design with user expectations.

A common issue with any system design involves overcoming obstacles. Although each design step entails some level of challenge and technical decision-making, some issues require a higher level of analysis, participation, and consideration. We build and operate your data warehouse in close coordination with existing source systems as well as newly constructed programs, systems, requirements, and stakeholders. We apply strict design discipline to mitigate risks associated with design challenges. In this industry, creative designers often seek to solve issues with unproven methods or by embarking on imaginative design detours. This approach can create as many problems as solutions, and invention is usually time consuming. However, our development team uses proven design principles and best practices to mitigate such issues. For interoperability issues, we use the methods and tools that have proven effective in similar projects.

Design challenges are most often resolved through the problem decomposition process. By using system-engineering processes, we dissect design obstacles and break them into smaller components until we fully understand the conflicts and identify alternatives. For issues with design-wide impacts or issues that affect interfaces and/or multiple organizations, we escalate resolution processes to the optimal set of decision-makers.

PM057	The Vendor should be responsible for all costs associated with requirements analysis and solution design

Watson Health has established extremely efficient and effective requirements analysis and solution design processes within our system development life cycle (SDLC) for enterprise data warehousing (EDW) and analytics projects. In fact, we recently received positive feedback on the effectiveness of the process from one state after completing the Requirements phase for a large EDW project. Our efficient processes enable us to control costs, and we plan to be responsible for costs associated with the requirements analysis and solution design during the WV EDS project.

PM059	The Vendor should detail their approach to both requirements validation and joint application design in support of requirements analysis and solution design activities

Requirements Analysis Sessions

Initially, our Business Analysis team uses a requirements grouping methodology to break requirements into domain and/or business process functional areas. We load these requirements into our requirements management tool, JAMA. Our internal business analysts and subject matter experts (SMEs) perform an initial review of the contract requirements to assemble initial sets of questions for requirement decomposition. From there, our Business Analysis team facilitates a series of Requirements Analysis Sessions to decompose RFP requirements and thoroughly understand, verify, and document all DHHR

needs. The sessions focus on business process areas and domains, source system data requirements, and data availability and structure. We evaluate all aspects of the system and work with DHHR to identify and assign a DHHR business owner to assist in the sessions—providing subject matter expertise and confirming acceptance criteria for each requirement. Identified DHHR business owners are a critical part of the requirements validation process, including review and approvals. DHHR receives training on all of these activities to support the end-to-end Requirements Analysis Session process.

In addition to training on the Requirements Analysis Session process, Watson Health provides clear visibility into the Requirements Analysis Session schedule, typically by business process areas, to ensure an efficient Requirements Analysis Phase. Watson Health works collaboratively and directly with DHHR to develop a feasible schedule to plan and prioritize sessions, enabling a successful outcome and ensuring all critical system needs are met. The sessions also explore your current ad hoc or unmet system needs. Deliverables from the Requirements Analysis Session process include an initial Requirements Analysis Document (RAD) as well as an initial version of the Requirements Traceability Matrix (RTM).

Joint Application Design Approach

The West Virginia data analytics platform has been carefully crafted using commercial off-the-shelf-based technologies that continually stay up to date on industry standards. For example, we began using IBM Cognos Analytics more than 20 years ago in a strategic partnership with our flagship decision support system platform, Advantage Suite. Over that time, Cognos's capabilities have continually been updated in accordance with the modernization of technological capabilities. This holds true with all our partnerships and the tools we have selected and standardized as part of the WV EDS. We continually monitor the product roadmaps of our selected tools and incorporate any new innovations as they become useful to our solution. This strategic approach to our solution design principles ensures that DHHR has an enterprise data warehouse (EDW) and analytics platform that will evolve with the industry for many years to come.

Although Requirements Analysis Sessions are led and driven by the business analysts, with technical team support, our joint application design (JAD) discussions are driven by our technical teams, with business analyst support.

Our approach to Requirements Analysis Sessions and JAD includes establishing a joint SME matrix by business process/solution module areas from both Watson Health and DHHR. Watson Health creates a calendar of Requirements Analysis Sessions and shares it with DHHR for review, resource assignment, and approval. We take care of the scheduling and use JAMA for real-time collaboration and note-taking during the sessions. The high-level recommendation for the WV EDS project Requirements Analysis Sessions is as follows: Out technical teams establish JAD discussions and reviews during the development and review cycles of the contractual design documents.

Beginning with the data warehouse, each requirement grouping set should have a minimum of two half-day Requirements Analysis Sessions. The detailed schedule for the order of these groupings depends on SME availability from DHHR, as well as availability of source system data. For example, we might take the following approach:

- Grouping 1: member, provider, eligibility, and enrollment data with corresponding reference information
- Grouping 2: claims, encounters, prior authorization, and pharmacy data and corresponding reference data
- Grouping 3: program integrity, third-party liability, care/case management, and registry data

Capacity Planning in the Design Process

We also include capacity planning in our solution design activities. Watson Health provides DHHR with a detailed System Capacity Management Plan with the specific details of our methodology. This model borrows heavily from widely adopted and accepted Information Technology Infrastructure Library (ITIL) Capacity Management standards and includes elements that we have developed in house. The fusion of these models, coupled with decades of experience in solution design, has enabled us to provide our customers with a simple yet effective strategy that addresses the most demanding requirements of the EDW and analytics solutions we implement for state customers.

A seamless integration of people, methods/processes, and tools come together to deliver our capacity management framework; it is guided by delivery of IT services and begins with Initial Sizing and Capacity, one of the five principal elements suggested by the ITIL model:

- Initial Sizing and Capacity: Our engineers calculate the initial size of each data warehouse component on the basis of several factors, such as—
  - RFP requirements and inputs
  - Vendor best practices and sizing recommendations
  - Watson Health internal tools and formulas, based on historical data collected from the hundreds of healthcare system solutions we have implemented

Our strategic approach to design and capacity planning ensures that West Virginia is set for a defined future of modular scaling. JAD discussions and iterative design documents enable Watson Health to provide clear transparency to design aspects, as well as align with WV EDS goals for modularity and future expansion plans.

PM1060	The Vendor should maintain a requirements traceability matrix (RTM) throughout the lifecycle of the project

Watson Health uses JAMA and JIRA, industry-leading tools, as the system of record for requirements management, testing, and end-to-end requirements traceability. The validation of all project requirements up front in our software development life cycle (SDLC) process within Requirements Analysis Sessions, as well as the integration of JAMA and JIRA tools and processes for requirements management and test management, enable Watson Health to maintain an updated RTM throughout the life cycle of the WV EDS project.

Watson Health generates the project's RTM directly from JAMA as required by the project schedule and as part of our standard requirements management process. The RTM contains the original contract requirement and is decomposed to functional/nonfunctional and technical requirements. In addition, applicable requirements are linked to the technical workstream work products (via a direct integration with JIRA) for full traceability related to the development effort. Requirements are also linked within JAMA to all testing cycles for visibility and traceability of test confirmation and acceptance through systems integration tests and user acceptance testing cycles.

The RTM generated via JAMA is the source of truth for requirements status and management throughout the life of the project. Requirements move from validation to design and development and finally testing stages. Defined DHHR SMEs will have access to JAMA for visibility and insight into the evolution of a requirement or set of requirements through the project life cycle. The Requirements Management project workstream manages the information in JAMA throughout the project and gains approval from DHHR along the way until the final RTM is delivered for the project.

PM1061	The Vendor should provide all stakeholders identified by the Department access to the requirements traceability matrix (RTM)

The RTM is a key project deliverable and is accessible to all stakeholders identified by DHHR. The JAMA requirements management tool easily exports into a Microsoft Excel document that will be posted and made accessible per the RTM deliverable listed within the Document Management Plan and project schedule. In addition, defined DHHR SMEs will have access to JAMA for visibility into requirements management; the RTM can be easily exported from the JAMA tool at any time throughout the project life cycle.

PM062	The Vendor should document in the requirements traceability matrix (RTM) where each requirement is accounted for within the following areas
PM063	Design documentation
PM064	Code modules
PM065	Test conditions
PM066	Test scenarios
PM067	Test cases
PM068	Certification criteria
PM069	Medicaid Information Technology Architecture (MITA) business areas and processes
PM070	Medicaid Information Technology Architecture (MITA) Standards and Conditions
PM071	Others as defined by the Department

The RTM will include key fields, attributes, or legends that identify, contain, or reference (when applicable) the following: design documentation, code modules, test conditions/scenarios/cases, applicable CMS certification criteria (Medicaid Enterprise Certification Toolkit [MECT] checklist items), MITA business areas, processes, MITA Standards and Conditions, as well as other RTM data elements as defined by DHHR.

PM072	The Vendor should demonstrate through the requirements traceability matrix (RTM) that all documented and approved specifications have been traced throughout the development lifecycle

Watson Health uses JAMA and JIRA as an integrated tool suite to document and track requirements, manage development tasks, manage test cases, and produce an end-to-end RTM. Requirements statuses are stored and managed in JAMA as the single source system for the requirements management process. Each requirement contains an attribute to represent status as it moves through the SDLC until the requirement is successfully tested/approved and satisfies the RTM. Throughout the project life cycle, all test cases are linked to at least one requirement and become a part of the RTM, providing visibility and validation that project requirements have been met.

PM073	The Vendor should work with the Department to fully understand the scope, purpose, and implications of each Request for Proposal (RFP) specification

Watson Health has engineered our SDLC processes, including requirements elicitation and validation steps, in the Requirements Analysis Phase, to fully understand the scope, purpose, and implications of each RFP specification or requirement. Our business analysts are experienced in facilitating Requirements Analysis Sessions to uncover both technical and business process project requirements. In addition, our Requirements Analysis Sessions are designed to elicit and confirm scope during conversations about how DHHR uses a specific requirement within Department business processes. The more the Department can share with Watson Health about the "as is" business processes during Requirements Analysis Sessions—combined with our knowledge gained from work currently performed for DHHR—the greater the alignment of business and technical requirements to DHHR business processes. This business process

alignment and collaboration also aids Watson Health's business analysts in documenting "to be" business process models in support of the MITA framework.

PM074	The Vendor should identify and work with the Department to resolve gaps between the Vendor and the Department's understanding of a specification

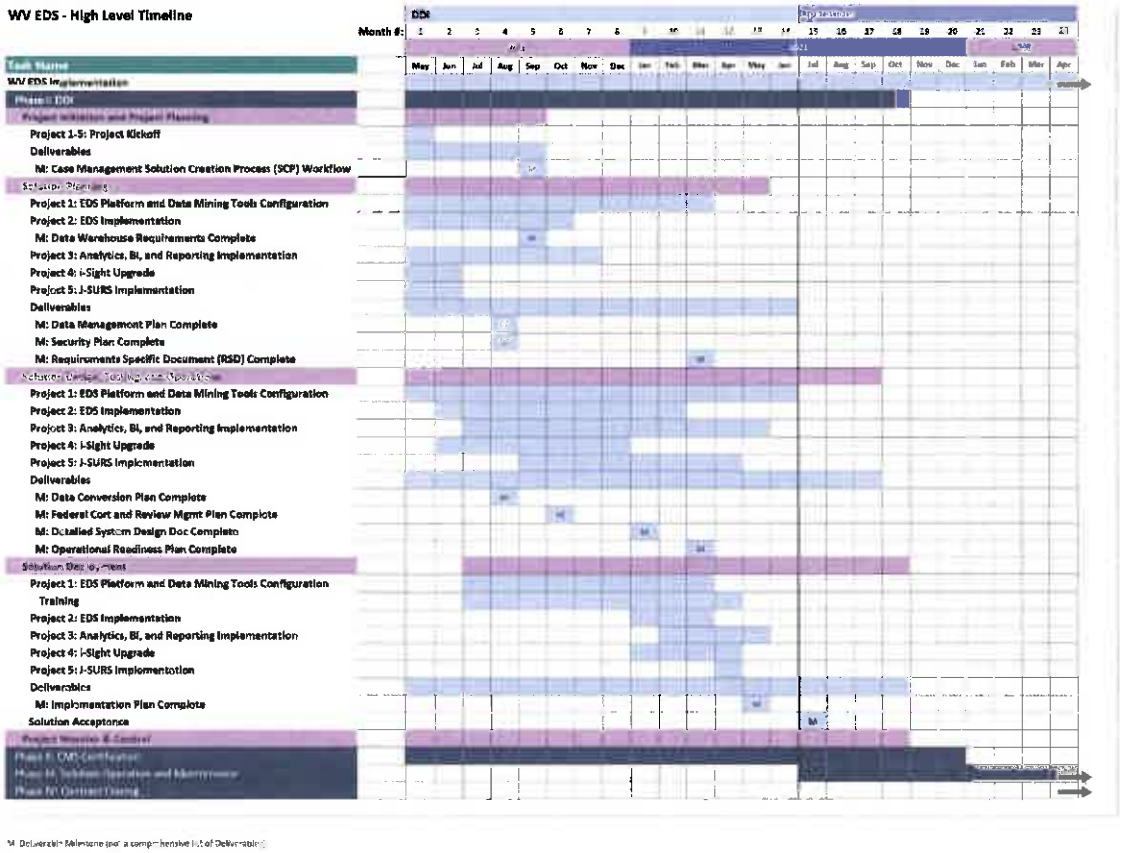
Watson Health's experienced staff has an approach to understanding and validating requirements that has been proven across several successful implementations of similar size and scope. Our approach is focused on bringing the right sources to planned sessions at the right time. Whether we are reviewing architecture, data governance, business processes, or technical requirements, our approach always starts with the alignment to contractual requirements as the foundation. Every successful project has also had the commitment from our client to directly bring unfiltered counterpart representation from the state to provide input and to approve defined acceptance criteria. We have experienced gaps in understanding of specifications only when there were resource SME gaps as well. Our project governance structure supports a clear escalation path of how the working teams can quickly raise the visibility of a gap in mutual understanding of a requirement. Watson Health's approach depends on mutual commitment to the project schedule, SME staffing, and understanding of project supporting/governance processes.

Solution Development Methodology

PM131	The Vendor should propose and execute a plan for a phased approach to the solution's development, including all of the solution's components and modules.

Our implementation will follow our standard CMMI and iterative development approach to support a phased integration of the WV Enterprise Analytics solution components. From day 1, we'll begin data conversion and migration activities. We'll also begin data management activities, finalizing the feeds and formats from the source systems (e.g., MMIS, PEIA) to integrate into the EDW. As components and capabilities are available, including the J-SURS update, we will begin phased releases to UAT with small sets of DHHR users. The WV Enterprise Analytics phased approach can be seen in the graphic below with an upgrade first made to the WV DHHR i-Sight module, followed by increments of prioritized reports occurring , access to the upgraded J-SURS module using the new EDW, and delivery of the new EDW. Parallel testing will occur in three phases to support old/new i-Sight, J-SURS, and the EDW. All components of the WV Enterprise Analytics solution will move through an iterative SDLC as agreed and detailed in the project Schedule, and will enter the Operations Phase concurrently in month 14 of the contract:

Figure 76. IBM's Proposed Project Schedule. *Our project schedule offers West Virginia early results, leverage of successful best practices, and confidence the project will complete on-time.*



The iterative development approach enables concurrent tasks in the Schedule across the EDW, Reporting, i-Sight, and J-SURS workstreams for each component and/or module dependent on the EDW. The development of the data model and EDW will support the iterative delivery to UAT of Reports in the order we have jointly prioritized based on business process areas, e.g. Financial Management. The requirements analysis sessions validation phase will have followed this same business process area order early on in the SDL for each component. Throughout the implementation, we'll track each of the deliverables, requirements, and solution functionality to the CMS certification checklists. We will prepare for operational go-live activities as we near the end of phase 1 DDI, with training, and final data migration and conversion. Post go-live activities will include parallel processing period, where we'll work with DHHR and current data suppliers on resolving any issues identified as users transition to the new system. CMS certification activities continue post go-live in parallel to completing operational deliverables and DDI project closeout activities.

PM132	The Vendor should propose a solution development plan that includes but is not limited to the following elements
PM133	Code base management
PM134	Source code security analysis
PM135	Development standards
PM136	Individual developer machine configuration requirements

PM137	Build machine configuration requirements
PM138	Code check-out and check-in procedures
PM139	Developer tool expectations
PM140	Others as defined by the Department

With architects, analysts, and developers working on government healthcare analytics projects across the country, Watson Health understands the importance of a consistent approach to solution standards, code and environment maintenance, and security. For each our projects, we build a solution development plan using IBM and Watson Health standards, examples, and best practices, then tailor it for customer-specific needs and approaches. To coordinate all this, our teams must work with our customers to use consistent tools and, in essence, speak the same language.. The solution development plan then describes in detail how to manage releases of environment code and configuration, the underlying system environment. And, our plan is designed to keep our customer stakeholders fully informed participants in the development and release management process. We will work with the Department during the DED process to make sure that the Solution Development Plan contains all the elements that the Department expects.

For Watson Health, the solution development plan begins with the environment. Our implementation teams build an environment that adheres to HIPAA privacy constraints, and relevant NIST 800-53 security controls. We leverage a consistent environment and consistent security and management tools—all of which must be audited to meet HIPAA mandates and NIST 800-53 security controls. Our solution plan describes how Watson Health implementation teams leverage our standard infrastructure security and build standards, pointing teams to the relevant standards themselves and how to document and control a customer's environment configuration. The environment is managed as a series of configuration items (or CIs) managed through ServiceNow and documented as defined in the system development plan as tailored for the CI type in question.

Similarly, our developers must use development tools and platforms that have been audited and approved for the kind of work that we do. Our standards and expectations leverage both global IBM development security standards and Watson Health-specific standards. These controls are maintained through standard server and application build processes, and through operational controls and audits. Both development and operational controls are updated as security standards and threats change over time. The solution development plan will document these configuration requirements.

Our solution development plan describes code base management requirements, development standards, and check-in procedures. It describes what code management software, application security software , and development tools we use (such as GitHub Enterprise and MotioCI), but also how developers use them and related coding and release standards during development and maintenance. It describes how developers work within our consistent release management processes as tailored to customer requirements. And it details the roles, responsibilities, and permissions for each kind of developer and application and system administrator in the release management and approval process in a detailed RACI chart. This is critical to managing the separation of duties that help us operationally ensure that the security standards and software that we mandate are actually used in the development process.

Watson Health is committed to more than a secure system, and a well-managed system. We are working with our customers to realize the vision of higher levels of MITA maturity. To measure, leverage or share data , EDWs must make use of consistent national standards for the language of healthcare data. Our national and international healthcare experience allows us to bring the best of clinical and administrative data analysis to our customers. We are committed to standardizing our data warehouse language to MITA business and technical language by leveraging a common data model that is consistent with national and international healthcare data interoperability standards, such as HL7 FHIR. This means that our development teams must work with both our customers and our central data modeling team to leverage the common data model, yet extend it to hold state-specific data. Our release management plan, then, is

designed to help our teams and customers leverage compatibility with our common data models, to provide better operational data and reporting interoperability.

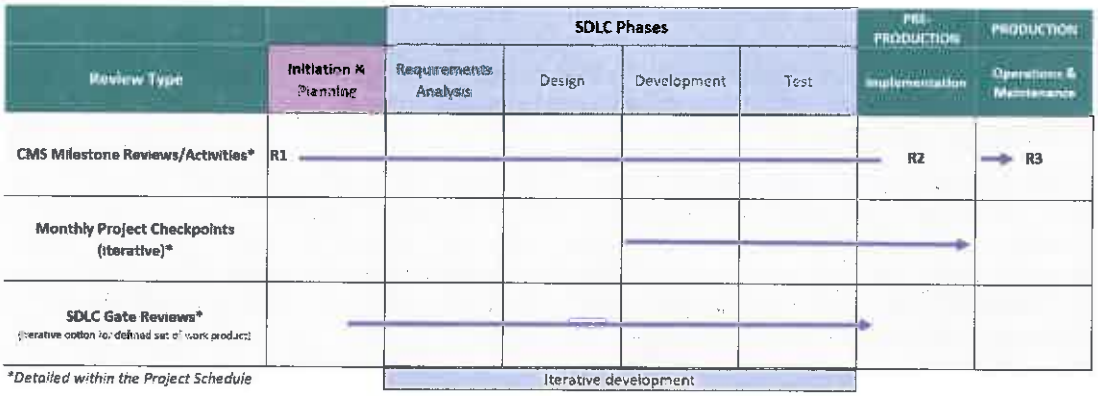
PM141	The Vendor should develop the solution using an iterative development approach.

System Delivery Life Cycle (SDLC) Introduction

For more than 35 years, Watson Health has been delivering comprehensive reporting and analytic platforms to our clients to help drive a decision-making process that is based on data and objectivity. Over that time, our team has adhered to a formal and structured approach to development, project management and O&M management. That approach is refined and tailored to our client's requirements, the needs of the end users and lessons learned from other projects. Our approach combines the right people, processes and technology to meet West Virginia's needs.

The Watson Health System Development Life Cycle (SDLC) approach will follow and integrate seamlessly within the established WV processes. Our SDLC aligns with the CMS Expedited Lifecycle (CMSXLC) framework with CMS milestone reviews, project life cycle reviews, as well as following industry standard SDLC gate reviews. The figure below represents Watson Health SDLC phases and planned integration and alignment with CMS Milestone, project and SDLC Gate Reviews, as well as alignment with the Project Schedule.

Figure 77. SDLC Life Cycle Phases & Reviews



R1: Initiation & Planning Milestone Review
R2: Operational Milestone Review
R3: Certification Final Review

The Watson Health SDLC follows waterfall methods to successfully achieve CMS Certification, while executing development activities in an iterative manner, enabling our clients to realize value early in the project life cycle. Our alignment with the formality of SDLC gate reviews enable a collaborative framework for planning towards full or partial deployments to pre-production and production environments.

Our SDLC also aligns with project management protocols, PMI standards, and industry best practices associated with a waterfall linear lifecycle and work management practices found in an iterative approach.

Plan Driven Approach

The Watson Health SDLC methodology allows the WV EDS solution to follow a traditional waterfall approach for contract management and CMS certification. The waterfall methodology places an emphasis on sequential movement through finite SDLC phases, where the previous phase must be reviewed and approved before moving to the next phase using clearly established entrance and exit criteria for each

phase. The phases will be tied to the Project Schedule and a Work Breakdown Structure (WBS) document to allow clear line of sight into project progress.

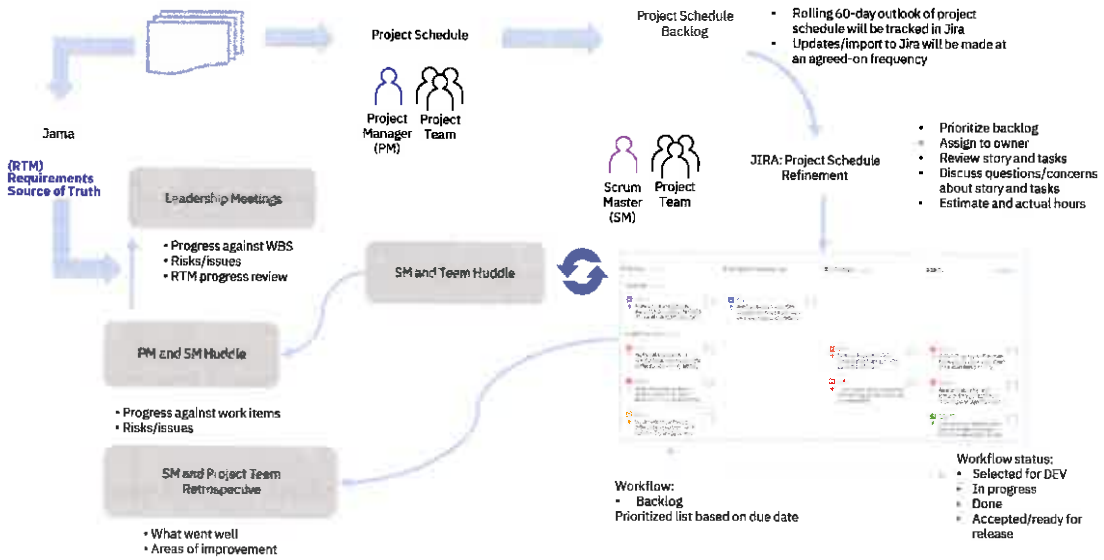
The Watson Health plan driven approach allows internal development to occur iteratively. Watson Health's technical resources will be planning, tracking, and generating work effort in a flexible manner linked to the Project Schedule. This iterative approach enhances collaboration, reduces downtime related to potential blockages, and will informally allow WV to access work products and provide feedback prior to the User Acceptance Testing (UAT) phase using "iterative checkpoints." As a result, both Watson Health and WV can be confident that the development results released to UAT are what is expected.

The iterative development cycle, shown in the figure below, is an effective process which will allow the development team to approach work effort in a flexible manner. The Project Schedule will dictate development efforts and inform work planning in the selected project tool. The iterative approach has the following benefits:

- **Enhances collaboration between WV and Watson Health:** Due to the planned frequent releases of work product, WV and Watson Health will be able to adjust if a work product is created/updated and no longer relevant due to changes in circumstance.
- **Early access to work products:** Due to frequent releases of work products, WV will have the opportunity to validate that data, data marts, and other work products are functioning correctly and as intended in advance of UAT.
- **Flexible approach to work:** Allows for rapid redeployment to alternate tasks should work blocks occur due to situational circumstances.
- **Decreases the load on SMEs/Reviewers:** Traditional approaches overwhelmed SMEs and Reviewers to review and make decisions on work products with limited visibility or conversation beforehand. Our iterative approach makes the review process easier and less stressful by using it as a confirmation of the collaboration sessions that were held leading up to the deliverable.

The iterative development process and phases are further enhanced in Watson Health's SDLC with ongoing collaboration during the project schedule refinement and project communications. We use industry standards and best practice scrum methods such as team huddles, sprint reviews, and retrospectives for open dialog and communications during the scrum processes. The figure below shows how team members integrate the prioritized schedule activities into their sprint activities, aligning JAMA, JIRA, and the project schedule.

Figure 78. Iterative Delivery Excellence: Project Schedule Integration



Planning sessions inserted as defined

Utilizing Waterfall and Iterative Methods

Watson Health's SDLC utilizes a waterfall approach and methodology to document the project's progress, manage through project life cycle and SDLC gate reviews while using an iterative development process.

For ease of project tracking and reporting on project progress, the WV solution has been divided into five sub-projects for a comprehensive solution delivery. In parallel to the launch of the WV EDS (project 2), we will also build and test the EDS Platform & Data Mining Tools (project 1) which establishes the infrastructure, BI, and project tools required to successfully deliver all phases of the project:

DDI

Project 1: EDS Platform and Data Mining Tools

Project 2: WV EDS

Project 3: Analytics, BI, Reporting

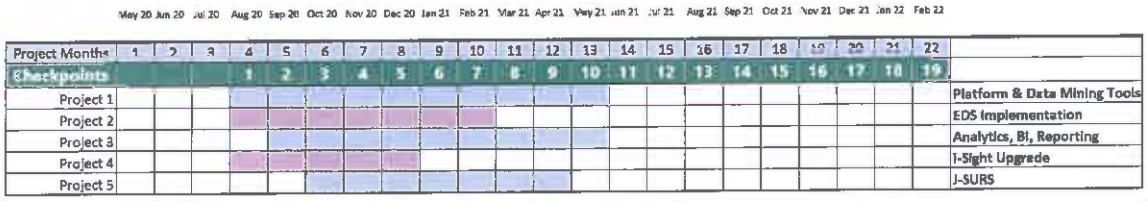
Project 4: i-Sight Upgrade

Project 5: J-SURS

Each of the five projects within the WV Enterprise Analytics solution will follow the same SDLC lifecycle; however, each will be initiating or concluding at different times within the overarching WV EDS project. The phases within each project are designed to easily map to the SDLC requirements defined by CMSXLC, supporting the Watson Health SDLC. Each SDLC phase will have clear entrance and exit criteria to track all required activities.

SDLC gate reviews will be integrated into monthly iterative checkpoints, depending on the timing and readiness of each component. When a module or iterative component plans to enter/exit a SDLC phase, this will be reviewed during iterative checkpoints, enabling the team to progress through the SDLC smoothly in preparation for delivery to UAT. The figure below represents the five projects within the WV solution, the expected timing and the iterative checkpoints established (in addition to scrum activities) to track development and project progress:

Figure 79. Iterative Checkpoints



Iterative checkpoints are informal opportunities for WV to see progress in development and assess work products far sooner than the contractually mandated UAT Phase. An iterative checkpoint will typically occur monthly and are detailed in the Project Schedule. Iterative checkpoints combine progress reporting across all projects where WV will receive a big picture as well as detailed, project specific, updates. WV will be able to use the Project Schedule to look ahead to the next iterative checkpoint in order to get a general idea of what is targeted for upcoming development work and checkpoints. In the iterative checkpoint, Watson Health will provide an overview of the checkpoint work products (including documentation) that have been updated or are ready for the WV interaction (i.e. ready for SQL queries, access data through Business Intelligence (BI) tools, interim updates to documentation).

Project Management and the SDLC

Utilizing a project management philosophy that combines both structured PMI standards as well as iterative processes will evolve into a partnership of open communication channels. This partnership promotes client engagement and feedback and achieves positive results for all members and stakeholders of the WV EDS project. The iterative component will enable WV stakeholders to see value early-on in the project life cycle. WV EDS project team members participate in demonstrations of work product and can provide feedback during this early stage.

Watson Health's SDLC methodology combines the best industry practices into a cohesive approach for a large, complex project delivery. Watson Health continually refines our approach based on lessons learned after each implementation. Our team embraces the iterative development, waterfall delivery and project management approach; as have our clients in Colorado, Missouri, and other states. This methodology will benefit the WV DHHR stakeholders with transparency and insight throughout the project life cycle when using this proven approach.

The Watson Health SDLC methodology incorporates an iterative approach during the entire project life cycle. This proven approach enables the Watson Health team to begin work during the project Planning phase by establishing a team structure that ensures quality project delivery and governance. The team structure includes delivery and PMO workstreams. Your Watson Health Account Management Team, proposes the workstreams based on the project and oversees this organizational structure. Watson Health defines the workstream structure and overall responsibilities in the Staff Management Plan.

Establishing Workstreams

During the Planning phase, the Watson Health team reviews the high-level requirements from the RFP and organizes into workstreams for the delivery and operations of the WV EDS. Each workstream focuses on a delivery area with an associated deliverables subset. Each workstream consists of skilled and dedicated resources and has a named workstream leader who is accountable for deliverables. In addition, a workstream Project Manager from the PMO partners with the workstream Delivery Lead and manages the workstream's issues/risks, schedule, change requests, decisions, and action items. The workstream's Project Manager works with the PMO team members to ensure dependencies between workstreams and external dependences are identified and tracked in the project schedule. The workstream Project Manager partners with the workstream's Delivery Lead to lead and drive deliverables.

The Watson Health team works with the Department team to assign at least one Department stakeholder to work with a workstream. This Department stakeholder helps the workstream establish priorities, review deliverables, and plan upcoming releases.

During the DDI phase, each workstream conducts daily stand-up huddles to monitor progress and discuss roadblock with each workstream lead and Project Manager participating in daily project huddles to ensure proper escalation of roadblocks.

The workstream Project Manager participates in a weekly schedule huddle to record and ensure the project schedule reflects the accurate actual time for status reporting. The workstream Project Manager also creates a workstream weekly status report to be included in the overall status report that details workstream accomplishments, issues, risks, key decisions, dependencies, and schedule variances.

Establishing PMO Structure

Watson Health knows a strong, established PMO for an engagement helps to make the project successful. We have established PMO structures like the one we are proposing for WV EDS and have used these repeatable processes successfully on previous projects.

Figure 80. WV EDS PMO Model. *The Watson Health PMO structure supports proactive workstream project management and transparent and accurate status reporting.*



Within this structure, the PMO Manager leads the team and ensures accurate quality reporting and provides oversight of delivery workstreams. The PMO Manager assists other Project Managers to ensure the appropriate focus on critical project governance and solutions. These roles have the following high-level responsibilities:

- **Project Process Manager** – The Project Process Manager facilitates, documents, and produces status reports related to key Project Management processes including issue management, risk management, and change management. This manager executes on project governance meetings and also ensures that all process logs are updated and accurate.
- **Project Scheduler** – The Project Schedule Manager facilitates schedule elaboration meetings, creates and maintains the schedule and associated baselines, and produces weekly schedule monitoring reports. This manager tracks external dependencies and assesses impacts to overall schedules, as well as proactively manages project critical path items.
- **Senior Project Manager / Scrum Master** – The Senior Project Delivery Manager coordinates deliverables between workstreams and assists the workstream Project Manager with external dependency management. This person assists and backs up workstream Project Managers during delivery.

- **Workstream Project Manager** – The workstream Project Manager partners with the workstream Delivery Leads to manage and drive deliverable completions.
- **Documentation Project Manager** – Similar to a workstream Project Manager, the Documentation PM partners with the workstream Delivery Leads and artifact owners to manage and drive required project artifacts to completion following the Documentation Management Process.
- **Project Coordinators** – The Project Coordinators help facilitate meetings by setting them up and taking notes. They assist the Project Process Manager in making project log updates and publishing documentation. They also assist the PMO Manager with publishing the weekly status report and special reporting required by management.

PM142	The Vendor should review and test in logical functional groups of system components or modules

Master Test Plan and Testing Activities

The Watson Health team brings proven test cases from previous EDS implementations and a team of testers who are experienced in testing enterprise data warehouse solutions within the government health and human services environment. Leveraging this foundation, DHHR achieves a system tested to its specific requirements, which is based on proven approaches and established testing procedures in the Watson Health solution. Development and approval of the Master Test Plan (MTP) begins the testing phase. The MTP details several key components of the project's test strategy including testing phases, test environments, test case development and review, testing execution, defect tracking and mitigation, and testing control and monitoring. We will build the MTP in collaboration with DHHR, the project management Vendor, and key stakeholders. The plan also takes into consider logical groupings of functionality to validate that business is supported end to end as new capabilities are tested.

After DHHR reviews and approves the MTP, the Watson Health Testing Team configures our test management tool, JIRA, to support testing activities. Watson Health has selected to use JIRA, an industry-leading tool for test management, as it integrates seamlessly with JAMA, another industry-leading tool and the system of record for requirements management and end-to-end requirements traceability. JIRA is configured to validate our solution's quality verification can be controlled and monitored through the following functionality:

- Configurable Test Case Creation and Approval Process
- Test Case Execution and Tracking Progress Process
- Test Case Development and Execution Reporting
- Requirements Traceability

We create individual test cases for each functional requirement to provide clear and transparent traceability back to contract requirements. The test cases establish scenarios from the requirements, which can be viewed online with JAMA and include detailed execution testing steps as well as required data and other resources. The test case development is monitored, and progress is reported in our weekly status report.

The validation of all project requirements up front, as well as the integration of JAMA and JIRA tools and processes for Requirements Management and Test Management will enable Watson Health to report to the Department that the system infrastructure (hardware, software, and interfaces) is operational and meets Federal and Department architectural, technical, security, and privacy requirements as well as the documented and approved business and functional requirements. This will be completed through the testing processes as well as the Requirements Traceability Matrix.

In addition to functional testing, Watson Health conducts additional testing to validate the quality of the solution, including comprehensive data profiling/data quality tests, performance and stress testing, operational readiness testing and parallel testing. We will also support DHHR in completing User Acceptance Testing.

Once all the solution components have passed the exit criteria for User Acceptance Testing and Performance/Stress Testing, the solution is deployed to production for Parallel Testing. During Parallel Testing, the operations team executes cycles and validates the overall solution accuracy against the legacy system. Watson Health and DHHR will review and validate key components against the legacy system to confirm the new solution meets or exceeds the requirements.

Once the Parallel Testing is completed and the WV EDS has met the exit criteria for operational readiness, we will create a Testing Summary report. This Testing Summary Document is used as input to the final go/no-go decision point. During the decision point, DHHR Stakeholders meet with the Watson Health team to validate that the solution is ready to go live. This decision includes not only an in-depth testing review but a review of operational procedures and detailed implementation plan including cutover. Watson Health will conduct a walkthrough of the implementation plan to support the decision-making process for cutover. DHHR stakeholders will make the final decision to switch over to the new system.

Development of the Master Test Plan

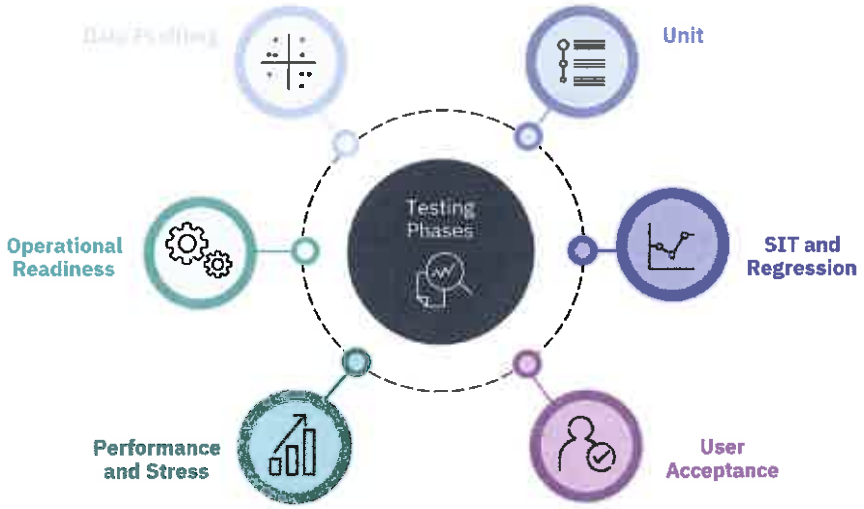
Watson Health will collaborate with DHHR to provide a Master Testing Plan (MTP). We develop the MTP for all project phases which addresses the challenges represented within a multi-Supplier, integrated systems solution. Watson Health will start with a standard Master Test Plan based on our experience working with other states. We will incorporate all DHHR requirements for testing and tailor the plan specifically for DHHR and the WV EDS project. The MTP will define how we will conduct and report on testing as well as how we will coordinate with DHHR in managing the execution of testing. Once the customization is complete, we will walk through the plan with stakeholders to answer any questions. DHHR will then have time to review the document in detail, provide feedback, and approve.

The MTP will include detailed information about our solution testing and validation processes.

Testing Phases

After the MTP is approved, the Watson Health testing team begins the testing execution process. In executing the plan, each solution component goes through all testing phases. Each phase has a unique purpose and goal in the quality process. For a deliverable to move along the process, the entrance and exit criteria must be met. The last phase is operations readiness testing. This testing allows the DDI team to do a final readiness check to validate that the solution is fully executing as designed. The figure below highlights the testing phases.

Figure 81. Testing Phases



Data Profiling

The WV EDS solution depends on high-quality data and we will perform a series of data profiling tests. These tests confirm that data received by other suppliers meets an acceptable level of quality. Data Profiling includes a set of data checks for data received from the numerous sources. Each data source goes through a rigorous review to validate we have received the quality of data necessary to achieve quality analytic outcomes. Data is systematically profiled which enables analysts to check the completeness of data, evaluate column min/max and data distribution, and validate referential integrity. Thresholds on key data are set to investigate variances in data columns, check the consistency of values and format, validate code/reference values, etc. We will document issues with data sources and we will work with DHHR and the owner of the data to validate issues are addressed. The process for data profiling and working with vendors will be fully described in the MTP.

Unit Testing

The Watson Health Delivery team uses the unit testing phase as the next level of quality assurance. Data integration and BI developers configure our solution and execute unit tests on each component. Each developer creates a unit test plan before they configure or develop a solution component. Unit testing validates that a component functions as specified in the design for all paths of logic. The unit test plan is reviewed by their team lead and peer reviewed prior to execution. Once the solution is configured or developed, the developer executes the unit test plan and documents the results. The exit criteria for the unit testing phase includes all documented results and review by the team lead and Testing Manager.

System Testing

After completing the unit testing phase and meeting the exit criteria for a solution component, the component enters System Testing Phase. During this phase, we execute the detailed test scripts to validate the solution meets requirements. These test cases, which are based on the deliverable requirements and design, are created prior to execution and reviewed internally and by DHHR. The types of tests executed include data validation, data conversion testing and data validation, data reconciliation, and report testing. Integration testing focuses on testing between data suppliers and entities receiving data from the WV EDS. Theses test cases involve system to system balancing and validation of data usability in the target system. During execution, Watson Health identifies defects and logs each defect. The Watson Health Testing Team conducts daily huddle calls where new defects are reviewed, prioritized, triaged and

assigned to the appropriate resource for mitigation. DHHR can review progress through our weekly reports which are included in our status report.

Regression Testing

All changes or new features go through impact analysis to identify the parts of the solution that must be retested. Regression testing validates the change or new feature did not unexpectedly impact another part of the solution. The Watson Health Testing Team builds and executes regression test scripts and then packages them for automation. Our regression test bed is based our experiences in other states with similar scope and functionality. The regression test scripts are executed each time new features or changes are introduced to the solution. WV stakeholders can review the regression testing and add test cases to the regression test bed. Our regression testing approach includes all affected components, such as data model and reporting.

User Acceptance Testing

Solution components and features that have met the system testing exit criteria move to User Acceptance Testing (UAT) environment. UAT is a defined milestone in the project schedule and can be extended to a mutually agreeable timeframe using the change control process. WV stakeholders can execute their own business function-based test cases to validate that requirements have been met. For components which DHHR chooses to perform UAT on, Watson Health will conduct training sessions for the WV testers on the solution and how to use reporting tools and user applications. WV testers will also have access to the test cases and test scripts executed by the Watson Health testing team. The training we provide also includes how to use the test management tool and create UAT defects. We will support the UAT team by facilitating the UAT testing effort and be available to answer questions and resolve testing issues. During UAT, Watson Health will conduct daily huddles with WV Stakeholders for defect prioritization and triage. We will be responsible for defect mitigation, retesting in System Test and regression testing before moving a fix back to UAT and submitting for retest.

After the DHHR stakeholders and SMEs complete their testing, Watson Health will review the UAT results with DHHR to verify the UAT exit criteria has been met. DHHR will provide approval for features and components to move to Parallel Testing or Production. Should DHHR elect not perform UAT on certain components, Watson Health will review test results generated from Watson Health test scripts in UAT with the State to validate the functions perform as expected.

Performance and Stress Testing

Performance testing on the solution will validate that the system is performing as designed and at the high-level of performance expected. Watson Health will conduct both performance and stress testing of the WV EDS during initial build, enhancement, and after implementation of each new module. We will work with the WV Project Team to validate the solution meets Key Performance Indicators. Performance testing is conducted on both ETL processes and reports. All ETL processes are continually monitored and tuned throughout the DDI and Operation phases to make sure data is loaded and transforming in accordance with established requirements. The WV EDS will be the single source of truth, therefore, as we load data it is imperative to inspect the quality of the data to maintain the integrity. Through performance testing we validate the quality principle. Report and query performance is measured and addressed in a numerous ways. "Canary" reports are established to measure performance over time and detect any performance degradation against a baseline. All reports are measured against thresholds that are agreed upon with DHHR. Long running reports and queries will trigger alerts and are subsequently evaluated and tuned. Stress testing is also conducted on both ETL processes and report activity. Stress testing focuses on maximum load of the system in the form for concurrent processing – full volume data is tested on, ETL jobs are executed in parallel, all users running reports at the same time is simulated. Watson Health utilizes an array of system monitoring and testing tools to assure the solution is

performing as expected. ETL stress testing utilizes real production sized data loads running in parallel. Reporting application stress testing utilizes tools like J-Meter to simulate user concurrency.

We also execute both Load Testing and Benchmark Testing (both are described below). This testing is done in a full-size production environment to simulate as close as possible to production loads and scenarios.

Load Testing

The WV EDS solution is designed to handle large volumes of data, concurrent usage, and high performance. To validate this, we perform:

- Load Testing: A test to measure the performance of a system under a specified level of load
- Stress Testing: A test in which the load on a system is progressively increased until performance degrades below a specified level, to find the maximum load the system can support
- Volume Testing: A test in which the volume of data in the system is set to a realistic or pre-agreed level; the performance of a system on an empty database is normally better than that on a database with a realistic volume of data
- Soak or Stability Testing: A soak or stability test measures the system's stability over time by placing it under load for an extended period, to expose such problems as memory leaks

Load testing simulates how the system will perform when you have many users interacting within the EDS eco-system. The goals of load testing include validating potential capacity limits, the system's ability to handle a workload, response times, desired performance and confirmation that the configuration is appropriate. Load testing is important from the user's perspective, as it identifies performance issues that could be prevented or eliminated. As new releases occur, load testing will be routinely performed.

Benchmarking

The WV EDS solution captures and sets expected benchmarks and performs comparisons against those benchmarks to measure system performance. We use our Operational Performance Dashboard to present this information to DHHR, as a health check on the system and to highlight any emerging performance issues so they can be mitigated before they create further problems.

Users can view the performance of the solution in relation to benchmarks by including what is called a "Reference Line" in an existing data visualization report. The reference line can be dynamic and data driven, based on any established benchmarks created during the ETL process. However, users also have full flexibility in that they can import external benchmark data or create static values to incorporate in their reports.

Operational Readiness Testing

Operational Readiness Testing (ORT) provides assurance that the system is ready to go live. Watson Health will validate that the WV EDS solution is ready to perform all expected functions – process all inputs, run all reports, provide access to users, the data extraction network is functioning, system performance is as expected, backup and disaster recovery are in place, etc. ORT activities include:

- Demonstrate and verify that physical security, user accounts and access, data security, disaster recovery, and links to online portals are functional
- Confirm data suppliers have adequately tested their interfaces, executed any needed approvals and agreements, and are ready for operations
- Accomplish volume testing to demonstrate that both of our teams are prepared for production and ready to support the SLA; this includes incident/defect management and reporting

- Review manuals, handbooks, and documentation needed to support operations
- Support your staff performing ORT with analysis, review, and defect resolution of results
- Prepare an Operational Readiness Test Report that demonstrates the solution: its subsystems, functions, data processes, operational procedures, staffing, telecommunications, and all other associated support are in place and ready for Operations

During the operational readiness phase of the project, we will use our standardized operational readiness checklists and process criteria to effectively evaluate system functionality, performance, training needs and support, user documentation needs, and establish cutover procedures and support from DDI to Operations. We will collaborate throughout to confirm we meet all requirements, expectations, and deliver the solution you are expecting.

Operational Readiness Testing is a critical part of testing for a multi-data supplier environment. During this testing, all the individual data suppliers verify that their components function in concert with others to support the WV EDS go live. Watson Health will work with DHHR and other WV vendors to determine the testing cycles and key deliverables that will be validated during ORT.

We continue to log, triage, mitigate and retest all defects that are found during this phase to confirm the solution meets the exit criteria to move into production.

Other key components of ORT testing include:

- **Parallel Testing:** Watson Health will run the WV EDS solution in a Parallel Testing environment as it will run in Production. Parallel testing will validate that the new system is producing equivalent results to the legacy system where expected. As load cycles run in parallel with the legacy system, reports and extracts are generated that provide a basis of comparison. We will assist DHHR in validating the new system is producing accurate results based on these comparisons.
- **SOA Connectivity:** Our solution is built around the principles of an open, standards-based Service-Oriented Architecture (SOA), enabling DHHR to share access to data across the enterprise. This activity will confirm that systems interacting with the WV EDS are interoperable and utilize exposed APIs and services as expected. The test cases designed for this phase will validate the connection and data exchanges between all the vendors in the production environments using integration testing tools. Any defects found with these interactions will be addressed and fixed prior to exiting this phase.
- **Data Exchanges:** The WV EDS solution depends on the data flowing into the warehouse and being accurately applied to the data warehouse. During this phase, we verify that all the data sources can be received, stored, transformed and loaded into the warehouse. We use data reconciliation reports to confirm that all the data was loaded correctly. Our operations team demonstrates their ability to monitor the process of all the various loads and creates the product and SLA reports around data loads.
- During this phase we will generate and send outbound extracts as an operations ready check before going live. The entities receiving data are expected to validate readiness on their end. Watson Health will work with each individual vendor and business partner to develop and execute a schedule that will allow both parties to validate and confirm operational readiness.
- **Processing Cycles:** During Parallel Testing, Watson Health Operations team exercises the scheduled processing jobs, records and verifies performance against SLAs. We validate that the system runs as expected and the SLAs are met. We run all cycles for ad hoc, daily, weekly, monthly, quarterly, and annual validation.

PM143	The Vendor should ensure that all design documentation is kept current throughout the contract

Deliverables will be written to support a clear understanding of requirements and ensure that the solution designed will meet those requirements. Our SDLC process includes steps to update our deliverables, as well as system documentation, throughout the life of the project and whenever changes are made. Documentation review is part of our peer reviews, system testing and procedures for release so that at any given time, one could do an audit of the system and the documentation of the system to validate that they are still in sync. If changes occur to scope or other aspects of the project, the deliverables will be reviewed for potential updates, and updated as needed to keep them current. Any change request that is submitted will include this analysis of existing and future deliverables and its estimates will include the effort to make any updates needed to deliverables (as well as the technical modifications involved for the CR).

Once the WV EDS solution is under operational support, DDI deliverables, and system documentation, such as data models and mapping documents, will be updated with changes to the production system if needed, on a periodic basis (or when a change request occurs). Revised electronic or hard-copy documentation either made available directly or provided on an agreed-to schedule. Deliverables and data model documentation can be made available to the user community in a variety of formats such as PDF, Word and HTML for validation, searching, and review. IBM uses Erwin for data modeling, and this tool's reporting function allows a wide variety of reports on the most recent data model to be created. Regardless of your needs, ERwin provides easy options to generate and view reports that effectively describe and share the model with others, including business users, in a variety of easy-to-analyze, visually appealing views. ERwin allows easy access to information with a variety of search formats which cater to the wide range of users in the organization.

PM144	The Vendor should support all data conversion related activities

Data Conversion and Migration Strategy

Building a data warehouse is a complex process, and two of the most important tasks are data conversion and data migration. We understand that the data to be ingested will come from a variety of application data stores and the current DW/DSS with heterogeneous and sometimes inconsistent data content between them. Identifying the appropriate data migration approach and data conversions required for each data source and ensuring accurate and intentional resolution of content conflicts will be critical steps in the solution.

Our support for data conversions starts at the very beginning of the process when we identify the systems requiring data conversion. Connections, interfaces and conversion strategy will be determined for each data source depending on the source requirements and constraints. The individual data source strategies will need to accommodate the current technical climate of each supplier application, and the requirements for the data content they contain. The strategy and plans will be flexible to accommodate the timeline and requirements for each data source migration and to not disrupt source system operations in the migration process.

Data Conversion and Migration Plan

Our Data Conversion and Migration Plan will address the scope of the data conversion based on our discovery and evaluation of the source data and DHHR's direction on defining data relationships, mappings and transformation requirements. To ensure the data migration and conversion activities are in alignment with DHHR's expectations, a Data Conversion and Migration Plan document will be provided to DHHR for review and approval before developing specific data migration plans and conflict resolution strategies.

Each data source will have a tailored data extract and migration plan to ensure the data content is migrated accurately and completely to the WV EDS. Each data source will have a tailored data extract and migration plan to ensure the data content is migrated completely and accurately to the WV EDS. Connections, interfaces and conversion strategy will be determined for each data set depending on the source requirements and constraints. The individual data source strategies will accommodate the current technical climate of each supplier, and the requirements for the data content they contain. The strategy and plans will be flexible to accommodate the timeline and requirements for each data source extract and migration so as not to disrupt source system operations.

Finally, we will create detailed data conversion design specifications and build multiple checks and balances into the process to ensure that data is synchronized within and across sources and time periods. We will conduct testing at various steps throughout the data conversion and migration process to ensure accurate and successful results.

Data Conversion and Migration Tooling

Our solution is built in alignment with the MITA 3.0 principles and the 7 Standards and Conditions with integrated data transformations and efficient reuse of processes to promote accuracy and efficiency in data conversion and migrations from data sources across the enterprise. Our data conversion and migration solution utilizes IBM Infosphere DataStage to provide data extraction, conversion, transformation and migration of data from data sources into the WV EDS. DataStage has dozens of out-of-the-box transformations that can be copied and modified to perform any data conversion activity DHHR might need. The use of DataStage also enables migration processes to be built quickly and more consistently avoiding requirements for custom coding. DataStage provides data movement and integration on a highly scalable software architecture that ensures large volumes of information can be processed quickly. And its architecture scales to support large data volumes and meets enterprise demands for security and performance.

Data Conversion and Migration Experience

Our solution, skills and applied experience for the conversion and migration of data from legacy MMIS systems and existing DW/DSS systems has proven successful in multiple state engagements. We have helped transition state agencies from legacy enterprise IT systems to modern, interoperable and efficient implementations using new tools, technologies, and approaches. We have established methodical approaches, practices and techniques to reduce risk and ensure unqualified accuracy and integrity in the data we migrate into our solution. We have translated source data from DXC MMIS systems into health analytics for our state clients 16 times, including for Colorado and Delaware, allowing us to leverage lessons learned on system interfaces, data structures, data extracts, data sources, and DXC operations.

At Watson Health, our wealth of experience, established Data Migration process, advanced tooling and automation approaches, enforced checks and balances at all stages, and relentless focus on the collective data conversion activities and migration goals of DHHR will ensure a successful and superior data conversion and migration of DHHR's data into the WV EDS.

Data Conversion Strategy, Approach, and Timeline

Data Conversion and Migration Strategy

Building a data warehouse is a complex project. Our comprehensive experience building and supporting data warehouse solutions across the country have continually shown that two of the most important tasks for ensuring data quality across the solution are data conversion and data migration. We understand that the data to be ingested will come from a variety of application data stores and the current DW/DSS with heterogeneous and sometimes inconsistent data content between them. Identifying the appropriate data migration approach and data conversions required for each data source and ensuring accurate and intentional resolution of content conflicts will be critical steps in the solution.

Our support for data conversions starts at the very beginning of the process when we identify the systems requiring data conversion. Connections, interfaces and conversion strategy will be determined for each data source depending on the source requirements and constraints. The individual data source strategies will need to accommodate the current technical climate of each supplier application, and the requirements for the data content they contain. The strategy and plans will be flexible to accommodate the timeline and requirements for each data source migration and to not disrupt source system operations in the migration process.

Data Conversion Plan

Our Data Conversion Plan addresses the scope of the data conversion based on our discovery and evaluation of the source data and DHHR's direction on defining data relationships, mappings and transformation requirements. To ensure the data migration and conversion activities are in alignment with DHHR's expectations, a Data Conversion Plan document will be provided to DHHR for review and approval before developing specific data migration plans and conflict resolution strategies.

Each data source will have a tailored data extract and migration plan to ensure the data content is migrated accurately and completely to the WV EDS. Each data source will have a tailored data extract and migration plan to ensure the data content is migrated completely and accurately to the WV EDS. Connections, interfaces and conversion strategy will be determined for each data set depending on the source requirements and constraints. The individual data source strategies will accommodate the current technical climate of each supplier, and the requirements for the data content they contain. The strategy and plans will be flexible to accommodate the timeline and requirements for each data source extract and migration so as not to disrupt source system operations.

Finally, we will create detailed data conversion design specifications and build multiple checks and balances into the process to ensure that data is synchronized within and across sources and time periods. We will conduct testing at various steps throughout the data conversion and migration process to ensure accurate and successful results.

Data Conversion Approach

The steps in our data conversion approach can be summarized as follows:

Figure 82. Data Conversion Approach. *A sequential process of mapping, profiling, semantic integration, conversion and transformation of data are performed on data as it migrates from data sources into the WV EDS.*



1-Data Mapping

We start by creating source-to-target mapping documents including mapping templates, data conversion requirements, data imputation rules, transformation logic descriptions, frequency/latency and any other criteria or dependencies. Appropriate data elements will be mapped into the most relevant data elements within the data model of the new solution with appropriate transformations defined to meet DHHR requirements.

Data mapping documentation containing specific information about the source tables/elements and the target tables/elements will be completed, along with the selection criteria, standardization logic and filters applied during transformation and loading. A data element-level crosswalk will be created mapping each data element, data structure and content file to the corresponding target location(s) on the EDW data

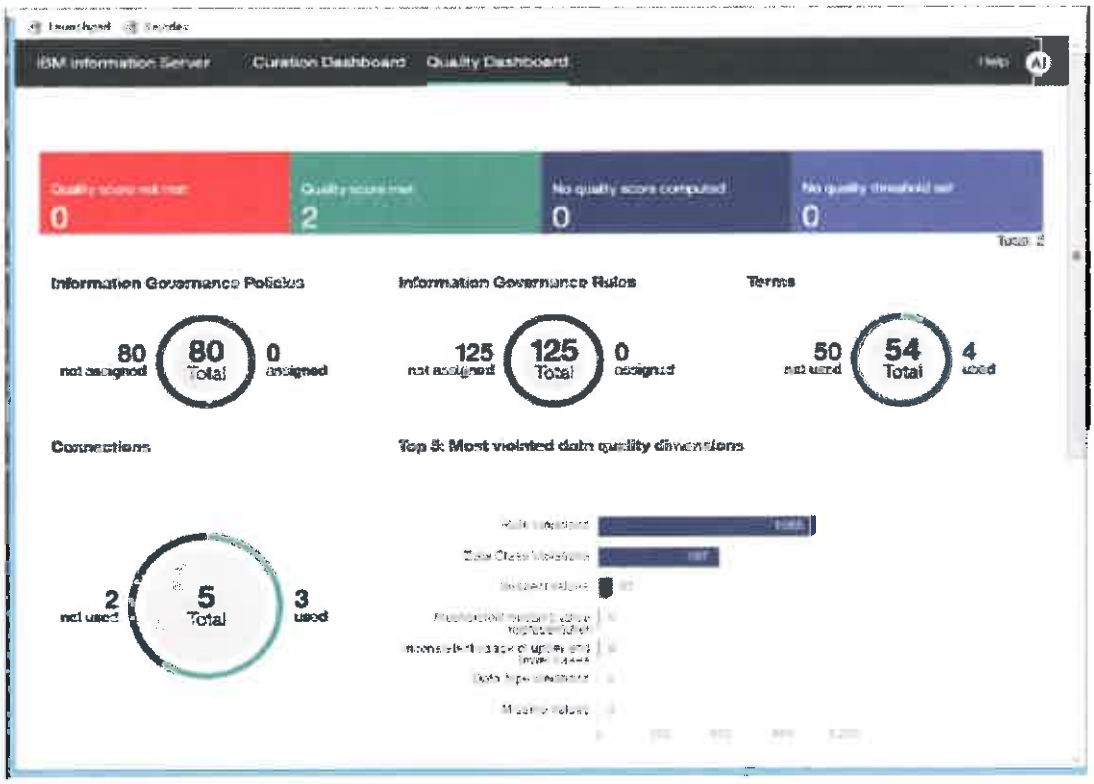
stores. The data migration and conversion logic will be captured in the data mapping document, along with any business rules applied to the data. Business rules for handling records that may not conform to DHHR's expectations will be discussed and documented during JAD sessions.

We will validate the data mapping specifications with DHHR and provide the mapping documentation. Mapping documentation is dynamic and will be maintained as changes to data transformations, data filters and sources are made. Additional data sources can be integrated into the documentation as they are integrated into the solution. We will maintain all solution schemas, metadata, hierarchies, standard harmonization strategies, data dictionaries, and data quality management information as part of our overall data management and documentation responsibilities.

2-Data Profiling and Semantic Integration

During the data profiling phase, we will work with DHHR to explore, validate and resolve any data quality issues. We will spend time familiarizing ourselves with the data relationships and content and start conceptualizing how the data will be modeled and how it relates to other content. Our approach to data quality begins with establishing quality thresholds and variances during requirements sessions, then applying the quality logic in the data profiling tool to scrutinize the data, checking for completeness, validity, reasonableness, accuracy, and duplication via automated Data Rules with defined thresholds and variances to easily gauge the quality of the data. The data profiling tool allows users to set thresholds on key data values, run an automated data profiling analysis and study variances in data columns based on these values. The process also allows value and format checks and data/code value checks.

Figure 83. Data Profiling Dashboard Showing Data Rule and Data Class Violations.



Heterogenous data sources will require integration to establish a common understanding of all related data. Our process will glean the meaning of related data which may conflict not only in structure but also in value or context. We will work with DHHR in the JAD sessions using a methodical approach to

determine the contextual meaning of all data and resolve any conflicts so that the data can be accurately understood and defined in the WV EDS data model. The appropriate semantics and contextual meaning of each data element and structure as it relates across the data sources will be captured in the data mapping document along with the approaches applied to resolve any conflicts.

Understanding how similar elements are populated across data sources informs decisions about which records should be used as primary or secondary sources. For example, if multiple data sources provide date-of-death, one source may be 85% populated and another only 15% populated. Or perhaps the best data is populated before a specific date on one source and after a transition date on a different source. This information will inform our discussions with DHHR as to what business rules should be applied in the data conversion logic to determine the source for a date-of-death field.

With the governed approach, the semantic model is defined upfront through requirements and governance. The data is then modeled appropriately from the beginning, ensuring accuracy and integrity in the data as it resides throughout the analytical data layers. We will establish a governed semantic model which is published and shared through Cognos Analytics. This approach provides airtight governance control over data definitions and meaning and promotes a common understanding of data in the reporting layers and a single source of truth across the enterprise.

We have experience with all the required data types and with many of the specific Medicaid data sources. We also link our data marts to patient assessment data, vital statistics, and other types of data not commonly stored in Medicaid databases. We understand the challenges of integrating traditional and non-traditional Medicaid data types and have integrated both managed care and fee-for-service (FFS) data for many Medicaid agencies.

3-Data Conversion and Transformation

We create detailed data conversion specifications that we will review with DHHR for approval prior to beginning data conversion coding. Based on our data profiling analysis and business discussions, our proposed solution enables us to appropriately and consistently model, translate, de-code/encode, de-duplicate, cleanse, standardize, match/merge, normalize/de-normalize, and aggregate data for the WV EDS data stores and data marts, using authoritative sources of data records identified from our data profiling and JAD sessions.

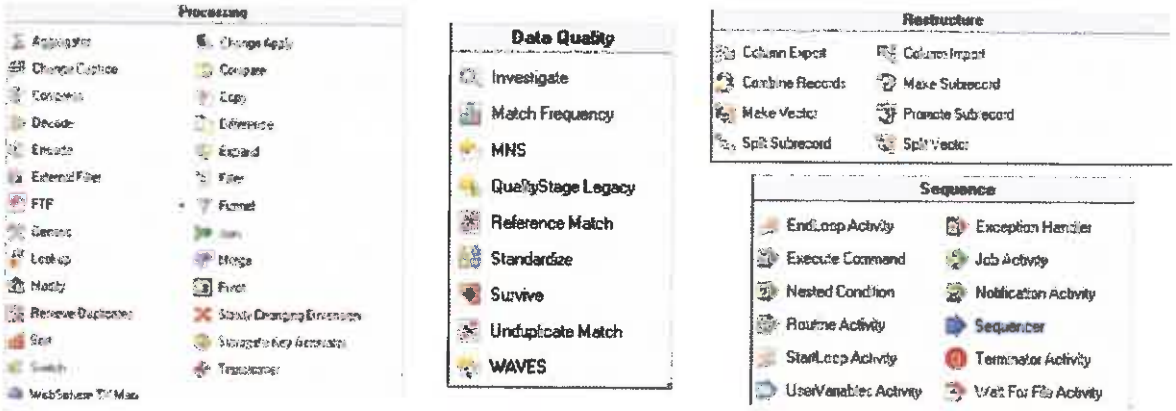
Our solution is built in alignment with the MITA 3.0 principles and the 7 Standards and Conditions with integrated data transformations and efficient reuse of processes to promote accuracy and efficiency in data conversion and migrations from data sources across the enterprise. Our data conversion and migration solution utilizes Infosphere DataStage to provide data extraction, conversion, transformation and migration of data from data sources into the WV EDS. DataStage will provide the data movement, conversion, and transformation capability. The data migration jobs translate business rules into generated code for implementation. Infosphere DataStage's interface is a visual canvas with tooling for designing, developing, and running jobs that move and transform data. Infosphere QualityStage runs on and uses the same design interface as DataStage, providing additional "stages" that perform data quality centric tasks on data.

Our solution performs the data manipulation and calculations required within the data transformation process. DataStage has dozens of out-of-the-box transformations that can be copied and modified to perform any data conversion activity DHHR might need. The data transformation and data imputation capabilities are exposed as stages in the GUI design interface and are used on all types of data. These stages address consistent, common and sometimes complex data challenges that integration projects must handle when moving, converting and transforming data between systems. DataStage provides data movement and integration on a highly scalable software architecture that ensures large volumes of information can be processed quickly. And its architecture scales to support large data volumes and meets

enterprise demands for security and performance. The use of DataStage also enables migration processes to be built quickly and more consistently avoiding requirements for custom coding.

InfoSphere QualityStage includes specific functionality to monitor, and cleanse data found to be suspect or of bad quality. Rule sets are provided and can be copied and modified or an entirely new quality rule set may be created. All the InfoSphere Information Server processing components (DataStage, QualityStage and Information Analyzer) use the same Designer canvas/dashboard for designing and building job flows. The tool's graphical environment supports ease of use by presenting a visual workflow of how a transformation is occurring in a meaningful context.

Figure 84. InfoSphere DataStage and QualityStage "Stages" on the canvas. *Pre-built data manipulation and transformation logic comes out-of-the-box in graphical "stages" for selection from a palette during job design.*



Standard ETL practices will be followed for design and implementation of the transformation jobs. For example, a job execution design can include job batches, which run several jobs in sequence. Most transformation logic will be applied when moving data into the Integrated Data Store of the WV EDS. Data loaded into the EDW will be identified by the source system from which it came, and that data lineage will be maintained throughout all data processing activities. Metadata logs will serve as a historical record of the transformations performed against the data.

Data Conversion and Migration Experience

Our solution, skills and applied experience for the conversion and migration of data from legacy MMIS systems and existing DW/DSS systems has proven successful in multiple state engagements. We have helped transition state agencies from legacy enterprise IT systems to modern, interoperable and efficient implementations using new tools, technologies, and approaches. We have established methodical approaches, practices and techniques to reduce risk and ensure unqualified accuracy and integrity in the data we migrate into our solution. We have translated source data from DXC MMIS systems into health analytics for our state clients 16 times, including for Idaho and Maine, allowing us to leverage lessons learned on system interfaces, data structures, data extracts, data sources, and DXC operations. Further, our experience as your current vendor gives us an unparalleled knowledge of your data and the business rules that are embedded in that data. This knowledge results in lower risk and a decreased burden on your staff to educate our team.

At Watson Health, our wealth of experience, established Data Migration process, advanced tooling and automation approaches, enforced checks and balances at all stages, and relentless focus on the collective data conversion activities and migration goals of DHHR will ensure a successful and superior data conversion and migration of DHHR's data into the WV EDS.

Ensuring Data Quality, Integrity, Consistency and Timeliness

We follow detailed steps to confirm that files from the sources are migrated, converted, transformed and loaded appropriately. After each data migration from a source to a target layer, the data is checked for quality. Content is analyzed for accuracy and supported with data quality reports. Our data quality assessments validate data taken into the warehouse balances properly internally and with the source systems. If we discover discrepancies, exception handling will capture any rejected data and reference log files to indicate which, if any, jobs had load failures and why. Authorized users will also have access to view data exception results. We will work with the appropriate DHHR Data Stewards to identify the causes of any data discrepancies or migration failures and rectify them. We will generate reports for DHHR on data quality statistics, data migration jobs and on any data exceptions at run time.

The operational metadata about the sources, targets, and the job runs themselves is all captured automatically at run time and stored in the common metadata repository. The metadata can be viewed and investigated later as necessary to understand the data migration process that occurred.

Our WV EDS solutions processes will manage WV's information assets in a manner that maintains its integrity, consistency, accuracy, and timeliness. Our data quality and cleansing processes validate incoming data and reconcile it with source systems, so the reporting data meets defined standards for accuracy, currency, cleanliness, consistency, transformation, enhancement, and completion, ensuring the integrity of the WV EDS data content.

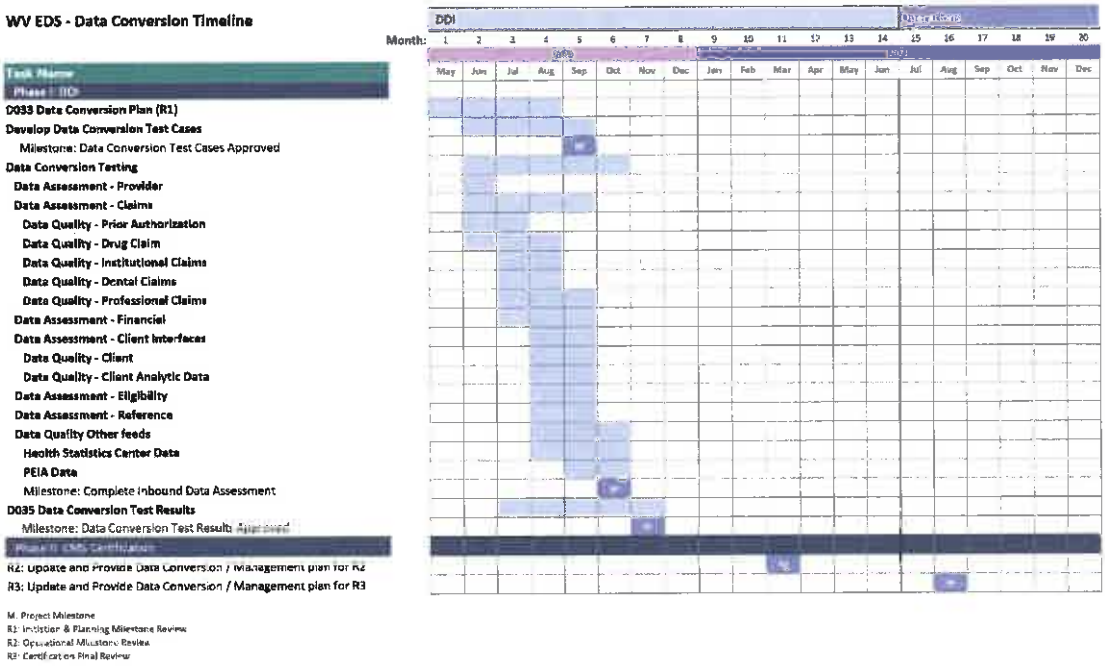
Data Conversion Commitments

The following statements articulate our commitments for Data Conversion and Migration:

- We create detailed data conversion design specifications and build multiple checks and balances into the process to ensure that data is synchronized within and across sources and time periods.
- We develop data conversion processes that include data quality checks for accuracy and completeness so that the data we load provides users confidence that the reports and insights generated from the WV EDS are accurate.
- We conduct testing at various steps throughout the data conversion and migration process to ensure accurate and successful results.
- We have invested heavily in an automated, rules-based approach that focuses on data quality from an analytic- and improvement-oriented perspective.
- Our data quality process meets defined standards for accuracy, currency, cleanliness, transformation, enhancement, and completion.
- We are confident that our data quality assessment processes are the best in the industry.

Data Conversion and Migration Timeline

Figure 85. Data Conversion and Migration Timeline



Deployment Methodology

Implementation/Rollout Planning

Our Watson Health implementation approach is focused on speed to value while executing with excellence. Watson Health's delivery approach drives better planning, better monitoring, and better results throughout the entire project life cycle, from Initiation and Planning to Implementation and Operations. Our delivery framework utilizes industry leading project tools (outlined in the next section) and is the foundation for our release schedule, operational readiness planning/verification, post-implementation planning, and operational monitoring. DHHR staff and other stakeholders are educated on our planning and execution processes during this initial phase of the project. This establishes expectations for communications through the entire WV EDS project within the multi-supplier enterprise.

In the Initiation and Planning phase, we initiate our delivery approach and establish all environments. We use an integrated series of project management and system development tools and processes. Our project management team meets with you during Initiation and Project Planning to discuss and formulate the methods to use when reporting status and exchanging information. We define project communication methods and protocols and clearly establish appropriate roles, responsibilities, and channels. It is during this phase that we customize our standard Implementation Plan for West Virginia. Our standard Implementation Plan describes how we approach requirements analysis, design, development, training, testing, deployment, operations transition, and contract closeout. The document includes entrance, exit, and approval criteria for each phase and deliverable, and how the iterative delivery operates within these phases. During the Initiation and Planning phase, we also share our documentation management standards and best practices to ensure all team members are aware of the project deliverables (documents) creation, review and approval cycles, as well as roles and responsibilities throughout the deliverables management steps.

Project Management and Execution Tools

Under supervision of the Watson Health PMO Manager / Deputy Account Manager, our project staff will use tools that are consistent with industry best practices, at version levels specified by the PMO, to prepare all project deliverables. Applicable tools and their use in supporting quality management for both project work products and processes are listed below. These form the project website through which all project artifacts will be accessed.

Our project management tool suite, provides transparent, current information on project progress and manages all daily work identified for each release planned and scheduled in our baselined Project Plan. JIRA supports iterative development and gives you real-time status of project features, user story progress, blockers, and priorities. It also helps manage and identify potential issues and risks earlier in the software development life cycle (SDLC). Since updates are made within JIRA real-time for changes, the impacts are reflected in the monitoring dashboards and allows the PMO and extended project team to understand impacts.

Table 42. Project Management and Execution Tools

Tool	Purpose	Primary Users
JAMA	Single source for tracking contract / business, functional & non-functional requirements, elaborated requirements detail as input to Requirements Analysis Document (RAD), testing use/test cases, testing results, management and generation of Requirements Traceability Matrix (RTM)	Business Analysts / Testers
JIRA	Storage of technical work effort in project hierarchy of releases, epics, stories, and tasks that include estimates and tracking of work progress	Technical Team
Project Central Document Repository	Central location of storage of all project artifacts include project governance evidence meeting minutes, status reports, RAID (risks, action items, key decision) logs, configuration items register, etc.	Project Team
MS Office Suite	MS Word, Excel for project artifact creation, e.g. Documentation/Deliverable comment logs	Project Team
MS Project Online / Project Web Access (PWA)	Provides visibility into deliverable; sequencing, tasks and milestones, task dependencies and critical path methodology including each planned release.	Project Managers / PMO
MS Visio	Process flow tool for utilized for supporting documentation of documented processes / procedures	Project Managers / PMO; Project Team

Pilot Strategy

The Watson Health enterprise analytics platform and EDS was designed to be flexible and scalable to meet the needs of diverse programs. This allows DHHR to first implement a single use case and a few care programs as a pilot project. Upon the success of the pilot project, DHHR can then scale the solution across the enterprise to support more or different cohorts in need of care management and a broader set of

care programs targeted at other conditions. Our goal is to "connect the dots" between data analytics resulting from WV EDS and the facilitating of cohorts identified as needing care management.

Our Watson Health analytic team will support a WV EDS pilot using advanced analytics such as population stratification on DHHR's data sets to identify the target cohorts for the defined pilot. We will use our algorithms and methods to identify cohorts that present the best opportunity for savings and/or improvement for targeted management of DHHR programs.

Watson Health will collaborate with the WV EDS OCM Team and stakeholders during the Initiation and Planning phase of the project to determine the best timing and breadth of users for rolling out the program(s) across each of the Business Process Areas (Financial Management, Care Management, Program Management, and Program Integrity). Together with DHHR and stakeholders, Watson Health will detail out the tasks in the project Schedule necessary to move from Watson Health development/testing, DHHR UAT, and Implementation (pilot) phase in preparation for release to Operations (production).

A Watson Health pilot will require interaction with DHHR SMEs, decision makers, and care/case managers or social workers to gather requirements and configuration needs, review and approve deliverables and complete testing. This could range from a single person that provides all of the needed support to, more likely, 4-5 people that will need to be engaged.

Operational Readiness & Operational Readiness Testing

One of the key areas within the Implementation Plan is the Operational Readiness checklist and planning. During the operational readiness phase of the project, we will use our standardized operational readiness checklists and process criteria to effectively evaluate system functionality, performance, training needs and support, user documentation needs, and establish cutover procedures and support from DDI to Operations. We will collaborate throughout to confirm we meet all requirements, expectations, and deliver the solution you are expecting.

Operational Readiness Testing is a critical part of testing for a multi-data supplier environment. During this testing, all the individual data suppliers verify that their component function in concert with others to support the Watson Health WV EDS go live. Watson Health will work with DHHR as well as vendors and stakeholders to determine the testing cycles and key deliverables that will be validated during ORT.

Operational Readiness Testing (ORT) also provides assurance that the system is ready to go live. Watson Health will validate that the Watson Health WV EDS solution is ready to perform all expected functions – process all inputs, run all reports, provide access to users, the data extraction network is functioning, data conversion activities have taken place, system performance is as expected, backup and disaster recovery are in place, etc. ORT activities include:

- Demonstrate and verify that physical security, user accounts and access, data security, disaster recovery, and links to online portals are functional
- Confirm data suppliers have adequately tested their interfaces, executed any needed approvals and agreements, and are ready for operations
- Production environment readiness checklists have been completed
- Accomplish volume testing to demonstrate that both of our teams are prepared for production and ready to support the SLA; this includes incident/defect management and reporting
- Review manuals, handbooks, and documentation needed to support Operations including System and User Documentation
- Support your staff performing ORT with analysis, review, and defect resolution of results

- Identified staff has been trained per the Training Plan and schedule; trained users have passed ORT checklist
- Reports List and Distribution Schedule has been published to identified users / stakeholders. This includes the schedule for daily, weekly, monthly, quarterly and annual reports.
- Validation of Solution Deployment Deliverables completion
- Prepare an Operational Readiness Test Results report that demonstrates the solution; its subsystems, functions, data processes, operational procedures, staffing, telecommunications; and all other associated support are in place and ready for Operation

Other key components of ORT testing include:

- **Parallel Testing:** Watson Health will run the Watson Health WV EDW solution in a Parallel Testing environment as it will run in Production. Parallel testing will validate that the new system is producing equivalent results to the legacy system where expected. As load cycles run in parallel with the legacy system, reports and extracts are generated that provide a basis of comparison. We will assist DHHR in validating the new system is producing accurate results based on these comparisons.
- **SOA Connectivity:** Our solution is built around the principles of an open, standards-based Service-Oriented Architecture (SOA), enabling DHHR to share access to data across the enterprise. This activity will confirm that systems interacting with the Watson Health WV EDW are interoperable and utilize exposed APIs and services as expected. The test cases designed for this phase will validate the connection and data exchanges between all the vendor's in the production environments using integration testing tools. Any defects found with these interactions will be addressed and fixed prior to exiting this phase.
- **Data Exchanges:** The Watson Health WV EDW solution depends on the data flowing into the warehouse and being accurately applied to the data warehouse. During this phase, we verify that all the data sources can be received, stored, transformed and loaded into the warehouse. We use data reconciliation reports to confirm that all the data was loaded correctly. Our operations team demonstrates their ability to monitor the process of all the various loads and creates the product and SLA reports around data loads.
- During this phase we will generate and send outbound extracts as an operations ready check before going live. The entities receiving data are expected to validate readiness on their end. Watson Health will work with each individual vendor and business partner to develop and execute a schedule that will allow both parties to validate and confirm operational readiness.
- **Processing Cycles:** During Parallel Testing, Watson Health Operations team exercises the scheduled processing jobs, records and verifies performance against SLAs. We validate that the system runs as expected and the SLAs are met. We run all cycles for ad hoc, daily, weekly, monthly, quarterly, and annual validation.

We continue to log, triage, mitigate and retest all defects that are found during this phase to confirm the solution meets the exit criteria to move into production.

Stakeholder Readiness for Implementation

The Watson Health team understands the time commitment that a large and complex project like this one requires of DHHR stakeholders. Our implementation method within our chosen iterative SDLC allows stakeholders to be engaged throughout the project lifecycle, promoting open communication and engagement along the way. In a traditional waterfall methodology, the stakeholders experience large spikes in their engagement effort. These spikes can disrupt a customer's internal commitments. Watson

Health's implementation methods focuses on quality and well-planned interactions with stakeholders to ensure readiness as we plan to move into the Implementation phase of the project.

In the waterfall delivery model, the stakeholders are involved heavily in the beginning during the Requirements phase. Then during the Design and Development phases, they are available for questions only. When this focus shifts for stakeholders during the Design and Development phases, they disengage in the project and often lose focus. Without consistent meaningful engagement, the deliverable quality may not meet expectations. In a waterfall delivery model, the stakeholders re-engage for UAT and production parallel testing. This timeline gap often causes the most drain on the stakeholders' time, because they must ramp back up on the project after being disengaged during development and design.

The Watson Health implementation method addresses these traditional waterfall issues and minimizes spikes in stakeholders' time, preventing them from becoming overwhelmed with their daily responsibilities on top of their commitment to project delivery. Watson Health keeps stakeholders involved, engaged, and excited throughout the project life cycle to ensure readiness moving into the Implementation phase of the project.

Based on our successful EDW deliveries, we categorize stakeholder roles into four categories as listed in the following table. The number of full-time equivalents (FTEs) within each category varies depending on the state's unique structure and program size. During the Planning phase, we will work with West Virginia to refine what we already know about the working teams and structure, to review and adapt the WV EDS project approach and stakeholder list accordingly. These roles have unique skill sets and provide valuable guidance and input to the project as presented in the table below.

Table 43. Stakeholder Categories

Stakeholder Role Categories	Description Role Categories
DHHR EDW Data Subject Matter Expert(s)	Watson Health brings knowledge from several implementations and an in-depth understanding of Medicaid data and healthcare analytics. However, each state program has unique data and processes to serve its state Medicaid population. Watson Health engages West Virginia subject matter experts (SMEs) to provide input on specific nuances of its data and processes. These stakeholders engage during their specialty areas requirements to ensure that we capture these nuances. They work with the development and design teams to ensure we model and map the data successfully into the Core Data Model (CDM) so that we can achieve the best analytics. They work with our testing team to review the data before production and ensure that delivery has captured the unique traits for the West Virginia Programs.
Enterprise Project Manager(s)	Watson Health brings a mature PMO to our engagements. The Watson Health PMO focuses on both delivery and process to validate that the system solution meets requirements and will be CMS certified. Our PMO partners with the Enterprise PMO and other DHHR-identified suppliers for proper governance, oversight, and guidance on solution delivery for all project phases.
DHHR Healthcare Analytics and Reporting Subject Matter Expert(s)	Watson Health brings healthcare analysts to the project and experience in configuration for our customers. We work directly with DHHR Healthcare Analytics Subject Matter Experts to understand your unique requirements and needs so that we can configure and, where necessary, develop new healthcare analytic measures and reporting to support West Virginia.
DHHR EDS Executive Stakeholders	Watson Health understands the commitment of a state to a project of this size. Executive stakeholders provide direction and key decisions on scope and schedule through the project life cycle. We work with the executive stakeholders to ensure full transparency in project status, especially related to project schedule and scope. We work with them to understand their vision and to confirm the solution aligns with that vision. Their involvement includes periodic meetings and communications that align with the implementation and operations releases. During the Project Planning phase, Watson Health plans and documents the reporting and time requirements required by these executive stakeholders.

During the Planning phase, Watson Health will work with the WV EDS project teams to identify resources that fulfill these categories. We work with the project team to identify and adjust plans as necessary to accommodate the unique number of resources available to fill these roles. As we define and

refine stakeholders, the Implementation Plan as well as ORT checklists contain clear readiness criteria in preparation for the move to Operations.

Deployment

During deployment of the WV EDS, we work closely with you to plan and document deployment activity, prepare your stakeholders for impact to the user community and target system environments, orchestrate the various deployment and rollout activities, and evaluate the success of the deployment.

Our program management, delivery team, and operations management teams collaborate to ensure each deployment is well documented, communicated, and executed. We plan for and communicate a rollout plan, including functional, system, user acceptance, and deployment tests. Contingency planning, such as rollback and recovery planning for loss of data or systems, is vetted. We weave our security practices into the deployment to ensure we verify, approve, and implement the proper security views, user community, and data use.

We fully document the plan for transitioning the releases to appropriate support staff, including roles, responsibilities, functionality, and capability for each release to production. The plan for this transition includes an Operations Plan. This plan describes the specific operational function and Service Level Agreements, and how these Service Level Agreements will be monitored and reporting during operations.

Watson Health will work with DHHR project staff and stakeholders to develop a release schedule for each component of the WV EDS program. The release schedule, specific to DHHR, identifies what component or function is being released to a specific environment and when, e.g. to UAT, Implementation (pre-production/pilot) or Operations (production) as the team executes against an established entrance and exit criteria for a specific phase of the SDLC.

Solution Deployment deliverables

One of the keys to effective planning for a successful implementation is the development of a comprehensive set of solution deployment related documents. This set of documents are the core materials established for the Operations of the EDS. Each of these documents are detailed in the project Schedule identifying clear owners, planned development, completion, review and approval dates. Our Documentation Project Manager maintains clear line of sight into Solution Deployment Deliverables and the runway to due dates, transparency into documentation status, providing early indicators to alert of any potential slippage of dates, allowing the team to proactively plan for any downstream impact to changed dates.

Upon approval of a Deliverable Expectations Document (DED) or attestation of completion for each, Watson Health will develop, review with DHHR and obtain approval via the Document Management Plan, standards, and project Schedule, the following Task Group #4 Solution Deployment deliverables:

- Cutover Play Book
- Federal Review Supporting Documentation
- Implementation Certification Letter
- Implementation Plan (Rollout Plan)
- Operations Change Management Plan
- Operational Milestone Review
- Production Screenshots, Reports, and Data for Certification
- Report Distribution Schedule
- Solution Health Monitoring Plan
- System Operations Plan
- System and User Documentation
- Training Materials
- Training Report
- Training Schedule
- Turnover and Closeout Management Plan

Emergency Backout Strategy

The Implementation Plan will also include a section detailing our steps and actions to restore the site to the original, pre-implementation condition in the event the decision is made to backout some or all the WV EDS. The backout plan to restore to original state would consist of the following processes and be managed by the Watson Health Change/Release Manager:

1. Notification to the Service Desk: Notification to this team that the backout plan has been initiated ensures that communication to current users can take place.
2. User Impact: Detailed plan to disable or delay access for specified users.
3. Plan to Restore: Detailed technical plan to determine what and how for system / data restore.
4. Conducting Tests/Health Checks: Providing checks after restoring to determine successful backout, return to prior business operations.
5. Re-enabling User Access: Confirming access levels are restored, closed loop communications.
6. Notifying Service Desk of successful backout: Closing the loop on this incident. Developing any lessons learned and submitting to the project governance structure.

Updates to Project Management Plans after Operations

Watson Health's standard project management plans adhere to industry project management standards outlined in Project Management Institute (PMI) Project Management Body of Knowledge (PMBOK) 6th Edition and have been used effectively on numerous implementations. Included in these documents is a Project Management Plan. Our standard Project Management Plan describes a process for governing all phases of the project including Operations. Our Watson Health Documentation Project Manager will propose via the Documentation Management Plan, the entire set of WV EDS project artifacts and their planned ongoing review cycles (typically annual) where applicable. Each project artifact (approved Deliverable) will be listed in the Documentation Management Plan and project Schedule for applicable review dates, including through the Operations phase of the project.

Implementation Methodology and Timeline

PM032	The solution should be implemented and fully functional prior to the contract close of the existing data warehouse decision support system (DW/DSS).

Watson Health is committed to ensuring DHHR has a fully functional solution prior to the contract close of the existing DW/DSS.

Pending contract execution, our proposed effort would begin in the Spring of 2020 and conclude in the Spring of 2021. This will allow time for DHHR to complete parallel testing and confirm the EDS meets the agreed upon requirements.

Our approach will release the Data Warehouse, J-SURS, and the upgraded i-Sight solution all within a 14-month period. This will allow DHHR to sufficiently test all the products and fully approve of the solution.

In the Project Initiation and Planning phase, Watson Health will conduct the project kick-off with DHHR and ensure the facility is setup as required. Immediately after the kick-off, the requirements sessions and data summit will begin. This key process ensures we are united in our requirements expectations. The infrastructure will also be setup during this phase.

During the Solution Design, Testing, and Operations phase, the Watson Health team proactively manages and executes the overall project schedule and scope. This phase leads into the Solution Deployment phase with all planned releases occurring as required.

Lastly, the Project Monitor and Control phase will exist throughout the duration of the project to ensure our meetings, status reports, and contractual DDI metrics are met and delivered.

Issues, Challenges, and Risks

Risk and Issue Mitigation Strategies

The analyses completed through this contract may have a high profile, with many external stakeholders including the Legislature, Medicaid beneficiaries, healthcare providers, and advocacy groups. On the basis of our past experience managing projects of similar complexity with both government and multipayer initiatives, Watson Health anticipates potential risks and has proven strategies for mitigating their impact.

Our implementation methodology includes an approach to proactively identify and manage issues, challenges, and risks and begins on the project from Day 1. Watson Health launches the project with an established list of challenges and risks, including positive risks, and proposed mitigation strategies for each. Our experience from similar projects enables us to share lessons learned with DHHR that support mitigation strategies for many project risks and issues identified. Our risk management approach follows Project Management Institute standards that support responses to mitigate, avoid, transfer, or accept a risk and develop mitigation strategies accordingly. In the event of a failed mitigation strategy, Watson Health triggers a contingency plan (or agreed on action plan) to resolve and proceed in project execution. Our implementation approach that encompasses issues, challenges, risks, and lessons learned into our methodology fosters a collaborative and holistic approach for successful project planning and execution.

Please refer to Attachment I, section PM034-PM043 for details on our risk and issue management processes and the tools we use for tracking them (including Risk Log).

Table 44. Risk Mitigation Strategy

Risk Description	Risk Response	Mitigation Strategy
If programming errors occur, then requirements specifications in the final deliverable may be implemented incorrectly.	Avoid	Our process is built to anticipate the errors and foster a culture of early identification of risks and problems. We build reviews into each step of the process to catch errors before final deliverables. We also use checkpoints at each stage of implementation to ensure that— • The programmer correctly implements the specifications • The results match what was done previously • There is version control of the program and of the database accessed • The code passes both peer and scientific review
If there are gaps or errors in the specifications, then the system may not satisfy the requirements.	Avoid	We intend to work closely with you to develop and review specifications and proactively raise questions in a timely manner to identify any issues early in the design process. We do this by having Requirements Analysis Sessions and reviewing all the requirements in detail, including their acceptance criteria, at the start of the project, and capture them all in our Requirements Trace Matrix. During development, the Task Leader also will walk through specifications with the programmer and any other team member to ensure mutual and complete understanding. If requirements do change, we assess and document their impact with our Change Management and Configuration Management processes. We engage with the DHHR and obtain your approval on any proposed requirement changes before we proceed with making the change in any project deliverables, programs, schedules, and so forth.
If data changes over time, then our analytic approaches need to adapt to accommodate	Mitigate	We meet at least annually (or as frequently as the data sets are updated) with the data development teams. The development teams are expected to notify the Task Leader of any changes to the data. We notify you of any major changes to data

Risk Description	Risk Response	Mitigation Strategy
changes that may affect study results.		sets. We also provide you with data set documentation and note the potential impact of these changes on past or future analyses.

Data Analytics Project Challenges

Watson Health's deep knowledge of data analytics and execution of projects to support it has uncovered many common challenges to strategic data analytics. Fortunately, we have the experience and know-how to address and overcome them. Below, we highlight a few:

Data governance and access. There are often challenges from vendors to release data. As your current legacy system provider, we already have your data on hand and are very familiar with it. This minimizes the effort and time it will take to collect and cleanse the data needed to build the EDS, as well as reduce the risk of the data quality not being sufficient. We already know what shortcomings or inconsistencies exist in your data and how best to work with them to provide meaningful analytics.

Data integrity and quality. The quality and accuracy of the data has suffered because of inadequate investment in standardizing health care data. Too often, data analytics providers are delivering user front ends and reports based on a foundation of disparate data. Watson Health has the resources to do both. We have invested millions in improving data curation and integration, including more automation and increasing accuracy using artificial intelligence (AI) and are developing more tools and using new technology to improve all stages of the Extract, Transform, Load (ETL) pipeline.

Requirements clarity. Because there often are different people involved in creating and evaluating the RFP versus actually implementing the chosen solution, requirements can become unclear or misunderstood. Our Requirements Analysis Sessions are crucial to confirming understanding of every requirement, as well as documenting the acceptance criteria for each of them. Test cases also are mapped to every requirement in order to ensure coverage in the final solution.

Proven project management processes. Given our deep background in implementing data warehouses for analytics, we already have a proven structure of project management tools and templates to plan, execute, and control the project. We know what has worked on past projects, what "gotchas" to look out for, and where improvements can be made to improve project execution and overall success. We propose to proactively capture and document risks and issues at the start of the project, and on a regular basis through implementation. We prepare mitigation strategies on the basis of our past experiences and best practices in the industry. We monitor and track the risks and issues on an ongoing basis until they are either resolved or no longer relevant and apply our mitigation strategies if they do occur in order to minimize their impact. Our entire project team is engaged in identifying, owning, and monitoring any risks and issues during the implementation. Please see the description of our processes and tracking tools in section PM034-PM043 of Attachment I for more details.

Lessons Learned

Integrating lessons learned from previous and current implementations of similar size and scope is standard operating practice for Watson Health implementations teams. Our Centers of Excellence in specific domain areas, such as project management or analytics, are continually sharing lessons learned during their projects and cross-pollinating project teams with experienced subject matter experts to bring new insights and approaches. We also incorporate lessons learned throughout this project so that each release benefits from gained insights.

Our Software Development Life Cycle (SDLC) includes creating a log of lessons learned, which is initiated at project start and then revisited and updated at the end of every phase of the project. The log captures details such as the phase when the lesson occurred, whether it had a positive or negative impact,

and suggested techniques or approaches for either avoiding it (if negative) or enhancing it (if positive) in later stages of the project. Watson Health performs lessons learned for each phase both internally and with the key project staff from the DHHR to collaboratively reflect on what worked and what did not work, in order to implement improvements for the future.

Table 45. Lessons Learned Log

Field Name	Description
Phase	Phase of the project when the lesson was learned: • Initiation • Planning • Requirements • Design • Development • Testing • Deployment • Closing • Operations
Area	Functional area of the project where lesson occurred or that was affected: • Project Management • Account Management • Technical • Infrastructure • Security • Quality • Others can be defined as needed
Title	Title of lesson learned
Description	Description of lesson learned – should be specific
Action	Suggested future action to avoid or enhance the lesson, depending on if its impact was positive or negative

Significant Lessons Learned From Previous Implementations

A list of recent Watson Health enterprise data warehouse (EDW) clients with the relative size of their projects. We sampled from these clients to develop the list of lessons we believe most relevant and beneficial to DHHR.

Table 46. Recent Clients by Size and Complexity

Client	Relative Project Size	Complexity
Missouri	Large	Medium
Colorado	Very Large	High
New Mexico	Large	Medium
Massachusetts All Payer Claims Database	Large	Medium
North Carolina	Large	Medium

Table 47. Highlights of Recent Lessons Learned

Phase	Lesson Learned	Impact	Recommendation for DHHR project
Planning, Requirements and Design	Documentation review and approval cycles that extend timeline for approvals	• Approvals delayed, causing dependent tasks to be delayed	• Require individual documentation review/owners that can be identified for each document by subject matter area • No bottleneck approvals with a single subject matter expert; this includes Project Management Plans and technical documents such as design documents • The second review also is the final review, unless new content/scope was added from the first review following the change management process • Central project artifacts listing outside of the project Schedule that is managed by a Documentation Manager/Project Manager, tracking by heatmap of status, with each artifact clearly identified if it is a payment milestone • Independent verification and validation (IV&V) provides oversight and guidance as contracted by West Virginia, however, IV&V is not submitting comments on specific documents within the Review Cycle process itself
Planning and ongoing DDI	Project schedule is overwhelming for a client to review all at once	• Delay in completing approved, baselined schedule	• Project schedule elaborated in 90-day increments in a rolling 30 days, published daily/weekly on the basis of Schedule Management Plan
Throughout Design, Development, and Implementation (DDI)	CMS certification tasks should not all be done at the end	• CMS certification is delayed	• Tasks for CMS certification should be integrated into the delivery process • Project schedule should include these tasks
Throughout DDI	Timely state involvement is critical for decisions, approvals, and so forth	• Decisions made, then changed, causing delays, cost overruns, rework, and so forth	• Access to committed state staff for quick decisions, and so forth (defined state counterparts for each requested area with authority for decision-making, documentation review, and approvals)
Throughout DDI	Escalation paths may be unclear	• Delay in resolving issues can result in schedule delays, rework, and so forth	• Clear escalation paths for decision-making and issues into the state project governance structure and module/program enterprise project management office (EPMO)
Deployment and Operations	Organizational change management (OCM) and training are critical to successful assimilation	• Lack of support by upper management prevents attendance and results in low usage	• Commitment to training and OCM by state staff is crucial to enable state staff to participate

Phase	Lesson Learned	Impact	Recommendation for DHHR project
Throughout DDI	External stakeholders, such as project management vendor, and IV&V are not a replacement for state involvement	• State stakeholders not aware of status, not involved in decision-making, resulting in changes, delays, and so forth	• External stakeholders can provide valuable insight and collaborate with project team, but involvement of DHHR stakeholders still is crucial • Defined subject matter experts and an approver for each deliverable can improve the timing of the review and approval process • Staffing plan detail the required resources from the state for each portion of project execution
Throughout DDI	Infrastructure and provisioning setup can cause delays	• Schedule delays and users waiting for access	• Project schedule should include early deadlines and milestones, as well as multiple checkpoints for infrastructure and provisioning tasks • Any delays should be escalated immediately
Throughout DDI	Deliverables and/or data from external sources can cause delays	• Schedule delays, poor quality	• Items (including data) to be delivered from other entities require specific plans, including a Plan B or fallback option • Project schedule should include early deadlines and milestones, as well as multiple checkpoints for these items
Throughout DDI	Meeting etiquette needs to be followed	• Poor attendance and overbooked resources	• Meetings need to start and end on time, and use a timekeeper to stay on track • Ensure that meetings need to include all of the correct attendees, and tools such as checklists should be used
Requirements and Design	Security roles, groups, and process may not be clearly defined in requirements	• Roles and groups design haphazard, resulting in confusion and incorrectly assigned users, rework, and so forth	• Use a formal data governance group to define and manage role-based access (identifying user groups, defining access views, and maintaining documentation) • Use a defined process for provisioning of authorized users to the EDS
Requirements	Service level agreements (SLAs) may not have clear acceptance criteria or metrics	• SLAs not met satisfactorily or proof of SLA not acceptable	• Define SLAs early in the project, including acceptance criteria for system performance • Identify specific reports or operations for metrics collection and verification against SLAs
Requirements	Contractual Requirements may not have clear acceptance criteria	• Contractual requirements cannot be closed out, causing rework, cost overruns, and so forth	• All contractual requirements need to have defined acceptance criteria • An approval process for closing out the contractual requirements is needed

Watson Health has integrated and recommended a number of "best practices." However, we believe that two critical areas best elucidate how we have adopted these lessons into our approach for DHHR.

Documentation Review and Approval Cycles

Our experience with other projects has helped Watson Health to understand that stakeholder involvement is key to streamlining the document review process. Before document reviews, stakeholders must gain an understanding of their roles and responsibilities as reviewers in the process. During the reviews, there must be sufficient communication and transparency with the stakeholders involved in order to generate an approved deliverable in a timely fashion. Watson Health proposes to work collaboratively with West Virginia to reduce documentation review cycles as much as possible, in order to support the required project timeline. To that end, review cycle activities, activity durations and dependencies, and resource allocation requirements for both vendor and client staff are included in and managed through the approved project schedule workplan.

Each deliverable document, as defined by the contract, will be approved in accordance with the following procedures (adjusting the number of days for DEDs to 3-2-2):

- For each deliverable, Watson Health expects DHHR to either approve the deliverable or provide a written list of requested changes to the Watson Health Project Manager or Deliverable owner within 10 calendar days of Watson Health submitting the deliverable. If no response from DHHR is received within 10 days, the deliverable will be deemed approved by DHHR.
  If a written list of requested changes is received by Watson Health Project Manager or Deliverable owner within 10 calendar days of submission of a deliverable, Watson Health will make the appropriate revisions and will, within 5 calendar days, re-submit the updated final version to the DHHR. DHHR will have 5 calendar days to provide approval. If no response from DHHR is received within 5 days, the deliverable will be deemed approved by DHHR.
- Any further Deliverable review cycles requested are outside of the scope and will be handled through the WV EDS change management process.

Project Schedule Elaboration in 90-Day Increments

During similar implementations to DHHR's requirements, Watson Health has found that the size and complexity of the work for the project can make the project schedule very large and overwhelming for our clients to understand. We recommend working collaboratively with West Virginia to create the detail needed in later sections of the project schedule as part of a progressive elaboration process. The process begins by the Watson Health team baselining the initial project plan, which completely elaborates the first 90 days and provides high-level estimates for remaining tasks. The Watson Health team then begins the elaboration process of the next 90 days, with the refinement of the project schedule occurring every 30 days to maintain a detailed 90-day outlook. This iterative elaboration process gives DHHR the flexibility to change priorities without significantly affecting the project schedule. Our hybrid approach uses Agile techniques for development and testing, so that having the right stakeholders in any schedule or deliverable review sessions not only increases their understanding and confirms that the requirements are being properly addressed, it also helps keep our schedule on track.

Testing

PM075	The Vendor should conduct the following types of testing in support of the solution
PM076	Unit testing
PM077	Integration testing
PM078	Iterative functional testing
PM079	System integration testing (SIT)
PM080	Interface testing

PM081	Regression testing
PM082	End-to-end testing
PM083	Security testing
PM084	Performance testing
PM085	Usability/Accessibility testing
PM086	Browser testing
PM087	User acceptance testing (UAT)
PM088	Data conversion testing
PM089	Operational readiness testing (ORT)
PM090	Parallel testing
PM091	Other testing as identified by the Department and/or Vendor

Watson Health will create and submit a Master Test Plan for all levels of testing for approval by DHHR prior to the completion of the Requirements Definition phase of work. The Test plan describes our standard test/validation strategy, methodology, test phases, it also provides in detail the activities required to prepare for and support all areas of the testing effort.

After the Master Test Plan is approved, the Watson Health testing team begins the testing execution process. In executing the plan, each solution component goes through all pertinent testing phases. Each phase has a unique purpose and goal in the quality process. For a deliverable to move along the process, the entrance and exist criteria must be met. The last phase is operations readiness testing. This testing allows the DDI team to do a final readiness check to validate that the solution is completely executing as designed.

Watson Health will perform testing activities throughout the lifecycle of the project with the goal of detecting defects early in the lifecycle.

Based on roles, each participant will be assigned a series of business processes called scripts. Each script will be accompanied by a data sheet providing specific data elements to be used during the execution of the script; including a login, employee numbers or names, transaction codes and definitions, and expected results for each step of the script.

At the end of testing phase, a Testing Summary Document will be produced by the Watson Health QA Testing Team. This document contains a complete test result summary for a testing phase and becomes an artifact for certification. In this document, Watson Health describes the testing that was planned and any deviations that occurred to that plan during its execution. In addition, it includes several summary level reports that describe the results. This document serves as inputs to the exit criteria review and validation process for a testing phase.

Unit Testing

The Watson Health Delivery team uses the unit testing phase as the first level of quality assurance. Our team of developers configure our solution and execute unit tests for each component. They create a unit test plan before they configure or develop a solution component. Unit testing validates that each individual component functions as specified in the design for all paths of logic. The unit test plan is reviewed by their team lead and peer reviewed prior to execution. Once the solution is configured or developed, the developer executes the unit test plan and documents the results. The exit criteria for the unit testing phase includes all documented results and review by the team lead and Testing Manager.

Integration Testing

As an integral part of the staged implementation process, we will use a series of consecutive integration tests, each of which targets successively larger sets of source system data. This testing focuses on populating the data warehouse layers and data marts. Each test is detailed in the Implementation Plan.

Iterative functional testing

During this testing phase our test team will divide the project into smaller parts, and each part is subjected to multiple iterations of the waterfall model.

At the end of an iteration, a new module is developed and any existing modules are enhanced. This module is integrated into the software architecture and the entire system is tested all together.

System integration testing (SIT)

Watson Health will conduct System Integration Testing (SIT) to ensure and document that all the components of the data warehouse system supports the overall business and functional requirements of WV DHHR, as determined during the analysis and design phases. It is an "end-to-end" business process test that verifies that all of the components of the system including core EDW functions, conversions, interfaces, reports and custom extensions operate together as designed to provide the expected end results.

The SIT approach document provides an overview of the SIT process and explains the objectives, scope, and activities that will be conducted as a part of unit test.

The SIT cases provide the steps for testing each component of the new system in a fully integrated testing environment. Each test case focuses on a complete, end-to-end business process included in the Business Scenarios. For example, a test may involve creating a new user, setting objectives which trigger workflows and new user information would be included in interfaces. This is executed in an integrated environment and the purpose of SIT is to verify that modules, when integrated, function as designed. It also verifies the application has achieved the intent of the design. In addition, SIT uncovers configuration defects that prohibit data from synchronizing across modules. It requires detailed knowledge of the internal program design and product functionality and configurations.

Interface Testing

The validation of all project requirements up front, as well as the integration of tools and processes for Requirements Management and Test Management will enable Watson Health to report to the Agency that the system interfaces are operational and meets Federal and Agency architectural, technical, security, and privacy requirements as well as the documented and approved business and functional requirements. This will be completed through the testing processes as well as the Requirements Traceability Matrix.

Regression Testing

All changes or new features go through impact analysis to identify the parts of the solution that must be retested. Regression testing validates the change or new feature did not unexpectedly impact another part of the solution. The Watson Health Testing Team builds and executes regression test scripts and then packages them for automation. Our regression test bed is based our experiences in other states with similar scope and functionality. The regression test scripts are executed each time new features or changes are introduced to the solution. WV DHHR stakeholders can review the regression testing and add test cases to the regression test bed. Our regression testing approach includes all affected components, such as data model and reporting.

End-to-End Testing

Similar to the Iterative functional testing, during this test our developers integrate everything into the software architecture and the entire system is tested all together.

The complete data pipeline process is fully tested. It is a checkpoint we use to confirm that all expected code, architecture, packages and reports are working properly and that performance is optimal.

Security Testing

In addition to regular review of the Information Security Plan by WV DHHR and by our IBM security officers, our risk and audit team conducts multiple risk assessment and testing at least annually. The risk assessment ensures we have implemented and maintain the appropriate level of controls based on the data and system categorization standards.

Performance Testing

Performance testing on the solution will validate that the system is performing as designed and at the high-level of performance expected. Watson Health will conduct both performance and stress testing of the Watson Health WV DHHR EDW during initial build, enhancement, and after implementation of each new module. We will work with the WV DHHR Project Team, IS/IP vendor and module vendor to validate the solution meets Key Performance Indicators.

Through performance testing we validate the quality principle. Report and query performance is measured and addressed in a numerous ways. "Canary" reports are established to measure performance over time and detect any performance degradation against a baseline. All reports are measured against thresholds that are agreed upon with DHHR.

Long running reports and queries will trigger alerts and are subsequently evaluated and tuned.

Usability/Accessibility Testing

Watson Health adheres to the Americans with Disabilities Act (ADA) and Section 508 of the Rehabilitation Act and User Interface (UI) Standards (CR-002).

We are committed to supporting accessibility standards as defined by Section 508 of the Rehabilitation Act, and others such as the World Wide Web Consortium's (W3C) web application standards and the Web Content Accessibility Guidelines (WCAG 2.0). Because we take this commitment seriously, we have implemented several test and steps to ensure continued and aggressive progress against these standards. These assessments include:

- Comprehensive analysis of current product portfolio to meet the standards in Section 508
- Incorporation of Section 508 standards into all future development projects, as appropriate
- Incorporation of Section 508 process checks within our product development processes, with a focus on new interface development
- Continued investment in a dedicated group of user-experience professionals who are responsible for interpreting Section 508 requirements, designing all user interfaces, and strategically including Section 508 components within our software
- Selection of third-party technology partners who also demonstrate a commitment to Section 508 compliance

IBM will leverage our own accessibility checklists which provide guidance to designers and developers in building accessible solutions based on the platform, components and frameworks used in their application.

Browser Testing

Our proposed solution supports all major, industry standard web browsers to enabling forward and backward compatibility. IBM conducts multiple cross-browser tests to verify the compatibility of our

solutions. We will provide WV DHHR a comprehensive list of the web-based applications of the solution, supported browsers, and versions that are required by the client systems.

User Acceptance Testing (UAT)

User Acceptance testing is one of our final phases of testing before the system is moved to production. UAT is conducted by the client to validate the solution satisfies the specified requirements. Users will validate the business workflows against a production data set. Watson Health supports UAT by loading data and preparing the environment, collaborating on test cases and troubleshooting issues that arise.

Data Conversion Testing

Building a data warehouse is a complex process, and two of the most important tasks are data conversion and data migration. Our solution has multiple checks and balances built into the process to ensure the end results are of high quality and meet expectations. We will conduct testing at various steps throughout the data conversion and migration process to ensure accurate and successful results.

Operational Readiness Testing (ORT)

Watson Health calls this test Production Verification. Production verification testing is our final checkpoint to confirm all expected code, architecture, packages and reports were properly moved to production. This final test confirms no migration issues, code is running as expected and that performance is as anticipated.

Parallel Testing

Once all the solution components have passed the exit criteria for User Acceptance Testing and Performance/Stress Testing, the solution is deployed to production for Parallel Testing. During Parallel Testing, the operations team executes cycles and validates the overall solution accuracy against the legacy system. Watson Health and DHHR will review and validate key components against the legacy system to confirm the new solution meets or exceeds the requirements.

Other Testing as Identified by the Department and/or Vendor

Watson Health will work with WV DHHR to identify any other testing not identified in this RFP.

Any additional testing not explicitly identified in this RFP, or not part of our standard testing process can be implemented via our standard change request procedures.

PM092	The Vendor should be prepared to assist the Department with User acceptance testing (UAT)

UAT is aimed at demonstrating the solution aligns with requirements documents, that the enhanced data maintain their integrity and are fit for use, and that the BI features and functions perform correctly. We will help you identify and document scenarios to be executed during UAT and train UAT participants in advance. Using tailoring guides, we can adapt our processes to align with the project process needs while still ensuring the quality and rigor needed for desired project outcomes. We value face-to-face collaboration and have seen first-hand the impact it has on project success. Our team will be on-site with DHHR staff for requirements sessions, deliverable walkthroughs, user acceptance testing (UAT) support, training, and at other times as needed to fulfill contract requirements and critical needs.

PM093	The Vendor should be prepared to conduct User acceptance testing (UAT) in all cases whereby the Department does not elect to conduct UAT

Watson Health will work with WV DHHR to facilitate the UAT process in the event that WV DHHR decides not to conduct UAT testing procedures.

PM094	The Vendor should complete regression testing subsequent to, but not limited to, the following

PM095	Deployment of new solution components
PM096	Integration of each solution component into the primary solution
PM097	Every migration of new build versions to each test environment
PM098	Solution fixes
PM099	Solution patches
PM100	Solution releases
PM101	Others as defined by the Department

All changes or new features go through impact analysis to identify the parts of the solution that must be retested. Watson Health conducts multiple regression tests to validate, and to confirm that a change to the component(s) or new feature did not adversely impacted another part of the solution.

The Watson Health Testing Team builds and executes regression test scripts and then packages them for automation. Our regression test bed is based our experiences in other states with similar scope and functionality. The regression test scripts are executed each time new features or changes are introduced to the solution. WV stakeholders can review the regression testing and approve the cases applied to the regression test bed.

Software maintenance such as fixes, releases, and patching are standard activities that may include major and minor enhancements, error corrections, introduction and removal of existing features. These alterations could adversely impact the systems or the data warehouse as a whole. We conduct regression Testing throughout the lifecycle of the project with the goal of detecting defects after any system alterations have been made.

Our regression testing approach includes all affected components, such as data model and reporting as well as regression tests for changes to any element of the EDW ecosystem, including the ones explicitly specified in this RFP requirements:

a. Newly introduced components
b. Integration of each solution component into the primary solution
c. Every migration of new build versions to each test environment
d. Solution fixes
e. Solution patches
f. Solution releases

Deployment of New Solution Components

Watson Health agrees to conduct subsequent Regression Testing throughout the lifecycle of the project each time a new solution component is deployed or introduced.

The goal of the tests is to detect defects after any system alterations have been made. (also, please see answer PM094 above)

Integration of Each Solution Component Into The Primary Solution

Watson Health agrees to conduct subsequent Regression Testing throughout the lifecycle of the project each time a new solution component is integrated into the primary solution. The goal of the tests is to detect defects after any system alterations have been made. (also, please see answer PM094 above)

Every Migration of New Build Versions to Each Test Environment

Watson Health agrees to conduct subsequent Regression Testing throughout the lifecycle of the project Every migration of new build versions to each test environment.

The goal of the tests is to detect defects after any system alterations have been made (also, see answer PM094 above).

Solution Fixes

Watson Health agrees to conduct subsequent Regression Testing throughout the lifecycle of the project after Software maintenance such as fixes, releases, and patching.

Software maintenance such as fixes, releases, and patching are standard activities that may include major and minor enhancements, error corrections, introduction and removal of existing features. These alterations could adversely impact the systems or the data warehouse as a whole. We conduct regression Testing throughout the lifecycle of the project with the goal of detecting defects after any system alterations have been made (also, see answer PM094 above).

Solution Patches

Watson Health agrees to conduct subsequent Regression Testing throughout the lifecycle of the project after Software maintenance such as fixes, releases, and patching.

Software maintenance such as fixes, releases, and patching are standard activities that may include major and minor enhancements, error corrections, introduction and removal of existing features. These alterations could adversely impact the systems or the data warehouse as a whole. We conduct regression Testing throughout the lifecycle of the project with the goal of detecting defects after any system alterations have been made (also, see answer PM094 above).

Solution Releases

Watson Health agrees to conduct subsequent Regression Testing throughout the lifecycle of the project after Software maintenance such as fixes, releases, and patching.

Software maintenance such as fixes, releases, and patching are standard activities that may include major and minor enhancements, error corrections, introduction and removal of existing features. These alterations could adversely impact the systems or the data warehouse as a whole. We conduct regression Testing throughout the lifecycle of the project with the goal of detecting defects after any system alterations have been made (also, see answer PM094 above).

Others As Defined By The Department

Watson Health will work with WV DHHR to identify any other testing not identified in this RFP. Any additional testing not explicitly identified in this RFP, or not part of our standard testing process can be implemented via our standard change request procedures (also, see answer PM094 above).

PM102	The Vendor should utilize a subset of system integration testing (SIT) scenarios representative of maximum functional and technical solution coverage for the purposes of regression testing

Watson Health will conduct a review of the scenarios used for system integration testing (SIT). We will then identify a subset of the most relevant test scenarios to create the baseline to conduct our regression testing. Our developers will conduct these regression tests to validate, and to confirm that a change to the component(s) or new feature did not adversely impacted another part of the solution.

- Testers will execute each script, documenting the variances of the expected results.
- If issues arise, participants will work with their core team test lead to identify the cause.

- For configuration or data issues, the core team will analyze and correct real-time so that testing may continue.
- Any issues that cannot be resolved during the test will be escalated to the appropriate software vendor support.
- Upon completion of assigned test scripts, participants will document feedback on the system's design and ability to meet business needs.

PM103	The Vendor should obtain approval from the Department on which system integration testing (SIT) should be used for regression testing

Watson Health will create and submit to the DHHR department a detailed Master Test Plan for approval. We will work with DHHR to ensure that Business requirements acceptance and Master Test Plan approval is completed before testing begins, by way of review of the Fit/Gap document and original project Charter. Project leadership will identify an appropriate number of participants from various levels and divisions of the organization to execute assigned tests and provide feedback.

PM104	The Vendor should utilize end-to-end test cases in support of regression testing

Watson Health will conduct a review the list of test case scenarios that will be used for end-to-end testing. We will then identify a subset of the most relevant test scenarios and add them to the baseline that we will ultimately use to conduct our core regression testing. Our developers will conduct these regression tests to validate, and to confirm that a change to the component(s) or new feature did not adversely impacted another part of the solution.

- Testers will execute each script, documenting the variances of the expected results.
- If issues arise, participants will work with their core team test lead to identify the cause.
- For configuration or data issues, the core team will analyze and correct real-time so that testing may continue.
- Any issues that cannot be resolved during the test will be escalated to the appropriate software vendor support.
- Upon completion of assigned test scripts, participants will document feedback on the system's design and ability to meet business needs.

PM105	The Vendor should perform security testing on functional, technical, and infrastructure components to ensure the solution meets all State, Department, and Federal security requirements

Watson Health performs security testing in multiple areas ensuring functional, technical and infrastructure components meet Department, State and Federal requirements.

- Our enterprise level security tools (IPS, Malware Protection, Anti-Virus protection, Endpoint Detection and Response (EDR) and SIEM) are all monitored for functional health and uptime 24x7x365 in real time.
- We perform regular security scans of system servers that test for vulnerabilities.
- We engage a third party vendor to perform annual network penetration tests.
- We engage a third party vendor to perform annual system specific penetration tests.
- We include test cases during unit testing to validate role based access controls for application and data access.

PM106	The Vendor should propose security testing scenarios and/or cases to the Department for their approval

Watson Health will propose security test cases to the Department that include validation of role based access controls to both applications and data. Test cases will be designed to validate the specific security roles that will be defined in a Data Governance group led by the Department with collaboration with Watson Health.

PM107	The Vendor should supply, on an annual basis, a report of the results of a security risk assessment, including all tools used for the assessment, and an action plan detailing the approach for remediation of security risk vulnerabilities

The WV EDS system will be presented to the Watson Health Security Review Board (SRB) both during the design phase as well as prior to initial go-live and annually thereafter. The review includes system details on architecture, security controls, data classifications and regulatory requirements as well as results of a third party penetration test of the WV EDS system. The SRB review artifacts are used to classify overall system risk and presented to the Watson Health CISO for final review.

Any noted risk vulnerabilities are documented with remediation plans and along with the SRB risk assessment, will be presented to the Department for review. Watson Health will share the process and methodologies of the SRB risk assessment with the Department for transparency.

PM108	The Vendor's performance testing methodology should allow for performance tests to be representative of the expected peak period volumes for solution operation

Watson Health specializes in End-to-End and Component performance and stress testing for data warehouse applications. Our goal is to mitigate any risk related to performance or capacity, by actively driving load tests to identify problems and tune the application early in the project life cycle. Test workloads are executed iteratively and issues addressed until performance objectives are met for the application or system environment under test.

Performance Testing Methodology:

- Baseline tests to characterize application response times
- Peak load tests to verify performance and capacity Stress tests and Soak tests to verify application stability
- Provides benefit by identifying problems prior to deployment and eliminate performance problems in production.

Our highly experienced test practitioners have In-depth knowledge and experience in custom and commercial performance testing tools, many with certification from leading the tool vendors.

PM109	The Vendor's performance testing should occur on a production ready version of the solution

Execution of a test normally calls for a certain level of workload to be running when taking performance measurements and collecting data. This can be a steady-state workload or one that increases throughout the testing phase to evaluate the scalability of the system, application, and database. Test workloads will be "ramped up" to the desired level before collecting performance data to ensure the relevance of the measurements. Additionally, the test are conducted in multiple versions of the solution, including a production ready version of the solution.

PM110	The solution's performance testing environment should mirror the final production solution specifications

The test environment, as its name indicates, is the environment in which the workloads will be tested in order to meet the test objectives. In preparing for the performance test, one task is to build the test environment to match the one defined in the test plan. Watson Health will conduct performance testing in an environment identical to the production environment.

From a testing process point of view, the key consideration during test execution is the establishment of a baseline against which subsequent testing (where changes have been implemented) can be compared. In a performance test, our goal is to determine how well a system performs; in order to make this determination, our test team will need compare all the results against baseline information – hence the value of baseline runs. This practice of establishing a baseline will prove especially helpful later, when conducting analysis and documenting results. Furthermore, in support of this activity, all changes to the systems tests (e.g. software release level changes, data, application builds - code levels, and performance tuning changes) are always thoroughly conducted in a testing environment that mirrors the production environment specifications.

PM111	The Vendor's usability/accessibility testing should include testing of the user interface for the following users
PM112	Internal users
PM113	External users
PM114	Power users
PM115	Users with limited computer skills
PM116	Prospective new users
PM117	Users who will require solution training to complete their daily work
PM118	Users with disabilities
PM119	Others as defined by the Department

IBM provides on-going leadership in accessibility standards: To ensure equal access for all, IBM has taken a leadership position in IT accessibility, participating in and driving accessibility standards worldwide. Participation within key advocacy groups continually influences best practices and helps define the new standards.

IBM was a founding member and sponsor of the World Wide Web Consortium (W3C) Web Accessibility Initiative (WAI) and continues to play key roles on the WAI Steering Council and the Web Content Accessibility Guidelines (WCAG), Authoring Tools Accessibility Guidelines (ATAG), User Agent Accessibility Guidelines (UAAG), and Accessible Rich Internet Applications (WAI-ARIA) working groups.

Our usability/accessibility testing will include tests for:

a. Internal users
b. External users
c. Power users
d. Users with limited computer skills
e. Prospective new users
f. Users who will require solution training to complete their daily work
g. Users with disabilities

Internal Users

Watson Health usability and accessibility testing will include testing the user interfaces for internal users (also, see answer PM111 above).

External Users

Watson Health usability and accessibility testing will include testing the user interfaces for external users. (also, see answer PM111 above).

Power Users

Watson Health usability and accessibility testing will include testing the user interfaces for power users (also, see answer PM111 above).

Users With Limited Computer Skills

Watson Health usability and accessibility testing will include testing the user interfaces for users with limited computer skills (also, see answer PM111 above).

Prospective New Users

Watson Health usability and accessibility testing will include testing the user interfaces for prospective new users (also, see answer PM111 above).

Users Who Will Require Solution Training To Complete Their Daily Work

Watson Health usability and accessibility testing will include testing the user interfaces for prospective users who will require solution training to complete their daily work (also, see answer PM111 above).

Users With Disabilities

Watson Health usability and accessibility testing will include testing the user interfaces for users with disabilities (also, see answer PM111 above).

Others As Defined By The Department

Watson Health will work with WV DHHR to identify any other testing not identified in this RFP. Any additional testing not explicitly identified in this RFP, or not part of our standard testing process can be implemented via our standard change request procedures (also, see answer PM111 above).

PM120	The Vendor's usability/accessibility testing approach should account for testing for compliance with sections 504 and 508 of the Americans with Disabilities Act (ADA)

IBM provides on-going leadership in accessibility standards: To ensure equal access for all, IBM has taken a leadership position in IT accessibility, participating in and driving accessibility standards worldwide. Participation within key advocacy groups continually influences best practices and helps define the new standards.

IBM was a founding member and sponsor of the World Wide Web Consortium (W3C) Web Accessibility Initiative (WAI) and continues to play key roles on the WAI Steering Council and the Web Content Accessibility Guidelines (WCAG), Authoring Tools Accessibility Guidelines (ATAG), User Agent Accessibility Guidelines (UAAG), and Accessible Rich Internet Applications (WAI-ARIA) working groups.

IBM was vice-chair of the committee that developed recommendations on which the final Section 508 law was based. Watson Health adheres to the Americans with Disabilities Act (ADA) and Section 508 of the Rehabilitation Act and User Interface (UI) Standards

We are committed to supporting accessibility standards as defined by Section 508 of the Rehabilitation Act, and others such as the World Wide Web Consortium's (W3C) web application standards and the

Web Content Accessibility Guidelines (WCAG 2.0) and those applicable under Section 504. Because we take this commitment seriously, we have implemented several test and steps to ensure continued and aggressive progress against these standards. These assessments include:

- Analysis of current product portfolio to meet the standards
- Incorporation of standards into all future development projects, as appropriate
- Incorporation of process checks within our product development processes, with a focus on new interface development
- Continued investment in a dedicated group of user-experience professionals who are responsible for interpreting requirements, designing all user interfaces, and strategically including components within our software
- Selection of third-party technology partners who also demonstrate a commitment to compliance

IBM will leverage our own accessibility checklists which provide guidance to designers and developers in building accessible solutions based on the platform, components and frameworks used in their application.

PM121	The Vendor's browser testing should be performed using a minimum of a subset of system integration test scripts that ensures maximum solution coverage

Watson Health test team will review the list of system integration test scripts. A subset of the most relevant scripts will be extracted and added to the baseline that we will ultimately use to conduct our cross-browser testing strategy. Cross-browsing testing gives us confidence that our components will render consistently in every browser we support by helping us catch visual regressions early in the development process. Our team of experts, coupled with our automated tests run in a fraction of the time it takes to manually test our components.

PM122	The Vendor should supply the data, environments, and test scripts necessary to support user acceptance testing (UAT)

User acceptance testing (UAT) is that phase of the software testing process during which the actual software users/Business users test the software to make sure it can handle required tasks in real-world scenarios and meets the Business requirements. Watson Healthcare will be responsible for provisioning DHHR users the necessary test scripts to conduct all testing tasks, we will also design, implement and maintain a test environment to conduct all user acceptance testing activities. The UAT environment will be a mirror of the production environment.

Access to test data is a vital component in conducting a comprehensive test of the system, we suggest extracting a subset of data from the production environment, this allow us to provide a very life-like environment in which to test. All customer sensitive data is masked to ensure the highest degree of security.

PM123	The Vendor should work with the Department to define user acceptance testing (UAT) cases representative of the full solution environment

Prior to start of testing, the schedule, scope and timelines/milestones of UAT will be discussed with the DHHR to clearly highlight the expectation and that all parties are aware exactly what needs to be performed during the testing phases. A set of key meetings will be established with the Department to identify and outline the relevant UAT case scenarios for the solution as a whole. We will co-ordinate and manage testing activities ensuring governance of User Acceptance Test and a more controlled test execution.

PM124	The Vendor should be responsible for working with the Department to define the user acceptance test (UAT) scenarios the Department deems as critical for UAT

The Watson Health Test Team will reuse as much as possible existing test cases from our Global Templates. For new scope test cases will be developed according to documentation available to Test Team: business blueprint, functional specifications, technical specifications, Test cases are created by the test team and the development teams (for instance: interfaces and reports) and, whenever available, the use of Business Process Procedures (BPPs). The BA's will help create the interface test cases. Test team will work with the Reporting team to identify resources who will help prepare report test cases. UAT test cases will be created by Watson Health in conjunction with WV DHHR. The Business Team can choose to leverage the SIT test cases and modify/change them as required to meet their testing needs or create new test cases.

PM125	The Vendor should be responsible for drafting all user acceptance testing (UAT) cases

Our user acceptance testing (UAT) Test cases contain a detailed step by step breakdown of each test to be performed by the UA testers. Each script contains: test case number, product, test description, requirement number, requestor, tester, action to be performed, test data to be utilized, expected results, error descriptions (if applicable), pass/fail results, date tested, and any additional comments from the UA tester. The UA test scripts are contained within the UAT test case spreadsheet and can be accessed via hyperlink from each individual test case.

Watson Health Test Team will be responsible for drafting all the relevant case test scenarios. We also plan to leverage relevant QA test cases for project specific functionality. Each test case based on new functionality will reference a specific functional requirement. The Watson Health team will be on-site with DHHR staff for requirements sessions, deliverable walkthroughs, user acceptance testing (UAT) support, training, and at other times as needed to fulfill contract requirements and critical needs.

PM126	The Vendor should review all user acceptance testing (UAT) results with the Department, and a strategy for mitigation should be agreed upon for each defect based on the defect's severity, priority, and impact

Team members will be provided with instruction on how to effectively execute test scripts, as well identify, capture, and report defects. Team members will be expected to present findings on regularly scheduled touch point meetings in the event that end user support and/or Development require additional detail.

A Business Analyst will function as a liaison between the business and development on matters of prioritizing and classifying defects. Defects found in UAT can be assigned one of four (4) levels of severity:

- Regulatory – This request is regulatory and mandatory.
- Critical – Testing defects that due to the complexity of the function or the scheduled dates are putting the implementation date at risk. No workaround exists.
- High – Testing defects occurring in a less complex function of the application with sufficient time to resolve before the implementation date – but must be implemented as scheduled. A workaround has been identified and is listed in the defect.
- Low – Testing defect occurring in a function that are simple to fix or could be excluded if not resolved by the scheduled implementation date.

Defects must be clearly captured and escalated to ensure prompt resolution by development. Each defect submitted by UAT will be assigned a priority, worked by development, resolved, and re-tested by UAT prior to closure. These results will be reviewed with the Department on a regular basis.

PM127	The Vendor should discuss and obtain the Department's approval on data conversion exception tolerance levels prior to the commencement of data conversion testing

Watson Health will create and submit a Master Test Plan for all levels of testing for approval by DHHR prior to the completion of the Requirements Definition phase of work. The Test plan describes our standard test/validation strategy, methodology, test phases, it also provides in detail the activities required to prepare for and support all areas of the testing effort, including conversion. When there are issues in the data conversion process, we will review those with DHHR and obtain approval on recommended resolutions.

We manage the quality of the solution by defining, approving, implementing, and documenting the results of a set of Test Plans. These plans identify the test scenarios/cases that Watson Health will execute to validate that the solution components perform as needed to meet your specific requirements.

PM128	The Vendor should review and obtain the Department's approval of data conversion test results prior to commencement of production data conversion

Building a clinically relevant analytical database is a complex process, and two of the most important tasks are data conversion and data integration. Multiple checks and balances are built into the process to ensure the end results are of high quality and meet expectations. In short, we will conduct testing at various steps process to ensure success.

Validation starts at the very beginning of the process when Watson Health works with WV DHHR to identify the systems requiring data conversion to be validated through regression testing. Testing and validation continues in the later stages of the Data Conversion System Development Lifecycle. Watson Health will create detailed data conversion design specifications that we will review with and get approval from the Department prior to beginning data-conversion production coding.

PM129	The Vendor should propose a source code management tool for review and approval by the Department

Watson Health agrees to propose a source code management tool for review and approval by WV DHHR

PM130	The Vendor should work with the Department to define an operational readiness testing (ORT) approach that encompasses all Department and Vendor responsible solution operational processes and procedures

Watson Health will create and submit a Master Test Plan for all levels of testing for approval by DHHR prior to the completion of the Requirements Definition phase of work. The Test plan describes our standard test/validation strategy, methodology, test phases, it also provides in detail the activities required to prepare for and support all areas of the operational readiness testing (ORT) effort. Prior to start of testing, the schedule, scope and timelines/milestones of operational readiness testing will be discussed with the teams clearly highlighting the expectation and that all parties are aware exactly what needs to be performed every day during the testing phases. We will coordinate meetings and work with WV DHHR to define an operational readiness testing (ORT) strategy and methodology.

The agenda for this meeting would be to provide an overview and set an expectation on what is required from the Business users during ORT.

- Review the overall process that will be adopted for ORT as well as the test schedule.
- What would be the scope of WV EDW ORT and what will not be covered.
- Overall plan and project schedules
- The process of signing off a completed test, sharing evidences or raising defects

- Defect Management
- Any additional general orientation

PM145	The Vendor's data conversion strategy should minimize risk and the disruption to other enterprise solutions affected with the solution's development and implementation

Data Conversion and Migration Strategy

Our WV EDS data conversion and migration strategy is designed with the understanding that data to be ingested come from a variety of application data stores and the current DW/DSS and must minimize risk and disruption to all these applications and their existing operations. Identifying the appropriate data conversion and migration approach for each data source is a critical aspect of our solution.

Each data source has a tailored data extract and migration plan to ensure that the data content is migrated completely and accurately to the WV EDS. Connections, interfaces, and conversion strategy are determined for each dataset depending on the source requirements and constraints. The individual data source strategies accommodate the current technical climate of each supplier and the requirements for the data content they contain. The strategy and plans are flexible to accommodate the timeline and requirements for each data source extract and migration so as not to disrupt source system operations. Our WV EDS also easily accommodates future new data sources with minimal disruption to current operations of the data sources or the WV EDS itself.

Minimizing Risk in Development and Implementation and Data Integration

At Watson Health, our experience with numerous Medicaid data conversions informs our understanding of the types of data that DHHR must convert and how to perform the appropriate retrieval, mapping, transformation, and loading of that data into the WV EDS. Our approach accounts for and addresses the quality of data in legacy systems, ensuring that (1) the condition of the data is understood and (2) any issues are documented and, if possible, addressed *before* the data are transferred into the WV EDS.

Over the years, we have learned that having experience integrating, converting, and managing data from multiple sources is only the tip of the iceberg. Having experience with the Medicaid Management Information System (MMIS) is the true risk reducer. For example, the way one vendor processes claims adjustments is dramatically different from how another vendor processes claims adjustments. Watson Health not only has experience managing the data but also understands the underlying business processes around that data. This experience minimizes risk in converting data and disruption to existing enterprise solutions.

Our WV EDS is designed using modern, robust, proven data management methodologies. It has built-in accelerators and lessons learned to reduce risk and enhance value. Our solution uses the InfoSphere Information Server tool with integrated components all sharing a common metadata repository to provide data understanding, governance, integration, and management capability. We apply our best practices and lessons learned to minimize risk throughout the development process.

System Integration Testing (SIT) focuses on testing between data suppliers and other integrated systems receiving data from the WV EDS. These test cases involve system-to-system balancing and validation of data usability in the target system. During execution, Watson Health identifies issues and defects and logs each defect. The test cases designed for this phase validate the connection and data exchanges between all the vendors in the production environments using integration testing tools. We address any defects found with these interactions before exiting this phase. The Watson Health Testing team conducts daily huddle calls where new issues and defects are reviewed, prioritized, triaged, and assigned to the appropriate resource for mitigation. DHHR can review progress through our weekly status reports.

With a multivendor Medicaid Enterprise System (MES) implementation, and modules being added over time, the WV EDS is designed to adapt to DHHR's changing needs. The key to building a successful

integrated plan and solution is open communication. We work with DHHR and all involved vendors to communicate our dependencies and constraints, so the project plan pieces fit together and become one integrated plan.

PM146	The Vendor should be responsible for the data cleansing of all data being migrated from the existing data warehouse decision support system (DW/DSS) and converted to the new solution

For the WV EDS, we develop a Data Conversion and Migration Plan, which details how historical data from the current DW/DSS will be loaded into the new WV EDS data stores and data marts and, most important, how we test the accuracy and completeness of the data after they are loaded. Our WV EDS's data quality process consists of data profiling, data cleansing, and continued data quality monitoring to institutionalize data quality with ongoing data validation as an integral part of the data intake process. We already anticipate and will support DHHR's emerging needs for data quality and data cleansing by applying our previous experience, for example, helping nearly 20 states address encounter data quality and completeness. We use this experience in converting and integrating the existing DW/DSS data into the WV EDS data model and data stores while addressing any additional data quality issues that arise in the data cleansing or conversion process.

Our WV EDS's processes will convert West Virginia's information assets in the current DW/DSS in a manner that maintains the data's consistency, accuracy, and meaning, ensuring the integrity of the WV EDS data content.

PM147	The Vendor should propose an industry standard data conversion methodology that includes but is not limited to
PM148	Data analysis techniques
PM149	Checks and balances for ensuring data quality and accuracy
PM150	Data conversion tool sets

Data Conversion Methodology and Approach

Data conversion is a critical aspect of each enterprise data warehouse/decision support implementation we undertake. We have honed our approach for data conversion and migration over many engagements. Our processes have been quality tested for accuracy and streamlined with the appropriate tools and methods to ensure that—

- Data are properly profiled and mapped in the planning phases.
- Data are accurately extracted, converted, and loaded in the execution phases.
- All designated data are transferred by applying both bulk transfer and transactional replication approaches, ensuring no data loss.
- Outages are minimized during migration and cutover activities.
- Existing data from current and legacy sources are accurately converted and transferred to the WV EDS.

The steps in our data conversion approach are summarized below.

Figure 86. Data Conversion Approach. *A sequential process of mapping, profiling, semantic integration, conversion and transformation of data are performed on data as they migrate from data sources into the WV EDS.*



Please see our narrative response to ***Data Conversion Strategy, Approach and Timeline*** for a fully detailed explanation of the three steps in our data conversion approach illustrated above.

Data Analysis Techniques

Our data analysis techniques for data conversion include applying data quality logic in our data profiling tool to scrutinize the data, checking for completeness, validity, reasonableness, accuracy, and duplication via automated Data Rules with defined thresholds and variances to easily gauge the quality of the data. The data profiling tool allows users to set thresholds on key data values, run an automated data profiling analysis, and study variances in data columns based on these values. The process also allows value and format checks and data/code value checks. At the end of data profiling, we either accept a file for further processing or reject it on the basis of the number of failed quality checks.

Data Quality Checks and Balances

We create detailed data conversion design specifications and build multiple checks and balances into the data conversion process to ensure that data are synchronized within and across sources and time periods. We also leverage data profiling for checking data validity or reasonableness. Validations relating to data reasonableness look at the relationship between two or more columns, between columns across different data files, or between a column and "normative" data to ensure that they are reasonable. We develop data conversion processes that include data quality checks for accuracy and completeness so that the data we load give users confidence that the reports and insights generated from the WV EDS are accurate. Finally, we perform automated post-extract, transform, load (ETL) checks and balances to make sure that our ETL processes have moved and translated the data successfully. From source data extract through transformations, aggregations, and destinations along the way, data quality checks verify that data received are as expected, complete, and accurate.

Data Conversion Toolsets—IBM InfoSphere Information Server Suite

Our data conversion methodology leverages the InfoSphere Information Server suite of tools, which provides a modular and reusable technique for performing data conversion, migration, and integration logic and tasks.

- **InfoSphere Information Analyzer.** InfoSphere Information Analyzer is the tool used for data profiling to easily gauge the quality of the data. Information Analyzer's capabilities analyze and evaluate data against specific DHHR-defined criteria.
- **InfoSphere DataStage.** Infosphere DataStage is the data integration component of Information Server that provides a graphical framework for developing the jobs that move data from source systems to target systems and the specific transformations that are applied as part of data cleansing. Rather than deciphering hundreds of lines of text-based program code, DataStage's graphical environment supports maintenance by presenting a visual workflow of how a transformation is occurring in a meaningful context.
- **InfoSphere QualityStage.** Infosphere QualityStage integrates with and extends the functionality of DataStage, providing additional capabilities for performing quality-centric tasks on data.

InfoSphere QualityStage is the component that standardizes and cleanses the data via configurable rule sets used for data analysis, comparison, standardization, and matching.

DataStage and QualityStage enable a single approach to access, cleanse, transform, and deliver data without resorting to hand coding. All the InfoSphere Information Server processing components (DataStage, QualityStage, and Information Analyzer) use the same Designer canvas/dashboard for designing and building job flows.

Summary

Our established data conversion methodology, proven data analysis techniques, advanced tooling and automation approaches, enforced checks and balances at all stages, and relentless focus on the collective data conversion activities and migration goals of DHHR ensure a successful and superior data conversion and migration of DHHR's data into the WV EDS.

PM151	The Vendor should complete a full analysis of the Department enterprise to understand what source solutions and corresponding data will need to be integrated into the solution

We complete a full analysis of the existing WV DW/DSS data sources (i.e., MMIS, Public Employees Insurance Agency [PEIA], and WV Health Statistics Center [HSC]) to understand the data that will be migrated and integrated into the WV EDS. For source solutions and data that need to be integrated in the future, we use our change management process to evaluate and analyze the size and scope of integrating any new source solutions or data.

PM152	The Vendor should complete an assessment of the as-is and to-be environment to understand what reports will be needed in support of operations

We complete a full assessment of the existing WV DW/DSS to-be WV EDS environments to understand the reporting content that is needed for operations. For existing and new reporting content that need to be integrated in the future, we use our change management process to evaluate and analyze the size and scope of integrating any new source solutions or data.

PM153	The Vendor should develop and obtain Department approval of all reports identified as needed in support of operations

We meet with DHHR staff to review your current reports and how they are used and produced. You may wish to preserve some of these standard reports "as is" if, for example, they meet specified operational needs or federal/state reporting requirements. For other reports, we identify opportunities for consolidation, improvements, and other efficiencies that we may be able to gain as we transition to the new system. We leverage the enterprise data and advanced reporting capabilities of our solution to make desired enhancements. We bring recommendations and best practice report templates based on our enterprise data warehouse (EDW) experience with other Medicaid and health and human services agencies for review with DHHR.

PM154	The Vendor should be prepared to work with the Department to identify and integrate data from the Department-identified primary source solutions

Watson Health works with DHHR to identify data from the primary source solutions integrated into the existing WV DW/DSS, identified by DHHR as MMIS, PEIA, and WV HSC. We are prepared to work with DHHR on any activities needed to identify and integrate data from these source solutions. The following statements outline the specific interactions and activities we anticipate performing with DHHR:

- We address the scope of the data conversion activities for source data integration into our Core Data Model (CDM) based on our discovery and evaluation of the source data and DHHR's direction on defining data relationships, mappings, and transformation requirements.

- We spend time familiarizing ourselves with the data relationships and content and start conceptualizing how the data will be modeled and how the data relate to other content. Appropriate data elements will be mapped into the most relevant data elements within the data model of the WV EDS with appropriate transformations defined to meet DHHR requirements.
- We work with DHHR in the joint application development (JAD) sessions using a methodical approach to determine the contextual meaning of all data and resolve any conflicts so that the data can be accurately understood and defined in the WV EDS data model.
- We validate the data mapping specifications with DHHR and provide the mapping documentation.
- We discuss and document business rules for handling records that may not conform to DHHR's expectations during JAD sessions.
- During the data profiling phase, we work with DHHR to explore, validate, and resolve any data quality issues.
- We create detailed data conversion specifications that we review with DHHR for approval prior to beginning data conversion coding.
- To ensure the data migration and conversion activities align with DHHR's expectations, we provide a Data Conversion and Migration Plan document to DHHR for review and approval before developing specific data migration plans and conflict resolution strategies.
- We work with the appropriate DHHR Data Stewards to identify the causes of any data discrepancies or migration failures and rectify them.
- We generate reports for DHHR on data quality statistics, data migration jobs and any data exceptions at run time.

PM155	The Vendor should propose and manage a process by which data from additional solutions can be identified and integrated into the Enterprise Data Solution (EDS)

For source solutions and data that need to be integrated into the WV EDS in the future, we use our change management process to evaluate and analyze the size and scope of the work effort for identifying and integrating any new source solutions or data.

PM156	The solution should have the ability to support quality measures as defined by the Department

The WV EDS will support quality measure reporting based on specification criteria from various measure stewards, including the Centers for Medicare & Medicaid Services (CMS) Adult Core Set, Child Core Set, Health Home Core Set, and Substance Use Disorder (SUD) Waiver Measures. We produce quality measures for DHHR and other clients today using our Quality Rules Engine (QRE), a proprietary tool incorporated in the WV EDS solution that calculates complex industry-standard quality measures reflecting evidence-based medicine guidelines.

The Watson Health Account Team and DHHR staff will have direct access to the Quality Rules Engine to create custom measures from any measure steward for which there is data in the data warehouse. Additionally, users have access to Python through Watson Studio, which provides virtually unlimited flexibility to produce quality measures beyond the core data sets. Additional detail is included in response to requirements PG234-PG252 in Appendix G.

CMS Certifications

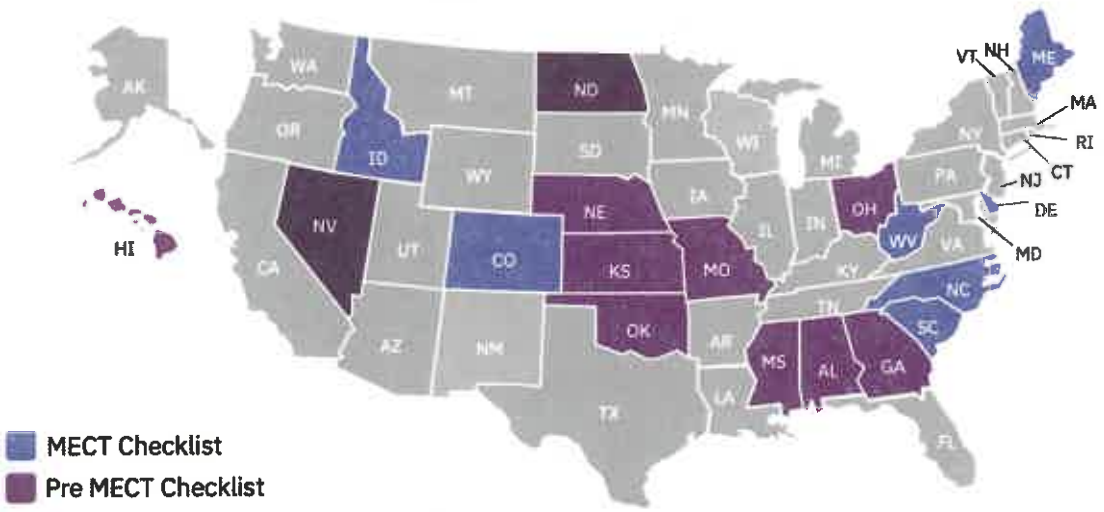
Watson Health's Experience with CMS Certification

Watson Health is uniquely positioned to help West Virginia achieve CMS certification. Our solutions, deliverables, and processes are based on solid experience helping states achieve prompt certification and enhanced federal financial participation (FFP) back to day one of Operations. We have helped seven state clients obtain CMS certification under the Medicaid Enterprise Certification Toolkit (MECT), including West Virginia. In 2015 and 2016, we participated in all phases of the West Virginia certification process, including report design and execution, artifact delivery, and presentations of Data Warehouse/Decision Support System (DW/DSS) functionality. Two of these states, Colorado and Delaware, were certified under MECT v2.3. These two states completed the R3 certification without any findings. We previously helped numerous state clients obtain certification of our solutions under the criteria in place before Medicaid Information Technology Architecture (MITA) and MECT.

Watson Health has established processes and templates to support a successful certification of the WV EDS. Our support during the CMS Medicaid Enterprise Certification Lifecyle (MECL) starts from the first day of the project and includes providing on a timely basis the information, data, forms, system modifications, documentation, artifacts, evidence, correspondence, presentation materials, consultation, and any other support required.

West Virginia is one of seven states that Watson Health has successfully helped obtain certification using the Medicaid Enterprise Certification Toolkit (MECT)

Figure 87.States Where Watson Health Helped our Clients Obtain DSS and/or DW Certification from CMS. *Our experience will help West Virginia obtain certification for the WV EDS.*



Watson Health has the experience with CMS to support obtaining certification of the WV EDS. During the certification process, we help our state clients design, create, and implement the CMS artifacts used to gather the appropriate information and document the process. Our work with one state impressed CMS so much that CMS indicated that it would require similar artifacts in future certification efforts by other states. We also have participated in many "mock" CMS interviews, which took place after we generated the required artifacts and helped develop and finalize the presentation and script used in the actual certification interview. West Virginia saw first-hand the quality of our work when we assisted the state in achieving CMS certification of the Medicaid Management Information System (MMIS) in 2016.

Our proposed WV EDS solution meets MMIS certification requirements and will continue to do so throughout the life of the contract. In the highly unlikely event that issues arise that prevent timely certification by CMS, Watson Health will work with DHHR to prepare and implement a Corrective Action Plan at no additional cost to the state. This is unlikely to occur, however, because we are aligned with MITA and have experience helping other states and an understanding of the framework that we intend to leverage for the WV EDS project. We were very involved in the definition and implementation of MITA, and we participated in numerous meetings with the CMS Division of State Systems and other public/private efforts as MITA matured into the latest version, MITA 3.0.



Watson Health's Approach to Certification of the WV EDS

As we did previously for the DSS, Watson Health will participate in module certification activities for the EDS. These activities may include planning, meetings, mock certification review, evidence gathering, developing presentation materials, and other activities as requested by West Virginia, the Independent Verification & Validation (IV&V) Vendor, and/or CMS. Our approach assists DHHR in preparing and providing certification artifacts and evidence. If remediation activities are required on the basis of findings, we will fulfill the request for further information in a timely manner so that final certification is not delayed.

Our support during the CMS MECL starts from the first day of the project. The Watson Health Certification Lead gathers and stores test results, artifacts, change request, and other evidence. This material is available to DHHR for review and approval as it is gathered. Part of our preparation also includes mock CMS interviews to prepare presentations and participant scripts for the Milestone review. Our dedication to ensuring that states meet certification without any findings can be seen in the artifacts our teams produce.

Certification Plan

Watson Health will develop and submit for DHHR and IV&V review a Federal Certification and Review Management Plan (Certification Plan), which we will align to the state's EDS Concept of Operations (ConOps). We create the Certification Plan following the project kickoff, so that we can begin certification activities as early as possible in the implementation, after verifying that our approach aligns with the state's approach and timelines. The Certification Plan documents the systematic approach and methodology we use to help West Virginia achieve CMS certification of the EDS module. It describes the following:

- Purpose and scope
- Roles and responsibilities (including a RACI Matrix)
- CMS certification process, which includes:
  - CMS MECT v2.3
  - Federal certification requirements outlined in the State Medicaid Manual
  - MECL Milestone Review process
- Certification activities related to the WV EDS and a schedule of those activities and milestones
- Dependencies and critical success factors for Watson Health's certification activities
- Certification reporting

- Integration with existing data and new source data
- Approach for gathering and managing all project artifacts required for CMS certification
- Approach for providing support for all other federal reviews required throughout the contract
- Key assumptions related to the certification process
- Description of the tools to be used in support of certification activities

As new versions of the MECT are released, we will keep our CMS Certification Process current by updating it accordingly and applying those updates to the WV EDS project. We provide architectural and design diagrams that comply with the CMS Seven Conditions and Standards. The Certification Plan reflects processes we integrate with project management disciplines and associated plans.

Figure 88. Relationship of Certification Plan to Other Project Management Disciplines and Plans. *Our planning and experience with CMS certification help assure that DHHR achieves CMS certification.*



Staff Support

Watson Health will leverage our Certification Lead to participate in the CMS certification planning, preparation, and review activities for the WV EDS. Our Certification Lead brings experience from prior state certifications to support DHHR's preparations for the CMS certification review, as directed. The Certification Lead has overall responsibility for completing the checklists and producing, gathering, and completing evidence documentation in the specified formats. The Certification Lead coordinates with DHHR, IV&V, and other stakeholders' certification counterparts on all activities related to certification.

In addition, our team of subject matter experts (SMEs) is available throughout the certification process to address questions. They can participate during the CMS onsite, in-person interviews. If the CMS interview prompts additional follow-up, we are available to assist with questions related to the EDS module.

As support to the Certification Lead and our team of SMEs, Watson Health assigns system and business operations staff to help complete the required certification checklists and MECT artifacts specific to the WV EDS. Watson Health will work with DHHR to accomplish the following:

- Participate in developing a schedule for the required planning, preparation, and certification activities
- Conduct schedule walkthroughs, obtain approval, and make schedule updates at DHHR's direction
- Confirm that all reports and other deliverables listed in the schedule arrive complete and on time
- Prepare the CMS Certification Review Package
- Provide a repository with certification folders that include the WV EDS-specific documentation, reports and crosswalks, MECL Checklist elements, and MITA capability supporting documentation required of the State Medicaid Agency (SMA) and Watson Health

Further, we will share our best practices from other successful CMS certifications so that West Virginia's certification proceeds as efficiently as possible.

System Access and Walkthrough

As part of the certification process, Watson Health will provide system access and a walkthrough of the West Virginia facility and operations as DHHR requires. We understand that DHHR will notify us when such facility access or a walkthrough is needed to support CMS certification of the EDS module.

Medicaid Enterprise Certification Life Cycle Methodology

Along with the MITA 3.0 architecture framework and the MECT, CMS has introduced the MECL methodology for the certification process. The MECL was designed to work with various development approaches and works well with the Watson Health software development life cycle (SDLC), which uses an iterative approach during the entire project life cycle. Our approach incorporates three industry best practices (PMI, waterfall, and iterative) for solution and project management in one cohesive delivery approach. We understand, comply with, and know how to work within the MECL methodology.

Certification Milestone Reviews

Certification Milestone Reviews with Watson Health, DHHR, and CMS are key to gauging progress on Critical Success Factors (CSFs) and other certification activities. The Milestone Reviews that are part of the MECL are:

- Project Initiation Milestone Review (R1)
- Operational Milestone Review(s) (R2)
- MMIS Certification Final Review(s) (R3)

Watson Health understands the roles and responsibilities of each milestone review. We are currently working with another state client that is implementing an EDW solution very similar to the one proposed for West Virginia, helping that state prepare for R2 and R3 reviews. We will bring that expertise and lessons learned to the WV EDS.

As we develop the design and implementation plans and artifacts, we work with your certification team to compile the information listed on the MECT checklists in preparation for the CMS Milestone reviews. During the Initiation and Planning Phase, we identify the MECT checklists, artifacts, and supporting documentation needed to comply with a Milestone Review. We build those items into the individual project work plan and timeline for the EDS module. Before the Milestone Review meetings, Watson

Health prepares updated system documentation for submission to DHHR and CMS. During Milestone Review meetings, we provide the following, as CMS directs:

- Reports and documentation
- Updated system documentation
- Cross-reference matrix of the WV EDS-specific required data elements
- Test results

After completion of the Milestone Review, we provide the following:

- Updated version of the system documentation
- Updated WV EDS-specific data element dictionary

If necessary, we deliver the required remediation activities per the agreed upon schedule. In collaboration with DHHR and other stakeholders. The Watson Health team, led by our Certification Lead, will support the MECL process for all components of the EDS, throughout design, development, and implementation (DDI) until WV DHHR achieves certification.

Our Approach Results in Compliance and Efficiency

Our artifacts and procedures build on our experience, our learning from previous interactions with CMS, and our knowledge of the CMS certification process. We intend to leverage this experience to make DHHR's certification process as efficient as possible.

Recent CMS Certifications
We recently led efforts for Colorado and Delaware to achieve CMS certification of our EDW solution, producing solution artifacts and evidence to determine system review criteria compliance under MECT v2.3

Throughout the lifecycle, and regardless of the phase, our standard operating procedure incorporates the creation, review, and maintenance of artifacts. Our Document Delivery and Approval Process Flow covers the deliverable process and supports related procedures. It addresses deliverable reviews, standard review checklists, deliverable repository access, updates, and backups. This approach confirms the timely delivery of high-quality documentation and deliverables through all phases of the SDLC while building the key artifacts needed for CMS certification.

Our procedures, as well as our artifacts, are informed by our prior experience with CMS certification. Our learning from the EDW certifications in Colorado and Delaware in 2019, for example, will aid several of our Medicaid clients with current EDW implementations that seek CMS certification prior to West Virginia. West Virginia, too, will benefit from these and other recent and relevant CMS certification experience. In Colorado, our team contributed to CMS certification in a number of ways:

- **Leadership in the process.** Based on our depth of experience, we managed the preparation and delivery of the CMS certification on-site review.
- **Comprehensive support for reporting.** We supported all of the reporting requirements for CMS certification.
- **Immediate follow-up response.** After the review, our team's response time was immediate to the one request from CMS for additional information/clarification.
- **Thorough documentation.** Our implementation team thoroughly and effectively documented all CMS required artifacts to the satisfaction of both the state and CMS.
- **Depth of knowledge.** The certification process was supported by our knowledgeable and experienced SMEs.

- **Level of professionalism and completeness.** Our team prepared quickly and effectively because they understood how critically important it was to successfully complete the on-site review process.

By leveraging our experience and proven best practices, our approach promoted a smooth and successful certification for Colorado and will do so for West Virginia as well.

Watson Health's Experience with and Approach to IV&V Oversight

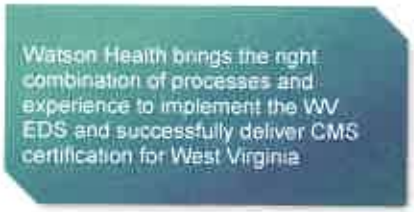
Watson Health recognizes the vital project oversight role performed by the IV&V Vendor acting as the contract monitor on behalf of DHHR. We have worked successfully with a number of IV&V contractors, providing them access to the information they require. Throughout the project lifecycle, we will maintain the deliverables needed for federal certification, updating it as necessary to reflect any changes made to the WV EDS during the certification process. When you procure the services of an IV&V Vendor, the contractor will have access through the DHHR designated project repository to the documents, reports, artifacts needed to track certification activities and support quarterly reporting to CMS. We will maintain the most current Watson Health documentation, deliverables, status reports, or other materials on the site.

As authorized by DHHR, the IV&V Vendor also may be designated access to the WV EDS. We would work with you to establish a role-based profile that allows the IV&V Vendor to perform its designated tasks while protecting the confidentiality of the data within the EDS. This can include access to audit trails and job logs deemed appropriate for IV&V tasks.

We consider the IV&V Vendor role when we develop the project's Communication Plan, status reports, and deliverable reviews. The IV&V Vendor role is clearly defined such that it can provide independent oversight of our EDS activities; for example, the IV&V Vendor may be considered a reviewer of deliverables, so its feedback is incorporated as noted. We also document our role in any of their activities, so we can assist the IV&V Vendor as required. For example, because we anticipate the IV&V Vendor needing certain information from us to complete the CMS status reporting, we include those activities in our planning, and we track compliance with them. We also work with the IV&V Vendor during the DDI phase as directed by DHHR to facilitate user acceptance testing, review test results, and provide visibility into the full range of testing activities.

We propose to thoroughly and comprehensively address the needs of both DHHR and your IV&V Vendor. We understand that it is critical for us to collaborate with all vested parties to meet your needs and deliver on our commitments.

Our experience runs deep, and our processes have been refined over many years to incorporate best practices. This experience matters when West Virginia has full Federal Financial Participation at risk.



Assumptions

Table 48. Attachment I Assumptions

Assumptions
Issues will be documented & maintained in an Issues Log (a custom list) on the project central document repository site
Reporting and metrics on issue status will use views on the project central document repository site
A change request is needed if the MECT checklist changes during implementation. Any change to the DDI timeline has corresponding implications for the CMS certification timeline
DHHR is the owner of the CMS certification process and provides sufficient resources and appropriate SMEs to create, provide, and review deliverables and artifacts, attend meetings, participate in planning, provide feedback and make timely decisions about

Assumptions
deliverables and project plans, coordinate with CMS, and so forth. Lapses in DHHR participation might create delays in the CMS certification timeline.
Watson Health expects to work with DHHR on the modular certification of the EDS module. This scope includes those requirements in the following MECT v2.3 checklists, such that the requirements aligns to contract scope. a. The five Common Checklists b. The Decision Support System (DSS) Checklist c. Additional checklist as identified by DHHR
Watson Health provides standard process and protocol for CMS certification requirements related to the EDS scope of work.
If a lesson learned results in a change to scope, schedule or cost, the Change Management process will be applied.
We provide one annual refresher/enhancement training per user role. DHHR can leverage those who completed train-the-trainer training for more frequent/timely training needs.
DHHR will provide laptops configured with appropriate virtual private network (VPN) and solutions tools required for training.
We assume that DHHR has an LMS we can leverage for training scheduling and hosting any training materials.
New source solutions and data beyond those existing in WV DW/DSS (i.e., MMIS, PEIA, and WV HSC) are handled via the WV EDS change management process.
DHHR already has documented "as is" business processes and subprocesses within the MITA business process areas (Care Management, Financial Management, Program Management, and Program Integrity) being affected and enhanced with the implementation of our solution.
DHHR will provide an SME counterpart for each area identified within Watson Health's enterprise analytics solution (as outlined in the Staffing Plan) to validate specifications and acceptance criteria for all requirements, as well as provide SME/product owners for approvals and/or escalation path representation and ownership.
DHHR has defined stakeholders for each Business Process Area / Program being implemented
The project team establishes clear decision tree and escalation path for project execution and governance during the Initiation & Planning phase of the project
Watson Health will convert and migrate the existing historical DW/DSS data for use in the EDS.
Each deliverable will maintain the same DHHR review team from the initial review through approval.
Any further Deliverable review cycles requested are outside of the scope and will be handled through the WV EDS change management process.
Watson Health will work directly with the State approver for deliverables.
Requirements will be validated for each project/workstream during RAS sessions and will strictly follow the timing detailed in the Project Schedule. This is crucial to keep the project on schedule for go live.

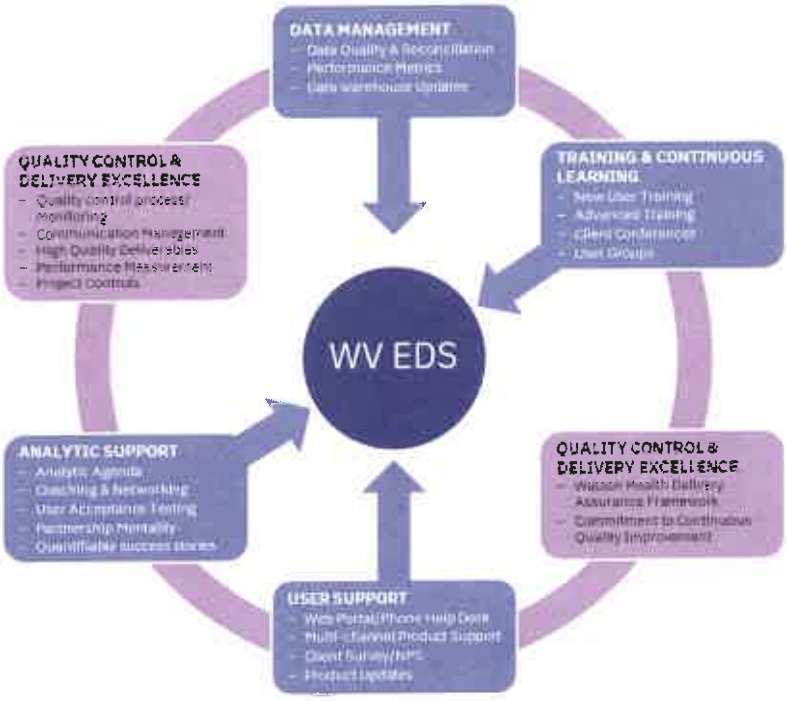
ATTACHMENT J MAINTENANCE AND OPERATIONS SPECIFICATIONS APPROACH

Operations

Watson Health will support general activities and tasks, including but not limited to system administration, maintenance, and technical support for the West Virginia Enterprise Data Solution (WV EDS). We will configure our standard System Operations Plan to reflect DHHR needs and requirements.

Watson Health services go beyond hardware and technical operations support to encompass the project management, training, and analytic support DHHR users will need to gain real value from the data and tools in the WV EDS. Our team brings the expertise and skills to support reporting needs across program areas – including finance, policy, care management and quality, program integrity. We weave quality management throughout our Account Team support model, including in report development and production.

Figure 89. Watson Health Approach to Service Delivery. *Our solution goes beyond hardware and technical support. We provide the Data Management, Training, User Support, and Analytic Support needed to maximize the value of WV EDS, with quality management woven throughout.*



Service delivery is at the heart of everything we do. The environment of healthcare information technology is complex and demanding; our clients consistently give Watson Health high marks on the quality of our people and our willingness to go the extra mile. Our goal is for our staff to serve as trusted experts working in collaboration with DHHR and WV EDS stakeholders. They consult with DHHR on ways to get the most out of your enterprise data, potential efficiencies, and cost-effective solutions to unanticipated changes, sharing the learning we have acquired serving a broad array of health and human service clientele.

Throughout the life of the contract, we will make the WV EDS available for user reporting and analysis. Our approach to design and on-going data management means the operational systems will process, load, and integrate data accurately. Our testing approach will confirm that the solution is compliant with appropriate federal and state requirements, data center and architecture requirements, and DHHR business and functional requirements. Our operational processes will validate incoming data and reconcile to the source system, so reporting data will meet defined standards for currency, cleanliness, transformation, enhancement, and completion. We will acquire, process, and make available the data needed to support the defined measures, reports, and dashboards.

We support improvements and efficiencies in the solution throughout the life of the contract, so DHHR derives continued value from the WV EDS. We will proactively research, evaluate, and recommend potential sources of data and new reporting to support DHHR's evolving initiatives. Leveraging our experience in other states, we bring a national perspective to initiatives like Medicaid expansion and expanding long-term services and supports. We try to anticipate needs in order to provide flexibility in the system and accommodate changes that might arise in the future. When changes are required, we will follow the established Change Management process from identification through deployment.

As described below, Watson Health will deliver a System Operations Plan that addresses DHHR needs during the operations phase, including those related to achieving CMS certification. We also describe our approach to providing the ongoing training and support necessary for WV EDS users to fully utilize their new reporting and analytic functionality. The System Operations Plan will account for all operational activities and will be approved by DHHR prior to commencement of operational support activities.

OP001	The Vendor should ensure that its staff, as defined by the Department, are located onsite at the Vendor's local facility and readily available to the Department throughout each implementation stage

Based on our experience and lessons learned with other EDW projects, a skilled and dedicated core onsite project team is critical to success. Watson Health will provide such a team during all implementation and operational phases of the project. The team will be available in a local DHHR-approved facility during the hours defined in the RFP for inquiries, meetings, and technical assistance. The team will have the authority to make critical project decisions to support an efficient implementation. Offsite team members will travel to the local facility during critical stages of the implementation. Additional detail on project staffing is presented in Attachment D.

OP002	The Vendor should supply key staff resumes to the Department for review and approval prior to key staff beginning work under the contract

Watson Health will provide resumes and obtain approval from DHHR for all key staff prior to their start on the WV EDS project, including the initial proposed staff and any future staffing changes. The proposed key staff resumes are included in Attachment D.

OP003	The Vendor should supply resumes for key staff substitutions to the Department for review and approval prior to key staff substitutions performing any work under the contract

The people who regularly interact with our clients are the foundation of the Watson Health client relationship, and because staff continuity is important to providing high quality services, we place great emphasis on retaining our top talent on the project. However, if a key staff member leaves the team, Watson Health will provide resumes and obtain approval from DHHR for key staff substitutions prior to their start on the WV EDS project.

OP004	The Vendor should collaborate with the Department to develop and maintain a process for authorized solution user support

Watson Health is committed to providing exceptional user support of the WV EDS, just as we do with the current DW/DSS. The operational support provided by our team serves as the foundation for successful use of the WV EDS reporting capabilities. Using a collaborative approach that keeps the Department's requirements and goals in mind and maintains open communication throughout the project, the Watson Health team will bring our expertise and industry knowledge to help DHHR utilize the full scope of the data reporting and analytics tools.

We will work with DHHR to define your preferred approach for user support and will follow the agreed upon process throughout the project. These protocols define how we provide technical support to users and address all avenues for initiating support requests, such as through telephone or email. We recognize that different users need different levels and types of support. Our comprehensive services include reporting support, user groups and knowledge sharing opportunities, and skilled staff to assist with the design and interpretation of reports, queries, and analytic projects to drive the continuous evolution of programs and healthcare delivery in West Virginia.

The following tenants have guided us in all our partnerships with state clients with respect to user access and support. We will focus on enhancing user analytic methods and skills, to maximize the use of our BI and reporting tools in support of DHHR business needs.

- Detailed documentation to guide use of the EDS, including solution manuals, data dictionaries, and analytic tips and considerations.
- Training and ongoing education on tools and analytic methods, including access to our many user communities and extended education opportunities.
- Onsite and Help Desk user support, aimed at creating an analytic collaboration focused on leveraging our Medicaid experience to help answer the tough questions on policy and initiatives through development of a shared analytic agenda.
- Knowledge transfer to empower the DHHR training team to provide support to internal and external users.

Solution Documentation

Watson Health will develop and maintain technical and analytic documentation to support WV EDS users. DHHR will have a searchable, indexed library that includes solution policy manuals, training materials, user guides, implementation memos, data dictionary, and FAQs. In addition to the classroom training Watson Health provides, we prepare materials for online and webinar training, making user guides available for all training sessions regardless of the training medium. We also prepare documentation that outlines key analytic notes and considerations related to data quality, reporting tips, and analytic methodologies.

We maintain an up-to-date, electronic, searchable, downloadable data element dictionary and metadata management tools for accessing the business glossary of terms and all related assets. The data dictionary provides information on the source, value, and characteristic attributes for the EDS, data mart tables, and data elements. All documentation related to the data dictionary will be available to DHHR and your authorized users. When new or evolving data is available, all relevant documentation will be updated.

The solution documentation will be easily accessible as a first level resource for WV EDS users and to compliment the training and support provided by the Watson Health team throughout the contract.

Training and Education

Continual training will be the key to successful use of the WV EDS throughout the life of the contract. The Watson Health team provides role-based training and education in multiple formats. We provide both onsite classroom training, web-based training, user groups, and one-on-one coaching. We provide hard copy training manuals for classroom use, with electronic copies available. Training curriculums focus on

new user training, refresher and system enhancements, analytic methodologies, and hands-on report development support.

User Groups

To promote continuous learning, Watson Health regularly brings together our clients and thought leaders for sharing information and best practices. We will host and facilitate regular user group meetings for DHHR's stakeholders. Our knowledge of the WV EDS tools and DHHR's data will inform the topics discussed. These meetings are designed to promote the productive exchange of ideas, knowledge, and concerns. We want to help DHHR users learn more about WV EDS functionality and any recent enhancements, obtain "Tips and Tricks" to make the system more efficient, share best practices, exchange information on current or recently completed analyses, and discuss any analytic challenges or issues.

We have found it helpful to have at least one forum for the entire user community to promote consistent approaches across the enterprise. This also helps assure that applications in one area can be leveraged quickly in others. Often states choose to implement user groups focused on specific segments of the user community as well; Watson Health has led focused user group meetings for:

- **Specific Business Areas.** These focused user groups can be quite productive in fostering team learning and rapid adoption of new methods. For example, we frequently convene meetings of program integrity system users, which focus on reviewing analytic reports to identify new leads, plan for upcoming audits or investigations, and share new algorithms targeted at state-specific vulnerabilities. Under the current contract, we have facilitated specific user sessions for the BMS Quality Unit and the CHIP team to train users on customized standard reports and quality measure reporting.
- **Advanced Users.** These meetings can be particularly helpful during the transition to the new system, when advanced users must quickly migrate from previous ways of performing analysis. Meetings can also focus on how the Watson Health team can best collaborate with power users to meet the needs of business users by developing new prompted reports or dashboards. In one state, we meet bi-weekly with power users during early operations to discuss advanced system functionality and help them proactively think through Medicaid issues affecting their state.
- **External Users.** Depending on the needs of the users who are outside of the Department and how they will use the system, periodic meetings specific to each partner might make sense. For example, you may want to convene periodic meetings of users to help grow their expertise in using the system to manage and improve long-term services and support programs.

Ongoing Knowledge Sharing Opportunities

Our Expert Series trainings provide an ongoing opportunity for knowledge sharing among users of Watson Health solutions. Attendees have a chance to discover new industry trends and emerging challenges and opportunities, and to share potential solutions to common problems. These webinars present relevant case studies and encourage information exchange and connection between participants. We design the sessions to highlight specific projects government staff and state leaders have underway currently or have recently completed. Recent topics, for example, were:



- Reducing the Social and Economic Impact of the Opioid Crisis through Prevention, Early Intervention, and Treatment
- Fraud Algorithm Master Class
- Balancing Long Term Services & Supports: History, Status, and the Future of LTSS

- Cognitive Innovation in Social Program Management: Empowering Caseworkers to Impact Lives with Relevant Insights from Hidden Case Data
- Data Challenges and Opportunities in Social Determinants of Health
- Transforming Citizen Engagement: A Public/Private Partnership with the NYC Department of Social Services and Watson Health
- Policy Insights with Watson: Improve Policy Research, Speed & Accuracy
- Opioids and the Courts – Reducing the Social and Economic Impact of the Opioid Crisis Through Prevention, Early Intervention, and Treatment
- Putting Data and Analytics to Work in Health and Human Services – Improving Program Outcomes for Today, Tomorrow, and the Future

Our annual client conference offers an opportunity to network and learn how other clients are driving change and reducing costs, and then helping DHHR apply this knowledge to bring about similar change in the Medicaid enterprise. This multi-day symposium attracts hundreds of healthcare professionals from across the industry. Conference sessions include presentations from innovators and national leaders on the cutting edge of healthcare issues.

Dedicated User Support

The Watson Health WV EDS onsite analysts will work one-on-one with users to coach them, give them new ideas for using the system, and help them maximize its capabilities. We regularly support users in researching problems, effectively utilizing the tools in our solution, and understanding reports and the underlying data. This includes supporting them in the research and resolution of discrepancies and anomalies in reports, whether ad hoc or standard or pre-defined reports.



We will meet regularly with your leadership team to review the upcoming work schedule for analytic support, confirm your current priorities, and adjust the schedule as your needs dictate. We will also train and support your analytic leads and power users to be equipped with the skills and knowledge to provide support to their colleagues. DHHR priorities are our priorities. Once we understand them and the urgency of the requests in our workload, we can then work with users to provide the support needed or, if necessary, refer them to the change control process. Again, our goal is to equip each user with the skills he or she needs in creating reports. This ultimately increases user satisfaction and reduces the needed "time to answer."

Our local project team will facilitate all user support and inquiries related to the WV EDS. The project team is supported by our centralized Help Desk, which offers a multi-channel contact center staffed with full-time Customer Support Specialists. The contact center manages and directs service requests to the appropriate product specialists, as needed, whether the requests are received via phone, email, or through our web-based customer portal.

Analytic Support

Watson Health frames our support within a context of ongoing operational and programmatic improvements and innovation. During DDI, a key focus is confirming our understanding of DHHR's program improvement goals and success measures, using them to guide system design and development. During operations, we conduct annual business planning and set the analytic agenda to clarify your analytic goals for the upcoming year.

Figure 90. Sample Analytic Agenda. *We document your analytic goals for the year. We identify activities for which you will need our support and where we can provide additional value and we prioritize upcoming database and analytic deliverables*



Throughout the year, we recommend special analytic projects and potential program initiatives that support those goals. We develop recommendations based on a number of sources, such as:

- **Results of ongoing reporting and analysis.** We review standard and ad hoc reports to bring you new ideas. Our solution helps you identify potential management opportunities in many ways, including visually highlighting aberrant patterns and emerging trends, comparing your experience to relevant benchmarks, and assessing performance differences within the provider community.
- **Pro-active analysis and review by your local account team.** In addition to reviewing the reports we generate at your direction, we also undertake proactive analysis on issues important to our Medicaid clients, to provide insights on potential new initiatives. Our understanding of your policies, programs, and local healthcare environment will help in identifying initiatives that address West Virginia's specific needs and opportunities.
- **The experience of our other states.** Our staff introduce analytic initiatives that have proven effective in other states by sponsoring webinars featuring speakers from other Medicaid programs. Our Consulting practice leader also facilitates cross-state sharing of ideas by connecting your account team to teams working on behalf of our other state Medicaid clients.
- **Insights from Medicaid policy experts and health services researchers.** In developing recommendations for new initiatives, our analytic team draws on the extensive expertise of our research staff engaged in innovative programs at both the state and federal levels. For example, Watson Health is the implementation vendor for the Center for Medicare & Medicaid Innovation (CMMI) Federally Qualified Health Center (FQHC) Advanced Primary Care Practice (APCP) demonstration and has multiple program support contracts under the Medicaid Innovation Accelerator Program (IAP).
- **Policy and research literature.** Watson Health has a knowledge management function that supports account teams by publishing a website with current information on health reform and other topics. The knowledge management team also sponsors an internal education series on new initiatives relevant to state clients, conducts literature searches, and publishes a repository of client projects and a directory of SMEs.

If DHHR chooses to explore one or more of these recommendations, our Analytic Team is available to support you with further analysis, such as what-if modeling, to more fully test the concept. Should you move forward with an initiative, we can provide the data and reporting needed for further design and implementation activities. We work with you to establish a framework for monitoring and evaluating the

results of the initiative, tracking all recommendations offered along with decisions made, initiatives implemented, and results observed.

Timely Support for All Types of Report Users

Watson Health is committed to providing DHHR with the maintenance and support needed for successful reporting. The Watson Health Analytic Team works side-by-side with users to help them maximize their use of the system. Our onsite analyst routinely helps WV users design reports and interpret results.

Watson Health will recommend protocols for how we provide analytic and technical support to system users. Once approved by DHHR, these protocols will be documented in the Communication Management Plan. We understand that our support for DHHR users will vary depending on the type of report, the report owner, and the nature and frequency of any ongoing production. Regardless, our approach provides the level of support needed for successful reporting in the three primary areas of reporting: standard reports, special topic reports, and ad hoc reports.

Supporting Standard Reports

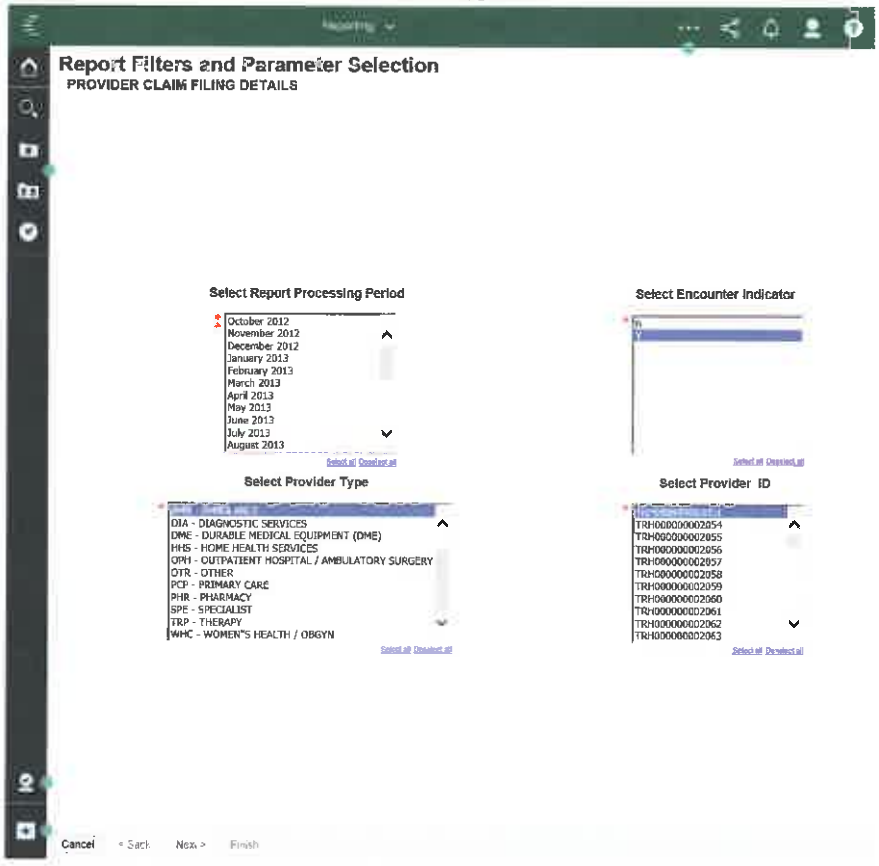
Watson Health will work with DHHR to implement a set of standard recurring reports to meet your specific federal, state, and/or DHHR specifications. These predefined reports include, for example, the CMS federal reports (e.g., CMS 416), other system-generated program management reports, and some program integrity reports. The standard reports are highly prescribed in content and format, with specifications that change infrequently. The majority of time on these reports is spent during DDI, when we work with DHHR staff to understand your legacy reports, to be sure we interpret the data and report specifications to implement the reports accurately, completely, and consistently.

The WV EDS will include Medicaid Program Insights, which is a suite of pre-defined intuitive and interactive reports and dashboards providing actionable information on Medicaid trends and treatment patterns. Topics represented in these standard reports include: Eligibility and Enrollment, Utilization, Admissions and Episodes of Care, Quality Measures, and Risk Reporting, as described in OP022 and DD209.

During operations, these reports run in a production mode, on an agreed-upon schedule, and generally require only a final review before delivery. The report execution process typically runs as the last step of weekly or monthly data warehouse build cycles. Once our analytic team has reviewed and approved the reports, we will distribute them as defined by DHHR.

Over time, the set of recurring, standard reports will be expanded as reports that were first run on an ad hoc basis by your users or by our analysts are moved into an ongoing production mode.

Figure 91. Parameterized or Prompt-based Reporting in Cognos. *Standardized, but the particular data represented in the report is based on a variable or parameter supplied by the user. They can slice and dice the information using familiar prompts such as eligibility date and provider type.*



During the creation of the annual Analytic Agenda, we will review the standard reports and recommend any changes needed to stay current with industry changes, federal or state regulations, policy changes, or MMIS system changes. Collaboratively with DHHR and other stakeholders, we update report requirements, following the approved Change Management process when modifying the reports and updating the documentation.

Our support for these standard reports focuses on confirming that users understand the content and quickly addressing any questions or issues that arise. We accomplish this in a number of ways:

- Providing overview training on pre-defined reports as they are implemented, whether during DDI or later during operations
- Maintaining thorough, up-to-date report documentation that is readily accessible to users
- Dedicating specialists on the Watson Health project team to be responsible for various reports; these experts oversee ongoing quality assurance of the reports and are the first line in researching any issues or responding to user questions
- Assessing and validating the content of any pre-defined report, when requested by DHHR

Supporting Special Topic Reports

We will build, document, produce, and disseminate special topic reports that require more intensive and frequent intervention and oversight by our team than the production reports. We will produce these reports in conjunction with broader Watson Health analysis and operations support for key DHHR initiatives, such as your healthcare reform initiatives. These reports may be identified when creating the annual Analytic Agenda during operations or throughout the year based on new federal or state requirements, emerging healthcare trends and topics, or stakeholder inquiries.

Over the past few years, our DW/DSS analytic team has supported multiple DHHR and BMS special topic projects; for example, we regularly conduct analyses to support the 1115 SUD Waiver and legislative inquiries. We also supported six CMS Innovation Accelerator Projects (IAP) by conducting advanced analyses and providing expert consultation. These projects required coordination with multiple DHHR internal and external partners, as well as detailed knowledge of DHHR policies and data. We will continue to provide this level of expertise and support throughout EDS operations.

Supporting Ad Hoc Reports

There may be times when queries or reports involve complexity beyond the skill or comfort level of the individual tasked with them or available to complete them. Watson Health staff are flexible and will help users with their ad hoc reporting and analysis needs. Our Analytic team is familiar with DHHR users and their preferred support methods and will continue to provide the exceptional ad hoc reporting support that we do today. We are available to support your team in a variety of ways:

- Provide intensive side-by-side coaching to walk the user through the report, drawing on any training and job aids that may be relevant to the task
- Partner with your power users to share in the work and conduct a joint project that leverages the combined team's respective knowledge and skill sets
- Perform the task directly, producing reports in your desired formats and timeframe, and on your desired media
- Assist with the interpretation of results

In some cases, a combination of the above may be the best approach. For example, if an ad hoc request represents a recurring business need, we might suggest a "see-one do-one" approach, in which the Watson Health analyst creates the report with the DHHR user observing, and then the user performs a subsequent iteration with the analytic consultant observing and coaching as needed. Or, after creating the report, our analyst might prepare a prompted report the DHHR user can easily apply to meet future needs. Whenever applicable, we use ad hoc support projects as training opportunities.

The Watson Health analytic team has created hundreds of ad hoc and special topic reports for DHHR throughout the current DW/DSS project. We will continue to provide ad hoc reporting services to compliment and expand your analytic capabilities.

Assistance with Unexpected Reporting Results

Our analysts work side-by-side with users to troubleshoot and resolve any issues with their reports, such as a report that runs more slowly than expected, a report that produces an error message and does not run to completion, or a report with questionable results. This troubleshooting identifies the root cause of the problem. Often, the issue can be addressed through coaching on system functionality or changes in the report design. If changes in design are needed, our analytic team recommends and helps the user make and test the changes. If we identify the problem as a solution issue, the analytic team triages the incident and coordinates with other technical support. We manage to the established response objectives and follow escalation procedures to provide a timely resolution.

We will work proactively with DHHR to avoid or mitigate any reporting issues. Should questions arise about the validity of reports once they are in production, Watson Health commits to working closely with WV EDS users and stakeholders to research and resolve discrepancies and anomalies. We have worked closely with DHHR and your MMIS vendor over the course of the current contract to improve data quality and resolve source data issues that impact reporting. We have a proven track record of implementing sound, reliable reporting processes and will explain, support, and defend WV EDS operations, calculations, and reporting to stakeholders, auditors, and other parties when necessary.



Knowledge Transfer

Our reporting support builds on a foundation of successful training. Watson Health will train DHHR staff and other authorized users in the use of the WV EDS tools to meet the reporting needs of different levels of users, whether it is a one-time query, an in-depth special study, or a recurring report. We provide this level of support today for hundreds of clients.

Through training and ongoing support, we work to give users the knowledge and skills they need to perform basic or advanced reporting, as required by their roles. This may include training in healthcare analysis or specific topical issues, or it may mean tailoring a class for users with a particular focus, such as privacy and security. Our philosophy is one of user empowerment – we find that client satisfaction is the highest when their staff members are active, confident users of the system, rather than simply relying on others to perform reporting on their behalf.

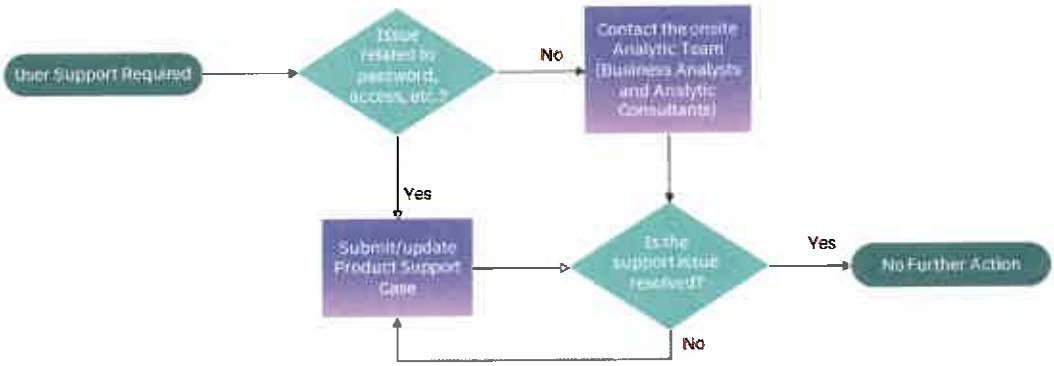
OP005	The Vendor should provide a help desk Monday through Friday, 8 00 a m to 5 00 p m ET

Watson Health believes excellent solutions are not enough—our clients also need excellent support as they use our solutions. When users have a question or encounter an issue, they need responsive, effective Help Desk services. By providing important information to clients proactively, we promote productivity, eliminate problems, minimize operational costs by reducing work stoppage, and provide quality assurance in our solutions and processes.

Our Help Desk services are designed to complement the self-service help available within our solution's applications and address user issues in a timely, responsive fashion. We currently provide Help Desk functions to support hundreds of clients in both the public and private sector, managing effectively to comply with all negotiated Service Level Agreements (SLAs). Our Help Desk uses advanced telephony and Client Relationship Management (CRM) tools to route calls and track issues to the full conclusion.

We provide Help Desk support both onsite via our project team working in Charleston, West Virginia, and remotely, via our Product Support team. These teams work in close partnership to address issues, so there is "no wrong door." Users are triaged to the appropriate support team.

Figure 92. User Support. *Available from our onsite resources as well as from our remote Product Support team.*



The following are examples of typical user support needs addressed by the Watson Health onsite Analytic Support team:

- Answer questions from DHHR, WV EDS users, and end users related to predefined reports
- Work with DHHR staff, WV EDS users, and end users to research and resolve discrepancies and anomalies
- Verify, investigate, and report any potential WV EDS system problem submitted by an authorized user
- Assist authorized users in troubleshooting and resolving problems related to existing reports developed by users

The following are examples of typical user issues addressed by the Watson Health Product Support team:

- Addition/modification/removal of user access
- Password reset assistance
- Questions related to accessing the product initially or after a period of nonuse
- Product installation assistance

The Watson Health Product Support Portal and JIRA are used for logging and tracking all user inquiries across all WV EDS tools. As a continual effort, we monitor and report on user contacts with our Help Desk to identify emerging support trends and proactively identify needed resources and training needs.

Multiple Avenues of Support are Available for WV EDS Users

Watson Health offers various avenues of support for WV EDS users, maximizing self-service when possible, and providing hands-on support when needed. We provide support in two tiers—more complex inquiries are handled by the appropriate onsite support team, while our Help Desk staff quickly resolve routine issues and questions.

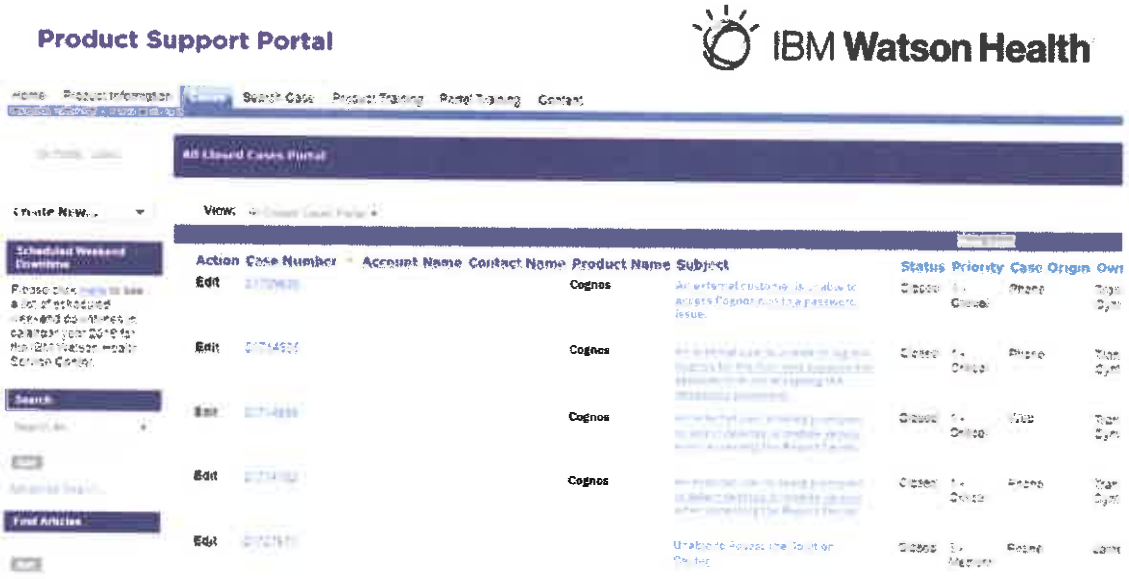
Product Support Portal

While our clients generally prefer our Product Support Portal for communicating with Product Support, they can also call a toll-free number staffed during business hours or by sending an email request. Except for brief scheduled maintenance windows, the Portal is available 24 hours per day, 7 days per week, 365 days per year. In addition to calling directly or emailing, users can contact our Tier 1 Help Desk through a "chat" form accessed from the web portal. Using the Product Support Portal, WV EDS users can submit support issues or questions, review and update the status of their support issues, communicate with

Product Support specialists, find product information and updates, find solutions to common product issues using the Knowledge Base, and access time-sensitive information via Product Bulletins.

As shown in the figure below, the "Cases" tab displays a full list of cases that someone within DHHR has logged, so that staff and users can monitor the information at will. The Watson Health project team also monitors the cases reported by DHHR users. To keep you apprised of the status of issues, we produce status reports on all inquiries as well as management reports on our overall Help Desk performance.

Figure 93. Application-Specific Support. *Upon selecting the Cases tab in the Product Support Portal, you can view information on all cases DHHR users have reported.*



Onsite Support – First Tier Support for WV EDS Users

Our staffing plan for the WV EDS includes analytic specialists to provide in-person support for user inquiries, help field problem reports, and perform other Help Desk functions from our local facility. These specialists serve as the second tier of support for WV EDS users' analytic and system usage questions.

Because our analytic team is knowledgeable of the WV EDS and your specific needs and objectives, they are best able to provide technical assistance to WV EDS users. The analytic team works directly, side-by-side with the user to research and resolve the problem, answer more in-depth questions, review production outputs, or help users understand report formats. These specialists also will coordinate and collaborate with other module suppliers as needed to resolve issues.

Help Desk Support – Second Tier Support for WV EDS Users

Our multi-channel Help Desk provides tiers of support for our software and analytic products used across federal, state, and commercial clients. Help Desk staff resolve routine requests for help from authorized users who have a valid ID, password, and security profile. Specialists route requests for new users, modify user authorization levels, and delete user authorizations after receiving proper authorization.

Our Help Desk and website is the first tier of support for WV EDS users when a question cannot be answered through the online help in the application. Our support personnel are available during hours of operation, 7:00 a.m. to 7:00 p.m. ET, Monday–Friday, excluding our company holidays (note we observe Daylight Savings Time).

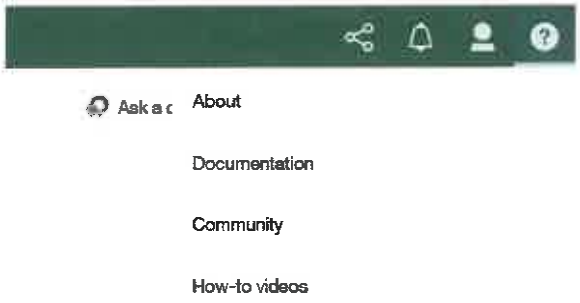
Watson Health Help Desk consultants have expert problem-solving skills and a high degree of technical proficiency using and troubleshooting software. They are committed to client satisfaction and average a score of 4.8 on a 5-point scale in client satisfaction surveys. The average tenure of our Help Desk team members is 4 years, with senior and management staff tenure averaging 11 years. The management of our Help Desk uses an automated escalation component of the case-tracking system to closely monitor adherence to SLA response times.

Our staff are located in secure facilities. Because they commonly interact with Personally Identifiable Information (PII), we adhere to Statement on Standards for Attestation Engagements (SSAE) 18 security standards, which address physical security, as well as electronic data security. All team members must attend yearly Health Insurance Portability and Accountability Act (HIPAA) compliance training.

In-Product Support

In addition to the support provided by the account team and the Help Desk, most of the commercial off-the-shelf (COTS) applications in WV EDS have contextual Help screens to empower users with self-service help. This feature enables users to obtain online help at a specific point in the software, providing help for the situation at hand. For example, as illustrated in the figure below inline help embedded within specific areas of Cognos Analytics provides targeted help reference as a user builds a report or dashboard. Between this embedded Help functionality and the assistance of our staff, the DHHR user community will be fully equipped to use the WV EDS tools successfully.

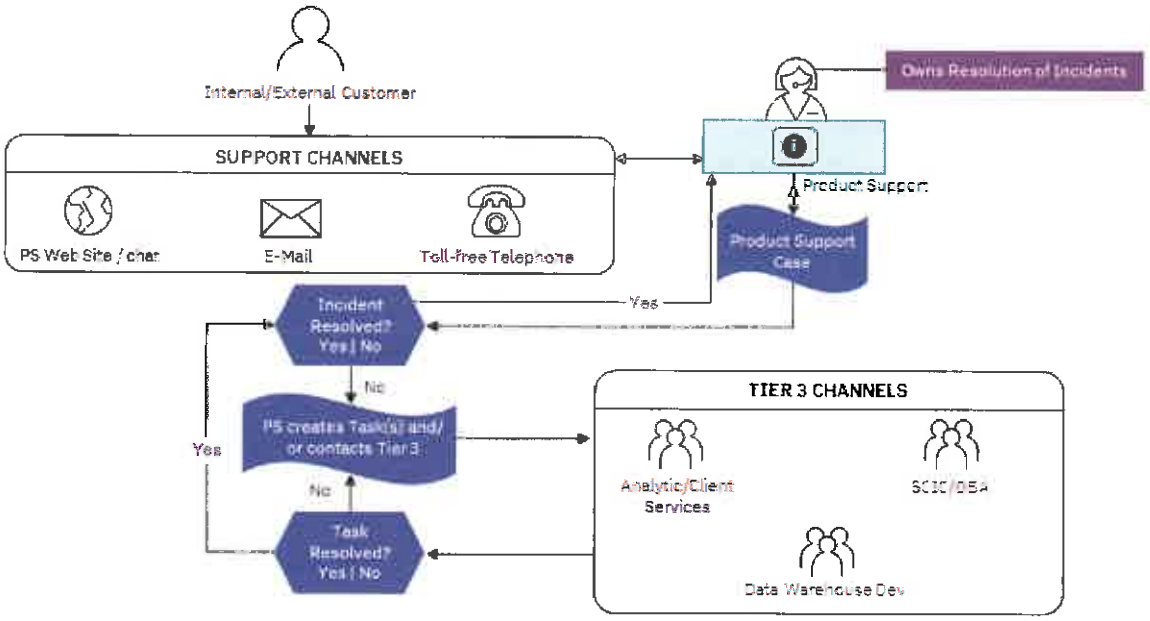
Figure 94. Cognos Embedded Help Functionality. *Available to assist users as they build reports.*



Issue Management Support

Our approach to application-specific support provides transparency as an issue proceeds through the issue management procedures. Users who require assistance from the Watson Health Product Support team typically enter their request via the Cases screen in our Salesforce-hosted Product Support Portal. Once the request is entered, users can monitor the status of the request and append the work notes with additional information. The system allows us to manage client inquiries in real time and respond quickly, while enabling us to instantly network when important issues require collaboration or escalation.

Figure 95. The Watson Health Help Desk. *Receiving, triaging, and tracking issues to resolution.*



Our established process supports issue categorization, management, testing, implementation, and resolution. When system defects are uncovered, the WV EDS project team and the Help Desk record them and track them to resolution. We will work with DHHR stakeholders to appropriately define the severity level and applicable time to respond and resolve aligned with established SLAs.

The Watson Health project team establishes a remediation plan of action in accordance with the severity level defined for an issue. The remediation plan covers the development, testing, and implementation to address the defect, as well as any necessary training and reporting. The defect encountered may be defined as any of the following: Extract, Transform Load (ETL), Extract Load, Transform (ELT), data integration, data quality, data models, reports, dashboards, analytics, hardware, or network connectivity. The goal of our standard Help Desk process is to document, analyze, and resolve issues quickly, before they produce an undesirable impact.

OP006	The Vendor should maintain and ensure contract personnel staffing levels and competencies to support software applications, data integrity, analytics, user training, and contract administration pursuant to Service Level Agreements (SLAs).

Watson Health has proposed a skilled and experienced team of account managers, data warehouse and infrastructure resources, analysts, trainers, and program managers to implement and operate the WV EDS. This team is supported by product support representatives, executive leadership, subject matter experts, and our Medicaid & Analytic Advisory Panel. The Account Manager and Project Manager will monitor staffing levels and skill sets throughout the course of the project to ensure the right team members are dedicated to the project at the right time to ensure success. Staffing adjustments will be made as necessary during implementation and operations to ensure we are delivering the project pursuant to SLAs. Additional detail on project staffing is included in Attachment D.

OP007	The Vendor should maintain adequate staff to perform analytic functions including, but not limited to:
OP008	Collaborate with the Department to develop and implement provider performance metrics for specific populations and Department programs

OP009	Evaluate credibility and efficacy of measures and baseline comparisons and recommend improvements where appropriate

To help the Department achieve its business and strategic objectives, the Watson Health WV EDS solution combines our MITA-aligned product offering with proven Medicaid/HHS decision support expertise. Watson Health believes that leading products must be accompanied by exceptional service, and our clients consistently rank us highly for the quality of our reporting and analytic support. Our overarching goal is to maximize the value you receive from the WV EDS solution by providing actionable information to improve program performance. Our analytic team will support this goal by delivering high value reporting and analysis and by empowering your staff users of all types and levels to apply the WV EDS reporting and analytic capabilities to make better decisions, faster.

We have designed and will maintain analytic staffing to maximize the value the Department receives from the new EDS solution. Our staffing plan builds on and expands the decision support we have provided to DHHR over the past 8+ years. As your current DW/DSS partner, Watson Health is uniquely qualified to support you in transitioning to next-generation business intelligence—we understand the agency's culture and the differing needs and skill sets across the enterprise, have deep knowledge of your programs and current and future data sources, and have strong working relationships with staff throughout the Department.

For the WV EDS, we bring continuity of analytic staff from our current DW/DSS engagement and also expand analytic capacity and skills sets on the account team by adding data scientists and BI developers. We also provide access to specialized expertise beyond your dedicated account team through our Medicaid Advisory Board, a panel of national Medicaid analytic subject matter experts (SMEs). These SMEs include experts on topics such as value-based purchasing, Medicaid managed care, quality measurement, substance use disorders, long-term services and supports, and PI, as well as experts with data science and data visualization skills.

Leveraging this breadth of resources and expertise, we will collaborate with the Department to develop and implement provider performance metrics for specific populations and Department programs. Watson Health brings extensive experience helping other states monitor performance using their DW/DSS systems. For example, we help states:

- Produce dashboard reports that track and compare MCO performance in multiple domains – cost, use, quality, member satisfaction, compliance with contract requirements for encounter data. etc.
- Profile member characteristics and service utilization for specific aid groups or programs, such as Foster Children, HCBS waiver programs, dual eligibles, and others.
- Fulfill CMS and state reporting requirements for newly implemented programs, such as health homes, Money Follows the Person, 1115 waivers, etc.

Our staff will provide proactive recommendations to the Department related to the selection and ongoing refinement of performance measures and methods. In developing our performance measurement solution offerings and providing related consulting services, Watson Health follows processes that are consistent with criteria established by the National Quality Forum to focus on measures that are:

- Important – high impact with opportunities for improvement
- Usable – fosters true quality improvement, is meaningful, and harmonizes with similar measures
- Feasible – minimizes burden, and is clearly specified and ready for implementation
- Scientifically acceptable – precise, reliable, valid, unbiased, and sensitive to meaningful differences in quality

We will draw on a team of Watson Health measurement experts including Lisa Patton, PhD, who serves on the advisory panel for the NQF's Measures Application Partnership for the Medicaid Adult Core Set, a group charged with recommending measure changes to CMS on an annual basis. Dr. Patton also participated as an SME for NQF's National Opioid Stewardship Workgroup and currently co-chairs, with the CDC, a Social Determinants of Health Data Integration Action Team for NQF.

OP010	Collaborate with the Department to develop analytics for payment reform activities including, but not limited to
OP011	Provider incentive payment programs
OP012	Provider shared savings models
OP013	Others as defined by the Department

Watson Health has worked with public and private sector clients to design, develop and evaluate payment reform initiatives including Accountable Care Organizations, bundled payments, shared savings/shared risk models, and other approaches. The EDS solution we have proposed includes a number of features that facilitate analysis of alternative payment models, including episodes of care, risk scores to adjust provider cost and use provider comparisons for differences in their members' health status, pre-defined and custom quality and efficiency measures, and highly flexible reporting and statistical analysis.

These capabilities empower analysts to identify likely facility partners for alternative payment initiatives, evaluate bundled payment programs, identify and profile high-value providers for a shared savings programs, and assess provider quality for incentive payments. They also enable you to assess program, health plan, and provider performance under new payment models fairly and efficiently. Our analytic consultants can help you quickly validate whether the programs have targeted and achieved relevant, significant improvement opportunities.

For example, we have deployed a Web Portal to help the Colorado Department of Health Care Policy and Financing (HCPF) monitor and manage the Accountable Care Collaborative (ACC) program and provide performance feedback to the Regional Accountable Entities and Primary Care Medical Providers. This portal allows providers to see credible, graphical, risk-adjusted measures compared with their peers, or with performance targets they must achieve for shared savings. They can also run reports to explore the data in more depth.

Examples of our Payment Reform Analytics
- ACO Evaluation for a Major Employer
- Evaluation of Pioneer ACOs for CMS
- Evaluation of Medicaid ACOs for AHRQ
- Evaluation of Medicare ACOs for AHRQ
- ACO Key Performance Indicator Monitoring for a State Medicaid Agency

Our federal research team has completed program evaluations of a number of different payment reform models and implementations. Findings from several of these projects have been published in peer-reviewed journals, including a recent AHRQ-funded study on the impact of Medicaid ACOs on childbirth outcomes. The Department and our WV EDS account team have access to these subject matter experts to advise on analysis for West Virginia.

OP014	Participate in stakeholder meetings to interpret results of analyses

Watson Health routinely supports public sector clients by participating in meetings with key stakeholders such as agency Boards and advisory groups, health plans and provider organizations, legislative committees, and the general public. Our role includes presenting analytic findings and recommendations from studies we have conducted and/or assisting the Department in presenting results of its own analysis. Examples of our experience include:

- **Medicaid:** For several clients, we participate in ongoing MCO workgroups. For one client, we presented findings and recommendations from a study on managed care contracting regions at a briefing for the advisory board open to the public. In another state, we presented results of an analysis of the behavioral health system to a Governor's Commission on that topic.
- **Public Plan Sponsors (e.g., state employers):** We present annual management reports to agency Boards for states including Michigan, Kentucky, and Wisconsin, and have presented results of annual carrier claims audits to Boards in Texas and Massachusetts.

We are very familiar with the highly visible and strategic nature of stakeholder meetings. We document our analytic findings and recommendations in concise, well-organized, visually compelling reports and presentations. Our robust Quality Assurance processes include multiple levels of independent, iterative review of all deliverables. We work collaboratively with clients in preparing these types of reports and presentations. We will present a draft for DHHR approval and a final report that incorporates your input.

OP015	Provide industry best practice analytics on behalf of the Department including, but not limited to
OP016	Predictive modeling
OP017	Member risk scores
OP018	Performance monitoring and benchmarking
OP019	Evaluating utilization variances among providers
OP020	Creating provider profiles
OP021	Others as defined by the Department

Through our DW/DSS support to 16 states and our lead role on the CMS Medicaid Innovation Accelerator Program (IAP), Watson Health specializes in Medicaid analytic best practices. The IAP project is designed to build state capacity and support innovation in Medicaid. Among other areas of support, IAP offers national state learning webinars and targeted technical support to 8-10 Medicaid agencies each year in building their data analytic capacity as they design and implement delivery system reforms.

We serve in the role of contractor for CMS Innovation Accelerator Program (IAP) Data Analytics project. The Medicaid IAP is a collaboration between the Center for Medicaid and CHIP Services (CMCS) and Center for Medicare & Medicaid Innovation (CMMI).

Our DW/DSS account teams, while not directly involved in the CMS-funded technical support, receive education on emerging best practices by following the IAP best practice information published on the CMS web site. They also coordinate activities with the IAP state teams as approved by CMS, as we did for West Virginia to gain efficiencies and maximize value from the DW/DSS contract. The Watson Health DW/DSS team supported DHHR in IAP projects related to SUD analytics, dashboarding, and data integration. These collaborations allowed DHHR to benefit from analytic and programmatic expertise from both the Watson Health state and federal teams.

Watson Health brings analytic consulting expertise in areas important to the Department, including:

- **Predictive modeling.** The WV EDS provides access to a wide array of predictive modeling and other advanced analytic techniques to go beyond knowing what has happened to anticipating what is likely to happen next. Open source tools within Watson Studio, like R Studio and Python, support predictive modeling and forecasting functions. These tools will expand the capabilities and analytic power of your advanced users. With this re-procurement, we are adding data science expertise to our WV account team to maximize use of these tools to meet state business needs including budget development, what-if policy analysis, and care management. Our panel of SMEs also includes data scientists we can tap as needed for methodological guidance.

- **Risk scores.** Our account team supports DHHR today in applying the Diagnostic Cost Group (DxCG) models in the current DW/DSS and is prepared to support you with the Cost of Care model in our WV EDS solution and with new risk models as they are released. Watson Health has invested in an Analytic Center of Excellence charged with enabling actionable insights for value-based care through innovative analytics, leveraging data science, visualization, and cognitive techniques. A key focus has been on predictive risk models to support population health monitoring and intervention with individual members. In addition to the Cost of Care Model, other new models coming soon focus on Rising Risk and the Risk of Hospitalization.
- **Performance monitoring and benchmarking.** Through our panel of SMEs, we are able to draw on specialized expertise that Watson Health has developed by supporting government agencies, commercial and non-profit entities, and multi-stakeholder initiatives with measure development and public reporting for performance improvement and consumer choice. For example, we currently provide data analysis and support for Cal Hospital Compare, a multi-stakeholder initiative that publishes quality and performance information on California hospitals to help consumers make smarter and more informed healthcare decisions.
- **Evaluating utilization variances among providers.** Our WV EDS provides statistical profiling of provider practices compared to peer groups for all categories of service(s) authorized under the Medicaid program, and includes episodes of care to evaluate provider treatment practices while stratifying or adjusting for severity of illness. Our account team brings expertise to help you set, monitor, and report on performance benchmarks that demonstrate progress in improving quality and cost-effectiveness and in detecting fraud and abuse. We will help you leverage the advanced analytic capabilities available through the WV EDS solution, including machine learning models. Our panel of SMEs includes data scientists who have supported CMS in the refinement of advanced statistical models for detecting fraud, waste, and abuse.
- **Creating provider profiles.** We have developed provider profiles and feedback reports for performance improvement and value-based care for a number of states over the years, and currently support both Idaho and Colorado with web-based provider profiling (described above). Watson Health has deep experience across markets working with providers and other stakeholders to gain buy-in to reporting initiatives. Our staff is skilled at supporting providers in interpreting the information in performance profiles for quality improvement.
- **Other.** We help states with analytics related to the design, implementation, and monitoring of innovative health reform programs. For example, we helped Vermont's Green Mountain Care Board establish an analytic framework to support the state's comprehensive single-payer health reform initiatives under Act 48 of 2011. We have assisted numerous states with the design and evaluation of 1115 Waivers, including SUD waivers. We also are skilled in helping Medicaid agencies prepare expenditure reports and cost analysis to support the legislative budgeting process, and with reporting on health system performance and health outcome topics such as emergency department visits, children's access to dental services and other preventive care, substance use disorders and behavioral health, maternity care, and rural health issues.

OP022	Advanced reporting abilities that include both ad hoc and a standard library of reports
OP023	Support analyses that require advanced-level statistics
OP024	Others as defined by the Department and pursuant to Service Level Agreements (SLAs)

Our WV EDS solution has a comprehensive suite of modern reporting and analytic capabilities that will empower DHHR to explore data and execute advanced analytics in ways that exceed current capabilities. Users will be able to build models and algorithms to forecast the impact of policy changes, pinpoint local barriers to access, identify unnecessary or under-utilized services, thwart fraudulent claims, predict the

risk of increased resource consumption, and identify and reward high-quality providers based on clinical quality metrics. Our account team will collaborate closely with DHHR to achieve a smooth transition to the enhanced solution. We will implement and maintain standard dashboards and reports, and we will train and support your users in navigating and interpreting these reports, creating ad hoc reports, and conducting advanced statistical analysis such as data mining and predictive modeling.

As part of DDI and to meet state and federal requirements, Watson Health will create and document a set of standard production reports for business needs in areas including care management, financial reporting, program management, and provider and recipient profiling.

Table 49. Standard Report. *Created in Areas Critical to Medicaid Program Tracking.*

Topic Area	Description
Enrollment and Eligibility	Get at-a-glance metrics of year-over-year, monthly trends, and % change on key metrics, such as: Enrollment counts, Net Payments, reported by key enrollment demographics, including Aid Category, Plan, MCO versus FFS plans and Benefit Plans.
Admission	Get a complete picture of the cost and utilization associated with inpatient stays, with a focus on readmissions and avoidable admission metrics. Uses the Admission Build and Disease Staging methods from Flexible Analytics.
Utilization	Evaluate key financial and utilization metrics across place of service setting and claim types to understand key cost and utilization drivers.
Episodes	Group inpatient, outpatient, and pharmaceutical claims into clinically homogenous units of analysis to help provide a complete picture of care for a single condition or illness. Episode reports can help answer questions like: ▪ For what conditions are people being treated? ▪ How much do those conditions cost? ▪ How severe are those conditions? Uses the Medical Episode Grouper from Flexible Analytics.
Pharmacy Utilization	Review pharmacy metrics and understand which therapeutic classes are driving key financial and utilization metrics.
Quality Measures	Evaluate the completeness of care delivered with visual indications of complex industry standard quality measures that reflect evidence-based medicine. Reports allow for viewing quality measure adherence across the population and include geographic depictions of measure results. Utilizes the Quality Rules Engine from Flexible Analytics.
Risk Reporting	View the population and its distribution with respect to a calculated risk of healthcare resource consumption. View the population's top conditions contributing to their risk scores. Uses the Cost of Care Medicaid methodology from Flexible Analytics.

Watson Health will meet with DHHR staff to review your reporting needs and recommend a set of production standard reports based on the types of reports you currently request from our team and your evolving priorities. You may wish to preserve some of the current reports "as is;" for other reports, there may be gaps or opportunities to improve. We will leverage the enterprise data and advanced reporting capabilities of the EDS to make enhancements, such as:

- Expanding the types of data included in specific reports
- Automating or otherwise increasing the efficiency of producing reports and data exports
- Adding prompt-based reports for frequent use by a broad range of non-technical users
- Enhancing the visualization and interactive capabilities of standard reports

Our reporting requirements and design process maximize use of the extensive set of planned data interfaces and exchanges. With the expanded set of diverse data sources to be incorporated over time,

your analytics partner must know exactly where and how to access the most meaningful data, and how to link and structure the data to be analytically useful. Watson Health brings that knowledge. Based on our deep experience in Medicaid decision support and our knowledge of West Virginia data sources, we will advise you on how best to incorporate data sources and data elements in your standard reports to yield better insights.

During operations, we will make sure all standard reports are produced accurately and on schedule, all users of these reports understand the content, and that any questions or issues that may arise are addressed quickly. Periodically, and at least annually in conjunction with our annual planning meeting, we will review the management reports and recommend any changes needed to stay current with industry changes, federal or state regulations, policy or MMIS system changes, etc. In collaboration with the Department and other stakeholders, we will update report requirements, modify the reports, and update the documentation following the approved Change Management process.

During the current contract, the Watson Health analytic team has delivered hundreds of ad hoc reports on topics related to financial planning, quality measurement, program integrity, policy review, and utilization. We will continue to provide ad hoc reporting support and review these reports annually to determine which, if any, should be promoted to standard reports.

OP025	The Vendor should maintain adequate staff to perform operational functions including, but not limited to
OP026	Identify a primary and back-up point of contact for day-to-day operations
OP027	Maintain effective communications of project updates and problem resolutions
OP028	Maintain current documentation of operational processes and notify designated Department staff of operational issues and remediation plans within the designated timeframes pursuant to Department-defined Service Level Agreements (SLAs)
OP029	Ensure quality control procedures are in place and utilized and that issues are resolved when identified through quality checks
OP030	Adhere to project and report delivery timeframes
OP031	Conduct business use analyses to prepare operational reports
OP032	Work with the Department to automate operational reports
OP033	Others as defined by the Department and pursuant to Service Level Agreements (SLAs)

Watson Health will provide the staff and services to support general activities and tasks related to the operation and maintenance of the WV EDS, with additional support for every release. Early in the DDI phase, we customize our standard System Operations Plan to reflect DHHR needs and requirements, so our team supports you efficiently and effectively. Our services have always gone beyond hardware and technical operations support to encompass activities such as the communication, documentation, quality control, and reporting support needed by users of our solutions. As DHHR knows from working with us on the DW/DSS contract, our team brings the expertise and skills to support your reporting needs across program areas—finance, program management, care management and quality, program integrity. Watson Health weaves quality management throughout our Account Team support model, including in report development and production.

Service delivery is at the heart of everything we do. Our goal is for Watson Health staff to serve as trusted experts working in collaboration with DHHR and your Medicaid Enterprise stakeholders. They will consult on ways to get the most out of your enterprise data, potential efficiencies, and cost-effective solutions to unanticipated changes, sharing the learning we have acquired serving a broad array of health and human service clientele. Throughout the current DW/DSS contract, we have provided consultation on

the data request process, improving data quality, integrating new sources such as vital statistics and PEIA data, and designing algorithms, reports, and dashboards to answer your analytic questions.

Our primary point of contact for day-to-day operations will be our Watson Health Operations Manager, Brooke Oberg. The operations back up will be Amy Wenmoth, Account Manager.

Communication and Problem Resolution

We have learned from experience that the most successful projects are those in which the state and Watson Health work closely together, and communication is robust and ongoing. Watson Health will develop a Communication Plan that includes the channels of internal and external communication, project status reporting, project progress reporting, risk management, collaboration with stakeholders, and the issue escalation process. The Communication Plan outlines the appropriate frequency, duration, and location of important checkpoint meetings, and the format, timing, content, and scope of written materials. In addition, it contains a communication matrix to identify the project roles responsible for specific types of communication, as well as the audience for and purpose of the communication.

Watson Health will schedule weekly and quarterly meetings with DHHR. The attendees for these meetings will include key stakeholders, our project governance team, and pertinent key and lead staff members, depending on the nature of the topics being discussed and statuses being reported.

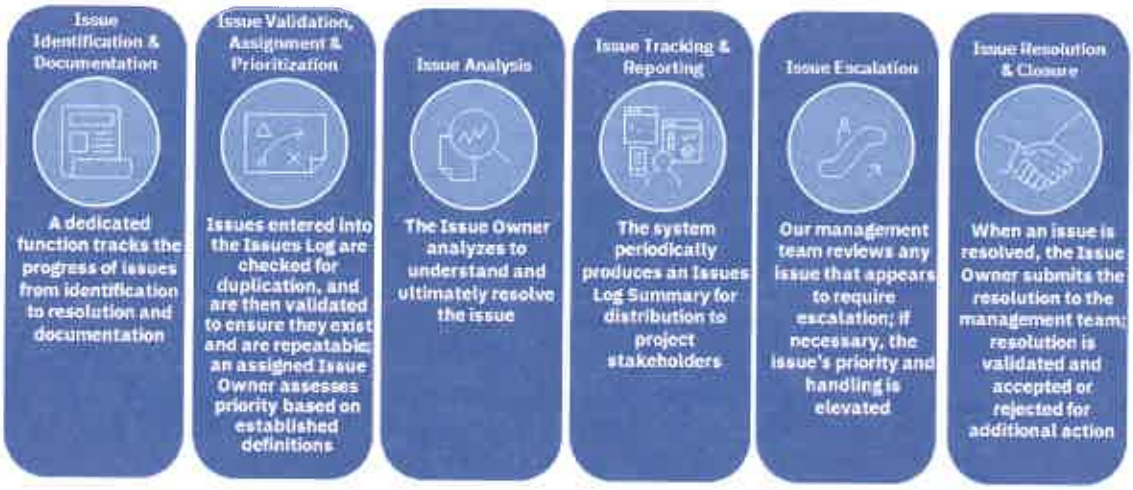
Throughout all project stages, we will work closely with DHHR to identify, control, and resolve any issues that arise. Our established processes support issue categorization, management, testing, implementation, and resolution. We will actively engage with DHHR throughout the system maintenance and modification lifecycle to address your new business reporting requirements, additions or changes to data elements, changes to source systems that impact the WV EDS. We will resolve identified system defects within your specified SLA timeframes.

We tailor our standard issue investigation and resolution process to meet the unique requirements of each project and client. The discipline of issue management starts early in our projects, before problems arise. During the Initiation and Planning phase, we will present a Risk and Issue Management Plan for DHHR approval that sets forth the approach to issue and problem management. This plan:

- Establishes an issue collection and processing mechanism
- Defines an incident report framework that describes the problem, its impact, associated communication, resolution, and planned corrective action
- Uses DHHR-approved definitions for problem severity and escalation procedure
- Establishes response times by severity level, including required timeframes for resolution
- Institutes a communication plan with timeframes providing notifications and updates

While we adapt it to your specific needs, our issue management approach includes the following processes.

Figure 96. Issue Management Process. *Our process identifies, documents, analyzes, and resolves issues quickly—before they have an undesirable impact.*



Documentation

Authorized users of the WV EDS will have ready access to the latest version of system and user documentation needed to support their work through the project's document repository. Working with DHHR, we will identify the appropriate level of staff access to the common documents and deliverables (e.g., risk logs, action lists, meeting minutes, critical system and testing documentation, project plans) stored on the site.

In addition to comprehensive metadata that gives users access to consistently defined reference information, we compile application system operation and management documentation as system documentation and store it on the project site. The Watson Health training team will work with your users during training sessions, so they can locate the latest version of supporting documents when needed.

Metadata

Our Metadata Management toolset lets users locate and retrieve information about data objects—their meaning, physical location, characteristics and usage, and all such information provided by metadata. Throughout operations, WV EDS users will have clean, consolidated, consistent, and current information to support their understanding, control, and use of data assets and to facilitate decision making.

We follow industry standard data management frameworks like the DAMA: Data Management Body of Knowledge (DMBOK) 2nd. ed. with regards to what constitutes a well-formed metadata definition. The more data sources that are involved, the more critical it is to capture and document the metadata definitions for an analytical solution like a data warehouse. Strong metadata definitions facilitate the communication of data element business meanings both across the enterprise and between the business and technical communities of an organization. Our approach to metadata management will put users on the path to self-service analytics.

System and Project Documentation

From our experience, we know the creation and maintenance of solution and system documents are essential factors for project success, from implementation to turnover. Regardless of the Systems Development Life Cycle (SDLC) project phase, we make diagrams, artifacts, and supporting documents accessible, based on a stakeholder's access authorization to the document management system. The artifacts and supporting documents include reports, Deliverable Expectation Documents (DEDs), process flows, templates, plans, manuals, the Requirements Traceability Matrix (RTM), architectural documents,

and CMS Certification documentation. Using our Capability Maturity Model Integration (CMMI)-based management processes, we will track and maintain the project lifecycle documentation to meet DHHR requirements and business needs.

Our document and deliverable process includes the development of a Deliverables Expectation Document (DED), which establishes the criteria for each deliverable prior to formal submission. It contains the deliverable's purpose, content, and an outline. When the DED is complete, we meet with you to review it and obtain feedback. Once the DED is finalized and approved, we begin developing the actual document or deliverable following the agreed upon review cycle and documenting changes in a change log.

Watson Health has worked with state PMOs, IV&V Vendors, and other stakeholders to align our processes and standardize approaches where practical, and we will do the same with DHHR. Our processes are adaptable, enabling us to closely align to your processes and standards.

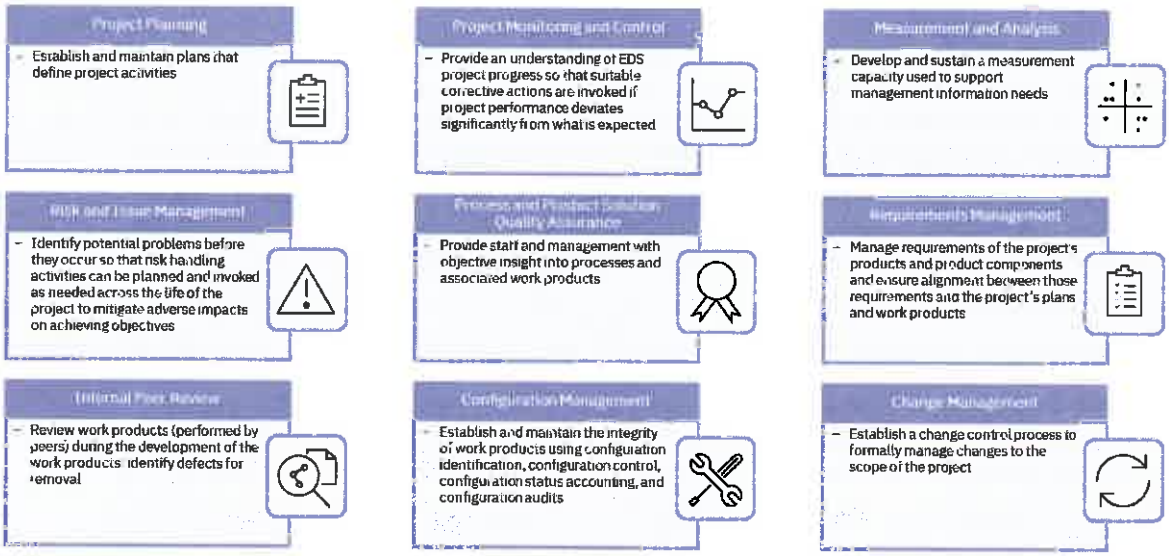
Quality Control

Continuous quality management is an operating philosophy for Watson Health, integrated throughout all phases of each project we manage. As a result of this philosophy and approach, which has been appraised at CMMI Level 3, we will deliver a high-quality EDS that drives results for DHHR and your stakeholders. Our quality management process has been honed and refined based on our national success delivering solutions to Medicaid agencies and helping our clients achieve CMS certification.

The Watson Health Project Management Office (PMO) includes a centralized, independent team of dedicated Quality Assurance (QA) staff. Our QA Team includes subject matter expertise (e.g., data conversion) and account team members with knowledge of the area being reviewed. Our QA Team is responsible for creating, maintaining, and utilizing quality processes and measures for all phases of the project. They will collaborate with DHHR to achieve and maintain quality system and operational services in accordance with DHHR-approved performance metrics and benchmarks.

The Quality Management (QM) Plan we deliver for DHHR approval addresses both process and product solution quality throughout the life of the WV EDS contract. Watson Health has adopted a process improvement framework to plan and manage quality management, auditing the quality requirements and the results of quality control measurements; and to control quality, monitoring and recording the results of executing quality activities. This leads to a consistent approach to using quality standards and operational definitions and to assessing our performance and recommending changes when necessary.

Figure 97. Process Improvement Framework. *Resulting in a consistent approach to using quality standards and operational definitions and to assessing our performance and recommending changes when necessary.*



Our quality control process requires that we conduct routine compliance checks, use established checklists to help us exit stage gates, and audit our delivery procedures. We continually monitor our overall operation to ensure accuracy and completeness throughout the project life cycle; for example, we reconcile data between the various data warehouse layers to assure the data is balancing as it moves from layer to layer. Extensive testing processes and the use of checklists and peer reviews results in DHHR receiving high-quality products and deliverables.

The QM Plan documents our processes and procedures and identifies the functions, requirements, standards for quality planning, quality assurance verification and validation steps, quality control measures, and performance metrics. It also details the steps we take so the WV EDS meets SLAs. It describes how performance is monitored and tracked, and the steps taken to tune performance. To further promote continuous quality improvement, we develop quality improvement recommendations and CAPs as needed, and we proactively initiate them.

We will collaborate with DHHR and your stakeholders to achieve and maintain quality system and operational services in accordance with approved performance metrics and benchmarks.

Delivery Timeframes

Watson Health's operational activities consist of operating, supporting, and maintaining the WV EDS. This includes providing a dedicated team to verify and monitor the successful and timely implementation of all system and operational changes, maintenance, and/or modifications, including system processing, accuracy, and timely corrections of any problems as related to the original project design or agreed upon system change(s).

In close cooperation with DHHR, Watson Health will develop a set of SLAs and performance standards that appropriately address the WV EDS data intake process, data transformation process, data enrichment process, reporting timeline, help desk support for systems and operations, handling of service problems, and expectations for levels of service and performance. To perform the operations and administration of the solution to your satisfaction, the resulting SLAs and performance standards will support data intake, data transformation, data enrichment, reporting, system maintenance, help desk issue resolution, technical support, and hosting issues.

Business Use Analyses to Prepare Operational Reports

Production Reports

Watson Health will maintain a comprehensive list of standard reports and their intended use, including the business area supported. Information is compiled for each report put into production, including report name, report template, field definitions, business use narrative, business area, production schedule, distribution lists (users), document management location, and change history. Your production reports will be maintained during operations, with all changes managed through change control. On a schedule agreed to by DHHR, and at least annually, we will review the portfolio of standard reports to identify opportunities to revise, enhance, add, or sunset reports to meet your evolving needs and leverage any new data sources or technology improvements.

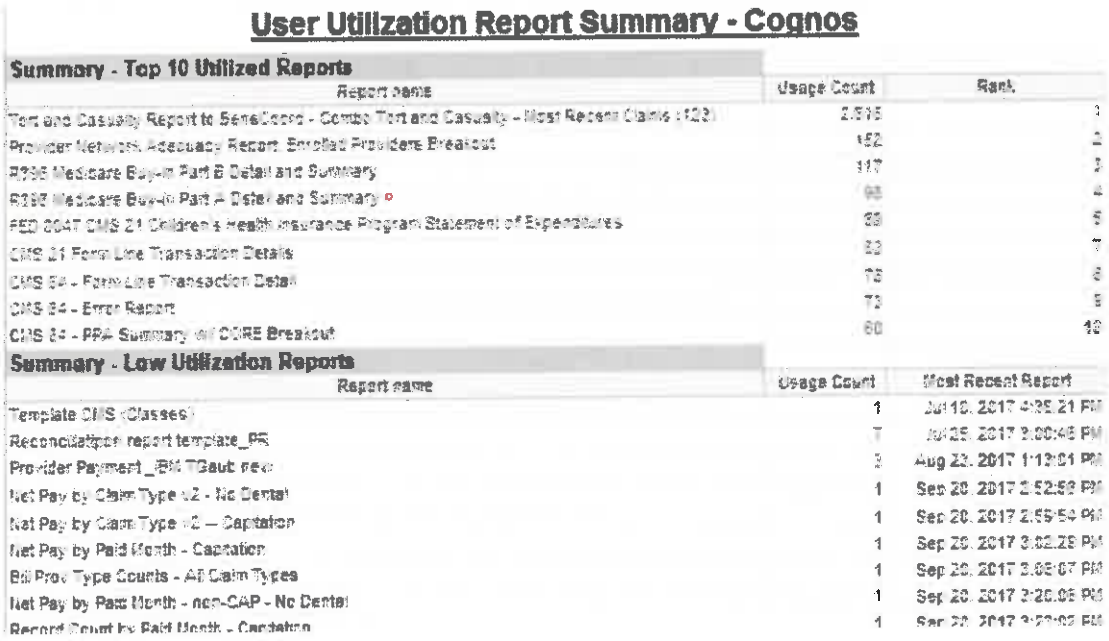
Analytic Agenda

Annually during operations, Watson Health also will conduct business planning and set an Analytic Agenda to clarify DHHR's analytic goals for the upcoming year. As we perform status reporting throughout the year, we will recommend special analytic projects and potential program initiatives that support those goals. Our recommendations are based on a number of sources, including an annual review of your standard and ad hoc reports to bring you new ideas for efficiencies.

Usage Reporting

Our standard usage reporting provides DHHR with key user metrics, generally monthly, such as how many reports were run by which users, how long each report ran, and average statistics like median report time. Standard reports can be modified to meet DHHR-specific reporting needs, and custom reports can be developed to report on system usage if the standard reports are not sufficient. While the frequency of data collection can be configured, we recommend collecting the information nightly. We will maintain the DHHR-approved documented report usage and access review approach as part of quality management.

Figure 98. Monthly Usage Report Example. *This example from an existing client shows reports that are used most frequently and those that have low usage, so the client can determine whether to delete or modify unused or little-used reports to improve usability.*



User Utilization Report Summary - Cognos

Summary - Top 10 Utilized Reports

Report name	Usage Count	Rank
Tort and Casualty Report to SeneCare - Combo Tort and Casualty - Most Recent Claims (103)	2,515	1
Provider Network Adequacy Report_Enrolled Providers Breakout	152	2
R295 Medicare Buy-in Part B Detail and Summary	117	3
R297 Medicare Buy-in Part A Detail and Summary	93	4
FED 2047 CMS 21 Children's Health Insurance Program Statement of Expenditures	89	5
CMS 21 Form Line Transaction Details	83	7
CMS 64 - Form Line Transaction Detail	78	8
CMS 64 - Error Report	73	9
CMS 64 - PPA Summary w/ CORE Breakout	60	10

Summary - Low Utilization Reports

Report name	Usage Count	Most Recent Report
Template CMS (Classes)	1	Jul 10, 2017 4:35:21 PM
Reconciliation report template_PR	1	Jul 25, 2017 2:00:48 PM
Provider Payment_PR TGaut new	3	Aug 22, 2017 1:13:01 PM
Net Pay by Claim Type v2 - No Dental	1	Sep 20, 2017 2:52:52 PM
Net Pay by Claim Type v2 – Capitation	1	Sep 20, 2017 2:55:54 PM
Net Pay by Paid Month - Capitation	1	Sep 20, 2017 3:02:28 PM
Bill Prov Type Counts - All Claim Types	1	Sep 20, 2017 3:06:07 PM
Net Pay by Pass Month - non-CAP - No Dental	1	Sep 20, 2017 3:20:05 PM
Record Count by Paid Month - Capitation	1	Sep 20, 2017 3:52:05 PM

To be sure that DHHR derives continued value from the WV EDS, Watson Health will proactively research, evaluate, and recommend potential sources of data and new reporting to support your evolving initiatives. Leveraging our experience in other states, Watson Health brings a national perspective to initiatives like expanding treatment for individuals with a substance use disorder or expanding long-term services and supports. We try to anticipate needs in order to provide flexibility in the system and accommodate changes that might arise in the future. When changes are required, we follow the established change management process from identification through deployment.

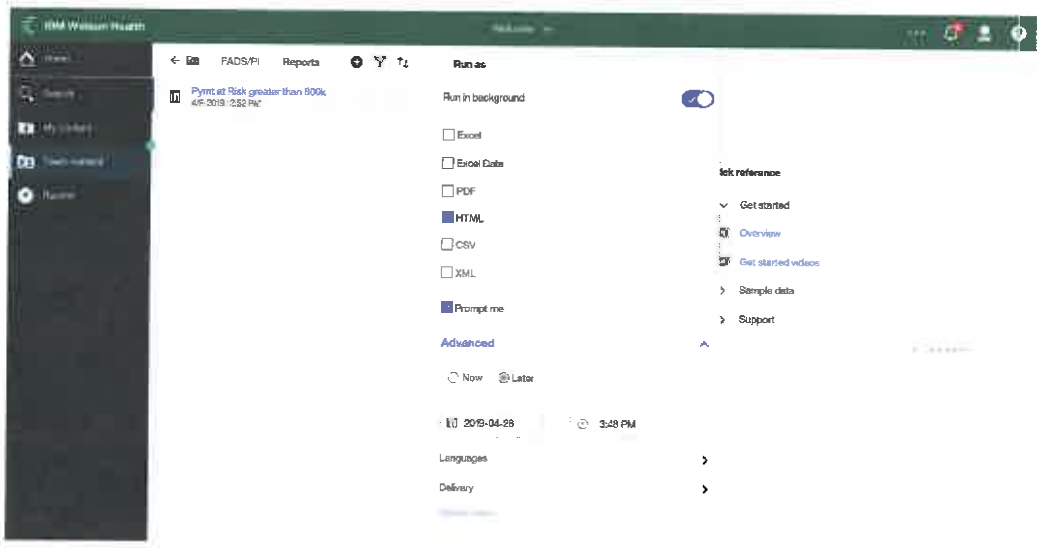
Automating Operational Reports

Watson Health system administrators, reporting specialists, and data engineers will keep the WV EDS operating as designed and perform the automated and manual functions needed so that reports and dashboards are produced accurately and on schedule throughout operations. In collaboration with DHHR, we will produce, document, and compile federal, state, and DHHR-required operational reports. Authorized users will be able to produce reports in a full range of formats, including dashboards and animated storyboards, and with a variety of visuals and objects, where applicable.

A large enterprise benefits from increasing efficiency through the automation of work queues wherever possible, such as with reporting or data quality processes. Power users and business casual users alike can benefit from automated or efficient reporting tools.

With the reporting tools in the WV EDS, authorized users can schedule reports to run automatically at the frequency required by DHHR or the individual user. Users can schedule reports or jobs to run at a time that is convenient for them; for example, during off-hours when demands on the system are low or at regular weekly/monthly intervals. An example of our Cognos scheduling interface is shown below. If a user wants to run a report on new data added the previous night, it can be scheduled to run early each morning and have a copy emailed to the user. Users can set an event to monitor the table, and the report can be re-run any time new rows are added.

Figure 99. Cognos Scheduling Interface. *Users can schedule reports or jobs to run at a time that is convenient for them.*



Upon executing a job, Cognos keeps a status of it, so users can view successes and investigate any failures. Should the job fail due to hardware or software issues, it can be rerun easily. Users have the ability to schedule reports, metrics, metrics data refreshes, agents, and deployments. Jobs can be created to schedule multiple entries together.

Adherence to Service Level Agreements

We want to optimize the investment West Virginia has made in a modern EDS module. To that end, SLAs and Key Performance Indicators (KPIs) set clear, shared expectations and measures for service delivery and system performance. Collaborative processes like problem resolution help provide accountability and compliant operations, and change management validates the benefit, impact, and cost of a proposed change.

The Quality Assurance Plan we will submit for DHHR approval details the steps Watson Health takes to meet agreed upon SLAs, as well as the performance metrics and reporting that will be used to monitor system performance. It describes how performance is monitored and tracked, and the steps taken to tune performance. When needed, we use our corrective and preventive action process.

Our focus on internal control monitoring and SLA reporting provides metrics on the requirements related to ongoing operations, so DHHR can measure our success in meeting those requirements. Our processes contain communication and escalation channels, as experience has taught us that centralized reporting and management of these two areas gives a more complete understanding of overall performance.

A dashboard delivers monthly reporting of SLAs and operational requirements performance to keep DHHR informed and help Watson Health meet your expectations with respect to the technology, functionality, services, and support we provide. We will report on metrics and SLAs related to various elements of the technical environment and operational aspects of the day-to-day use of the WV EDS. The following example demonstrates the results of Cognos performance testing, showing key metrics we have collected in past monitoring for another client.

Figure 100. Key Metric Examples. *Key application performance metrics will allow WV EDS stakeholders to continually assess solution performance.*

Application Performance Detail - Cognos

Cognos Application

Navigation testing (measure in seconds)		Jul-2018	Aug-2018	Sep-2018
1	Public directory to IDHW Reports subdirectory IDHW Reports subdirectory to IDHW Reports for UAT	3.8	2.1	2.5
2	Subdirectory	14.4	1.9	2.0
3	Navigate to open report result window	1.4	1.2	1.3
4	Click on Back button to navigate back to report subdirectory	11.4	1.7	1.6
5	Navigate to Launch IBM Cognos Administration window	7.1	6.9	6.8
6	Move from Report Studio to IBM Cognos Connnection window and vice versa - **State Machine**			
6b	Move from Report Studio to IBM Cognos Connnection window and vice versa - **IBM Watson Health Machine**	9.4	7.4	8.4
7	Navigate from Report Page to Query Explorer	0.8	0.6	0.7
8	Navigate from Public Folder to My folder and vice versa	1.1	1.5	1.3
9	Navigate between objects in Query Explorer	0.6	0.7	0.8
10	Navigate to report run window	2.7	2.3	2.1
11	Navigate to print window	2.3	2.7	2.9
Average		5.0	2.4	2.8

Print initiation (measure in seconds)

1	Open Print window	1.0	1.1	1.1
2	Time for print initiation (desktop notification)	1.1	1.1	1.1
Average		2.1	1.1	1.1

Search (measure in seconds)

1	Search in Cognos Connection	6.4	4.5	5.1
2	Search text within query in Report Studio	1.0	0.8	1.1
3	Search PDF report result	0.4	0.6	0.7
Average		2.6	2.0	2.3

Navigation testing (measure in seconds)		Jul-2018	Aug-2018	Sep-2018
1	Open Report Center	23.9	10.8	7.8
2	Open Report Writer (pre-package selection)	4.1	8.8	4.6
3	Open Report Writer (post-package selection)	0.9	0.8	0.7
4	Open Create a Job window	1.3	1.8	1.4
5	Open My activities and schedules	28.5	21.8	5.6

OP034	The Vendor should maintain adequate staff to perform technical functions including, but not limited to
OP035	Maintain systems by researching and resolving problems
OP036	Maintain system and network integrity and security

OP037	Develop and maintain configuration and customization of the solution, solution tools, and rules engine
OP038	Establish, manage, and maintain the solution data exchanges
OP039	Maintain file specifications for solution data exchanges
OP040	Establish, manage, and maintain solution interfaces
OP041	Assure that new processes/new technology installations minimize negative impact on the system and authorized solution users
OP042	Schedule and execute file transfers with external solution data exchange sources
OP043	Provide regular status updates to the Department on system issues and system updates
OP044	Maintain a system of checks and balances such that the underlying data are consistent, complete, and accurate
OP045	Develop and gather requirements
OP046	Design, implement, and maintain solution architecture
OP047	Monitor solution performance and resolve issues
OP048	Analyze test plans, technical specifications, and test results
OP049	Provide system documentation
OP050	Others as defined by the Department and pursuant to Service Level Agreements (SLAs)

Once the WV EDS is fully implemented, Watson Health deploys our maintenance and support efforts. We believe that retaining as much staff as possible from DDI to operations is critical in a successful transition. The staff who worked in DDI will bring to the Operations phase their knowledge of DHHR business requirements and the ability to support end users on the tools, the data, data structures, and development of Analytic Agendas.

We will create a System Operations Plan that addresses post-implementation maintenance and operation of the WV EDS and the support users need to get the most benefit from it. This plan accounts for all operational activities including but not limited to, the maintenance, and technical support needed to develop and maintain configuration of the EDS, its tools, and rules engine. The plan will be approved by DHHR prior to commencement of operational support activities. It incorporates your defined performance standards, including those related to agreed-upon KPIs and SLAs.

Our ongoing maintenance services include the administration of software updates, patches, data partitioning, indexes, statistics updates, file vacuuming, and scaling. We also maintain software upgrades and licenses for the environment. The system maintenance we provide includes, at a minimum:

- Data maintenance for table updates
- Deficiency tracking and correction
- Monitoring the system to meet performance requirements and, when required, system tuning
- Monitoring and maintaining current data, tables, programs, and documentation
- Tracking and maintaining changes to scripts or system parameters concerning frequency, number, sorting, and media of reports
- Monitoring the ELT, ETL, and data interface to ensure the highest quality of the data possible is ingested into the EDS

Ongoing System Maintenance

Resolving Problems

During operations, Watson Health provide efficiencies associated with receiving data, validating data quality, transforming and integrating data formats, and building databases. Our data quality automation tests for and identifies issues in the database refresh or update process. Our tightly connected ETL tools and automated scripts allow for us to receive, secure, transform, and test data sets in a production-like manner with minimal human intervention.

Our solution automatically applies checks and balances, such as established quality rules and thresholds, to scrutinize the data, checking for completeness, reasonableness, accuracy, consistency, and duplication to gauge the quality of the data. Automated procedures resolve issues, like the recovery of failed jobs, using self-healing and automatic recovery techniques when possible. As a result, rather than spending time on non-value add work (locating files, kicking off transformation, testing jobs), Watson Health staff can spend time reviewing data assessment results, addressing data quality issues, and working with data suppliers to resolve issues.

We work closely with data suppliers to be sure they provide consistent quality on all inbound data feeds. We conduct quality checks and data reconciliation to confirm that all ingested data meets quality standards for analytics and reporting. The Watson Health Operations team will detail all the quality checks and triage procedures in the operations procedure manuals.

Maintaining System and Network Security

To help maintain system and network integrity and security, system-level alerts are monitored 24/7 by Watson Health Data Center staff. A suite of monitoring and management tools keep production running smoothly. These tools help us load, test, and implement software updates and patches in the environment. They manage, monitor, and alert us when capacity or performance thresholds are exceeded. We use them proactively, so we can identify and resolve issues before DHHR users are even aware of them. Network analysts use specialized utilities to monitor the health of the network, such as the SolarWinds Network Management utility for network monitoring. Additional information about our security processes is provided in Attachment H.

Data Exchange and Integration Services

Data Source Integration

Watson Health will establish, manage, and maintain the solution data exchanges. Our solution provides a number of secure methods for consuming, transmitting, or publishing data between data sources, the EDS, and any downstream data feeds. Our Interoperability Layer will provide all integration services with standard interface protocols for data exchanges with the WV EDS. The application components are optimized for near-real time integration with sources, consuming applications, and business processes.

In addition, our data model is designed to accommodate required program changes over time. And our infrastructure design can adapt to changing business requirements and business growth while taking advantage of the latest technology offerings. We utilize technologies and architectural approaches that are rapidly upgradable, scalable, and expandable.

From a tooling perspective, our solution utilizes IBM Infosphere Information Server to provide data exchange, transformation, and management capability. This suite of data integration tools shares a common metadata repository. The InfoSphere product design facilitates modular connectivity, data movement, and transformation logic development with maximum reusability of all constructs.

The InfoSphere suite is designed to support the full continuum of integration activities throughout ongoing operations. The tooling we use is not just for development of code, but applies to ongoing run-time operations, monitoring, and maintenance activities over time. InfoSphere's graphical environment

simplifies maintenance by presenting a visual workflow of how a transformation is occurring in a meaningful context. This helps everyone involved in data integration monitoring and modification to understand and follow the flow of all data integration activity.

Our modularized, COTS-based approach focuses on configurability with a very minimal need for customization and no requirement for original software development. For example, when new data sources are required, they can be loaded using rules-based transformation processes that allow staff to configure the interchange more quickly than was required by the outdated hand-coded approach.

From a process perspective, our solution, through Infosphere Information Server, provides the capability to move large volumes of data through the various services and data stores and the EDS with integrity, quality, scalability, and flexibility. It will capture information from external systems, including DHHR-identified publicly available data and non-public data, for reporting and analytics. We will work with DHHR to define the optimal schedule and technique for extracting and exporting data from the source systems, inclusive of performing daily refreshes/loading if needed, as defined by source.

Change Impact Analysis and Management

The method selected for interchanging data with a particular external data provider is documented in the Interface Control Document (ICD). Any changes over time will be handled according to the Change Management Plan and its defined categories and procedures for standard change requests. We will install hardware and software upgrades in accordance with the approved change management process, and adhere to the testing, deliverable submission, review, and approval process in doing so. Our general approach is to stay current with these updates.

We will implement the IBM Infosphere Information Server platform and its Information Governance Catalog (IGC) component, both of which analyzes the impact of source system changes and provides an audit trail of all data integration and data acquisition activities. IGC facilitates tracing lineage from sources through jobs and databases to BI reports and performing impact analysis to understand dependencies and the effects of changes to a column or job in the downstream ETL process. This lineage applies to all production jobs, including those which extract data for external MES stakeholders. Lineage documentation will trace all data from the initial source/acquisition layers to the terminal database location or data extract. Data lineage will be maintained throughout operations.

Each change requires an impact analysis to evaluate and verify that there are no adverse effects to the EDS or other modules. We share the results of the impact analysis with DHHR and other stakeholders for review and determination of the appropriate course of action. Changes are not implemented or applied to the production repository until they have been reviewed and approved by DHHR.

We will define a Communication Plan with procedures and timing for periodic or as-needed meetings and/or status updates to keep DHHR informed when changes to source systems impact the EDS. Automatic communication for change notification and release can be delivered to external MES stakeholders and interested parties, as DHHR deems appropriate.

Data Extracts and Outbound Transmission Process

We will provide published reports, files, or data extracts for external applications, systems, or parties as required by DHHR. As directed by DHHR, we will design and deliver customized data extracts and prepare special reports and analysis for outbound data exchange. In doing so, we will apply complex data linkages and provide secure access to WV EDS systems and data. All data transmissions both inbound and outbound (data extracts, files, and reports) are restricted to only use secure transport protocols. Any requests for ad hoc reports, files, or extracts will require explicit authorization from DHHR.

Performance Monitoring

Efficient Operations

As performance can degrade over time if not properly monitored, Watson Health system administrators continuously and proactively will monitor the health, performance, and security of the WV EDS during the operations and maintenance phase. For example:

- Monitoring of system performance by our systems team, using canary queries/reports to observe response times. We adjust resources as needed to reduce contention and maintain good performance; for example, for one of our existing state clients, we proactively made a design change in a way the table was loaded in the data warehouse, reducing the load process from nearly six hours to less than one hour.
- Monitoring output includes usage tracking utilities to review analytic application report generation times and basic system statistics such as CPU utilization.
- Monitoring our database, we assure complex queries do not adversely impact performance of the data warehouse and we routinely report on performance of the reporting environments.
- Monitoring every ETL job, with alerts sent to administrators for immediate attention. Automated procedures resolve issues, like the recovery of failed jobs, for self-healing and automatic recovery when possible.
- Monitoring data continuously for quality, providing an early warning system to help identify data quality issues, such as duplicate data, before they become major issues. Quality statistics on all data entering the EDS from the various sources are tracked to enable data stewards to identify opportunities to fix the data at the source, and to fix the data as it enters the warehouse.

Benchmarking

Our solution captures and sets expected benchmarks and performs comparisons against those benchmarks to measure system performance. We use our Operational Performance Dashboard to present this information to both Watson Health and DHHR staff so that system performance issues can be mitigated.

Status Updates

To support timely notifications, status updates on system issues and updates, and coordination of activities, we follow the approved Communications Plan, which is incorporated into our Project Management and System Operations Plans, and our team meets regularly with DHHR. Watson Health recognizes the challenges of maintaining effective communication in a complex environment during operations. We have extensive experience with health and human services clients and their business partners, supporting ongoing operations and day-to-day activities.

Addressing Issues and Defects

In operations, the account executive team conducts periodic service delivery reviews where the team compares quality reports on inbound interfaces receipt and application and outbound and reporting execution against the SLAs. The reports also include an accounting of Help Desk tickets, average resolution time for tickets by severity, and categories of tickets, so the team can explore opportunities for potential solution tuning or user training. We will capture the action items around these reviews and works to incorporate improvements continually and with release roadmap initiatives.

We will train DHHR users on the defect management process, which includes logging, categorizing, and prioritizing the defect. We conduct daily triage meetings to review new defects and provide updates on existing defects, so the team can mitigate them as soon as possible. As part of these meetings, the Watson Health team will work with WV EDS stakeholders to address not only the current defects and their state, but also any trending defect categories and severity. We use the trending data to determine potential

opportunities to improve quality and/or potential threats against overall quality, working with DHHR to establish and implement quality improvement initiatives.

System Modifications

Our solution's technical architecture is scalable, extensible, and modular. The system is SOA-based and MITA compliant, to facilitate expansion. It allows for expanding the breadth of function, allowing for virtually unlimited growth in users and data volume.

When adding new functionality or operational services, features, or capability to the WV EDS during the operations phase, we determine the scope of work and resource estimates for the system modification(s) and we gather functional and non-functional requirements. The modification work is performed in accordance with the change management process, using the modification pool hours.

Watson Health uses a defined, standard methodology so that all steps of a modification project are planned, tracked, and measured. Our end-to-end testing, described in Attachment I, includes data validation, data conversion testing and data validation, data reconciliation, and report testing. Integration testing focuses on testing between data suppliers and entities receiving data from the WV EDS solution. Theses test cases involve system to system balancing and validation of data usability in the target system. The result is a fully tested and complete EDS module that is ready for productive use by the Medicaid Enterprise. Our MITA-compliant architecture assures the impact on WV EDS users will be minimal. Our approach for ongoing operations results in continuous testing and correction or improvement of modular operations.

Downtime and maintenance outages are coordinated in advance between the Account Team and Watson Health Product Support, with clear and timely communication with DHHR. To support timely notifications and coordination of activities, we follow the approved Communications Plan.

System Documentation

Watson Health acknowledges our responsibility to create and maintain all required documentation for all SDLC phases, including operations and maintenance. Throughout the lifecycle and regardless of the phase, we create, review, and maintain artifacts as part of our standard operating procedure.

Our Document Delivery and Approval Process Flow covers the deliverable process and support procedures, and addresses deliverable reviews, standard review checklists, deliverable repository access, updates, and backups. This benefits DHHR because it confirms timely delivery of high-quality documentation and deliverables throughout all phases of the SDLC while building key artifacts for CMS certification. The Document Delivery and Approval Process Flow serves as the baseline from which we jointly define the review process, expected timelines, and key stakeholders that are required to support each deliverable, artifact, or documentation set.

Watson Health adheres to this process not only during creation of the original document but also for documents that must be updated as the result of system changes, annual maintenance, or a CR. The same review cycles and timeline are used. Work products also include operational, system, and technical processes as they relate to the WV EDS during ongoing operations. We maintain a complete and accurate audit trail record of all changes made to documentation, with a revision history log for each plan and major deliverable, as shown below.

Table 50. Revision History

Document Date	Version	Change Description
11/16/2018	D1.0.1	Initial document draft
12/5/2018	D1.0.2	Modified draft based on Cycle 1 review comments
12/21/2018	V1.0	Baselined version

Document Date	Version	Change Description
1/5/2019	D1.1.1	Updated as a result of CR 23; initial update draft
1/15/2019	D1.1.2	Modified draft based on Cycle 1 review comments
1/28/2019	V1.1	Baselined update

To help DHHR achieve your goal of integrating across the enterprise, the WV EDS requires data to be submitted from various source systems, both internal and external to the MES, through various mechanisms. In coordination with relevant stakeholders, we identify and task data owners with oversight of data streams. We work with the external provider to establish a formal data exchange/interface. Working with DHHR and the data provider, we formally document the data to be exchanged with the source system via an Interface Control Document (ICD) that adheres to both state and CMS standards.

The ICD identifies the rules required for developing and maintaining the interface or exchange with the data supplier, including all possible inputs and outputs. It documents the data elements, processes, methodologies, mechanisms, protocols and all other critical data for each data source. It also includes important data classifications such as, Federal Tax Information (FTI), Protected Health Information (PHI), and Personally Identifiable Information (PII), for compliance. As part of the process of creating the ICD for a specific data source, Watson Health establishes the update frequency for that data interface as part of ongoing operations. We maintain an ICD for each data source and document the changes throughout the data life cycle. We store and maintain each ICD within the project document repository.

In addition, the COTS analytic and reporting tools integrated in the WV EDS are latest-generation software with industry-standard electronic documentation features. Most documentation is packaged with its associated COTS product and is updated with each new software release. We store the most recent versions of key documents within the repository, including a training section with reference guides, pre- and post-classroom exercises, tool-specific training guides, user "tips and tricks" aids, frequently asked questions (FAQs), and other suitable training materials.

OP051	The Vendor should participate in project meetings as directed by the Department

Watson Health fully supports participation in project meetings as directed by DHHR. Open and effective communication is essential to a successful project and a cornerstone of our project management methodology and corporate culture. Meetings are an effective method of communicating.

OP052	The Vendor should work collaboratively with the Department to explain and support electronic data solution Vendor-based operations and reporting to stakeholders, auditors, and other parties when necessary

In collaboration with DHHR, Watson Health creates a Communication Plan, which is reviewed and updated annually. The plan defines the mechanisms for clearly communicating project information to stakeholders, keeping them well informed, and facilitating a cohesive understanding of the project. Communicating progress, milestones, issues, risks, and other key project metrics enables all project stakeholders to monitor progress and to anticipate and prepare for changes. The Communication Plan describes the reporting and activities necessary to support the WV EDS throughout the project life cycle.

We will follow agreed-on protocols, as documented in the Communication Plan, for receiving, logging, and responding to requests from authorized users and consumers of the information in the WV EDS. We have a long track record of implementing sound, reliable reporting processes and are dedicated to working collaboratively with DHHR and others to explain, support, and defend the WV EDS operations and calculations and to reporting to stakeholders, auditors, and other parties when necessary.

OP053	The Vendor should participate in audit activities including, but not limited to
OP054	Attending meetings

OP055	Running reports
OP056	Providing documentation
OP057	Providing access to all system components and modules as requested by the Department

Watson Health participates in audit activities related to the performance of the WV EDS. This includes attending all necessary meetings and providing all documentation and reports required for CMS certification, the independent verification and validation (IV&V) vendor, or other audit activities. Access to the WV EDS components and modules can be granted for audit purposes upon request of DHHR and subject to authorized solution user license availability.

OP058	The Vendor should support the State with data integration needs prior to and subsequent to the solution's implementation

Our data integration processes, derived from our extensive experience combined with the capabilities of our data integration tools, supports West Virginia throughout all phases of the WV EDS project, both before and after the solution's implementation. Watson Health has collected data feeds from hundreds of carriers and other entities that generate healthcare data in a wide variety of data formats (e.g., Health Level Seven [HL7], EDI X12, 837, Fast Healthcare Interoperability Resources [FHIR]), and we have specialized expertise in managed care encounter data.

IBM Infosphere DataStage, the data integration component of our Infosphere Information Server tool, provides a graphical framework for developing the jobs that move data from source systems to target systems. IBM Infosphere QualityStage runs on and uses the same design interface as DataStage, providing additional capabilities for performing quality-centric tasks on data.

DataStage is the extract, transform, load (ETL) tool in the WV EDS that enables a single approach to access, cleanse, transform, and deliver data without resorting to hand coding. It scales to support large data volumes and meets enterprise demands for security and performance. DataStage provides direct, native access to a broad range of commonly used sources and targets. The graphically based development environment speeds integration of new data sources as the need arises. Initial job development requires far less effort when one is using a graphical interface and prebuilt, reusable data connection and transformation logic. Specific functionality for different landing areas such as Apache™ Hadoop®, relational databases, and data warehouses are delivered out of the box.

In addition, the prebuilt reusable transformations in the DataStage libraries make it easier to accommodate new sources and manipulate the data to make them more user friendly. Organized into general functional categories, the transformations solve common and complex data challenges that integration projects must handle when moving data through heterogeneous systems and applications. Rather than deciphering hundreds of lines of text-based program code, DataStage's graphical environment supports maintenance by presenting a visual workflow of how a transformation is occurring in a meaningful context.

DataStage is designed with a "write once, run anywhere" capability. Jobs can be written once and then executed on different runtime environments, such as clusters, grids, and Hadoop implementations, with different parameters and runtime characteristics. DataStage supports both ETL and ELT patterns so that transformation and aggregation logic can be performed either in the data integration engine or on the target database, with postload Structured Query Language (SQL).

OP059	The Vendor should provide the Department with a Data Management Plan as defined in Appendix 2 - Deliverables and Milestones Dictionary

We provide the Data Management Plan during the Requirements Phase. This plan describes the required processes and procedures for the data management and stewardship through all phases of the WV EDS

project. To help users make informed business decisions, we stringently apply data quality techniques to all data that data providers supply.

In outlining how Watson Health handles data, the Data Management Plan addresses data and record management, metadata generation, data preservation, and analysis before the project begins. It includes the following:

- Executive summary
- Functional and organizational infrastructure
- Technical infrastructure
- Policies and procedures
- Documentation of technical needs for sharing state Medicaid agency services and information
- A complete inventory of all data elements that exist or will exist in the solution, with a definition, data type, and table location for each element
- A description of the process for acquiring, processing, and distributing data
- File formats and naming conventions
- Quality assurance and quality control methods for all data
- Version control
- Detailed schedules, so that data maintained in the EDS or in other system/manual files are properly and routinely archived and protected from loss, destruction, or unauthorized access, in accordance with all relevant DHHR policies and procedures
- Retention methodology for all data and records associated with each EDS project phase

Recognizing the need for Watson Health to understand how data are integrated throughout the enterprise, as well as in each environment, we create a Data Integration Plan as a subset to the Data Management Plan. Based on your vision and processes, our Data Integration Plan describes how we develop, implement, and orchestrate data. It includes all details related to application programming interfaces (APIs), mapping, ETL processes, data security, data management, and communication processes with the different source systems. We also document this communication with system owners in the Communication Plan.

OP060	The Vendor should agree to perform according to approved Service Level Agreements (SLA) and identified Key Performance Indicators (KPI) with associated metrics in the areas of system availability, performance, data quality, and problem management, and should consent to the Department retaining a percentage of payment if agreed-upon metrics are not achieved

Watson Health supports your goals to continuously improve the system, save money for taxpayers, and optimize the investment you have made in a modern enterprise data warehouse (EDW). Service-Level Agreements (SLAs) and Key Performance Indicators (KPIs) play an important role in achieving these goals by setting clear, shared expectations and measures for service delivery and system performance. Collaborative processes such as problem resolution help ensure accountability and compliant operations, and change management validates the benefit, impact, and cost of a proposed change.

The WV EDS provides a foundation for system uptime, availability, and accuracy. Our focus on internal control monitoring and consistent SLA reporting provides tracking and reporting on all requirements related to ongoing operations. Our processes contain proper communication and escalation channels—experience has taught us that centralized reporting and management of these two areas gives a more complete understanding of overall performance. Monthly reporting and executive reviews of SLAs and

operational requirements performance help us meet your expectations with respect to the technology, functionality, services, and support we provide.

Before Implementation and Operations, and at least annually thereafter, we propose that DHHR and Watson Health review the SLAs and make any necessary revisions as outlined in Appendix 5. We will perform in accordance with approved SLAs and regularly report KPI metrics. In the event of a missed SLA, we will submit a written Corrective Action Plan.

OP061	The Vendor should develop, maintain, and implement a Department-approved System Operations Plan as defined in Appendix 2 - Deliverables and Milestones Dictionary

Watson Health proposes to develop and submit for DHHR approval a System Operations Plan that outlines our support services, processes, and plans for the Operations and Maintenance Phase of the WV EDS project. The System Operations Plan encompasses system functionality from a user's perspective, a state business user's perspective, and a technical user's perspective.

This plan accounts for all systems operational activities, such as user management and access, system monitoring and maintenance, security, operations control, data retention, communication, technical support, processes for addressing system defects, and mutually defined performance standards. Although the System Operations Plan will have been continually reviewed during design, development, and implementation (DDI), as part of the go-live sign-off process, we review the plan with DHHR and Medicaid Enterprise Systems (MES) stakeholders.

Once live, the WV EDS continues to evolve on the basis of changes to DHHR requirements, technology, and user needs. This means continual updates to the System Operations Plan and other systems documentation. Whenever we implement a change that affects a document, we update the document and submit the revision for your review. Documentation such as the System Operations Plan is accessible to authorized personnel on the project repository. Watson Health also provides any additional documentation, such as commercial off-the-shelf (COTS) software user manuals, as applicable.

Watson Health arranges and pays for annual audits and attestation reports from third-party auditors accredited by the American Institute of Certified Public Accountants (AICPA). The audits comply with the Statement on Standards for Attestation Engagements (SSAE) 18. Future audits will comply with the standard in place during the audit period. SSAE 18 SOC 1 Type II audit scope includes WV EDS solution and the data centers hosting the WV EDS system.

OP062	The Vendor should pay and arrange for an annual Statement on Standards for Attestation Engagements, System, and Organization Controls (SOC)1, Type II audit, using the most current version of the audit, which should cover work performed by the Vendor at the Vendor's facility and data center sites

Watson Health arranges and pays for annual audits and attestation reports from third-party auditors accredited by the American Institute of Certified Public Accountants (AICPA). The audits comply with the Statement on Standards for Attestation Engagements (SSAE) 18. Future audits will comply with the standard in place during the audit period. SSAE 18 SOC 1 Type II audit scope includes WV EDS solution and the data centers hosting the WV EDS system.

OP063	The Vendor should submit the annual Statement on Standards for Attestation Engagements, System and Organization Controls (SOC) 1, Type II audit report, using the most current version of the audit, to the Department for approval with an action plan to remediate findings within a timeframe agreed upon by the Vendor and the Department

Watson Health arranges and pays for annual audits and attestation reports from third-party auditors accredited by AICPA. The audits comply with SSAE 18. Future audits will comply with the standard in place during the audit period. SSAE 18 SOC 1 Type II audit scope includes WV EDS solution and the

data centers hosting the WV EDS system. The audit reports are delivered to the Department upon receipt along with a documented action plan to remediate any findings.

OP064	The solution should provide an authorized solution user test environment (sandbox) to test new queries and reports prior to execution in production

Watson Health designs, implements, and maintains multiple test environments in which all queries and reports are tested before execution in production. We believe that a critical piece of a successful deployment is a stable and robust development and test environment. The WV DHHR EDS testing environment maintains the same performance, features, capabilities, and versions as the production environment but is logically distinct and separated into the required subenvironments and associated scaled datasets. Upon completion of successful reports and queries tests, code is then promoted to the Production environment.

OP065	The solution should have test environments (sandboxes) that include metadata necessary to test new queries and reports prior to execution in production

Access to up-to-date metadata about business meaning, technical assets, data sources, and data processes is crucial to the overall understanding, governance, and usability of a data warehouse. Watson Health designs, implements, and maintains test environments that include the necessary metadata where all queries and reports are tested before execution in production. These test environments include catalogs that contain metadata about information assets, which are assets other than glossary assets. Examples of information assets are implemented data resources, such as database, tables and columns, data elements, ETL jobs, profiling processes, routines, and functions. These information assets typically come from other IBM InfoSphere Information Server components and are stored in the metadata repository of InfoSphere Information Server. The catalog can also contain metadata about external assets. External assets can include items such as external Microsoft® Excel tables, data processes, and reports.

OP066	The solution should have a test environment (sandbox) that can be refreshed as requested by the Department

Watson Health proposes to design, implement, and maintain test environments that can be refreshed as requested by DHHR. During the testing planning, Watson Health works with DHHR to create a schedule for the environment refresh. The data refreshes prevent the test environments from becoming stale and allows the newly developed data feeds to be included in the refreshes. If an ad hoc refresh for a particular testing phase is needed, the Watson Health Release Workstream Leader works with the data warehouse delivery team to schedule and communicate an off-schedule refresh. The process and nature of this refresh is documented in the Technical Infrastructure Plan.

OP067	The solution should utilize the same hardware, operating system, and relational database management in the test environments (sandboxes) that are used in production

Watson Health proposes to design, implement, and maintain a complete enterprise data warehouse using identical hardware and software across all environments regardless of location or environment function. We procure, host, operate, and maintain the system infrastructure (environments, interfaces, and tools) and maintain all necessary end user software, ensuring that version consistency is maintained across all system components with our team delivering support.

OP068	The solution should have test environments (sandboxes) that mirror the production environment

Watson Health proposes to design, implement, and maintain test environments that mirror the hardware resources, software version, and functionality of the tools in the production environment.

OP069	The Vendor should develop, implement, and maintain a configuration management solution to migrate tested hardware and software to the production environment

Watson Health develops, implements, and maintains a configuration management solution to migrate tested hardware and software to the production environment. We have continued to improve our processes and planning strategies when it comes to configuration and release planning and have multiple working examples in our contracts. Our ability to adapt our frameworks and methodologies to our clients' processes and requirements, along with our decades of implementation experience, provides assurance that we will help you meet your goals for this implementation.

Our Implementation and Release Plan describes the initial release of functionality, including APIs, ETL, and other data integration functions related to later procured components and COTS products. In addition, this plan explains the promotion of code through the environments, the trunk/branch process used, how the contractor identifies when code is not loosely coupled, timing of releases, types of releases, and responsibilities of each stakeholder in the release process.

Watson Health acknowledges our responsibility to develop and update all required documentation for the following CMS Enterprise Performance Life Cycle (EPLC) phases: Planning (Configuration Management Plan), Requirements Analysis, Design, Development, Test, Implementation, and Operations. In addition, the Change Management Plan includes a section on Configuration.

Management. Configuration Management relates to changes or updates to the software and hardware or to other configurable items for which changes should be controlled, (e.g., controlled documentation such as the Detailed System Design), that you identify for this project.

OP070	The solution should supply access to the user acceptance testing (UAT) environment on the enterprise data solution (EDS) portal for authorized solution users

Watson Health proposes to provide authorized users access to the UAT and other test environments via the EDS portal. On the basis of our experience with public-facing portals and public reporting, we offer to consult with DHHR and other stakeholders on design and implementation options to guide the many decisions—related to levels of access, methods, displays, documentation, and so forth. User authentication and authorization for each of our web-based applications leverage and integrate directly with the EDS portal, reducing overhead for managing user provisioning and authorizations.

Our proposed solution is Federation-compliant, providing DHHR users with a seamless Single Sign-On (SSO) experience from the EDS portal. Our applications can be configured to interface with EDS Active Directory Federation Services (ADFS) to receive "claims" via Security Assertion Markup Language (SAML) assertions for user profile and attributes that identify the role and access privileges to data, reports, and other tool functionality in the UAT environment. Working with DHHR during Joint Application Development (JAD) sessions, we will identify a list of roles and attributes for each application to be integrated with the EDS portal.

OP071	The solution should provide access to the enterprise data solution (EDS) portal test environments (sandboxes) for authorized solution users

Watson Health proposes to provide authorized users access to test environments via the EDS portal. On the basis of our experience with public-facing portals and public reporting, we offer to consult with DHHR and other stakeholders on design and implementation options to guide the many decisions—related to levels of access, methods, displays, documentation, and so forth. User authentication and authorization for each of our web-based applications leverage and integrate directly with the EDS portal, reducing overhead for managing user provisioning and authorizations.

Our proposed solution is Federation-compliant, providing WV DHHR users with a seamless SSO experience from the EDS portal. Our applications can be configured to interface with EDS ADFS to

receive "claims" via SAML assertions for user profile and attributes that identifies the role and access privileges to data, reports, and other tool functionality in the UAT and test environment. Working with DHHR during Joint Application Development (JAD) sessions, we will identify a list of roles and attributes for each application to be integrated with the EDS portal.

OP072	The Vendor should provide access for authorized solution users to all solution test environments as requested by the Department

Watson Health proposes to provide authorized users access to all test environments as requested by the Department. On the basis of our experience with public-facing portals and public reporting, we offer to consult with DHHR and other stakeholders on design and implementation options to guide the many decisions—related to levels of access, methods, displays, documentation, and so forth. User authentication and authorization for each of our web-based applications leverage and integrate directly with the EDS portal, reducing overhead for managing user provisioning and authorizations.

Our proposed solution is Federation-compliant, providing DHHR users with a seamless SSO experience from the EDS portal. Our applications can be configured to interface with EDS ADFS to receive "claims" via SAML assertions for user profile and attributes that identify the role and access privileges to data, reports, and other tool functionality in the UAT and test environment. Working with DHHR during Joint Application Development (JAD) sessions, we will identify a list of roles and attributes for each application to be integrated with the EDS portal.

OP073	The solution should have a development environment to develop and unit-test all software contained within the solution

Watson Health proposes to design, implement, and maintain a development environment. Our standard approach to development mandates that development be performed only in development environments and that testing occur at several levels in discrete environments to ensure the integrity of the solution during build cycles and in operations. We leverage synthetic equivalents of WV DHHR data for testing in development. In this development environment, our engineers also conduct system unit test tasks for each component included in our solution.

OP074	The solution's user acceptance testing (UAT) environment should have the ability to support all components of the solution

Watson Health proposes to design, implement, and maintain a UAT environment that mirrors the hardware resources, software version, and functionality of the tools in the production environment.

OP075	The solution's unit test environment should have the ability to perform full-scale system integration testing (SIT) for the solution

Watson Health proposes to design, implement, and maintain a unit test environment in which our engineers can conduct full-scale system integration testing tasks and procedures.

We conduct full-scale System Integration Testing (SIT) to confirm and document that all the components of the data warehouse system supports the overall business and functional requirements of WV DHHR, as determined during the analysis and design phases. It is an end-to-end business process test that verifies that all of the components of the system—including core EDS functions, conversions, interfaces, reports and custom extensions—operate together as designed to provide the expected end results.

OP076	The solution should have a unit test environment that mirrors production in hardware, software stack, and data volumes

Watson Health proposes to design, implement, and maintain a testing environment that mirrors the hardware resources, software version, and functionality of the tools in the production environment,

including the same hardware type and capacity, software components, and versions as well as the appropriate data volumes.

OP077	The solution should have a unit test environment that exists for all relevant components

In an effort to validate that each unit of the software performs as expected, Watson Health proposes to design, implement, and maintain a testing environment to support all the unit testing tasks and procedures. This environment includes every proposed component.

Solution Backup, Disaster Recovery, and Failover

DR001	The Vendor should deliver a Disaster Recovery and Business Continuity Plan to the Department for review and approval 30 business days prior to the start of solution operations

Watson Health will deliver a Disaster Recovery (DR) and Business Continuity Plan (BCP) to the Department for review and approval 30 days prior to the start of the solution operations.

DR002	The Vendor should develop, maintain, and submit to the Department within the Disaster Recovery and Business Continuity Plan all proposed off-site procedures, locations, and protocols

Watson Health will develop, maintain and submit to the Department all proposed off-site procedures, locations and protocols within the DR and BCP.

DR003	The Vendor should perform a review of the Disaster Recovery and Business Continuity Plan annually and submit to the Department for review and approval within 30 calendar days of the review

The Watson Health DR Plan is a detailed, comprehensive, and complete plan designed to provide immediate response and subsequent recovery from any unplanned business interruption. It documents the strategies, resources, and procedures required to restore service to our clients and internal users. We will perform, at a minimum, an annual review for completeness and accuracy. Within 30 days of the annual review, we will submit the DR Plan to the Department for review and approval.

DR004	The Vendor should submit substantive change(s) to the Disaster Recovery and Business Continuity Plan to the Department for review and approval within 30 calendar days of the proposed change(s)

We will work with the Department to tailor our Disaster Recovery Plan (DRP) and Business Continuity Plan (BCP). The DRP and BCP are focused on recovery and restoration of information systems and infrastructure required to support client applications and products. Any changes will be submitted to the Department for review and approval 30 days prior to the proposed change.

DR005	The Vendor should provide the Department with up-to-date copies of the Disaster Recovery and Business Continuity Plan in electronic and printed versions annually and within 30 calendar days of when substantive changes are made

Due to the highly sensitive and confidential nature of the information, we cannot share our DRP and BCP outside of the IBM organization, except for review in a meeting. We can provide a Table of Contents for each plan and/or a copy of the annual test report.

DR006	The Vendor should ensure a copy of the most recent Disaster Recovery and Business Continuity Plan is available in hard copy and electronic form at an off-site location approved by the Department

The most recent hard copy and electronic version of both the DRP and BCP will be made available at a location approved by the Department.

DR007	The Vendor should ensure that each aspect of the Disaster Recovery and Business Continuity Plan is detailed as to both Vendor and Department responsibilities

The DRP is a detailed, comprehensive, and complete plan designed to provide immediate response and subsequent recovery from any unplanned business interruption. It documents the strategies, resources, and procedures required to restore service to our clients and internal users. This includes the vendor and Department roles in the recovery process and identifies and prioritizes the essential business activities so that available resources can be devoted as required.

DR008	The Vendor's Disaster Recovery and Business Continuity Plan should account for all input, processing, and output procedure functions

The processes within the DR and BC plans cover all activities to assure the EDS is functional, accessible, and is able to continue to provide the Department with reporting needs. This includes the procedure functions for input, output and processing.

DR009	The Vendor should ensure that each aspect of the Disaster Recovery and Business Continuity Plan satisfies all requirements for federal and State certification

The DR and BC Plans are prepared in accordance with National Institute of Standards and Technology (NIST) guidelines and is designed to meet Watson Health responsibilities to our clients. Our plans align with the Contingency Plan (CP) control family of the NIST SP 800-53 rev 4 control frameworks and meet all federal (CMS Standard and the associated Risk Management Handbook Procedures CMS-CISO-2014-vIII-std4.4 or its replacement) and state standards.

DR010	The Disaster Recovery and Business Continuity Plan should include a hierarchy that is approved by the Department of critical services, resources, and infrastructure to determine the order that services are restored

The DRP and BCP plans will be customized to meet the needs of the Department. This includes the provisioning order to which the Department prefers the services to be restored. During discovery, we will work with the Department to determine the most appropriate response order to the DRP and BCP plans.

DR011	The Vendor should create and maintain a Disaster Recovery and Business Continuity Plan that details procedures to address events including, but not limited to
DR012	Terrorist acts
DR013	Power disruptions or power failures
DR014	Solution failures
DR015	Significant compromise/degradation of data warehouse performance
DR016	Processing shutdowns
DR017	Labor strife or strike
DR018	Natural disasters
DR019	Production site becoming unsafe or inoperable
DR020	Hacking attempts or viruses
DR021	Others as defined by the Department

The Watson Health BC/DR Plan is a consolidated set of detailed, comprehensive, and complete plans designed to guide our timely response to and recovery from any unplanned business interruption. Be it terrorist acts, power disruptions or failures, solution failures, significant compromise/ degradation of data warehouse performance, processing shutdowns, labor strife or strike, natural disasters, production site

becoming unsafe or inoperable, hacking attempts or viruses or other events, our BC/DR Plan documents the strategies, timelines, capabilities, resources, and procedures to restore service to internal and external clients.

DR022	The Vendor should ensure the Disaster Recovery Platform contains the same security safeguards to protect solution data during emergency operations as during normal business operations

The DR plan will mimic all security safeguards that are found in the production environment to protect the data, user access and assure delivery is being met.

DR023	The Vendor should ensure access to all solution components, systems, and data, 24 hours a day, 7 days a week, 365 days a year, except for Department-approved scheduled and emergency outages

Access for the solution components will be available 24 hours a day 7 days a week, except for the approved scheduled maintenance windows that will be determined with the Department.

DR024	Pursuant to the Service Level Agreements (SLAs), the Vendor should define, maintain, and adhere to a problem identification, notification, and resolution process that includes but is not limited to the identification of the problem, its impact, root cause analysis, and resolution

If our supported software malfunctions, Watson Health will investigate and determine the root cause, define and make the appropriate fix, and test the results to be sure it was resolved. We will deliver updated or replacement data and reference files, programs, and documentation (consistent with licensing agreements) as scheduled in the Turnover Project Work Plan or as requested via a change request.

DR025	The Vendor should recover the solution and make it fully operational in the event of a disaster to the primary physical hosting site within 24 hours of the time of the solution failure

Watson Health provides 24x7 coverage for our data center for around-the-clock operations. The data warehouse will be available using the Department-approved disaster recovery site, within 24 hours of a declared disaster or solution failure.

DR026	The Vendor should include in its system design the capability to switch operations from the production environment to the failover environment in the event technical problems incapacitate the production server

Should an issue prevent the production data warehouse environment to point of incapacitation, the DR environment can be used as a failover until the production environment becomes available.

DR027	The Vendor should maintain an operational backup power supply at both primary and alternate sites capable of supporting vital functions indefinitely or until primary power is fully restored

More than 400 customers depend on Watson Heath to host the analytics environments that are critical to their daily operations. Our hosting environment provides 99.99% system availability (uptime) 24x7x365 days a year, except during schedule downtimes. The data centers are TIER III fully compliant, with the Uptime Institute Stamp of Approval. Our primary and DR sites utilize both a power UPS system and electric and natural gas generators. These power supply solutions are more than capable of supporting vital functions indefinitely or until primary power is fully restored.

DR028	The Vendor should provide backup network connectivity at both the primary and alternate sites with the capacity to support the system and its components

Both our primary and backup sites provide backup network connectivity with the capacity to support the WV EDS system and its components. These data centers offer Tier 1 Internet connectivity and access to the Intelligent IP and IP MPLS network.

DR029	The Vendor should identify and maintain a computer site at a separate location to be designated as the disaster recovery site to be approved by the Department

Watson Health's secondary (DR) Data Center in Sterling, Virginia has 135,500 square feet. Like production, it is designed to meet the stringent demands of large-scale clients. Both facilities are SSAE-18 certified continuous maintainable locations.

Our Data Centers offer world-class facilities for power management, heating/ventilation/air conditioning (HVAC), fire suppression, seismic engineering, physical security, and Tier 1 Internet connectivity. The facilities and infrastructure are hosted in a top-tier computing environment. Watson Health has established a long-term partnership to provide physical secured space, power, network connectivity, and bandwidth to our demarcation points, environment monitoring, and onsite smart eyes and hands. Our staff members provide all other data center services, including managed services and infrastructure system support.

DR030	The Vendor should have a remote backup facility at least 50 miles away from the primary data center

Our primary data center facility is located in Dallas, Texas and our DR location is located 1,204 "as the crow flies" miles in Sterling, Virginia. This substantial distance minimizes the risk of both centers being impacted by the same event.

DR031	The Vendor should perform an annual review of the disaster recovery backup site, procedures for all off-site storage, and validation of security procedures and submit a report of the backup site review within 30 calendar days of the review

Watson Health's DR site is a mimic of production, utilizing the same strict uptime controls and processes that are used in production. Annually, we will provide DHHR with a report of the backup site within 30 calendar days. This report covers the results of a review of procedures for off-site storage and validation of security procedures.

DR032	The Department reserves the right to inspect the disaster recovery backup site and procedures at any time with 24-hours' notification

The DR data center location is available 24x7. With a written request for inspection, Watson Health can provide access to the DR facility.

DR033	The Vendor should execute a test of the Disaster Recovery and Business Continuity Plan as part of user acceptance testing (UAT)

As part of the UAT phase of the project, Watson Health will execute a series of tests to validate the completeness and accuracy of the DR and BCP Plans.

DR034	The Vendor should exercise/test the Disaster Recovery and Business Continuity Plan annually and provide the disaster recovery testing reports to the Department within 30 calendar days of the exercise/test

We test the DR Plan annually. The scope of the testing includes the setup of the environment and recreating certain client databases in the disaster recovery environment, as well as testing the configuration and functionality of the databases. We use our secondary data center as an alternate location. Reports will be provided to the Department within 30 calendar days of the test.

We hold review following each recovery test to identify any changes to process, procedures, or documentation. Once changes are approved, we incorporate them into the formal plan.

DR035	The Vendor should have the ability to restore all tables utilizing the onsite backup copies to their state prior to the erroneous load within timeframes pursuant to Service Level Agreements (SLAs). This includes, but is not limited to, source system- or application-dependent errors that result in invalid data being loaded into the data warehouse

Our data backup and recovery processes include:

- Database Hot Backup; online, non-disruptive backups of database via data copy between our Data Centers located in Dallas, Texas, and Sterling, Virginia
- Enterprise grade restores from disk to meet customer restoration timeframes
- Data De-Duplication using the latest technology to reduce the overall amount of data being protected and transferred
- Data encryption at-rest and in-flight to keep confidential data protected at all times
- Complete control and tracking of the backup environment
- Dedicated team of Backup and Recovery Engineers

DR036	The Vendor should develop and maintain an automated scheduling system for running the backup processes for all environments

Watson Health has a fully automated scheduling system for running the backup processes for all environments. Our backup infrastructure offers automated backup and restores out of the box. We routinely complete automatic storage backups so that all relevant SLAs are achieved.

DR037	The Vendor should backup all data files that reside in multiple environments ensuring that any data set can be restored from the backup medium within ten (10) hours of notification that a restoration is needed

Regardless of data location or residing in multiple locations, all of the Departments data in the EDS solution will be backed up and available for restore within the 10 hour time frame.

DR038	The Vendor should backup all databases and other data on a weekly basis and store the backups at a secure off-site location

Daily backups, snapshots and data replication will be stored at our DR facility as part of our standard approach to provide a functioning DR solution.

DR039	The solution should have the ability to backup all data sets, files, transaction logs, documentation, program code, authorized solution user libraries of reports and queries, operating system (OS) software, databases and other items as determined by the Department

Watson Health will backup all data sets, files, transaction logs, documentation, program code, authorized solution user libraries of reports and queries, operating system (OS) software, databases and other items as determined by the Department.

Our cloud backup and recovery solution is a powerful, secure, and automated process based on a combination of different Asynchronous Replication technologies including Continuous Data Protection (CDP) and Snapshots. Each virtual host in our private cloud gets backed up periodically to local dedicated disk-based storage appliances via snapshots. Multiple incremental snapshots are taken throughout the day at pre-defined intervals. The frequency at which the snapshots are taken depend on the criticality of the servers being protected. Some snapshots occur every hour while others less critical are taken every 12 hours.

DR040	The Vendor should ensure that backups performed by authorized solution users of reports and queries are stored on a single shared drive in the solution

Reports and queries created by authorize solution users will be stored in our shared storage environment. This SAN environment provides all flash drives for fast access and response.

DR041	The Vendor should store all backup copies in a Department-approved backup storage location for a minimum of five (5) years

The WV EDS backups will be maintained indefinitely, or as needed by the Department. Backups are maintained at our DR facility in Sterling, VA.

DR042	The Vendor should develop and maintain a process to verify that backup and restoration processes were run appropriately, and all scheduled backup procedures have run successfully

Watson Health verifies that backup and restoration processes were run appropriately, and all scheduled backup procedures have run successfully. Backup and restoration monitors are enabled for all backups running in the DW environment. Our backup team is notified if an issue occurs with our automated backup process and a Service Now ticket is automatically generated with the appropriate criticality. A backup report is run after backups complete as well as logging for all backup jobs.

Because each successful recovery begins with a good copy of the production data, a dedicated team of storage engineers constantly monitors and manages all aspects of the backup and recovery process to safeguard the integrity of your data. They verify that all data is successfully backed up and they frequently test the integrity of the files.

DR043	The Vendor should maintain an onsite copy of backups at the onsite facility for a period of seven (7) calendar days

The WV EDS backup processes will maintain backup copies onsite for at least seven calendar days.

DR044	The Vendor should store weekly backups at the remote backup facility

Multiple snapshots are taken at throughout the day at predefined intervals. The frequency at which the snapshots are taken depend on the criticality of the servers being protected. These snapshots are copied to the DR site for availability and accessible 24x7.

DR045	The Vendor should be responsible for the cost associated with the backup storage process and location

Watson Health will host, support, and maintain the backup and recovery systems for the WV EDS. This includes the associated costs for backup storage.

DR046	The Vendor should provide to the Department, within 30 calendar days of request, a Turnover and Closeout Management Plan detailing the approach to transitioning systems and operational responsibilities to a successor

When transitioning to a successor contractor, we favor a collaborative planning and working relationship with DHHR and the successor. We will produce and submit a Turnover and Closeout Management Plan for DHHR approval within 30 calendar days of request. The plan will include the key elements for transitioning this project to another vendor or to DHHR. Our project management toolset contains templates for a Turnover and Closeout Management Plan and Project Work Plan based on standard turnover processes. At a minimum, the Turnover and Closeout Management Plan outlines the proposed approach, tasks/subtasks, schedule, entrance/exit criteria, readiness walkthrough process, and documentation-update procedures.

DR047	The Vendor should transfer all backups to the successor vendor within the agreed-upon timeframe defined in the Department-approved Turnover and Closeout Management Plan

Before transmitting data to the successor contractor, Watson Health enters into a Third-Party Non-Proprietary Data Extract Agreement with both the Department and the successor contractor.

The Turnover and Closeout Management Plan will contain an updated list of available backups to DHHR. Once requested, Watson Health will develop a Project Work Plan for the turnover process. Watson Health will transfer the backups to the successor vendor based on the timeframe agreed upon with DHHR.

DR048	The solution should create and retain an audit trail of all interface activity in accordance with Department, State, and federal security and privacy laws, policies, and/or procedures

Connectivity into all the state's applications are logged both at the authentication point of entry with IBM Cloud Identity and IBM Security Access Manager, as well as logging within the applications. Watson Health will work with the State to assure policies and procedures are adhered to and modified should the State's processes change.

DR049	The Vendor should ensure that data is retained, archived, protected from destruction, and accessible in accordance with Department, State and federal security and privacy laws, policies, and/or procedures.

All data in WV EDS solution will continue to be available online to end users for reporting and analysis regardless of time period. We retain and archive snapshots and backup-related files in accordance with data retention guidelines approved by the State. We also address special archive backup and retention requests as necessary to support business and legal requirements. Access to archived data retains the same functional access as is granted prior to archiving using the same access and permissions granted via role-based access.

Watson Health will work with the Department to determine best practices and required retention timeframes to adhere to the Electronic Records Management Code for retention and access of archived data. We offer the flexibility and tool sets necessary to meet your need for compliance.

DR050	The Vendor should ensure that hard copy documents are retained, stored, imaged, archived, and destroyed in accordance with Department, State, and federal security and privacy laws, policies, and/or procedures

We will work with the state to assure adherence to the retention, storage, imaged, archive, and destruction of hard copy documents in accordance with state and federal security and privacy laws.

ATTACHMENT K TERMS AND CONDITIONS RESPONSE TEMPLATE

RFP Terms and Conditions

RFP Terms and Conditions consist of provisions throughout this RFP. Moreover, these provisions encapsulate instructions, State and federal procedures, and the State's expectations of the Vendor when submitting a proposal. The Vendor should understand and strictly adhere to the RFP Terms and Conditions. Failure to follow any instructions within this RFP may, at the State's sole discretion, result in the disqualification of the Vendor's proposal.

Please provide an authorized signature stipulating the Vendor's acknowledgement, understanding, and acceptance of these RFP Terms and Conditions.

JON S. NEWPOL — 2/4/2020

Printed Name / Signature of Authorized Personnel — **Date**

State Customary Terms and Conditions

The selected Vendor will sign a contract with the State to provide the goods and services described in the Vendor's response. The following documents shall be included in any contract(s) resulting from this RFP:

Section 3: General Terms and Conditions (attached PDF file Section_2_Instructions_To_Vendors_Submitting_Bids_and_Section_3_General_Terms_and_Conditions)

Section 7: Provisions Required For Federally Funded Procurements

Appendix 5: Service Level Agreements and Performance Standards

Appendix 8: IT Terms and Conditions

HIPAA Business Associate Agreement

Please provide a signature stipulating the Vendor's acknowledgement and complete review of these documents.

JON S. NEWPOL  2/4/2020

Printed Name / Signature of Authorized Personnel **Date**

If the Vendor is <u>not taking exceptions</u> to any of the State Customary Terms and Conditions, then the Vendor needs to provide a binding signature stipulating its acceptance of these documents.

Printed Name / Signature of Authorized Personnel **Date**

Mandatory Requirements and Terms

The following items are Mandatory Terms and Documents. Please be advised, the Vendor **should** provide its affirmative acceptance of these items in order to move forward with consideration under this RFP.

- Attachment F: Mandatory Requirements (attached Microsoft Excel file, ***Attachment F – Mandatory Requirements)***
- In no event shall the State agree to terms that (a) require indemnification by the State of the Contractor; (b) waive the State's right to a jury trial; (c) establish applicable law anywhere other than the State of West Virginia, or jurisdiction in any venue other than the Thirteenth Judicial Circuit Court; (d) designate a governing law other than the laws of the State of West Virginia; (e) constitute an implied or deemed waiver of the immunities, defenses, rights, or actions arising out of the State's sovereign status or under the Eleventh Amendment to the United States Constitution; (f) limit the time within which an action may be brought; (g) require arbitration, (h) require the ability to defend lawsuit without the approval of the Attorney General's Office; or (i) pay attorney fees.
- ***HIPAA Business Associate Agreement***
- ***Appendix 5: Service Level Agreements and Performance Standards***

Vendors that are not able to enter into a contract under these conditions should not submit a bid.

Please provide an authorized signature stipulating the Vendor's acknowledgement, understanding, and acceptance of the Mandatory Requirements and Terms stipulated in this section.

JON S. NEWAL 2/4/2020

Printed Name / Signature of Authorized Personnel **Date**

Commerical Materials

Table 51. Commercial Materials

Data Warehouse Components	Description
Progress MOVEit Transfer File Transfer Server License	Secure Transfer Engine for Source Data
Progress MOVEit Transfer Server License - High Availability	Secure Transfer Engine for Source Data | High Availability Module
Progress Gateway	Secure Transfer Engine for Source Data | Web Services Module
Progress Gateway High Availability	Secure Transfer Engine for Source Data | Web Services High Availability Module
Progress MOVEit Automation Enterprise License	Secure Transfer Engine for Source Data | Automation Engine Module
Progress MOVEit Automation Enterprise PGP Module - unlimited keys	Secure Transfer Engine for Source Data | Encryption Modules
IBM Transformation Extender for Production Edition	IBM Data Transformation Engine for EDI, HL7, etc
IBM Transformation Extender for Non Production Edition	IBM Data Transformation Engine for EDI, HL7, etc.
IBM Transformation Extender Pack for Healthcare Processor	IBM Data Transformation Engine for EDI, HL7, etc.
IBM Transformation Extender Pack for Healthcare for Non Production	IBM Data Transformation Engine for EDI, HL7, etc.
IBM InfoSphere Information Server Enterprise Edition	IBM Data Integration Engine (Governance, Data Quality, Data Integration, ETL)
IBM InfoSphere Information Server Enterprise Edition for Non-Production Environments	IBM Data Integration Engine (Governance, Data Quality, Data Integration, ETL)
IBM InfoSphere QualityStage Address Verification - Address and Georeference data for North America	IBM Data Quality Component for Address Verification
IBM InfoSphere QualityStage Address Verification - address and Georeference data for North America for Non-Prod Environments	IBM Data Quality Component for Address Verification
IBM InfoSphere QualityStage Address Verification Interface	IBM Data Quality Component for Address Verification
IBM InfoSphere QualityStage Address Verification Interface for Non-Prod Environments	IBM Data Quality Component for Address Verification
IBM InfoSphere Optim Test Data Management Enterprise Edition	IBM Data Masking Engine
IBM InfoSphere Optim Data Privacy Enterprise Edition	IBM Data Masking Engine

Data Warehouse Components	Description
IBM ODM Server Processor	IBM Rules Engine
IBM ODM Server for Non-Production	IBM Rules Engine
IBM DB2 Datawarehouse Engine for Production	IBM Relational Database Engine
IBM DB2 Datawarehouse Engine for Production Environment	IBM Relational Database Engine
IBM Data Replication for Continuous Availability for Production Environment	IBM Relational Database Engine DR Modules
IBM Data Replication for Continuous Availability for Non-Production Environments	IBM Relational Database Engine DR Modules
IBM Cognos Analytics Administrator	IBM Cognos BI License
IBM Cognos Analytics Explorer	IBM Cognos BI License
IBM Cognos Analytics User	IBM Cognos BI License
IBM Cognos Analytics Viewer	IBM Cognos BI License
IBM Cloud Pak for Data Native for Production Edition (Watson Studio, R, Python, Jupyter Notebooks)	IBM Components for Sandbox
IBM Cloud Pak for Data Native for Non-Production Edition (Watson Studio, R, Python, Jupyter Notebooks)	IBM Components for Sandbox
IBM Flexible Analytics	IBM Groupers, Methods, Rules and Models Engine
IBM J-SURS	IBM Program Integrity Engine
IBM Cloud Identity and Access Management	Cloud Identity Engine for Portal and SSO
Custom Expressions i-Sight	Case Management System for Program Integrity
ESRI ArcGIS	Geospatial Analysis Engine
ERwin Data Model	Data Modeling Software
MotioCI Enterprise - Versioning and Deployment/CIVERS	Versioning Control Engine
MotioCI Enterprise - Versioning and Testing/CIVERSTE	Versioning Control Engine
MotioCI Enterprise - Test User/CITESTU	Versioning Control Engine

Exceptions

Exception #1 Insurance

Document Title	Vendor's Explanation	Vendor's Proposed Alternative Language
General Terms and Conditions, Article 8, Insurance	Vendor can only list the State as an additional insured on its Commercial General Liability insurance and Automobile Liability insurance. Vendor's Professional Errors and Omissions insurance covers cyber risk and does not maintain a standalone policy.	**8. INSURANCE:** The apparent successful Vendor shall furnish certificates ~~proof~~ of ~~the~~ insurance identified by a checkmark below ~~and must include the State as an additional insured on each policy prior to Contract award~~. The insurance coverages identified below must be maintained throughout the life of this contract. Thirty (30) days prior to the expiration of the insurance policies, Vendor shall provide the Agency with proof that the insurance mandated herein has been continued. Vendor shall ~~must~~ also provide Agency with thirty (30) days' ~~immediate~~ notice of any changes in its insurance policies, including but not limited to, policy cancelation, policy reduction, or change in insurers. ~~The apparent successful Vendor shall also furnish proof of any additional insurance requirements contained in the specifications prior to Contract award regardless of whether or not that insurance requirement is listed in this section.~~ Vendor must maintain: **Commercial General Liability insurance** covering product liability, premises liability, personal and advertising injury liability, third party property damage and bodily injury and contractual liability, in each case arising out of Vendor's negligence. The insurance shall have a minimum Per occurrence limit. Auto Liability insurance covering Vendor owned, leased, hired and non-owned vehicles with a minimum policy limit of USD 1,000,000 (or local currency equivalent). Professional Errors & Omissions insurance covering actual or alleged breach of duty, neglect, error, misstatement, misleading statements or omission, solely for acts or omissions committed by the Vendor in providing professional services for the State with a minimum per claim limit of USD 1,000,000. This includes coverage for loss of intangible property (such as State data). The policy includes coverage for network security, unauthorized access, unauthorized use, receipt or transmission of a malicious code, denial of service attack, unauthorized disclosure or misappropriation of private information and privacy liability. It also includes notification costs, credit card monitoring, and fines & penalties incurred by the

Document Title	Vendor's Explanation	Vendor's Proposed Alternative Language
		customer due to Vendor's mistake or error. Coverage includes network security and privacy liability. ~~Cyber Liability Insurance in an amount of 1,000,000 per occurrence~~ ~~Notwithstanding anything contained in this section to the contrary, the Director of the Purchasing Division reserves the right to waive the requirement that the State be named as an additional insured on one or more of the Vendor's insurance policies if the Director finds that doing so is in the State's best interest.~~
NOTES/COMMENTS: <FOR STATE USE ONLY>		

Exception #2 Workers' Compensation Insurance

Document Title	Vendor's Explanation	Vendor's Proposed Alternative Language
General Terms and Conditions, Article 9, Workers' Compensation Insurance	Including Employer's Liability insurance, as well as limits.	**9. WORKERS' COMPENSATION INSURANCE** where and to the extent required by law, and Employer's Liability insurance with a minim each accident and disease limit of USD 1,000,000. ~~: The apparent successful Vendor shall comply with laws relating to workers compensation, shall maintain workers' compensation insurance when required, and shall furnish proof of workers' compensation insurance upon request.~~
NOTES/COMMENTS: <FOR STATE USE ONLY>		

Exception #3 Payment Methods

Document Title	Vendor's Explanation	Vendor's Proposed Alternative Language
General Terms and Conditions, Article 15, Payment Methods	Vendor cannot accept funds through the P card.	**15. PAYMENT METHODS:** Vendor must accept payment by electronic funds transfer and Credit ~~P~~ Card. ~~(The State of West Virginia's Purchasing Card program, administered under contract by a banking institution, processes payment for goods and services through state designated credit cards.)~~

Document Title	Vendor's Explanation	Vendor's Proposed Alternative Language
NOTES/COMMENTS: <FOR STATE USE ONLY>		

Exception #4 Taxes

Document Title	Vendor's Explanation	Vendor's Proposed Alternative Language
General Terms and Conditions, Article 16, Taxes	Sales tax is the customer responsibility	**16. TAXES:** The Vendor shall pay any applicable ~~sales,~~ use, personal property or any other taxes arising out of this Contract and the transactions contemplated thereby. The State of West Virginia is exempt from federal and state taxes and will not pay or reimburse such taxes.
NOTES/COMMENTS: <FOR STATE USE ONLY>		

Exception #5 Cancellation

Document Title	Vendor's Explanation	Vendor's Proposed Alternative Language
General Terms and Conditions, Article 19, Cancellation	Adding Vendor's ability to cure deficiencies	**19. CANCELLATION:** The Purchasing Division Director reserves the right to cancel this Contract ~~immediately~~ upon written notice to cure any deficiencies within 30 days of receipt of notice to the vendor if the materials or workmanship supplied do not conform to the specifications contained in the Contract. The Purchasing Division Director may also cancel any purchase or Contract upon ~~9~~30 days written notice to the Vendor ~~in accordance with West Virginia Code of State Rules§ 148-1-5.2.b~~.
NOTES/COMMENTS: <FOR STATE USE ONLY>		

Exception #6 Time

Document Title	Vendor's Explanation	Vendor's Proposed Alternative Language
General Terms and Conditions, Article 20, Time	Vendor's position is that it does not agree that all dates in its agreements are firm hard dates that must be met or it is in breach. Instead, Vendor may	~~20. TIME: Time is of the essence with regard to all matters of time and performance in this Contract.~~

Document Title	Vendor's Explanation	Vendor's Proposed Alternative Language
	include planning and estimated delivery dates for scheduling purposes within an agreement. These dates, while important, are not considered project ending if they are not met. If there is a critical project date that must be met, Vendor's approach is to agree upon a milestone date, which if not met will result in Vendor paying a financial penalty (e.g., a Service Level Agreement "SLA"), versus finding Vendor in breach of the contract and suing Vendor for non-performance.	
NOTES/COMMENTS: <FOR STATE USE ONLY>		

Exception #7 Assignment

Document Title	Vendor's Explanation	Vendor's Proposed Alternative Language
General Terms and Conditions, Article 27, Assignment	Allows vendor the ability to assign its right to receive payment, but upon notice to State.	27. **ASSIGNMENT:** ~~Neither t~~This Contract ~~nor any monies due, or to become due hereunder,~~ may not be assigned by the Vendor without the express written consent of the Agency, the Purchasing Division, the Attorney General's office (as to form only), and any other government agency or office that may be required to approve such assignments. Vendor may assign its right to receive payment, which Vendor shall be able to assign without permission, but with notice in writing to The Purchasing Division Director.
NOTES/COMMENTS: <FOR STATE USE ONLY>		

Exception #8 Indemnification

Document Title	Vendor's Explanation	Vendor's Proposed Alternative Language
General Terms and Conditions, Article 36, Indemnification	Adds a limit to Vendor's liability	**36. INDEMNIFICATION:** The Vendor agrees to indemnify and~~,~~ defend, ~~and hold harmless~~ the State and the Agency, their officers, and employees from

Document Title	Vendor's Explanation	Vendor's Proposed Alternative Language
	Adds indemnity for infringement claims	and against~~: (1) A~~any third party claims or losses for services rendered by any subcontractor, person, or firm performing or supplying services, materials, or supplies arising from Vendor's gross negligence of willful misconduct in connection with the performance of the Contract. Vendor's entire liability for all claims related to the Agreement will not exceed the amount of any actual direct damages incurred by the State up to the amounts paid (if recurring charges, up to 12 months' charges apply) for the product or service that is the subject of the claim, regardless of the claim, including claims related to the publication, translation, reproduction, delivery, performance, use, or disposition of any data used under the Contract in a manner not authorized by the Contract, or by Federal or State statutes or regulations. This limit applies collectively to Vendor, its subsidiaries, contractors, and suppliers. Vendor will not be liable for special, incidental, exemplary, indirect, or economic consequential damages, or lost profits, business, value, revenue, goodwill, or anticipated savings. The following amounts, if a party is legally liable for them, are not subject to the cap: any claims or for bodily injury (including death) or damages to real property and tangible personal property, third party payments referred to in the paragraph below or damages that cannot be limited under applicable law. If a third party asserts a claim against the State that a Vendor product acquired under the Contract infringes a patent or copyright Vendor will defend the State against that claim and pay any amounts finally awarded by a court against the State or included in a settlement approved by Vendor, provided that the State promptly (i) notifies Vendor in writing of the claims; (ii) supplies information requested by Vendor; and (iii) allows Vendor to control and reasonable cooper in, the defense and settlement provided that State reasonably cooperates in mitigation efforts. Vendor has no responsibility for claims based in whole or part, on non-Vendor products or items not provided by Vendor or any violation of law or third party rights caused by the States content, materials, designs, specifications or use of a non-current version or release of a Vendor product when an infringement claims could have been avoided by using a current version or release. ~~; (2) Any claims or losses resulting to any person or entity injured or damaged by the Vendor, its officers, employees, or subcontractors by the publication, translation, reproduction, delivery, performance, use, or disposition of any data used under the Contract in a manner not authorized by the Contract, or by Federal or State statutes or~~

Document Title	Vendor's Explanation	Vendor's Proposed Alternative Language
		~~regulations; and (3) Any failure of the Vendor, its officers, employees, or subcontractors to observe State and Federal laws including, but not limited to, labor and wage and hour laws.~~
NOTES/COMMENTS: <FOR STATE USE ONLY>		

Exception #9 Background Check

Document Title	Vendor's Explanation	Vendor's Proposed Alternative Language
General Terms and Conditions, Article 41, Background Check	Vendor cannot perform fingerprint checks	**41. BACKGROUND CHECK:** In accordance with W. Va. Code§ 15-2D-3, the Director of the Division of Protective Services shall require any service provider whose employees are regularly employed on the grounds or in the buildings of the Capitol complex or who have access to sensitive or critical information to submit to a fingerprint-based state and federal background inquiry through the state repository which shall be completed by the State. The service provider is responsible for any costs associated with the fingerprint-based state and federal background inquiry. After the contract for such services has been approved, but before any such employees are permitted to be on the grounds or in the buildings of the Capitol complex or have access to sensitive or critical information, the service provider shall submit a list of all persons who will be physically present and working at the Capitol complex to the Director of the Division of Protective Services for purposes of verifying compliance with this provision. The State reserves the right to prohibit a service provider's employees from accessing sensitive or critical information or to be present at the Capitol complex based upon results addressed from a criminal background check. Service providers should contact the West Virginia Division of Protective Services by phone at (304) 558-9911 for more information.
NOTES/COMMENTS: <FOR STATE USE ONLY>		

Exception #10 Vendor Proprietary Information

Document Title	Vendor's Explanation	Vendor's Proposed Alternative Language
RFP Appendix 8: IT Terms and Conditions, Article 1, Confidentiality—NEW SECTION 1.3 Vendor Proprietary Information	Vendor needs to ensure its proprietary information remains confidential	1.3 Vendor Proprietary Information. State shall keep all Vendor Proprietary Information confidential and shall not reproduce, duplicate, reveal, publish, transfer or disclose any Vendor Proprietary Information to anyone other than its employees with a "need to know" in the ordinary course and scope of their employment. Vendor Proprietary Information" means, collectively, all data, databases, software, reports, analyses, studies, tangible and intangible information, operating systems, application programs and database systems, together with all related specifications, documentation, designs, processes, procedures, methodologies, applications, techniques, ideas, formulas, and any enhancements, formatting and modifications thereto, used, developed or provided by Vendor under or in connection with this Contract. State agrees to take at least the same precautions and measures to safeguard the secrecy and confidentiality of, and proprietary rights to, the Vendor Proprietary Information as it would with its own proprietary information and agrees not to disclose such Vendor Proprietary Information to any third party without Vendor's prior written consent, which consent shall not be unreasonably withheld. Vendor's written consent to any access by a third party to the Vendor Proprietary Information shall also be conditioned upon execution by such third party of a third party access agreement in a form acceptable to Vendor.
NOTES/COMMENTS: <FOR STATE USE ONLY>		

Exception #11 Ownership of Work Product

Document Title	Vendor's Explanation	Vendor's Proposed Alternative Language
RFP Appendix 8: IT Terms and Conditions, Section 2.1, Ownership of Work Product	Adding Commercial Materials to the carve out from Work Product, as defined in the contract. State shall not take ownership of Commercial Materials that are part of the Work Product but shall get all necessary license rights needed as defined below. Vendor shall retain its Pre-existing Materials under all circumstances	**2.1 Ownership of Work Product** "Work Product" means any tangible or intangible ideas, inventions, improvements, modifications, discoveries, development, customization, configuration, methodologies or processes, designs, models, drawings, photographs, reports, formulas, algorithms, patterns, devices, compilations, databases, computer programs, work of authorship, specifications, operating instructions, procedures manuals or other documentation, technique, know-how, secret, or intellectual property right whatsoever or any interest therein (whether patentable or not patentable or registerable under copyright or similar statutes or subject to analogous protection), that is

Document Title	Vendor's Explanation	Vendor's Proposed Alternative Language
	Vendor 3rd party licenses may require retaining notices before they can be distributed Highlighted sentence appears to be cut-off	specifically made, conceived, discovered or reduced to practice by Vendor, either solely or jointly with others, pursuant to this Contract. Work Product does not include Pre-existing Materials, Commercial Materials or third party intellectual property. The State owns all "Work Product" (or "Deliverables") the Vendor produces under this Contract, including any software modifications, and documentation, with all rights, title, and interest in all intellectual property that come into existence through the Vendor's work being assigned to the State. Additionally, the Vendor waives any author rights and similar retained interests in Work Product. The Vendor must provide the State with all assistance reasonably needed to vest such rights of ownership in the State. The Vendor will retain ownership of all tools, methods, techniques, standards, and other development procedures, as well as generic and preexisting shells, subroutines, and similar material incorporated into any Deliverables ("Pre-existing Materials"), ~~if the Vendor provides the non-exclusive license described in the next paragraph~~. The Vendor will grant the State a worldwide, nonexclusive, royalty free, perpetual license to use, modify, and distribute all Pre-existing Materials that are incorporated into any Deliverables ~~rather than grant the State ownership of the Pre-existing Materials~~. The State may distribute such Pre-existing Materials to third parties only to the extent required by governmental funding mandates. The Vendor may not include in any Deliverables any intellectual property unless such has been created under this Contract or qualifies as Pre-existing Material. If the Vendor wants to incorporate any Pre-existing Materials into Deliverables, the Vendor must first disclose that desire to the State in writing and seek the State's approval for doing so in advance. The State will not be obligated to provide that approval, unless the Vendor disclosed its intention to do so in their Proposal. The State, at its sole discretions, may make all Work Product available to the general public without any proprietary notices of any kind, except as required by third party license terms. For Work Product that include custom materials such as software, scripts, or similar computer instructions developed for the State, the State is entitled to the source material. Scripts and similar functionality may not be locked or otherwise protected from access by the State, unless the State has any passwords or other tools necessary to access the material. Source material must include annotations or comments according to industry standards. Further, the State is entitled to any working papers the Vendor has developed during the performance of the Project that would reasonably assist the State in

Document Title	Vendor's Explanation	Vendor's Proposed Alternative Language
		using the Deliverables that include source materials or that would help the State protect its interests in the Deliverable or update, modify, or otherwise maintain the Deliverable. This also includes all design and architectural materials, such as schemas. The Vendor may use Confidential Information only as necessary for Vendor's performance under or pursuant to rights granted in this Contract and for no other purpose. The Vendor's limited right to use Confidential Information expires upon expiration or termination of this Agreement for any reason. The Vendor's obligations of confidentiality and non-disclosure survive termination or expiration for any reason of this Agreement. Use of State Intellectual Property The State shall retain all right, title and interest in and to (i) all content and all property, data and information furnished by or on behalf of the State or any Agency, and to all information that is created under this Contract, including, but not limited to, all data that is generated under this Contract as a result of the use by Vendor, the State or any third party of any technology systems or knowledge bases that are developed for the State and used by Vendor hereunder, and all other rights, tangible or intangible; and (ii) all State trademarks, trade names, logos and other State identifiers, Internet uniform resource locators, State User name or names, Internet addresses and e-mail addresses obtained or developed pursuant to this Contract (collectively, "State Intellectual Property"). Vendor may not use State Intellectual Property for any purpose other than as specified in this Contract. Upon expiration or termination of this Contract, Vendor shall return or destroy all State Intellectual Property and all copies thereof, and Vendor shall have no further right or license to such State Intellectual Property. If Vendor opts to destroy, Vendor shall provide a certificate of destruction to the State. Vendor acquires no rights or licenses, including, without limitation, intellectual property rights or licenses, to use State Intellectual Property for its own purposes. In no event shall the Vendor claim any security interest in State Intellectual Property.

NOTES/COMMENTS: <FOR STATE USE ONLY>

Exception #12 Licenses in Commercial Materials

Document Title	Vendor's Explanation	Vendor's Proposed Alternative Language
RFP Appendix 8: IT Terms and Conditions, Section 3.1, Licenses in Commercial Materials	Clarifying US federal laws Correcting 6 to 7 Fixing formatting for defined terms	**3.1 Licenses in Commercial Materials** "Commercial Material" means anything the Vendor or a third party developed at private expense, is commercially available in the marketplace, subject to intellectual property rights, and readily copied through duplication on magnetic media, paper, or other media. Examples include written reports, books, pictures, videos, movies, computer programs, and computer source code and documentation Any Commercial Material that the Vendor intends to deliver as a Deliverable, or as part of a deliverable, must have the scope of the license granted in such material disclosed in the Vendor's Proposal, if that scope of license is different from the scope of license contained in this section for Commercial Materials. Failure to make such disclosure in the proposal will cause the scope of the license to revert to the scope of license contained in this section for Commercial Materials. Except for Commercial Material that is software ("Commercial Software"), if the Commercial Material is copyrighted and published material, then the State will have the rights permitted under the United States federal copyright laws for each copy of the Commercial Material delivered to it by the Vendor. Except for Commercial Software, if the Commercial Material is patented, then the State will have the rights permitted under the United States federal patent laws for each copy of the Commercial Material delivered to it by the Vendor. For Commercial Software, the State will have the rights in items (1) through (7) of this section with respect to the software. The State will not use any Commercial Software except as provided in the ~~six~~ seven items below or as expressly stated otherwise in this Contract. The Commercial Software may be: 1) Used or copied for use in or with the computer or computers for which it was acquired, including use at any State installation to which such computer or computers may be transferred; 2) Used or copied for use in or with a backup computer for disaster recovery and disaster recovery testing purposes or if any computer for which it was acquired is inoperative; 3) Reproduced for safekeeping (archives) or backup purposes; 4) Modified, adapted, or combined with other computer software, but the modified, combined, or adapted portions of the derivative software incorporating any of the Commercial Software will be subject to same restrictions set forth in this Contract;

Document Title	Vendor's Explanation	Vendor's Proposed Alternative Language
		5) Disclosed to and reproduced for use on behalf of the State by support service contractors or their subcontractors, subject to the same restrictions set forth in this Contract; and 6) Used or copied for use in or transferred to a replacement computer. 7) Used or copied for any other purpose as necessary to ensure performance of the ~~c~~Contract and all ~~d~~Deliverables thereunder. Commercial Software delivered under this Contract is licensed to the State without disclosure restrictions unless it is clearly marked as confidential or secret. ~~Software Licenses~~ The Vendor must provide or arrange Enterprise perpetual software licenses for all Commercial Software necessary to meet the specifications of the Contract. For the Commercial Software, the State requires Enterprise license rights to ultimately serve its entire enterprise, which consists of hundreds of personnel workers, and hundreds of technical administrators and third-party Vendors who may work with the software. Sufficient seats for all such individuals will be required, and if multiple copies of the system will be needed, the right to copy and deploy multiple copies of the software in production, test, and development environments. For all other Commercial Software, the State requires a license that provides adequate usage rights to meet the State's current need, as identified in the RFP and as disclosed in the selected Vendor's Cost Proposal. The State may also copy the software for use on computers owned and controlled by third parties, if the purpose of doing so is to facilitate disaster recovery, emergency needs, including testing and training for such purposes, and to permit a third party to host the Key Commercial Software on behalf of the State in an outsourcing arrangement. This license also gives the State the right to provide the authorized individuals described above access to the Key Commercial Software remotely through a browser or client software and an Internet or similar connection for all uses and purposes identified above. NOTE: The State will retain all licenses, software, and systems procured through the RFP.
NOTES/COMMENTS: <FOR STATE USE ONLY>		

Exception #13 Software Warranty

Document Title	Vendor's Explanation	Vendor's Proposed Alternative Language
RFP Appendix 8: IT Terms and Conditions, Section 3.2, Software Warranty	Vendor has added an infringement indemnity section at Article 36 of the General Terms. Vendor expressly limits damages in Article 36 of the General Terms	**3.2 Software Warranty** If this Contract involves software as a Deliverable, then, on acceptance and for 12 months after the date of acceptance of any Deliverable that includes software, the Vendor warrants as to all software developed under this Contract that: (a) the software will operate on the computer(s) for which the software is intended in the manner described in the relevant software documentation, the Vendor's Proposal; (b) the software will be free of any material defects; (c) the Vendor will deliver and maintain relevant and complete software documentation, commentary, and source code; and (d) the source code language used to code the software is readily available in the commercial market, widely used and accepted for the type of programming involved, and support programming in the language is reasonably available in the open market; and (e) the software and all maintenance will be provided in a professional, timely, and efficient manner. For Commercial Software licensed from a third party that is incorporated into Deliverables, and for which the State has not approved a separate license agreement governing that Commercial Software's warranties as part of the RFP process, the Vendor represents and warrants that it has done one of the following things: (a) obtained the right from the third-party licensor to commit to the warranties and maintenance obligations in this Section; (b) obtained a binding commitment from the licensor to make those warranties and maintenance obligations directly to the State; or (c) fully disclosed in the Vendor's Proposal any discrepancies between the requirements of this section and the commitment the third-party licensor has made. ~~Vendor agrees to hold harmless and indemnify the State and any of its agencies for any claim related to improper use of software licensed from a third party.~~ In addition, for Commercial Software that is incorporated into Deliverables, the Vendor will: (a) maintain or cause the third-party licensor to maintain the Commercial Software so that it operates in the manner described in the Vendor's Proposal (or any attachment referenced in the Proposal) and relevant Commercial Software documentation; (b) supply technical bulletins and updated user guides; (c) supply the State with updates, improvements, enhancements, and modifications to the Commercial Software and documentation and, if available, the commentary and the source code; (d) correct or replace the Commercial Software and/or remedy any material programming error that is attributable to the Vendor or the third-party licensee; (e) maintain or cause the third-party licensor to maintain the

Document Title	Vendor's Explanation	Vendor's Proposed Alternative Language
		Commercial Software and documentation to reflect changes in the subject matter the Commercial Software deals with; (f) maintain or obtain a commitment from the third-party licensor to maintain the Commercial Software so that it will properly operate in conjunction with changes in the operating environment in which it is designed to operate. For purposes of the warranties and the delivery requirements in this Contract, software documentation means well written, readily understood, clear, and concise instructions for the software's users as well as a system administrator. The software documentation will provide the users of the software with meaningful instructions on how to take full advantage of all of the capabilities designed for end users. It also means installation and system administration documentation for a system administrator to allow proper control, configuration, and management of the software. Source code means operating instructions for the software. In addition to any liquidated damages or other damages provisions in this contract, the State is entitled to damages for Vendor's failure to comply with any of the software warranty provisions~~, whether express or implied,~~ contained in this section or elsewhere in this contract~~, including, but not limited to, general, special and consequential damages~~.
NOTES/COMMENTS: <FOR STATE USE ONLY>		

Exception #14 Software Maintenance

Document Title	Vendor's Explanation	Vendor's Proposed Alternative Language
RFP Appendix 8: IT Terms and Conditions, Section 3.3, Software Maintenance	Vendor will provide resources reasonably necessary to resolve Damages have been limited in Article 36 of the General Terms	**3.3 Software Maintenance** If this Contract involves software as a Deliverable, then, during the warranty period, as well as any optional maintenance periods that the State exercises, the Vendor must correct any material programming errors that are attributable to the Vendor within a reasonable period of time, beginning when vendor receives any notification of the error. For all programming errors, the Vendor will make its initial response within two business hours of notice. The Vendor also must begin working on a proper solution for the problem immediately after responding and, if requested, provide on-site assistance and dedicate the resources necessary to resolve the problem in a timely manner. ~~all available resources to resolving the problem. In addition to any liquidated damages or other damages~~

Document Title	Vendor's Explanation	Vendor's Proposed Alternative Language
		~~provisions in this contract, the State is entitled to damages for software errors, and/or failure to remediate software errors timely under this contract, including, but not limited to, general, special and consequential damages.~~ For software classified as Commercial Software in the Ownership of Work Product section and for which the State has not signed a separate license agreement, the Vendor must acquire for the State the right to maintenance for a five-year period. That maintenance must be the third-party licensor's standard maintenance program, but at a minimum, that maintenance program must include all, updates, patches, and fixes to the software. It also must include a commitment to keep the software current with the operating environment in which it is designed to function (and, if applicable, the subject matter covered by the software) and to correct material defects in the software in a timely fashion. Additionally, the Vendor must obtain a commitment from the licensor to make maintenance available for the product for at least five years after the first year of maintenance. The Vendor also must obtain a commitment from the licensor to limit increases in the annual Fee for maintenance to no more than 7% annually. If the licensor is unable to provide maintenance during that five-year period, then the licensor must be committed to doing one of the following two things: (a) give the State a pro rata refund of the license fee based on a five-year useful life; or (b) release the source code for the software (except third party software) to the State for use by the State solely for the purpose of maintaining the copy(ies) of the software for which the State has a proper license.

NOTES/COMMENTS: <FOR STATE USE ONLY>

Exception #15 Third Party Requirements

Document Title	Vendor's Explanation	Vendor's Proposed Alternative Language
RFP Appendix 8: IT Terms and Conditions, Article 3, Commercial Materials, Licenses, Warranties, and Maintenance. New Section 3.4 Third Party Rights	Vendor's solution incorporates CPT codes, as such the State must be bound by the terms and conditions of their usage.	**3.4 Third Party Requirements. American Medical Association** Vendor is authorized by the American Medical Association (AMA) to distribute and sublicense Current Procedural Terminology, Fourth Edition, a coding system of nomenclature and codes for reporting of healthcare services (collectively, "CPT"), as part of the Program, provided that State is bound by certain terms and conditions. State's rights to use the CPT terminate if State fails to comply with any of the material terms and conditions thereof.

Document Title	Vendor's Explanation	Vendor's Proposed Alternative Language
		The terms and conditions that apply to the program generally also apply to the CPT. The following are the additional terms and conditions that apply to the CPT: 1. State's right to use the CPT contained within the Program is nontransferable, nonexclusive, and for the sole purpose of internal use by State, and only within Algeria, Argentina, Australia, Bahamas, Belgium, Bermuda, Brazil, British Virgin Islands, Canada, Cayman Islands, Chile, China, Colombia, Costa Rica, Denmark, Dominican Republic, Ecuador, El Salvador, Finland, France, Germany, Guatemala, Hong Kong, India, Ireland, Israel, Italy, Jamaica, Japan, Jordan, Republic of Korea (South Korea), Lebanon, Mexico, New Zealand, Norway, Panama, Philippines, Portugal, Saudi Arabia, Singapore, South Africa, Spain, Sweden, Switzerland, Thailand, Turkey, United Arab Emirates, United Kingdom, United States and its territories, and Venezuela. 2. State is prohibited from publishing, distributing via the Internet or other public computer based information system, creating derivative works (including translating), transferring, selling, leasing, licensing or otherwise making available to any unauthorized party, the CPT, or a copy or portion of the CPT. 3. The provision of an updated version of CPT in the Program is dependent upon IBM's continuing contractual relations with the AMA. 4. State shall require that anyone who has authorized access to the Program complies with the terms and conditions that apply to the Program. 5. CPT is copyrighted by the AMA and is a registered trademark of the AMA. 6. The Program includes CPT which is commercial technical data which was developed exclusively at private expense by the American Medical Association,330 North Wabash Avenue, Chicago, Illinois 60611. The American Medical Association does not agree to license CPT to the Federal Government based on the license in FAR 52.227-14 (Data Rights - General) and DFARS 252.227-7015 (Technical Data - Commercial Items) or any other license provision. The American Medical Association reserves all rights to approve any license with any Federal agency. 7. State may only make copies of the CPT for back up or archival purposes. 8. All notices of proprietary rights, including trademark and copyright notices, must appear on all permitted back-up or archival copies made. 9. The CPT is provided "as is" without any warranty from or liability to the AMA, including, without limitation, liability for consequential or special damages or lost profits for sequence, accuracy or completeness of data, or that it will meet State's requirements, and the AMA's sole responsibility is to make available replacement

Document Title	Vendor's Explanation	Vendor's Proposed Alternative Language
		copies of the CPT if the data is not intact, and the AMA disclaims any liability for any consequences due to use, misuse, or interpretation of information contained or not contained in the CPT. 10. State's rights to use the CPT terminates in the event of default. 11. In the event that a provision is determined to violate any law or is unenforceable the remainder of the terms and conditions that apply to the Program shall remain in full force and effect. 12. To the extent necessary to enforce its intellectual property rights that arise as a result of material breaches of the terms and conditions that apply to the Program, the AMA is a third-party beneficiary. 13. State shall report in electronic writing to current Account Manager the number of Users of the Program upon (1) initial distribution of the Program and (2) each download of a new update of the Program by State. "User" means an individual who: (i) accesses, uses, or manipulates CPT content contained in the Program; (ii) accesses, uses, or manipulates the Program to produce or enable an output (data, reports, or the like); or (iii) makes use of an output of the Program.
NOTES/COMMENTS: <FOR STATE USE ONLY>		

Exception #16 Termination Assistance

Document Title	Vendor's Explanation	Vendor's Proposed Alternative Language
RFP Appendix 8: IT Terms and Conditions, Article 4, Termination Assistance	A court shall determine if injunctive relief is necessary; vendor shall be able plead, if necessary, the State is not entitled to that relief.	**4. TERMINATION ASSISTANCE** Within one hundred and twenty (120) days of the end of the final term of this Contract, or upon notice of termination of the Contract, whichever is shorter, and without respect to either the cause or time of such termination, the Vendor will take all necessary measures to facilitate a seamless transition to a successor, to the extent required by the State. The Vendor will, at any time during the one hundred and twenty (120) days preceding termination, provide such information about the System as will be required by the State and/or the successor for purposes of planning the transition. In addition, the Vendor will immediately provide historical records to the State in a form acceptable to the State for the preceding years during which the Vendor was under contract with the State, and any other information reasonably necessary for a seamless transition.

Document Title	Vendor's Explanation	Vendor's Proposed Alternative Language
		The Vendor agrees, after receipt of a notice of termination, and except as otherwise directed by the State, the Vendor will: 1) Stop work under the Contract on the date, and to the extent, specified in the notice. 2) Immediately deliver copies of all subcontracts and all third party contracts executed in connection with the performance of the Services. 3) Place no further orders or subcontracts for Services, except as may be necessary for completion of such portion of the work under the Contract that is not terminated as specified in writing by the State. 4) Assign, to the extent applicable or as the State may require, all subcontracts and all third party contracts executed in connection with the performance of the Services to the State or a successor provider, as the State may require. 5) Perform, as the State may require, such knowledge transfer and other services as are required to allow the Services to continue without interruption or adverse effect and to facilitate orderly migration and transfer of the services to the successor. 6) Promptly supply all materials necessary for continued operation of systems, including: a. computer programs b. data files c. user and operations manuals d. system and program documentation e. training programs related to the operation and maintenance of the system [42 CFR 434.10 (b) & SMM 2082.2] 7) Take such action as may be necessary, or as the State may direct, for the protection and preservation of the property related to this Contract which is in the possession of the Vendor and in which the State has or may acquire an interest and to transfer that property to the State or a successor. Vendor acknowledges that, if it were to breach, or threaten to breach, its obligation to provide the State with the foregoing assistance, the State may ~~would~~ be immediately and irreparably harmed and monetary compensation would not be measurable or adequate. In such circumstances, the State shall be entitled to seek ~~obtain~~ such injunctive, declaratory or other equitable relief as the State deems necessary to prevent such breach or threatened breach, without the requirement of posting

Document Title	Vendor's Explanation	Vendor's Proposed Alternative Language
		any bond~~, and Vendor waives any right it may have to allege or plead or prove that the State is not entitled to injunctive, declaratory or other equitable relief~~. If the court should find that Vendor has breached (or attempted or threatened to breach) any such obligations, Vendor agrees that the State shall be entitled to seek injunctive relief, including ~~without any additional findings of irreparable injury or other conditions to injunctive or any equitable relief, Vendor will not oppose the~~ entry of an order compelling its performance and restraining Vendor from any further breaches (or attempted or threatened breaches).
NOTES/COMMENTS: <FOR STATE USE ONLY>		

Exception #17 Most Favored Customer

Document Title	Vendor's Explanation	Vendor's Proposed Alternative Language
RFP Attachment A: Cost Workbook, Tab 7, Packaged Software, Cell B7	As a large global organization Vendor cannot ensure compliance with MFC clauses.	~~Support Fees under this contract may not increase from one Support Period to the next by more than a percentage identified by the Vendor, for any license in the Software. Further, in no event will the Support Fee DHHR pays be greater than the fee paid by any other customer of the Contractor for the same type license.~~
NOTES/COMMENTS: <FOR STATE USE ONLY>		

Designated Contact

DESIGNATED CONTACT: Vendor appoints the individual identified in this Section as the Contract Administrator and the initial point of contact for matters relating to this Contract.

JON S. NEWPOL, VP

(Name, Title)

Jon Newpol, Vice President, IBM Watson Health, Government Health and Human Services

(Printed Name, Title)

100 Phoenix Drive, Ann Arbor, MI 48108

(Address)

(734) 913-3404

(Phone Number)/ (Fax number)

jnewpol@us.ibm.com

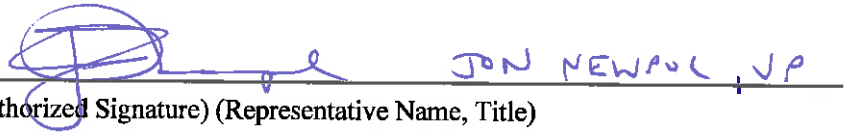
(email address)

Certification and Signature

CERTIFICATION AND SIGNATURE: By signing below, or submitting documentation through wvOASIS, I certify that I have reviewed this Solicitation in its entirety; that I understand the requirements, terms and conditions, and other information contained herein; that this bid, offer or proposal constitutes an offer to the State that cannot be unilaterally withdrawn; that the product or service proposed meets the mandatory requirements contained in the Solicitation for that product or service, unless otherwise stated herein; that the Vendor accepts the terms and conditions contained in the Solicitation, unless otherwise stated herein; that I am submitting this bid, offer or proposal for review and consideration; that I am authorized by the vendor to execute and submit this bid, offer, or proposal, or any documents related thereto on vendor's behalf; that I am authorized to bind the vendor in a contractual relationship; and that to the best of my knowledge, the vendor has properly registered with any State agency that may require registration.

International Business Machines Corporation

(Company)



(Authorized Signature) (Representative Name, Title)

Jon Newpol, Vice President, IBM Watson Health, Government Health and Human Services

(Printed Name and Title of Authorized Representative)

2/4/2020

(Date)

(734) 913-3404

(Phone Number)

Addendum Acknowledgement Form Solicitation No.: CRFP 0511 HHR2000000001

Instructions: Please acknowledge receipt of all addenda issued with this solicitation by completing this addendum acknowledgment form. Check the box next to each addendum received and sign below. Failure to acknowledge addenda may result in bid disqualification.

Acknowledgment: I hereby acknowledge receipt of the following addenda and have made the necessary revisions to my proposal, plans and/or specification, etc.

Addendum Numbers Received:

(Check the box next to each addendum received)

☒ Addendum No. 1	☒ Addendum No. 6
☒ Addendum No. 2	☒ Addendum No. 7
☒ Addendum No. 3	☐ Addendum No. 8
☒ Addendum No. 4	☐ Addendum No. 9
☒ Addendum No. 5	☐ Addendum No. 10

I understand that failure to confirm the receipt of addenda may be cause for rejection of this bid. I further understand that any verbal representation made or assumed to be made during any oral discussion held between Vendor's representatives and any state personnel is not binding. Only the information issued in writing and added to the specifications by an official addendum is binding.

International Business Machines Corporation

Company

Authorized Signature

2/6/2020

Date

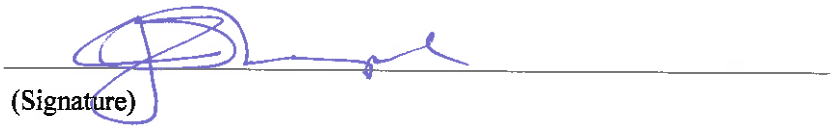
Availability of Information

Proposal submissions become public and are available for review immediately after opening pursuant to West Virginia Code §5A-3-11(h). All other information associated with the RFP, including but not limited to, technical scores and reasons for disqualification, will not be available until after the contract has been awarded pursuant to West Virginia Code of State Rules §148-1-6.3.d.

By signing below, I certify that I have reviewed this Request for Proposal in its entirety; understand the requirements, terms and conditions, and other information contained herein; that I am submitting this proposal for review and consideration; that I am authorized by the bidder to execute this bid or any documents related thereto on bidder's behalf; that I am authorized to bind the bidder in a contractual relationship; and that, to the best of my knowledge, the bidder has properly registered with any State agency that may require registration.

International Business Machine Corporation (IBM)

(Company)



(Signature)

Jon Newpol, Vice President, IBM Watson Health, Government Health and Human Services

(Representative Name, Title)

(734) 913-3404

(Contact Phone/Fax Number)

2/4/2020

(Date)

Purchasing Affidavit

IBM Watson Health.

STATE OF WEST VIRGINIA

Purchasing Division

PURCHASING AFFIDAVIT

CONSTRUCTION CONTRACTS: Under W. Va. Code § 5-22-1(i), the contracting public entity shall not award a construction contract to any bidder that is known to be in default on any monetary obligation owed to the state or a political subdivision of the state, including, but not limited to, obligations related to payroll taxes, property taxes, sales and use taxes, fire service fees, or other fines or fees.

ALL CONTRACTS: Under W. Va. Code §5A-3-10a, no contract or renewal of any contract may be awarded by the state or any of its political subdivisions to any vendor or prospective vendor when the vendor or prospective vendor or a related party to the vendor or prospective vendor is a debtor and: (1) the debt owed is an amount greater than one thousand dollars in the aggregate; or (2) the debtor is in employer default.

EXCEPTION: The prohibition listed above does not apply where a vendor has contested any tax administered pursuant to chapter eleven of the W. Va. Code, workers' compensation premium, permit fee or environmental fee or assessment and the matter has not become final or where the vendor has entered into a payment plan or agreement and the vendor is not in default of any of the provisions of such plan or agreement.

DEFINITIONS:

"Debt" means any assessment, premium, penalty, fine, tax or other amount of money owed to the state or any of its political subdivisions because of a judgment, fine, permit violation, license assessment, defaulted workers' compensation premium, penalty or other assessment presently delinquent or due and required to be paid to the state or any of its political subdivisions, including any interest or additional penalties accrued thereon.

"Employer default" means having an outstanding balance or liability to the old fund or to the uninsured employers' fund or being in policy default, as defined in W. Va. Code § 23-2c-2, failure to maintain mandatory workers' compensation coverage, or failure to fully meet its obligations as a workers' compensation self-insured employer. An employer is not in employer default if it has entered into a repayment agreement with the Insurance Commissioner and remains in compliance with the obligations under the repayment agreement.

"Related party" means a party, whether an individual, corporation, partnership, association, limited liability company or any other form or business association or other entity whatsoever, related to any vendor by blood, marriage, ownership or contract through which the party has a relationship of ownership or other interest with the vendor so that the party will actually or by effect receive or control a portion of the benefit, profit or other consideration from performance of a vendor contract with the party receiving an amount that meets or exceed five percent of the total contract amount.

AFFIRMATION: By signing this form, the vendor's authorized signer affirms and acknowledges under penalty of law for false swearing (*W. Va. Code* §61-5-3) that: (1) for construction contracts, the vendor is not in default on any monetary obligation owed to the state or a political subdivision of the state, and (2) for all other contracts, that neither vendor nor any related party owe a debt as defined above and that neither vendor nor any related party are in employer default as defined above, unless the debt or employer default is permitted under the exception above.

WITNESS THE FOLLOWING SIGNATURE:

Vendor's Name: International Business Machines Corporation

Authorized Signature: _____ Date: 1/31/2019

State of Michigan County of Washtenaw, to-wit:

Taken, subscribed, and sworn to before me this 31st day of January, 2020. My Commission expires 6-12, 2025.

AFFIX SEAL HERE

NOTARY PUBLIC Nancy L. Lambourn

NANCY L LAMBOURN
Notary Public - State of Michigan
County of Wayne
My Commission Expires Jun 12, 2025
Acting in the County of Washtenaw

Purchasing Affidavit *(Revised 01/19/2018)*

Licenses / Certifications / Permits

Certified Information Systems Security Professional (CISSP) or Certified Information Systems Auditor (CISA)

Our Information Security Architect / Privacy Data Protection Officer, Les Garripee, will have his Certified Information Systems Security Professional (CISSP) and Certified Information Systems Auditor (CISA) Certifications by 3/31/2020. We will provide the certificate upon completion.

Project Management Professional (PMP) Certifications

Figure 101. Cheryl Gentsch Certification



Figure 102. Brooke Oberg Certification



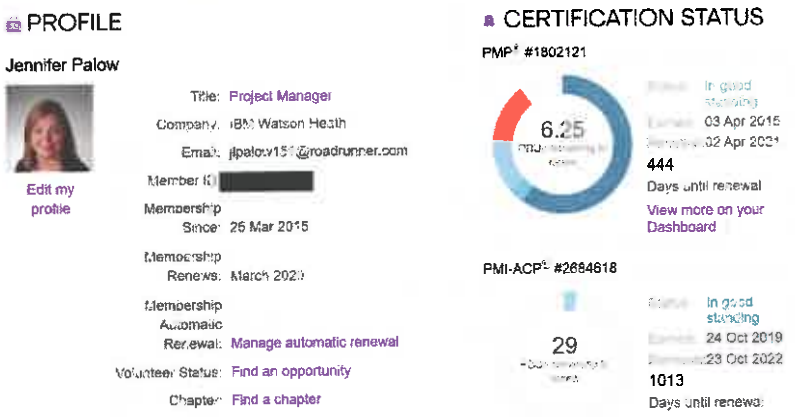
Vijay Darekar is in the process of renewing his PMP certification. The official certification will be provided upon completion.

Figure 103. Vijay Darekar Certification



Jennifer Palow has the PMP certification. The official certification will be provided prior to contract start date.

Figure 104. Jennifer Palow PMP Certification



Insurance

Commercial General Liability Insurance / Cyber Liability Insurance

ACORD

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY) 12/18/2019

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Aon Risk Services Northeast, Inc. One Liberty Plaza 165 Broadway, Suite 3201 New York, NY 10006	CONTACT NAME: PHONE (A/C, No, Ext): +1 (866) 283-7122	FAX (A/C, No): +1 (800) 363-0105 E-MAIL ADDRESS:
	INSURER(S) AFFORDING COVERAGE	NAIC #
	INSURER A: ACE American Insurance Company	22667
	INSURER B: North American Casualty Insurance Co	20338
	INSURER C:	
	INSURER D:	
	INSURER E:	
	INSURER F:	
INSURED International Business Machines Corp., including Merge Healthcare Incorporated, Red Hat, Inc., and any other Subsidiary Corp Owned or Controlled by the Insured One New Orchard Road Armonk, NY 10504 United States		

COVERAGES CERTIFICATE NUMBER: 570071121 REVISION NUMBER:

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	X COMMERCIAL GENERAL LIABILITY CLAIMS-MADE X OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: X POLICY PRO-JECT LOC OTHER:	X		HDO G71037606 (USA)	6/01/2019	6/01/2020	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG	$ 15,000,000 $ 10,000,000 $ 25,000 $ 15,000,000 $ 15,000,000 $ Included $
A	AUTOMOBILE LIABILITY X ANY AUTO OWNED AUTOS ONLY SCHEDULED AUTOS HIRED AUTOS ONLY NON-OWNED AUTOS ONLY	X		ISA H2837B9D (USA)	6/01/2019	6/01/2020	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident)	$ 5,000,000 $ $ $ $
	UMBRELLA LIAB EXCESS LIAB DED RETENTION $						EACH OCCURRENCE AGGREGATE	$ $ $
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	Y/N N	N/A	See Page 2	See Page 2	See Page 2	X PER STATUTE OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	$ 15,000,000 $ 50,000,000 $ 50,000,000
B	Professional Errors & Omissions Liability & Cyber Liability	N/A	N/A	[illegible]	12/1/2019	12/1/2020	Per Claim Aggregate	$10,000,000 $10,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

Job Description / Project Name / Project Number: RFP#: CRFP 0511 HHR2000000001

The policies listed above are not intended to replace locally mandated (statutory) insurance policies in various countries, other than the USA.

Please see next page for any additional language.

CERTIFICATE HOLDER	CANCELLATION
West Virginia Department of Health and Human Resources One Davis Square Charleston, West Virginia 25301 United States	SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS. AUTHORIZED REPRESENTATIVE Aon Risk Services Northeast, Inc.

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ACORD 25 (2016/03) The ACORD name and logo are registered marks of ACORD

ACORD

ADDITIONAL REMARKS SCHEDULE

AGENCY	NAMED INSURED
Aon Risk Services Northeast, Inc. One Liberty Plaza 165 Broadway, Suite 3201 New York, NY 10005	International Business Machines Corp., including Merge Healthcare Incorporated, Red Hat, Inc., and any other Subsidiary Corp Owned or Controlled by the Insured One New Orchard Road Armonk, NY 10504 United States
	EFFECTIVE DATE: Various (see prior page)

ADDITIONAL REMARKS

THIS ADDITIONAL REMARKS FORM IS A SCHEDULE TO ACORD FORM,
FORM NUMBER: 25 FORM TITLE: Certificate of Liability Insurance

EMPLOYERS LIABILITY/WORKERS COMP POLICIES

Policy Number	Eff. Date	Exp. Date	Company Affording Coverage
WAT-62D-004158-930 (MA)	1/1/2020	1/1/2021	Liberty Insurance Corporation (42404)
EL7-621-004158-920 (Puerto Rico)	1/1/2020	1/1/2021	Liberty Insurance Corporation (42404)
WCS-621-004158-15C (MN,WI)	1/1/2020	1/1/2021	LM Insurance Corporation (33600)
EWS-62N-004158-690 (Excess OH)	1/1/2020	1/1/2021	LM Insurance Corporation (33600)
WAS-62D-004158-440 (AOS) **	1/1/2020	1/1/2021	LM Insurance Corporation (33600)
83-191667 (Guam)	1/1/2020	1/1/2021	National Union Fire Insurance Company of Pittsburgh, PA (19445)
EL6-621-004158-940 (VI)	1/1/2020	1/1/2021	The Flist Liberty Insurance Corporation (33686)

West Virginia Department of Health and Human Resources is hereby listed as an additional insured on the Commercial General Liability Insurance Policy issued in the USA but only to the extent the interests may appear.

West Virginia Department of Health and Human Resources is hereby listed as an additional insured on the Automobile Liability Insurance Policy issued in the USA but only to the extent the interests may appear.

With respect to Voluntary Compensation and Contingent Employers Liability
All operations incidental to the conduct of Named Insured's business in the United States of America.

If there is a question regarding this certificate please contact Teresa Parker
(Email: [redacted] Phone:)

ACORD 101 (2008/01)

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POLICY NUMBER: MDO G7123/605 Endorsement Number: 1

COMMERCIAL GENERAL LIABILITY
CG 20 26 04 13

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

ADDITIONAL INSURED – DESIGNATED PERSON OR ORGANIZATION

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART

SCHEDULE

Name Of Additional Insured Person(s) Or Organization(s): Any person or organization whom you have agreed to include as an additional insured under a written contract, provided such contract was executed prior to the date of loss.
Information required to complete this Schedule, if not shown above, will be shown in the Declarations.

A. **Section II – Who Is An Insured** is amended to include as an additional insured the person(s) or organization(s) shown in the Schedule, but only with respect to liability for "bodily injury", "property damage" or "personal and advertising injury" caused, in whole or in part, by your acts or omissions or the acts or omissions of those acting on your behalf:

1. In the performance of your ongoing operations; or
2. In connection with your premises owned by or rented to you.

However:

1. The insurance afforded to such additional insured only applies to the extent permitted by law; and
2. If coverage provided to the additional insured is required by a contract or agreement, the insurance afforded to such additional insured will not be broader than that which you are required by the contract or agreement to provide for such additional insured.

B. With respect to the insurance afforded to these additional insureds, the following is added to **Section III – Limits Of Insurance:**

If coverage provided to the additional insured is required by a contract or agreement, the most we will pay on behalf of the additional insured is the amount of insurance:

1. Required by the contract or agreement; or
2. Available under the applicable Limits of Insurance shown in the Declarations;

whichever is less.

This endorsement shall not increase the applicable Limits of Insurance shown in the Declarations.

 © Insurance Services Office, Inc., 2012

ADDITIONAL INSURED – DESIGNATED PERSONS OR ORGANIZATIONS

Named Insured: International Business Machines Corporation			Endorsement Number: 1
Policy Symbol: ISA	Policy Number: H25275813	Policy Period: 05/21/2019 TO 05/21/2020	Effective Date of Endorsement:
Issued By (Name of Insurance Company): ACE American Insurance Company			

(Insert the policy number. The remainder of this information is to be completed only when this endorsement is issued subsequent to the preparation of the policy.)

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

This endorsement modifies insurance provided under the following:

BUSINESS AUTO COVERAGE FORM
AUTO DEALERS COVERAGE FORM
MOTOR CARRIER COVERAGE FORM
EXCESS BUSINESS AUTO COVERAGE FORM

Additional Insured(s): Any person or organization whom you have agreed to include as an additional insured under a written contract, provided such contract was executed prior to the date of loss.

A. For a covered "auto," Who Is Insured is amended to include as an "insured," the persons or organizations named in this endorsement. However, those persons or organizations are an "insured" only for "bodily injury" or "property damage" resulting from acts or omissions of:

1. You.
2. Any of your "employees" or agents.
3. Any person operating a covered "auto" with permission from you, any of your "employees" or agents.

B. The persons or organizations named in this endorsement are not liable for payment of your premium.

Authorized Representative

CA-9U74c (03/16)

Page 1 of 1

HIPAA Business Associate Agreement

WV STATE GOVERNMENT

HIPAA BUSINESS ASSOCIATE ADDENDUM

This Health Insurance Portability and Accountability Act of 1996 (hereafter, HIPAA) Business Associate Addendum ("Addendum") is made a part of the Agreement ("Agreement") by and between the State of West Virginia ("Agency"), and Business Associate ("Associate"), and is effective as of the date of execution of the Addendum.

The Associate performs certain services on behalf of or for the Agency pursuant to the underlying Agreement that requires the exchange of information including protected health information protected by the Health Insurance Portability and Accountability Act of 1996 ("HIPAA"), as amended by the American Recovery and Reinvestment Act of 2009 (Pub. L. No. 111-5) (the "HITECH Act"), any associated regulations and the federal regulations published at 45 CFR parts 160 and 164 (sometimes collectively referred to as "HIPAA"). The Agency is a "Covered Entity" as that term is defined in HIPAA, and the parties to the underlying Agreement are entering into this Addendum to establish the responsibilities of both parties regarding HIPAA-covered information and to bring the underlying Agreement into compliance with HIPAA.

Whereas it is desirable, in order to further the continued efficient operations of Agency to disclose to its Associate certain information which may contain confidential individually identifiable health information (hereafter, Protected Health Information or PHI); and

Whereas, it is the desire of both parties that the confidentiality of the PHI disclosed hereunder be maintained and treated in accordance with all applicable laws relating to confidentiality, including the Privacy and Security Rules, the HITECH Act and its associated regulations, and the parties do agree to at all times treat the PHI and interpret this Addendum consistent with that desire.

NOW THEREFORE, the parties agree that in consideration of the mutual promises herein, in the Agreement, and of the exchange of PHI hereunder that:

1. **Definitions.** Terms used, but not otherwise defined, in this Addendum shall have the same meaning as those terms in the Privacy, Security, Breach Notification, and Enforcement Rules at 45 CFR Part 160 and Part 164.

   a. **Agency Procurement Officer** shall mean the appropriate Agency individual listed at: http://www.state.wv.us/admin/purchase/vrc/agencyl.html.

   b. **Agent** shall mean those person(s) who are agent(s) of the Business Associate, in accordance with the Federal common law of agency, as referenced in 45 CFR § 160.402(c).

   c. **Breach** shall mean the acquisition, access, use or disclosure of protected health information which compromises the security or privacy of such information, except as excluded in the definition of Breach in 45 CFR § 164.402.

   d. **Business Associate** shall have the meaning given to such term in 45 CFR § 160.103.

   e. **HITECH Act** shall mean the Health Information Technology for Economic and Clinical Health Act, Public Law No. 111-05, 111th Congress (2009).

f. **Privacy Rule** means the Standards for Privacy of Individually Identifiable Health Information found at 45 CFR Parts 160 and 164.

g. **Protected Health Information or PHI** shall have the meaning given to such term in 45 CFR § 160.103, limited to the information created or received by Associate from or on behalf of Agency.

h. **Security Incident** means any known successful or unsuccessful attempt by an authorized or unauthorized individual to inappropriately use, disclose, modify, access, or destroy any information or interference with system operations in an information system.

i. **Security Rule** means the Security Standards for the Protection of Electronic Protected Health Information found at 45 CFR Parts 160 and 164.

j. **Subcontractor** means a person to whom a business associate delegates a function, activity, or service, other than in the capacity of a member of the workforce of such business associate.

2. **Permitted Uses and Disclosures.**

a. **PHI Described.** This means PHI created, received, maintained or transmitted on behalf of the Agency by the Associate. This PHI is governed by this Addendum and is limited to the minimum necessary, to complete the tasks or to provide the services associated with the terms of the original Agreement, and is described in Appendix A.

b. **Purposes.** Except as otherwise limited in this Addendum, Associate may use or disclose the PHI on behalf of, or to provide services to, Agency for the purposes necessary to complete the tasks, or provide the services, associated with, and required by the terms of the original Agreement, or as required by law, if such use or disclosure of the PHI would not violate the Privacy or Security Rules or applicable state law if done by Agency or Associate, or violate the minimum necessary and related Privacy and Security policies and procedures of the Agency. The Associate is directly liable under HIPAA for impermissible uses and disclosures of the PHI it handles on behalf of Agency.

c. **Further Uses and Disclosures.** Except as otherwise limited in this Addendum, the Associate may disclose PHI to third parties for the purpose of its own proper management and administration, or as required by law, provided that (i) the disclosure is required by law, or (ii) the Associate has obtained from the third party reasonable assurances that the PHI will be held confidentially and used or further disclosed only as required by law or for the purpose for which it was disclosed to the third party by the Associate, and (iii) an agreement to notify the Associate and Agency of any instances of which it (the third party) is aware in which the confidentiality of the information has been breached. To the extent practical, the information should be in a limited data set or the minimum necessary information pursuant to 45 CFR § 164.502, or take other measures as necessary to satisfy the Agency's obligations under 45 CFR § 164.502.

3. **Obligations of Associate.**

a. **Stated Purposes Only.** The PHI may not be used by the Associate for any purpose other than as stated in this Addendum or as required or permitted by law.

b. **Limited Disclosure.** The PHI is confidential and will not be disclosed by the Associate other than as stated in this Addendum or as required or permitted by law. Associate is prohibited from directly or indirectly receiving any remuneration in exchange for an individual's PHI unless Agency gives written approval and the individual provides a valid authorization. Associate will refrain from marketing activities that would violate HIPAA, including specifically, Section 13406 of the HITECH Act. Associate will report to Agency any use or disclosure of the PHI, including any Security Incident not provided for by this Agreement of which it becomes aware.

c. **Safeguards.** The Associate will use appropriate safeguards, and comply with Subpart C of 45 CFR Part 164 with respect to electronic protected health information, to prevent use or disclosure of the PHI, except as provided for in the Addendum. This shall include, but not be limited to:

i. Limitation of the groups of its workforce and agents, to whom the PHI is disclosed, to those reasonably required to accomplish the purposes stated in this Addendum, and the use and disclosure of the minimum PHI necessary or a Limited Data Set;

ii. Appropriate notification and training of its workforce and agents in order to protect the PHI from unauthorized use and disclosure;

iii. Maintenance of a comprehensive, reasonable and appropriate written PHI privacy and security program that includes administrative, technical and physical safeguards appropriate to the size, nature, scope and complexity of the Associate's operations, in compliance with the Security Rule;

iv. In accordance with 45 CFR §§ 164.502(e)(1)(ii) and 164.308(b)(2), if applicable, ensure that any subcontractors that create, receive, maintain, or transmit protected health information on behalf of the business associate agree to the same restrictions, conditions, and requirements that apply to the business associate with respect to such information.

d. **Compliance With Law.** The Associate will not use or disclose the PHI in a manner in violation of existing law and specifically not in violation of laws relating to confidentiality of PHI, including but not limited to, the Privacy and Security Rules.

e. **Mitigation.** Associate agrees to mitigate, to the extent practicable, any harmful effect that is known to Associate of a use or disclosure of the PHI by Associate in violation of the requirements of this Addendum, and report its mitigation activity back to the Agency.

f. **Support of Individual Rights.**

i. **Access to PHI.** Associate shall make the PHI maintained by Associate or its agents or subcontractors in Designated Record Sets available to Agency for inspection and copying, and in electronic format, if requested, within ten (10) days of a request by Agency to enable Agency to fulfill its obligations under the Privacy Rule, including, but not limited to, 45 CFR § 164.524 and consistent with Section 13405 of the HITECH Act.

ii. **Amendment of PHI.** Within ten (10) days of receipt of a request from Agency for an amendment of the PHI or a record about an individual contained in a Designated Record Set, Associate or its agents or subcontractors shall make such PHI available to Agency for amendment and incorporate any such amendment to enable Agency to fulfill its obligations under the Privacy Rule, including, but not limited to, 45 CFR § 164.526.

iii. **Accounting Rights.** Within ten (10) days of notice of a request for an accounting of disclosures of the PHI, Associate and its agents or subcontractors shall make available to Agency the documentation required to provide an accounting of disclosures to enable Agency to fulfill its obligations under the Privacy Rule, including, but not limited to, 45 CFR §164.528 and consistent with Section 13405 of the HITECH Act. Associate agrees to document disclosures of the PHI and information related to such disclosures as would be required for Agency to respond to a request by an individual for an accounting of disclosures of PHI in accordance with 45 CFR § 164.528. This should include a process that allows for an accounting to be collected and maintained by Associate and its agents or subcontractors for at least six (6) years from the date of disclosure, or longer if required by state law. At a minimum, such documentation shall include:

- the date of disclosure;
- the name of the entity or person who received the PHI, and if known, the address of the entity or person;
- a brief description of the PHI disclosed; and
- a brief statement of purposes of the disclosure that reasonably informs the individual of the basis for the disclosure, or a copy of the individual's authorization, or a copy of the written request for disclosure.

iv. **Request for Restriction.** Under the direction of the Agency, abide by any individual's request to restrict the disclosure of PHI, consistent with the requirements of Section 13405 of the HITECH Act and 45 CFR § 164.522, when the Agency determines to do so (except as required by law) and if the disclosure is to a health plan for payment or health care operations and it pertains to a health care item or service for which the health care provider was paid in full "out-of-pocket."

v. **Immediate Discontinuance of Use or Disclosure.** The Associate will immediately discontinue use or disclosure of Agency PHI pertaining to any individual when so requested by Agency. This includes, but is not limited to, cases in which an individual has withdrawn or modified an authorization to use or disclose PHI.

g. **Retention of PHI.** Notwithstanding section 4.a. of this Addendum, Associate and its subcontractors or agents shall retain all PHI pursuant to state and federal law and shall continue to maintain the PHI required under Section 3.f. of this Addendum for a period of six (6) years after termination of the Agreement, or longer if required under state law.

h. **Agent's, Subcontractor's Compliance.** The Associate shall notify the Agency of all subcontracts and agreements relating to the Agreement, where the subcontractor or agent receives PHI as described in section 2.a. of this Addendum. Such notification shall occur within 30 (thirty) calendar days of the execution of the subcontract and shall be delivered to the Agency Procurement Officer. The Associate will ensure that any of its subcontractors, to whom it provides any of the PHI it receives hereunder, or to whom it provides any PHI which the Associate creates or receives on behalf of the Agency, agree to the restrictions and conditions which apply to the Associate hereunder. The Agency may request copies of downstream subcontracts and agreements to determine whether all restrictions, terms and conditions have been flowed down. Failure to ensure that downstream contracts, subcontracts and agreements contain the required restrictions, terms and conditions may result in termination of the Agreement.

j. **Federal and Agency Access.** The Associate shall make its internal practices, books, and records relating to the use and disclosure of PHI, as well as the PHI received from, or created or received by the Associate on behalf of the Agency available to the U.S. Secretary of Health and Human Services consistent with 45 CFR § 164.504. The Associate shall also make these records available to Agency, or Agency's contractor, for periodic audit of Associate's compliance with the Privacy and Security Rules. Upon Agency's request, the Associate shall provide proof of compliance with HIPAA and HITECH data privacy/protection guidelines, certification of a secure network and other assurances relative to compliance with the Privacy and Security Rules. This section shall also apply to Associate's subcontractors, if any.

k. **Security.** The Associate shall take all steps necessary to ensure the continuous security of all PHI and data systems containing PHI. In addition, compliance with 74 FR 19006 Guidance Specifying the Technologies and Methodologies That Render PHI Unusable, Unreadable, or Indecipherable to Unauthorized Individuals for Purposes of the Breach Notification Requirements under Section 13402 of Title XIII is required, to the extent practicable. If Associate chooses not to adopt such methodologies as defined in 74 FR 19006 to secure the PHI governed by this Addendum, it must submit such written rationale, including its Security Risk Analysis, to the Agency Procurement Officer for review prior to the execution of the Addendum. This review may take up to ten (10) days.

l. **Notification of Breach.** During the term of the Addendum, the Associate shall notify the Agency and, unless otherwise directed by the Agency in writing, the WY Office of Technology immediately by e-mail or web form upon the discovery of any Breach of unsecured PHI; or within 24 hours by e-mail or web form of any suspected Security Incident, intrusion or unauthorized use or disclosure of PHI in violation of this Agreement and this Addendum, or potential loss of confidential data affecting this Agreement. Notification shall be provided to the Agency Procurement Officer at www.state.wy.us/admin/procurement/csirt.html and,

unless otherwise directed by the Agency in writing, the Office of Technology at incident@wv.gov or https://apps.wv.gov/ot/ir/Default.aspx

The Associate shall immediately investigate such Security Incident, Breach, or unauthorized use or disclosure of PHI or confidential data. Within 72 hours of the discovery, the Associate shall notify the Agency Procurement Officer, and, unless otherwise directed by the Agency in writing, the Office of Technology of: (a) Date of discovery; (b) What data elements were involved and the extent of the data involved in the Breach; (c) A description of the unauthorized persons known or reasonably believed to have improperly used or disclosed PHI or confidential data; (d) A description of where the PHI or confidential data is believed to have been improperly transmitted, sent, or utilized; (e) A description of the probable causes of the improper use or disclosure; and (f) Whether any federal or state laws requiring individual notifications of Breaches are triggered.

Agency will coordinate with Associate to determine additional specific actions that will be required of the Associate for mitigation of the Breach, which may include notification to the individual or other authorities.

All associated costs shall be borne by the Associate. This may include, but not be limited to costs associated with notifying affected individuals.

If the Associate enters into a subcontract relating to the Agreement where the subcontractor or agent receives PHI as described in section 2.a. of this Addendum, all such subcontracts or downstream agreements shall contain the same incident notification requirements as contained herein, with reporting directly to the Agency Procurement Officer. Failure to include such requirement in any subcontract or agreement may result in the Agency's termination of the Agreement.

n. **Assistance in Litigation or Administrative Proceedings.** The Associate shall make itself and any subcontractors, workforce or agents assisting Associate in the performance of its obligations under this Agreement, available to the Agency at no cost to the Agency to testify as witnesses, or otherwise, in the event of litigation or administrative proceedings being commenced against the Agency, its officers or employees based upon claimed violations of HIPAA, the HIPAA regulations or other laws relating to security and privacy, which involves inaction or actions by the Associate, except where Associate or its subcontractor, workforce or agent is a named as an adverse party.

4. **Addendum Administration.**

a. **Term.** This Addendum shall terminate on termination of the underlying Agreement or on the date the Agency terminates for cause as authorized in paragraph (c) of this Section, whichever is sooner.

b. **Duties at Termination.** Upon any termination of the underlying Agreement, the Associate shall return or destroy, at the Agency's option, all PHI received from or created or received by the Associate on behalf of the Agency that the Associate still maintains in any form, and retain no copies of such PHI or, if such return or destruction is not feasible, the Associate shall extend the protections of this Addendum to the PHI and limit further uses and disclosures to the purposes that make the return or destruction of the PHI infeasible. This shall also apply to all agents and subcontractors of Associate. The duty of the Associate and its agents

and subcontractors to assist the Agency with any HIPAA required accounting of disclosures survives the termination of the underlying Agreement

c. **Termination for Cause.** Associate authorizes termination of this Agreement by Agency, if Agency determines Associate has violated a material term of the Agreement. Agency may, at its sole discretion, allow Associate a reasonable period of time to cure the material breach before termination.

d. **Judicial or Administrative Proceedings.** The Agency may terminate this Agreement if the Associate is found guilty of a criminal violation of HIPAA. The Agency may terminate this Agreement if a finding or stipulation that the Associate has violated any standard or requirement of HIPAA/HITECH, or other security or privacy laws is made in any administrative or civil proceeding in which the Associate is a party or has been joined. Associate shall be subject to prosecution by the Department of Justice for violations of HIPAA/HITECH and shall be responsible for any and all costs associated with prosecution.

e. **Survival.** The respective rights and obligations of Associate under this Addendum shall survive the termination of the underlying Agreement.

5. **General Provisions/Ownership of PHI.**

a. **Retention of Ownership.** Ownership of the PHI resides with the Agency and is to be returned or destroyed at the Agency's option, at any time, and subject to the restrictions found within section 4.b above.

b. **Secondary PHI.** Any data or PHI generated from the PHI disclosed hereunder which would permit identification of an individual must be held confidential and is also the property of Agency.

c. **Electronic Transmission.** Except as permitted by law or this Addendum, the PHI or any data generated from the PHI which would permit identification of an individual must not be transmitted to another party by electronic or other means for additional uses or disclosures not authorized by this Addendum or to another contractor, or allied Agency, or affiliate without prior written approval of Agency.

d. **No Sales.** Reports or data containing the PHI may not be sold without Agency's or the affected individual's written consent.

e. **No Third-Party Beneficiaries.** Nothing express or implied in this Addendum is intended to confer, nor shall anything herein confer, upon any person other than Agency, Associate and their respective successors or assigns, any rights, remedies, obligations or liabilities whatsoever.

f. **Interpretation.** The provisions of this Addendum shall prevail over any provisions in the Agreement that may conflict or appear inconsistent with any provisions in this Addendum. The interpretation of this Addendum shall be made under the laws of the state of West Virginia.

g. **Amendment.** The parties agree that to the extent necessary to comply with applicable law they will agree to further amend this Addendum.

h. **Additional Terms and Conditions.** Additional discretionary terms may be included in the release order or change order process.

AGREED:

Name of Agency: _____

Signature: _____

Title: _____

Date: _____

Name of Associate: _____

Signature: _____

Title: _____

Date: _____

Form WVBAA 012004
Amended to 2b 2013

APPROVED AS TO FORM THIS 26th
DAY OF Jan 20 11
Patrick Morrisey
Attorney General
BY _____

Appendix A

(To be completed by the Agency's Procurement Officer prior to the execution of the Addendum, and shall be made a part of the Addendum. PHI not identified prior to execution of the Addendum may only be added by amending Appendix A and the Addendum, via Change Order.)

Name of Associate: _____

Name of Agency _____

Describe the PHI (do not include any actual PHI). If not applicable, please indicate the same

APPENDIX 1 DETAILED SPECIFICATIONS

	A	B	C	D	E	F	G	H
1	Specifications				Vendor Response			
2	Req ID #	Hierarchy Level	Specification Text	Subject Matter Area	Capability Assessment	Attachment	Section	Page #
3	CM001	1	The solution should have the ability to collect and maintain data necessary to support budget neutrality reporting requirements as specified by the Centers for Medicare & Medicaid Services (CMS) and the Department.	Care Management	Will Meet	Attachment G - Business Specifications Approach	Care Management	133
4	CM002	1	The solution should have the ability to generate fee-for-service (FFS) claims reporting for services furnished outside of a capitation agreement including, but not limited to: services carved out of the managed care program.	Care Management	Will Meet	Attachment G - Business Specifications Approach	Care Management	134
5	CM003	1	The solution should have the ability to capture and support analytics of data on member service utilization including, but not limited to:	Care Management	Will Meet	Attachment G - Business Specifications Approach	Care Management	134
6	CM004	2	Behavioral health services	Care Management	Will Meet	Attachment G - Business Specifications Approach	Care Management	134
7	CM005	2	Medical services	Care Management	Will Meet	Attachment G - Business Specifications Approach	Care Management	134
8	CM006	2	Dental services	Care Management	Will Meet	Attachment G - Business Specifications Approach	Care Management	134
9	CM007	2	Pharmacy services	Care Management	Will Meet	Attachment G - Business Specifications Approach	Care Management	134
10	CM008	2	Others as defined by the Department	Care Management	Will Meet	Attachment G - Business Specifications Approach	Care Management	134
11	CM009	1	The solution should have the ability to track the number of members assigned to providers.	Care Management	Will Meet	Attachment G - Business Specifications Approach	Care Management	135
12	CM010	1	The solution should have the ability to capture provider data including, but not limited to:	Care Management	Will Meet	Attachment G - Business Specifications Approach	Care Management	135
13	CM011	2	Provider identification (ID) number	Care Management	Will Meet	Attachment G - Business Specifications Approach	Care Management	135
14	CM012	2	Provider type	Care Management	Will Meet	Attachment G - Business Specifications Approach	Care Management	135
15	CM013	2	Provider specialty	Care Management	Will Meet	Attachment G - Business Specifications Approach	Care Management	135
16	CM014	2	Provider affiliation	Care Management	Will Meet	Attachment G - Business Specifications Approach	Care Management	135
17	CM015	2	Provider physical address	Care Management	Will Meet	Attachment G - Business Specifications Approach	Care Management	135
18	CM016	2	Provider mailing address	Care Management	Will Meet	Attachment G - Business Specifications Approach	Care Management	136
19	CM017	2	Others as defined by the Department	Care Management	Will Meet	Attachment G - Business Specifications Approach	Care Management	136
20	CM018	1	The solution should have the ability to track a provider's capacity to accept additional members.	Care Management	Will Meet	Attachment G - Business Specifications Approach	Care Management	136
21	CM019	1	The solution should have the ability to identify providers based on provider type and/or specialty.	Care Management	Will Meet	Attachment G - Business Specifications Approach	Care Management	136
22	CM020	1	The solution should have the ability to capture and support analytics of data for cost reporting and financial monitoring of waiver programs.	Care Management	Will Meet	Attachment G - Business Specifications Approach	Care Management	136
23	CM021	1	The solution should have the ability to capture current and historic utilization trends including, but not limited to:	Care Management	Will Meet	Attachment G - Business Specifications Approach	Care Management	137
24	CM022	2	Inpatient specialty care	Care Management	Will Meet	Attachment G - Business Specifications Approach	Care Management	137
25	CM023	2	Inpatient substance use disorder (SUD) services	Care Management	Will Meet	Attachment G - Business Specifications Approach	Care Management	137
26	CM024	2	Others as defined by the Department	Care Management	Will Meet	Attachment G - Business Specifications Approach	Care Management	137
27	CM025	1	The solution should have the ability to develop metrics to support the evaluation and monitoring of substance use disorder (SUD) including, but not limited to:	Care Management	Will Meet	Attachment G - Business Specifications Approach	Care Management	138
28	CM026	2	Using claims and/or encounter data	Care Management	Will Meet	Attachment G - Business Specifications Approach	Care Management	138
29	CM027	2	Using prescription data	Care Management	Will Meet	Attachment G - Business Specifications Approach	Care Management	138
30	CM028	2	Using Prescription Drug Monitoring Program data	Care Management	Will Meet	Attachment G - Business Specifications Approach	Care Management	138
31	CM029	2	Using public health registries	Care Management	Will Meet	Attachment G - Business Specifications Approach	Care Management	138
32	CM030	2	Using public health syndromic surveillance data	Care Management	Will Meet	Attachment G - Business Specifications Approach	Care Management	138
33	CM031	2	Using vital statistics data	Care Management	Will Meet	Attachment G - Business Specifications Approach	Care Management	138
34	CM032	2	Using enrollment data	Care Management	Will Meet	Attachment G - Business Specifications Approach	Care Management	138
35	CM033	2	Using data from West Virginia Health Information Network (WVHIN)	Care Management	Will Meet	Attachment G - Business Specifications Approach	Care Management	138
36	CM034	2	Using Emergency Department Information Exchange (EDIE), and/or event notification data	Care Management	Will Meet	Attachment G - Business Specifications Approach	Care Management	138
37	CM035	2	Using other data as defined by the Department	Care Management	Will Meet	Attachment G - Business Specifications Approach	Care Management	138
38	CM036	1	The solution should have the ability to generate reports on capitation payment by eligibility group and rate code.	Care Management	Will Meet	Attachment G - Business Specifications Approach	Care Management	139
39	CM037	1	The solution should have the ability to capture information on contracted Managed Care Organizations (MCOs) including, but not limited to:	Care Management	Will Meet	Attachment G - Business Specifications Approach	Care Management	139
40	CM038	2	Geographic areas served	Care Management	Will Meet	Attachment G - Business Specifications Approach	Care Management	139
41	CM039	2	Capitation rates	Care Management	Will Meet	Attachment G - Business Specifications Approach	Care Management	139
42	CM040	1	The solution should have the ability to produce managed care program reports including, but not limited to:	Care Management	Will Meet	Attachment G - Business Specifications Approach	Care Management	140
43	CM041	2	Category of service	Care Management	Will Meet	Attachment G - Business Specifications Approach	Care Management	140
44	CM042	2	Category of eligibility	Care Management	Will Meet	Attachment G - Business Specifications Approach	Care Management	140
45	CM043	2	Provider type and/or specialty	Care Management	Will Meet	Attachment G - Business Specifications Approach	Care Management	140

	A	B	C	D	E	F	G	I
46	CM044	2	Other parameters as defined by the Department	Care Management	Will Meet	Attachment G - Business Specifications Approach	Care Management	140
47	CM045	1	The solution should have the ability to process encounter data to detect overutilization and underutilization of services by managed care members.	Care Management	Will Meet	Attachment G - Business Specifications Approach	Care Management	140
48	CM046	1	The solution should have the ability to collect and sort encounter data for use in setting capitation	Care Management	Will Meet	Attachment G - Business Specifications Approach	Care Management	141
49	CM047	1	The solution should have the ability to identify fee-for-service (FFS) claims submitted for members covered by managed care.	Care Management	Will Meet	Attachment G - Business Specifications Approach	Care Management	142
50	CM048	1	The solution should have the ability to use claims and encounter data to identify persons with special health care needs, as specified by the Department.	Care Management	Will Meet	Attachment G - Business Specifications Approach	Care Management	142
51	CM049	1	The solution should have the ability to access and report on encounter data including, but not limited to:	Care Management	Will Meet	Attachment G - Business Specifications Approach	Care Management	143
52	CM050	2	Monitor appropriateness of care	Care Management	Will Meet	Attachment G - Business Specifications Approach	Care Management	143
53	CM051	2	Determine shared member financial responsibility that includes true out-of-pocket costs	Care Management	Will Meet	Attachment G - Business Specifications Approach	Care Management	143
54	CM052	2	Profile Managed Care Organizations (MCOs) and compare utilization statistics	Care Management	Will Meet	Attachment G - Business Specifications Approach	Care Management	143
55	CM053	2	Other purposes as defined by the Department	Care Management	Will Meet	Attachment G - Business Specifications Approach	Care Management	143
56	CM054	1	The solution should have the ability to support analytics of fee-for-service (FFS) claims statistics and encounter data including, but not limited to:	Care Management	Will Meet	Attachment G - Business Specifications Approach	Care Management	144
57	CM055	2	Timeliness of care	Care Management	Will Meet	Attachment G - Business Specifications Approach	Care Management	144
58	CM056	2	Quality of care	Care Management	Will Meet	Attachment G - Business Specifications Approach	Care Management	144
59	CM057	2	Patient outcomes	Care Management	Will Meet	Attachment G - Business Specifications Approach	Care Management	144
60	CM058	1	The solution should have the ability to receive population health data from various external entities including, but not limited to:	Care Management	Will Meet	Attachment G - Business Specifications Approach	Care Management	144
61	CM059	2	Public health surveillance data	Care Management	Will Meet	Attachment G - Business Specifications Approach	Care Management	144
62	CM060	2	Census data	Care Management	Will Meet	Attachment G - Business Specifications Approach	Care Management	144
63	CM061	2	Vital statistics data	Care Management	Will Meet	Attachment G - Business Specifications Approach	Care Management	145
64	CM062	2	Others as defined by the Department	Care Management	Will Meet	Attachment G - Business Specifications Approach	Care Management	145
65	CM063	1	The solution should have the ability to interface with data sources necessary to support analytics and report on social determinants of health.	Care Management	Will Meet	Attachment G - Business Specifications Approach	Care Management	145
66	CM064	1	The solution should have the ability to support analytics of population health data to develop health improvement communication materials including, but not limited to:	Care Management	Will Meet	Attachment G - Business Specifications Approach	Care Management	145
67	CM065	2	Campaigns to enroll new members in existing programs	Care Management	Will Meet	Attachment G - Business Specifications Approach	Care Management	145
68	CM066	2	New programs and services	Care Management	Will Meet	Attachment G - Business Specifications Approach	Care Management	145
69	CM067	2	Updated benefits/reference information	Care Management	Will Meet	Attachment G - Business Specifications Approach	Care Management	145
70	CM068	2	Others as defined by the Department during Design, Development and Implementation (DDI)	Care Management	Will Meet	Attachment G - Business Specifications Approach	Care Management	145
71	CM069	1	The solution should have the ability to capture each Managed Care Organizations' (MCOs') provider data including, but not limited to:	Care Management	Will Meet	Attachment G - Business Specifications Approach	Care Management	146
72	CM070	2	Provider identification (ID) number	Care Management	Will Meet	Attachment G - Business Specifications Approach	Care Management	146
73	CM071	2	Provider type	Care Management	Will Meet	Attachment G - Business Specifications Approach	Care Management	146
74	CM072	2	Provider specialty	Care Management	Will Meet	Attachment G - Business Specifications Approach	Care Management	146
75	CM073	2	Provider affiliation	Care Management	Will Meet	Attachment G - Business Specifications Approach	Care Management	146
76	CM074	2	Provider physical address	Care Management	Will Meet	Attachment G - Business Specifications Approach	Care Management	146
77	CM075	2	Provider mailing address	Care Management	Will Meet	Attachment G - Business Specifications Approach	Care Management	146
78	CM076	2	Others as defined by the Department	Care Management	Will Meet	Attachment G - Business Specifications Approach	Care Management	146
79	DD001	1	The solution should have the analytic ability to report benchmark dimensions and commonalities.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	224
80	DD002	1	The solution should provide documentation of all data objects and codes, abbreviations, and descriptions in logical and physical data models in a searchable, approved, current online data dictionary.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	224
81	DD003	1	The solution should provide documentation of all data objects and codes, abbreviations, and descriptions in logical and physical data models in a searchable, approved, current online entity relationship (ER) diagram.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	226
82	DD004	1	The solution's data modeling tool should have current and historical versions available upon request.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	226
83	DD005	1	The solution should have the ability to detect, maintain, and analyze both predetermined and authorized solution user -created relationships among claims, persons, providers, and other entities.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	227

	A	B	C	D	E	F	G	H
84	DD006	1	The Vendor should maintain synchronization of claims and encounter record dates with provider and member record dates (a claim or encounter is always linked to the provider status and member status segments associated with the date of service).	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	227
85	DD007	1	The solution should have the ability to produce multi-dimensional data objects including, but not limited to:	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	228
86	DD008	2	Data cubes	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	228
87	DD009	2	Customized tables	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	228
88	DD010	2	Data marts	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	228
89	DD011	2	Materialized views	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	228
90	DD012	2	And to develop, implement, and maintain both derived and aggregated data including, but not limited to:	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	228
91	DD013	3	Total claim costs	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	228
92	DD014	3	Unique member counts	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	228
93	DD015	3	Units of service	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	228
94	DD016	3	Benchmarks	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	228
95	DD017	1	The solution should maintain current and historical data.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	229
96	DD018	1	The solution should maintain current and historical claim data including, but not limited to:	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	229
97	DD019	2	Date of payment	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	229
98	DD020	2	Date of adjudication	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	229
99	DD021	2	Prescription date	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	229
100	DD022	2	Date of service	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	229
101	DD023	1	The solution should develop and maintain standard table joins that allow linkages among member records, provider records, claim/encounter records, and all other solution data to enhance querying, reporting, and analytics.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	229
102	DD024	1	The solution should have the ability to receive and accept interfaces and exchange data with government agencies, data vendors, industry groups, providers, insurers, and health information exchanges as designated by the Department.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	230
103	DD025	1	The solution should have the ability to assign a single unique identifier to all members, providers, and claims received from all data sources.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	231
104	DD026	1	The solution should have the ability to automatically identify duplicative members, providers, and/or claims- related information received from a single or multiple source(s), and merge that information into a single record.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	232
105	DD027	1	The solution should have the ability to schedule interfaces and data exchanges.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	232
106	DD028	1	The solution's interface processing should not adversely affect other activities, such as regular operations, other jobs, reporting, queries, analytics, research, and extract, transform, load (ETL).	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	233
107	DD029	1	The solution should have the ability to validate that all files meet the extract, transform, load (ETL) edit standards prior to entering the production database, such that any files or content failing to meet standards are returned to the originator and flagged for review.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	233
108	DD030	1	The solution interface design and Interface Control Document should be extensible, scalable, and adjustable to work with business and technology changes.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	234
109	DD031	1	The solution should have the ability to incorporate new data sources and changes to existing data sources as part of routine maintenance.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	236

		B	C	D	E	F	G	
110	DD032	1	The solution should have the ability to ensure the data conversion and extract, transform, load (ETL) processes adhere to the standards and guidelines of the Health Insurance Portability and Accountability Act (HIPAA), Centers for Medicare & Medicaid Services (CMS), Medicaid Information Technology Architecture (MITA), National Institute of Standards and Technology (NIST), and other government and industry standards guiding secure, consistent, accurate, and efficient data exchange.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	236
111	DD033	1	The Vendor should coordinate with the Department and maintain a schedule that documents when data is expected, when it is received, when it is processed by extract, transform, load (ETL), and when it is loaded to the data warehouse tables and database objects.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	237
112	DD034	1	The Vendor should ensure the solution components that are web based have cross-browser compatibility over the life of the contract and support software utilization in the current version and two (2) prior versions at a minimum for the following browsers including, but not limited to:	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	238
113	DD035	2	Microsoft	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	238
114	DD036	2	Apple products	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	238
115	DD037	2	Google Chrome	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	238
116	DD038	2	Firefox	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	238
117	DD039	2	Internet Explorer (IE 7 or greater)	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	238
118	DD040		Deleted		Will Meet		Data Sources, Delivery, & Display	238
119	DD041	1	The solution should support non-linear "undo" ability to ensure any action performed at any time in a single work session within a given component can be reverted to a former state.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	239
120	DD042	1	The solution should have the ability to support Windows-based or similar shortcuts including, but not limited to:	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	239
121	DD043	2	Ctrl+c for copy	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	239
122	DD044	2	Ctrl+v for paste	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	239
123	DD045	2	Ctrl+z for undo	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	239
124	DD046	1	The solution should provide electronic audit trails for every interface file input when received, when processed by extract, transform, load (ETL), and when loaded to table(s).	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	240
125	DD047	1	The solution should have the ability to revert to a previous version when an implemented change causes an undesirable solution impact, within a timeframe determined by the Department.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	240
126	DD048	1	The solution should have the ability to associate clinical data with the claim record.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	240
127	DD049	1	The solution should have the ability to view activities during integration such as job schedules, job times and load processing.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	241
128	DD050	1	The solution should have the ability to store and analyze semi-structured and unstructured data, such as case notes.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	241
129	DD051	1	The solution should have the ability to analyze and report on data integration audit logs.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	242
130	DD052	1	The solution should define a hierarchy to resolve conflicts between the same data elements from different sources.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	242
131	DD053	1	The solution should have the ability to accept data in a variety of formats from different sources and standardize.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	242
132	DD054	1	The solution should have the ability to identify, correct, and report data quality/defect issues.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	243
133	DD055	1	The solution's development environment should have the capacity to support all components of the solution.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	244
134	DD056	1	The solution's environments should have the ability to handle scheduled or on-demand requests to refresh data with a referentially intact subset of data.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	244
135	DD057	1	The solution should have a production environment that is used to deploy the solution.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	245
136	DD058	1	The solution's production environment should have the ability to support all components of the solution.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	245

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137	DD059	1	The solution should contain a data access component that serves as a central access point for authorized solution users.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	245
138	DD060	1	The solution's data model component should be maintained in an open systems modeling tool that can generate reports.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	246
139	DD061	1	The solution's data model component should be maintained in an open systems modeling tool that can enforce object-naming standards.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	246
140	DD062	1	The solution's data model component should be maintained in an open systems modeling tool that can import and export metadata	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	247
141	DD063	1	The solution's data model component should be maintained in an open systems modeling tool that can provide version control of logical and physical data models.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	247
142	DD064	1	The solution's data model component should be maintained in an open systems modeling tool that can provide forward-engineering abilities	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	248
143	DD065	1	The solution's data model component should be maintained in an open systems modeling tool that can provide reverse-engineering abilities.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	248
144	DD066	1	The solution's data model component should be maintained in an open systems modeling tool that can support volumetric calculation abilities.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	248
145	DD067	1	The solution's data model component should be maintained in an open systems modeling tool that can support comparison abilities for different logical and physical data model versions.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	248
146	DD068	1	The solution's data delivery component should maintain the following information related to the authorized solution user: acknowledgement of data extraction.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	248
147	DD069	1	The solution's data delivery component should maintain the following information related to the authorized solution user:	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	249
148	DD070	2	Receipt of data	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	249
149	DD071	2	Data elements requested	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	249
150	DD072	2	Selection criteria for extraction	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	249
151	DD073	2	Method of export	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	249
152	DD074	2	Others as defined by the Department	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	249
153	DD075	1	The solution's data delivery component should have the ability to extract the data in all industry-accepted formats including, but not limited to:	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	249
154	DD076	2	Excel	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	249
155	DD077	2	Joint Photographic Experts Group (JPEG)	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	249
156	DD078	2	Others as requested by the Department	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	249
157	DD079	2	Word	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	249
158	DD080	2	Hyper Text Markup Language (HTML)	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	250
159	DD081	2	Software and Services (SAS)	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	250
160	DD082	2	Graphical User Interface (GUI)	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	250
161	DD083	2	Extensible Markup Language (XML)	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	250
162	DD084	2	Application Programming Interface (API)	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	250
163	DD085	2	Text	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	250
164	DD086	2	Comma-Separated Value (CSV)	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	250
165	DD087	2	Delimited text	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	250
166	DD088	2	Portable Document Format (PDF)	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	250

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167	DD089	1	The solution's data delivery component should maintain details of requests, including time stamp, duration, and volume of data extracted.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	250
168	DD090	1	The solution should have the ability to schedule data extraction based on time or occurrence of events.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	251
169	DD091	1	The solution should have the ability to delete/clean up extracted data sets.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	251
170	DD092	1	The solution should have the ability to extract proportionally large volumes of data based on specified selection criteria.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	251
171	DD093	1	The solution should have the ability to monitor and control data extraction requests.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	251
172	DD094	1	The solution should have the ability to send automatic alerts to authorized solution users when errors occur during the data delivery process and other user interaction processes.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	251
173	DD095	1	The solution should have the ability to notify the authorized solution user as to the details of the extract, including estimated duration and size.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	251
174	DD096	1	The solution should have the ability to generate reports with summary and detail information on data delivery requests, executions, and other authorized solution user interaction processes.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	252
175	DD097	1	The solution should have the ability for authorized solution users to request, develop, and/or schedule dataset creation and monitor the status.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	252
176	DD098	1	The solution should have the ability to perform structural transformations against source data including, but not limited to	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	252
177	DD099	2	Summarization	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	252
178	DD100	2	Partitioning	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	252
179	DD101	2	Normalization	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	253
180	DD102	2	Consolidation	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	253
181	DD103	2	Filtering	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	253
182	DD104	2	Derivation	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	253
183	DD105	2	Others as defined by the Department	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	253
184	DD106	1	The solution should have the ability to provide a development environment in which the logic for slowly changing entity relationships can be quickly and accurately written.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	254
185	DD107	1	The solution should have the ability for authorized solution users to quickly and accurately write query logic for complex entity relationships.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	255
186	DD108	1	The solution should have the ability to create interactive reports and maps.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	255
187	DD109	1	The solution should have the ability to produce maps with both cartographic representation and global satellite imagery.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	255
188	DD110	1	The solution should have the ability to allow authorized solution users to create and/or select the type of map image they prefer to view, print or edit.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	255
189	DD111	1	The solution should have the ability to permit an authorized solution user to select and navigate information to be displayed on maps in a pop-up to highlight information about a location, including charts and graphs, photos, and other information as requested by the Department.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	256
190	DD112	1	The solution should have the ability to resize and print all reports and maps within the solution.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	256
191	DD113	1	The solution should have the ability to create and display legends, documentation, and data on reports and maps.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	256
192	DD114	1	The solution should support a query editor that provides editing, execution, and debugging functionality	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	256
193	DD115	1	The solution should have the ability to access external plan data via the Application Programming Interface (API).	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	257
194	DD116	1	The solution should provide a rules engine that utilizes technical call-level interface using the Application Programming Interface (API) standard.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	257
195	DD117	1	The solution should have the ability to add, test, and implement new source-to-target mappings at the Department's request.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	258

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196	DD118	1	The solution should have an extract, transform, load (ETL) data acquisition component with a development environment that has the ability to build and deploy new source/target combinations within the solution	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	258
197	DD119	1	The solution should have an extract, transform, load (ETL) data acquisition component that supports automated impact analyses against the ETL code base.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	258
198	DD120	1	The solution should have an extract, transform, load (ETL) data acquisition component that supports the versioning of ETL modules.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	259
199	DD121	1	The solution should have an extract, transform, load (ETL) data acquisition component that has the ability to create ETL functions using pre-packaged transformation objects.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	260
200	DD122	1	The solution should have an extract, transform, load (ETL) data acquisition component that has the ability to design, develop, and implement reusable ETL processes for transformation, exception/error handling, audit and control, and balancing	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	261
201	DD123	1	The solution should have an extract, transform, load (ETL) data acquisition component that has the ability to enter documentation from system level down to individual code line and includes a run-time debugger.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	262
202	DD124	1	The solution should have an extract, transform, load (ETL) data acquisition component that has the ability to provide automatic and manual caching control to balance quick response with scalability	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	263
203	DD125	1	The solution's extract, transform, load (ETL) data acquisition component should populate summarized, aggregated structures based on detail data changes in the timeframe of the detail refresh window using both set-based and procedural constructs.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	263
204	DD126	1	The solution's extract, transform, load (ETL) data acquisition component should have the ability to acquire, transform, and load proportionally large data volumes to obtain the current volume of source data	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	264
205	DD127	1	The solution's extract, transform, load (ETL) tool should have a data acquisition component that performs a timely data refresh from sources outlined in the Enterprise Data Solution (EDS) Request for Proposal (RFP) for each development phase indicated.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	264
206	DD128	1	The solution's extract, transform, load (ETL) data acquisition component should populate internal analytic applications that are specifically required or proposed as part of the solution.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	264
207	DD129	1	The solution's extract, transform, load (ETL) data acquisition component should have the ability for multiple authorized solution users to work on single or multiple tasks, reports, and/or projects concurrently.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	265
208	DD130	1	The solution's extract, transform, load (ETL) data acquisition component should support ease in promotion of code from one environment to another	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	266
209	DD131	1	The solution's extract, transform, load (ETL) data acquisition component should have the ability for high-speed movement of data between source and target systems located on the network.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	267
210	DD132	1	The solution's extract, transform, load (ETL) tool should have extraction functionalities that can unload, select, or filter data from source systems including the application of remote filters against the source.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	267
211	DD133	1	The solution's extract, transform, load (ETL) tool should have extraction functionalities that can deliver transparent, cross-platform access to remote data sources.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	267
212	DD134	1	The solution's extract, transform, load (ETL) tool should have extraction functionalities that can efficiently process varying arrays and repeating groups	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	267
213	DD135	1	The solution's extract, transform, load (ETL) tool should have extraction functionalities that can receive data from a variety of source systems and formats of source data.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	268
214	DD136	1	The solution's extract, transform, load (ETL) tool should have data checks and edit procedures in response to data quality issues identified in source systems and internal analytic applications	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	268
215	DD137	1	The solution's extract, transform, load (ETL) tool should have the ability to perform both set-based and procedural checks and edit procedures based on the Department's data quality objectives.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	269
216	DD138	1	The solution's extract, transform, load (ETL) tool should have the ability to perform all demographic field check and edit procedures.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	270
217	DD139	1	The solution's extract, transform, load (ETL) tool should have the ability to apply complex data mapping and domain value conversions against source data.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	270
218	DD140	1	The solution's extract, transform, load (ETL) tool should have the ability to perform an initial one-time data load from sources outlined in the Enterprise Data Solution (EDS) Request for Proposal (RFP) for each indicated development environment	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	271
219	DD141	1	The solution's extract, transform, load (ETL) tool should have the ability to geocode subject area addresses.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	271
220	DD142	1	The solution's extract, transform, load (ETL) tool should have the ability for high-speed movement of data between source and target systems on the network.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	271
221	DD143	1	The solution's extract, transform, load (ETL) tool should have the ability to efficiently load proportionally large data volumes.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	271

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222	DD144	1	The solution's extract, transform, load (ETL) tool should have the ability to schedule and monitor transformation jobs/sessions to populate internal analytic applications.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	272
223	DD145	1	The solution's extract, transform, load (ETL) tool should have the ability to create complex job streams with interdependencies.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	273
224	DD146	1	The solution's extract, transform, load (ETL) tool should have the ability to re-route error or exception records to a separate target for future interrogation.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	273
225	DD147	1	The solution's extract, transform, load (ETL) tool should have the ability to correct data and subsequently re-submit corrected data to the ETL process.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	273
226	DD148	1	The solution's extract, transform, load (ETL) tool should have the ability to reports results of an ETL session, including automatic notification of normal processing and failures, descriptions, and counts of exceptions.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	274
227	DD149	1	The solution's extract, transform, load (ETL) tool should have the ability to generate and manage notifications and alerts, including how the alerts are registered, logged, and to whom they were posted.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	274
228	DD150	1	The solution's extract, transform, load (ETL) tool should have the ability to tune ETL process steps.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	275
229	DD151	1	The solution's extract, transform, load (ETL) tool should have the ability to load-balance ETL jobs or process steps.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	276
230	DD152	1	The solution's extract, transform, load (ETL) tool should have the ability to recover from the abnormal ending of a job and restart or rollback.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	276
231	DD153	1	The solution's extract, transform, load (ETL) tool should have the ability to create complex job schedules with both serial and parallel streams.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	277
232	DD154	1	The solution's extract, transform, load (ETL) tool should have the ability to initiate jobs based on time or occurrence of events.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	277
233	DD155	1	The solution's extract, transform, load (ETL) tool should have the ability to create log files that are detailed enough to debug issues.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	278
234	DD156	1	The solution's extract, transform, load (ETL) tool should have the ability to generate, store, search, report, import, export, and document ETL-generated metadata, including source definitions.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	279
235	DD157	1	The solution's extract, transform, load (ETL) tool should have the ability to generate, store, search, report, import, export, and document ETL-generated metadata, including target definitions.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	280
236	DD158	1	The solution's extract, transform, load (ETL) tool should have the ability to generate, store, search, report, import, export, and document ETL-generated metadata, including database mapping(s).	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	280
237	DD159	1	The solution's extract, transform, load (ETL) tool should have the ability to generate, store, search, report, import, export, and document ETL-generated metadata, including data lineage.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	280
238	DD160	1	The solution's extract, transform, load (ETL) tool should have the ability to generate, store, search, report, import, export, and document ETL-generated metadata, including transformations.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	281
239	DD161	1	The solution's extract, transform, load (ETL) tool should have the ability to generate, store, search, report, import, export, and document ETL-generated metadata, including data dependency analysis.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	281
240	DD162	1	The solution's extract, transform, load (ETL) tool should have the ability to generate, store, search, report, import, export, and document ETL-generated metadata, including process flows.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	282
241	DD163	1	The solution's extract, transform, load (ETL) tool should have the ability to generate, store, search, report, import, export, and document ETL-generated metadata, including operational statistics.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	283
242	DD164	1	The solution's extract, transform, load (ETL) tool should have the ability to generate, store, search, report, import, export, and document ETL-generated metadata, and store metadata in an open format	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	283
243	DD165	1	The solution should have an extract, transform, load (ETL) mobility management entity (MME) data content component that versions the stored metadata content.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	284
244	DD166	1	The solution should have an extract, transform, load (ETL) mobility management entity (MME) data content component that includes the technical infrastructure to capture, store, and report the various forms of metadata.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	286
245	DD167	1	The solution should have an extract, transform, load (ETL) mobility management entity (MME) data content component that accommodates a sufficient, as defined by the Department, volume of metadata content for the proposed solution.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	287
246	DD168	1	The solution should have an extract, transform, load (ETL) mobility management entity (MME) data content component that accommodates, at a minimum:	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	288
247	DD169	2	75 active users	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	288
248	DD170	2	40 concurrent users	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	288
249	DD171	2	Allows for 10% growth per year spread across all user levels	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	288

	A	B	C	D	E	F	G	H
250	DD172	1	The solution should have an extract, transform, load (ETL) mobility management entity (MME) data content component that has the ability to capture and synchronize metadata.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	288
251	DD173	1	The solution should have an extract, transform, load (ETL) mobility management entity (MME) data content component that provides wild card (SQL-LIKE), keyword- and attribute-based search abilities to locate the required metadata.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	289
252	DD174	1	The solution should have an extract, transform, load (ETL) mobility management entity (MME) data content component that provides a central interface to manage and maintain the MME.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	291
253	DD175	1	The solution should have an extract, transform, load (ETL) mobility management entity (MME) data content component that has an extraction capability to allow metadata to be exported and distributed in open and non-proprietary formats by authorized solution users.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	292
254	DD176	1	The solution should have an extract, transform, load (ETL) mobility management entity (MME) data content component that provides a relational database repository for persistent storage of metadata content (if centralized) or for registry (if decentralized approach).	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	292
255	DD177	1	The solution should provide a Database Management System and support physical database administration.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	293
256	DD178	1	The solution should provide a Database Management System that maintains all databases used in the proposed solution including, but not limited to:	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	294
257	DD179	2	Installation	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	294
258	DD180	2	Configuration	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	294
259	DD181	2	Updates	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	294
260	DD182	2	Patch fixes	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	294
261	DD183	1	The solution should provide a Database Management System that provides day-to-day database operational support.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	294
262	DD184	1	The solution should provide a Database Management System that identifies and resolves problems/issues.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	295
263	DD185	1	The solution should provide a Database Management System that can define and activate new environments.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	295
264	DD186	1	The solution should provide a Database Management System that monitors and synchronizes such that all environments operate efficiently, and data quality and validation is ensured with additional indexing as needed.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	295
265	DD187	1	The solution should provide a Database Management System that runs on open systems platforms.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	296
266	DD188	1	The solution should provide a Database Management System that has all related cache entries on a single cache partition.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	297
267	DD189	1	The solution should provide a Database Management System that supports at a minimum Extensible Markup Language (XML).	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	297
268	DD190	1	The Vendor should assess the Department's reporting needs to inform development of reporting and dashboarding abilities in support of the Department.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	298
269	DD191	1	The solution should have the ability to export data and query results directly from the solution into the user-specified format including, but not limited to:	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	298
270	DD192	2	Excel	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	298
271	DD193	2	Word	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	298
272	DD194	2	Hyper Text Markup Language (HTML)	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	298
273	DD195	2	Access	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	299
274	DD196	2	Software and Services (SAS)	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	299
275	DD197	2	Graphical User Interface (GUI)	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	299
276	DD198	2	Extensible Markup Language (XML)	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	299
277	DD199	2	Application Programming Interface (API)	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	299

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278	DD200	2	Text	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	299
279	DD201	2	Comma-Separated Value (CSV)	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	299
280	DD202	2	Delimited text	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	299
281	DD203	2	Portable Document Format (PDF)	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	299
282	DD204	2	Joint Photographic Experts Group (JPEG)	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	299
283	DD205	2	Others as requested by the Department	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	299
284	DD206	1	The solution should have the ability to provide dashboards specific to Service Level Agreements (SLA) and Key Performance Indicators (KPI).	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	300
285	DD207	1	The solution should provide an interactive, summary-level dashboard without the need for authorized solution user programming or extensive training.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	300
286	DD208	1	The solution's data access component should support the needs of authorized solution users to execute basic canned queries and canned reports via a dashboard.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	301
287	DD209	1	The solution should provide a suite of high-level and/or general-level reports designed to provide indicators and general trends within and across the member population.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	301
288	DD210	1	The solution should provide a mature, intuitive, easy-to-use, web-based Commercial-Off-The-Shelf (COTS) tool that addresses the data access requirements in this Request for Proposal (RFP) with an integrated comprehensive tool suite.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	302
289	DD211	1	The solution's data access component should have the ability to perform impact analyses due to proposed changes of the solution.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	302
290	DD212	1	The solution's data access component should have the ability for authorized solution users to create their own static or dynamic joins between tables.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	303
291	DD213	1	The solution's data access component should have the ability for query editing to support authorized solution users with query development and modification.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	303
292	DD214	1	The solution's data access component should have the ability to sort, filter, and find data in query results.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	303
293	DD215	1	The solution's data access component should have the ability to show table structure, relationships, and built-in expression-builders, or a natural-language interface in which the authorized solution user can enter a query and the system converts it into Structured Query Language (SQL) or other code.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	303
294	DD216	1	The solution's data access component should have the ability to support, at a minimum, complex "and/or/not" logic.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	304
295	DD217	1	The solution's data access component should have the ability to calculate unduplicated counts of, at a minimum, members, providers, claims, claim lines, and services.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	304
296	DD218	2	Members	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	304
297	DD219	2	Providers	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	304
298	DD220	2	Claim lines	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	304
299	DD221	2	Services	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	304
300	DD222	2	Others as defined by the Department	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	304
301	DD223	1	The solution's data access component should have the ability to support parameter-based queries.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	304
302	DD224	1	The solution's data access component should have the ability to support including, but not limited to:	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	304
303	DD225	2	Inner joins	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	304
304	DD226	2	Outer joins	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	304
305	DD227	2	Unions	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	304
306	DD228	2	Claims	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	304

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307	DD229	2	Intersections	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	304
308	DD230	2	Minus operations of multiple datasets	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	304
309	DD231	2	Others as defined by the Department	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	304
310	DD232	1	The solution's data access component should have the ability to support correlated sub-queries.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	305
311	DD233	1	The solution's data access component should have the ability to support current American National Standards Institute's (ANSI) Structured Query Language (SQL) standards.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	305
312	DD234	1	The solution's data access component should have the ability to apply, at a minimum, weighting and ranking in analyses	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	305
313	DD235	1	The solution's data access component should have the ability for linear programming.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	305
314	DD236	1	The solution's data access component should provide predictive modeling capabilities.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	305
315	DD237	1	The solution's data access component should support random number assignment of members and providers.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	305
316	DD238	1	The solution's data access component should provide multi-dimensional reporting abilities that would include slice and dice, drill down, drill up, drill across, and pivot result.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	306
317	DD239	1	The solution's data access component should have the ability to provide pre-defined logical drill paths such that the authorized solution user can move up or down in levels without defining a new query.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	306
318	DD240	1	The solution's data access component should have the ability to summarize grouping functions.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	306
319	DD241	1	The solution's data access component should support stratified random sampling with appropriate statistics and generate random sampling with associated statistics.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	306
320	DD242	1	The solution's data access component should have the ability to build custom formulas and derivations	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	306
321	DD243	1	The solution's data access component should support what-if and reverse analyses.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	306
322	DD244	1	The solution's data access component should have the ability to aggregate or summarize rules based on pre-defined, static reports and data filters	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	307
323	DD245	1	The solution's data access component should support descriptive text and have the ability to search for elements, derivations, tags, and reports.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	307
324	DD246	1	The solution's data access component should have the ability to index authorized solution user-created tables in user libraries to drive queries	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	307
325	DD247	1	The solution's data access component should have the ability to generate alerts when business thresholds have been exceeded.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	307
326	DD248	1	The solution's data access component should have the ability to terminate runaway queries	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	307
327	DD249	1	The solution's data access component should support the needs of authorized solution users to perform simple queries based on point-and-click technology.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	307
328	DD250	1	The solution's data access component should have the ability to version reports and queries.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	308
329	DD251	1	The solution's data access component should provide flexible filtering or "sub-setting" to specify the selection criteria for reports.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	308
330	DD252	1	The solution's data access component should provide modifiable ready-to-use subsets	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	308
331	DD253	1	The solution's data access component should have the ability to create, save, modify, publish, and share queries.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	308
332	DD254	1	The solution's data access component should provide pre-defined templates upon request	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	308
333	DD255	1	The solution's data access component should have the ability to provide eligibility indicators at a summary level.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	309
334	DD256	1	The solution's data access component should have the ability to provide financial indicators at a summary level	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	309
335	DD257	1	The solution's data access component should have the ability to provide utilization indicators at a summary level.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	309
336	DD258	1	The solution's data access component should have the ability to provide other indicators, as defined by the Department, at a summary level	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	309

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337	DD259	1	The solution's data access component should have the ability to provide access-to-care indicators at a summary level.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	309
338	DD260	1	The solution's data access component should have the ability to notify the authorized solution user when user-defined criteria have been met.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	310
339	DD261	1	The solution's data access component should have the ability to provide an alert system to notify authorized solution users of emerging trends, detection of excessive costs, and achievement of goals.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	310
340	DD262	1	The solution's data access component should have the ability to apply selections as flexible objects that can be inserted, moved, or removed through drag-and-drop technology to make cross-tabular and multi-tabular reports.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	310
341	DD263	1	The solution's data access component should have the ability to allow flexible pivoting of rows to columns and columns to rows.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	310
342	DD264	1	The solution's data access component should have the ability to import metadata from the database catalog and other external sources.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	311
343	DD265	1	The solution's data access component should have the ability to export metadata to other external sources.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	311
344	DD266	1	The solution's data access component should have the ability to provide ease of maintenance of metadata updates.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	311
345	DD267	1	The solution's data access component should provide authorized solution users with the ability to create and/or import user-defined values or other driver data to inform querying and reporting.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	312
346	DD268	1	The solution's data access component should have the ability to import and save user-defined data.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	312
347	DD269	1	The solution's data access component should have the ability to access data from external sources in native form.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	312
348	DD270	1	The solution's data access component should have the ability to use data that has been stored in user-defined tables with a parameter that is used to join to the data warehouse to drive queries.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	312
349	DD271	1	The solution's data access component should have the ability to import a list of user-defined values into the user library.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	313
350	DD272	1	The solution's data access component should have the ability to import external data into tables.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	313
351	DD273	1	The solution's data access component should have an online/contextual help function.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	313
352	DD274	1	The solution's data access component should have the ability to add, delete, or develop measures from any report available without needing knowledge of Structured Query Language (SQL) or other complex query language.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	313
353	DD275	1	The solution's data access component should provide a menu of view-ready and print-ready summary-level reports, charts, maps, and graphs.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	314
354	DD276	1	The solution's data access component should have an application menu that utilizes point-and-click functionality.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	314
355	DD277	1	The solution's data access component should have the ability to graph reports and make the reports presentation-ready without the need to export the data to third-party software.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	314
356	DD278	1	The solution's data access component should have the ability for online maintenance of reports including adding, deleting, editing, copying, and pasting actions.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	314
357	DD279	1	The solution's data access component should support data visualization techniques.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	315
358	DD280	1	The solution's data access component should have the ability to schedule Department-specified reports for execution and route the reports automatically through email.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	316
359	DD281	1	The solution should have the ability to build, name, and save multiple user-defined searches and sort parameters to allow authorized solution users to repeat the same search/sort queries.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	317
360	DD282	1	The solution should have the ability to capture and incorporate into queries and reports any data-sensitive occurrences that may impact analytics and reporting, including, but not limited to:	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	317
361	DD283	2	Rate changes	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	317
362	DD284	2	Policy changes	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	317
363	DD285	2	Health plan changes	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	318
364	DD286	2	Legislation	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	318
365	DD287	2	Others as determined by the Department	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	318

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366	DD288	1	The solution should have the ability to capture and incorporate into queries and reports any data field in the Medicaid Management Information System (MMIS).	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	318
367	DD289	1	The solution should have the ability to link external data to any structured data field in the solution to serve as a search/sort query parameter.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	318
368	DD290	1	The solution should maintain a library of reports organized in a manner that facilitates the use of and secure access to these reports.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	319
369	DD291	1	The Vendor solution should provide the functionality to view the results of wild card searches including, but not limited to, both single character and string wild card search for all searchable fields.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	320
370	DD292	1	The solution should have the ability to utilize all data, queries, analyses, and reporting in the solution to produce geospatial analytics and maps.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	320
371	DD293	1	The solution should have the ability to perform statistical analyses on geospatial data.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	320
372	DD294	1	The solution should have the ability to identify, query, analyze, and report on episodes of care or bundled services	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	321
373	DD295	1	The solution should have the ability to develop and calculate fee-for-service (FFS) rates, actuarially-sound managed care rates, bundled fee-for-service and managed care rates, and others as determined by the Department.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	321
374	DD296	1	The solution should have the ability to calculate travel distance including, but not limited to, member's home and relevant provider locations.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	322
375	DD297	1	The solution should have the ability for authorized solution users to create and view all reports and maps on mobile devices in accordance with Department, State, and federal security and privacy policies and procedures.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	322
376	DD298	1	The solution should have the ability to display to authorized solution users the number of pages to be printed before the authorized solution user proceeds with printing a report.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	322
377	DD299	1	The solution should allow authorized solution users the ability to add comments to reports.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	322
378	DD300	1	The solution should have the ability to capture and report on solution response time	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	323
379	DD301	1	The solution should have the ability for authorized solution users to view, print, export, and analyze audit data through an integrated component of the solution.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	324
380	DD302	1	The solution should provide the ability for all solution forms, documents, data files, data, and manuals to be accessible online, indexed, and content-searchable with version control.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	324
381	DD303	1	The Vendor should employ a Relational Database Management System (RDBMS) or Object Oriented Database Management System (OODMS) that is easily configurable and role-based.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	325
382	DD304	1	The solution should have the ability to support analytic techniques including, but not limited to:	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	326
383	DD305	2	Predictive modeling	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	326
384	DD306	2	Machine learning	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	326
385	DD307	2	Data mining	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	326
386	DD308	2	Others as defined by the Department	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	326
387	DD309	1	The solution should have a single point of entry for all authorized solution users.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	326
388	DD310	1	The Vendor should provide a data access component that works efficiently in the enterprise data solution (EDS) environment	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	327
389	DD311	1	The solution should have the ability to distribute reports and/or information from the enterprise data solution (EDS) portal chosen by the Department.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	327
390	DD312	1	The solution should provide the ability to allow authorized solution users to view, manipulate, download, and save reports locally.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	327
391	DD313	1	The solution should have the ability to maintain report inventories for authorized solution users.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	327
392	DD314	1	The solution should track Medicare deductibles and coinsurance paid by Medicaid for all crossover claims, by Member and program type, and by other data elements as defined by the Department.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	328
393	DD315	1	The solution should provide a tool for managing data sharing requests from both internal State agencies and external entities.	Data Sources, Delivery, & Display	Will Meet	Attachment H - Technical Specifications Approach	Data Sources, Delivery, & Display	328
394	DQ001	1	The Vendor should provide Data Quality Management for all data coming into the solution	Data Quality	Will Meet	Attachment H - Technical Specifications Approach	Data Quality	329
395	DQ002	1	The solution should have the ability to provide data conversion as needed to feed the solution.	Data Quality	Will Meet	Attachment H - Technical Specifications Approach	Data Quality	331

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396	DQ003	1	The Vendor should develop a process to rectify source data quality issues via data checks and edit procedures as data is extracted from the solution data sources with limited impact on the data source vendors.	Data Quality	Will Meet	Attachment H - Technical Specifications Approach	Data Quality	334
397	DQ004	1	The Vendor should ensure data integrity is checked throughout the term of the contract as an integral part of operations to ensure quality data.	Data Quality	Will Meet	Attachment H - Technical Specifications Approach	Data Quality	335
398	DQ005	1	The Vendor should develop processes to maintain data integrity, consistency, accuracy, and timeliness of the solution data	Data Quality	Will Meet	Attachment H - Technical Specifications Approach	Data Quality	336
399	DQ006	1	The solution should have the ability to provide an audit trail on all changes to tables including, but not limited to:	Data Quality	Will Meet	Attachment H - Technical Specifications Approach	Data Quality	336
400	DQ007	2	Business and system dates	Data Quality	Will Meet	Attachment H - Technical Specifications Approach	Data Quality	336
401	DQ008	2	Begin date	Data Quality	Will Meet	Attachment H - Technical Specifications Approach	Data Quality	336
402	DQ009	2	Effective date	Data Quality	Will Meet	Attachment H - Technical Specifications Approach	Data Quality	336
403	DQ010	2	End date	Data Quality	Will Meet	Attachment H - Technical Specifications Approach	Data Quality	336
404	DQ011	2	User-ID and assignment/enforcement in all tables that can be modified	Data Quality	Will Meet	Attachment H - Technical Specifications Approach	Data Quality	337
405	DQ012	1	The solution should provide a tool that supplies data profiling abilities that obtain comprehensive and accurate information on the content, quality, and structure of data in the source systems as an ongoing process.	Data Quality	Will Meet	Attachment H - Technical Specifications Approach	Data Quality	337
406	DQ013	1	The solution should provide a tool that continually monitors the data quality within the solution and internal analytic applications.	Data Quality	Will Meet	Attachment H - Technical Specifications Approach	Data Quality	338
407	DQ014	1	The solution should support audit and control processes that identify, report, and summarize errors in the data.	Data Quality	Will Meet	Attachment H - Technical Specifications Approach	Data Quality	338
408	DQ015	1	The solution should provide a tool that includes error/exception handling processes that identify/isolate the errant data.	Data Quality	Will Meet	Attachment H - Technical Specifications Approach	Data Quality	339
409	DQ016	1	The Vendor should maintain a process to identify and track all errors and discrepancies found in the solution pursuant to Service Level Agreements (SLAs).	Data Quality	Will Meet	Attachment H - Technical Specifications Approach	Data Quality	339
410	DQ017	1	The Vendor should maintain a process to notify the Department of errors and discrepancies found in the solution pursuant to Service Level Agreements (SLAs)	Data Quality	Will Meet	Attachment H - Technical Specifications Approach	Data Quality	339
411	DQ018	1	The Vendor should provide recommendations for proposed resolution/fixes for identified issues within a timeline approved by the Department and pursuant to Service Level Agreements (SLAs).	Data Quality	Will Meet	Attachment H - Technical Specifications Approach	Data Quality	340
412	DQ019	1	The solution should support data integrity through system controls for software program changes and promotion to production.	Data Quality	Will Meet	Attachment H - Technical Specifications Approach	Data Quality	341
413	DQ020	1	The solution should include an integrated automated logging and tracking component for all inquiries between authorized solution users and Vendor staff that includes, but is not limited to:	Data Quality	Will Meet	Attachment H - Technical Specifications Approach	Data Quality	342
414	DQ021	2	The date and time of inquiry	Data Quality	Will Meet	Attachment H - Technical Specifications Approach	Data Quality	342
415	DQ022	2	The form of inquiry (phone, email, and instant messaging)	Data Quality	Will Meet	Attachment H - Technical Specifications Approach	Data Quality	342
416	DQ023	2	The ability to create a summary level nature of the inquiry	Data Quality	Will Meet	Attachment H - Technical Specifications Approach	Data Quality	342
417	DQ024	2	The ability to document details of the nature of the inquiry	Data Quality	Will Meet	Attachment H - Technical Specifications Approach	Data Quality	342
418	DQ025	2	The authorized solution user	Data Quality	Will Meet	Attachment H - Technical Specifications Approach	Data Quality	342
419	DQ026	2	The Vendor staff member	Data Quality	Will Meet	Attachment H - Technical Specifications Approach	Data Quality	342
420	DQ027	2	The response details	Data Quality	Will Meet	Attachment H - Technical Specifications Approach	Data Quality	342
421	DQ028	2	The date and time of the response	Data Quality	Will Meet	Attachment H - Technical Specifications Approach	Data Quality	342
422	DQ029	2	The applicable notes on the resolution of the inquiry	Data Quality	Will Meet	Attachment H - Technical Specifications Approach	Data Quality	342
423	DQ030	2	Other details as determined by the Department	Data Quality	Will Meet	Attachment H - Technical Specifications Approach	Data Quality	342
424	DQ031	2	Reporting on all inquiries as requested by the Department	Data Quality	Will Meet	Attachment H - Technical Specifications Approach	Data Quality	342
425	DQ032	1	The solution should provide the ability to automate meta-tagging including, but not limited to:	Data Quality	Will Meet	Attachment H - Technical Specifications Approach	Data Quality	342
426	DQ033	2	Reports	Data Quality	Will Meet	Attachment H - Technical Specifications Approach	Data Quality	343
427	DQ034	2	Queries	Data Quality	Will Meet	Attachment H - Technical Specifications Approach	Data Quality	343
428	DQ035	2	Maps based on their contents	Data Quality	Will Meet	Attachment H - Technical Specifications Approach	Data Quality	343
429	DQ036	2	Other elements as requested by the Department	Data Quality	Will Meet	Attachment H - Technical Specifications Approach	Data Quality	343
430	DQ037	1	The solution should have the ability to de-identify and re-identify data within the solution as needed	Data Quality	Will Meet	Attachment H - Technical Specifications Approach	Data Quality	343
431	DQ038	1	The solution should provide the ability to review and report on data quality metrics including, but not limited to:	Data Quality	Will Meet	Attachment H - Technical Specifications Approach	Data Quality	343
432	DQ039	2	Data completeness	Data Quality	Will Meet	Attachment H - Technical Specifications Approach	Data Quality	344
433	DQ040	2	Data consistency	Data Quality	Will Meet	Attachment H - Technical Specifications Approach	Data Quality	344
434	DQ041	2	Data validity	Data Quality	Will Meet	Attachment H - Technical Specifications Approach	Data Quality	344
435	DQ042	2	Data conformity	Data Quality	Will Meet	Attachment H - Technical Specifications Approach	Data Quality	344
436	DQ043	2	Data accuracy	Data Quality	Will Meet	Attachment H - Technical Specifications Approach	Data Quality	344
437	DQ044	2	Data integrity	Data Quality	Will Meet	Attachment H - Technical Specifications Approach	Data Quality	344
438	DQ045	2	Others as defined by the Department	Data Quality	Will Meet	Attachment H - Technical Specifications Approach	Data Quality	344

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439	DQ046	1	The solution should support production of X12N 270 transactions to query other payer eligibility files and ability to process responses.	Data Quality	Will Meet	Attachment H - Technical Specifications Approach	Data Quality	346
440	DQ047	1	The solution should comply with relevant standards including, but not limited to National Information Exchange Model (NIEM), CAQH-CORE, Health Level Seven International (HL7), X12, EDI, and HIPAA for data interchange.	Data Quality	Will Meet	Attachment H - Technical Specifications Approach	Data Quality	346
441	DQ048	1	The Vendor should support each phase of Council for Affordable Quality Healthcare - Committee on Operating Rules for Information Exchange (CAQH-CORE) rules.	Data Quality	Will Meet	Attachment H - Technical Specifications Approach	Data Quality	347
442	DR001	1	The Vendor should deliver a Disaster Recovery and Business Continuity Plan to the Department for review and approval 30 business days prior to the start of solution operations	Solution Back-up, Disaster Recovery, and Failover	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Solution Back-up, Disaster Recovery, and Failover	529
443	DR002	1	The Vendor should develop, maintain, and submit to the Department within the Disaster Recovery and Business Continuity Plan all proposed offsite procedures, locations, and protocols.	Solution Back-up, Disaster Recovery, and Failover	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Solution Back-up, Disaster Recovery, and Failover	529
444	DR003	1	The Vendor should perform a review of the Disaster Recovery and Business Continuity Plan annually and submit to the Department for review and approval within 30 calendar days of the review	Solution Back-up, Disaster Recovery, and Failover	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Solution Back-up, Disaster Recovery, and Failover	529
445	DR004	1	The Vendor should submit substantive change(s) to the Disaster Recovery and Business Continuity Plan to the Department for review and approval within 30 calendar days of the proposed change(s).	Solution Back-up, Disaster Recovery, and Failover	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Solution Back-up, Disaster Recovery, and Failover	529
446	DR005	1	The Vendor should provide the Department with up-to-date copies of the Disaster Recovery and Business Continuity Plan in electronic and printed versions annually and within 30 calendar days of when substantive changes are made	Solution Back-up, Disaster Recovery, and Failover	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Solution Back-up, Disaster Recovery, and Failover	529
447	DR006	1	The Vendor should ensure a copy of the most recent Disaster Recovery and Business Continuity Plan is available in hard copy and electronic form at an offsite location approved by the Department.	Solution Back-up, Disaster Recovery, and Failover	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Solution Back-up, Disaster Recovery, and Failover	529
448	DR007	1	The Vendor should ensure that each aspect of the Disaster Recovery and Business Continuity Plan is detailed as to both Vendor and Department responsibilities.	Solution Back-up, Disaster Recovery, and Failover	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Solution Back-up, Disaster Recovery, and Failover	530
449	DR008	1	The Vendor's Disaster Recovery and Business Continuity Plan should account for all input, processing, and output procedure functions.	Solution Back-up, Disaster Recovery, and Failover	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Solution Back-up, Disaster Recovery, and Failover	530
450	DR009	1	The Vendor should ensure that each aspect of the Disaster Recovery and Business Continuity Plan satisfies all requirements for federal and State certification.	Solution Back-up, Disaster Recovery, and Failover	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Solution Back-up, Disaster Recovery, and Failover	530
451	DR010	1	The Disaster Recovery and Business Continuity Plan should include a hierarchy that is approved by the Department of critical services, resources, and infrastructure to determine the order that services are restored.	Solution Back-up, Disaster Recovery, and Failover	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Solution Back-up, Disaster Recovery, and Failover	530
452	DR011	1	The Vendor should create and maintain a Disaster Recovery and Business Continuity Plan that details procedures to address events including, but not limited to	Solution Back-up, Disaster Recovery, and Failover	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Solution Back-up, Disaster Recovery, and Failover	530
453	DR012	2	Terrorist acts	Solution Back-up, Disaster Recovery, and Failover	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Solution Back-up, Disaster Recovery, and Failover	530
454	DR013	2	Power disruptions or power failures	Solution Back-up, Disaster Recovery, and Failover	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Solution Back-up, Disaster Recovery, and Failover	530
455	DR014	2	Solution failures	Solution Back-up, Disaster Recovery, and Failover	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Solution Back-up, Disaster Recovery, and Failover	530
456	DR015	2	Significant compromise/degradation of data warehouse performance	Solution Back-up, Disaster Recovery, and Failover	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Solution Back-up, Disaster Recovery, and Failover	530
457	DR016	2	Processing shutdowns	Solution Back-up, Disaster Recovery, and Failover	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Solution Back-up, Disaster Recovery, and Failover	530
458	DR017	2	Labor strife or strike	Solution Back-up, Disaster Recovery, and Failover	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Solution Back-up, Disaster Recovery, and Failover	530
459	DR018	2	Natural disasters	Solution Back-up, Disaster Recovery, and Failover	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Solution Back-up, Disaster Recovery, and Failover	530

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460	DR019	2	Production site becoming unsafe or inoperable	Solution Back-up, Disaster Recovery, and Failover	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Solution Back-up, Disaster Recovery, and Failover	530
461	DR020	2	Hacking attempts or viruses	Solution Back-up, Disaster Recovery, and Failover	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Solution Back-up, Disaster Recovery, and Failover	530
462	DR021	2	Others as defined by the Department	Solution Back-up, Disaster Recovery, and Failover	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Solution Back-up, Disaster Recovery, and Failover	530
463	DR022	1	The Vendor should ensure the Disaster Recovery Platform contains the same security safeguards to protect solution data during emergency operations as during normal business operations.	Solution Back-up, Disaster Recovery, and Failover	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Solution Back-up, Disaster Recovery, and Failover	531
464	DR023	1	The Vendor should ensure access to all solution components, systems, and data, 24 hours a day, 7 days a week, 365 days a year, except for Department-approved scheduled and emergency outages.	Solution Back-up, Disaster Recovery, and Failover	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Solution Back-up, Disaster Recovery, and Failover	531
465	DR024	1	Pursuant to the Service Level Agreements (SLAs), the Vendor should define, maintain, and adhere to a problem identification, notification, and resolution process that includes but is not limited to the identification of the problem, its impact, root cause analysis, and resolution.	Solution Back-up, Disaster Recovery, and Failover	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Solution Back-up, Disaster Recovery, and Failover	531
466	DR025	1	The Vendor should recover the solution and make it fully operational in the event of a disaster to the primary physical hosting site within 24 hours of the time of the solution failure.	Solution Back-up, Disaster Recovery, and Failover	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Solution Back-up, Disaster Recovery, and Failover	531
467	DR026	1	The Vendor should include in its system design the capability to switch operations from the production environment to the failover environment in the event technical problems incapacitate the production server.	Solution Back-up, Disaster Recovery, and Failover	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Solution Back-up, Disaster Recovery, and Failover	531
468	DR027	1	The Vendor should maintain an operational backup power supply at both primary and alternate sites capable of supporting vital functions indefinitely or until primary power is fully restored.	Solution Back-up, Disaster Recovery, and Failover	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Solution Back-up, Disaster Recovery, and Failover	531
469	DR028	1	The Vendor should provide backup network connectivity at both the primary and alternate sites with the capacity to support the system and its components.	Solution Back-up, Disaster Recovery, and Failover	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Solution Back-up, Disaster Recovery, and Failover	531
470	DR029	1	The Vendor should identify and maintain a computer site at a separate location to be designated as the disaster recovery site to be approved by the Department	Solution Back-up, Disaster Recovery, and Failover	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Solution Back-up, Disaster Recovery, and Failover	532
471	DR030	1	The Vendor should have a remote backup facility at least 50 miles away from the primary data center.	Solution Back-up, Disaster Recovery, and Failover	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Solution Back-up, Disaster Recovery, and Failover	532
472	DR031	1	The Vendor should perform an annual review of the disaster recovery backup site, procedures for all offsite storage, and validation of security procedures and submit a report of the backup site review within 30 calendar days of the review	Solution Back-up, Disaster Recovery, and Failover	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Solution Back-up, Disaster Recovery, and Failover	532
473	DR032	1	The Department reserves the right to inspect the disaster recovery backup site and procedures at any time with 24-hours' notification.	Solution Back-up, Disaster Recovery, and Failover	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Solution Back-up, Disaster Recovery, and Failover	532
474	DR033	1	The Vendor should execute a test of the Disaster Recovery and Business Continuity Plan as part of user acceptance testing (UAT).	Solution Back-up, Disaster Recovery, and Failover	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Solution Back-up, Disaster Recovery, and Failover	532
475	DR034	1	The Vendor should exercise/test the Disaster Recovery and Business Continuity Plan annually and provide the disaster recovery testing reports to the Department within 30 calendar days of the exercise/test.	Solution Back-up, Disaster Recovery, and Failover	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Solution Back-up, Disaster Recovery, and Failover	532
476	DR035	1	The Vendor should have the ability to restore all tables utilizing the onsite backup copies to their state prior to the erroneous load within timeframes pursuant to Service Level Agreements (SLAs). This includes, but is not limited to, source system- or application-dependent errors that result in invalid data being loaded into the data warehouse	Solution Back-up, Disaster Recovery, and Failover	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Solution Back-up, Disaster Recovery, and Failover	533
477	DR036	1	The Vendor should develop and maintain an automated scheduling system for running the backup processes for all environments.	Solution Back-up, Disaster Recovery, and Failover	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Solution Back-up, Disaster Recovery, and Failover	533
478	DR037	1	The Vendor should backup all data files that reside in multiple environments ensuring that any data set can be restored from the backup medium within ten (10) hours of notification that a restoration is needed.	Solution Back-up, Disaster Recovery, and Failover	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Solution Back-up, Disaster Recovery, and Failover	533
479	DR038	1	The Vendor should backup all databases and other data on a weekly basis and store the backups at a secure offsite location.	Solution Back-up, Disaster Recovery, and Failover	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Solution Back-up, Disaster Recovery, and Failover	533

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480	DR039	1	The solution should have the ability to backup all data sets, files, transaction logs, documentation, program code, authorized solution user libraries of reports and queries, operating system (OS) software, databases and other items as determined by the Department.	Solution Back-up, Disaster Recovery, and Failover	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Solution Back-up, Disaster Recovery, and Failover	533
481	DR040	1	The Vendor should ensure that backups performed by authorized solution users of reports and queries are stored on a single shared drive in the solution.	Solution Back-up, Disaster Recovery, and Failover	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Solution Back-up, Disaster Recovery, and Failover	534
482	DR041	1	The Vendor should store all backup copies in a Department-approved backup storage location for a minimum of five (5) years.	Solution Back-up, Disaster Recovery, and Failover	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Solution Back-up, Disaster Recovery, and Failover	534
483	DR042	1	The Vendor should develop and maintain a process to verify that backup and restoration processes were run appropriately, and all scheduled backup procedures have run successfully.	Solution Back-up, Disaster Recovery, and Failover	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Solution Back-up, Disaster Recovery, and Failover	534
484	DR043	1	The Vendor should maintain an onsite copy of backups at the onsite facility for a period of seven (7) calendar days.	Solution Back-up, Disaster Recovery, and Failover	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Solution Back-up, Disaster Recovery, and Failover	534
485	DR044	1	The Vendor should store weekly backups at the remote backup facility.	Solution Back-up, Disaster Recovery, and Failover	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Solution Back-up, Disaster Recovery, and Failover	534
486	DR045	1	The Vendor should be responsible for the cost associated with the backup storage process and location.	Solution Back-up, Disaster Recovery, and Failover	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Solution Back-up, Disaster Recovery, and Failover	534
487	DR046	1	The Vendor should provide to the Department, within 30 calendar days of request, a Turnover and Closeout Management Plan detailing the approach to transitioning systems and operational responsibilities to a successor.	Solution Back-up, Disaster Recovery, and Failover	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Solution Back-up, Disaster Recovery, and Failover	534
488	DR047	1	The Vendor should transfer all backups to the successor vendor within the agreed-upon timeframe defined in the Department-approved Turnover and Closeout Management Plan.	Solution Back-up, Disaster Recovery, and Failover	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Solution Back-up, Disaster Recovery, and Failover	535
489	DR048	1	The solution should create and retain an audit trail of all interface activity in accordance with Department, State, and federal security and privacy laws, policies, and/or procedures.	Solution Back-up, Disaster Recovery, and Failover	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Solution Back-up, Disaster Recovery, and Failover	535
490	DR049	1	The Vendor should ensure that data is retained, archived, protected from destruction, and accessible in accordance with Department, State and federal security and privacy laws, policies, and/or procedures.	Solution Back-up, Disaster Recovery, and Failover	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Solution Back-up, Disaster Recovery, and Failover	535
491	DR050	1	The Vendor should ensure that hard copy documents are retained, stored, imaged, archived, and destroyed in accordance with Department, State, and federal security and privacy laws, policies, and/or procedures.	Solution Back-up, Disaster Recovery, and Failover	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Solution Back-up, Disaster Recovery, and Failover	535
492	FM001	1	The solution should have the ability to obtain various listings of the procedure, diagnosis, and preferred drug list (PDL) files	Financial Management	Will Meet	Attachment G - Business Specifications Approach	Financial Management	146
493	FM002	1	The solution should have the ability to support analytics and reporting on claims processing errors including, but not limited to:	Financial Management	Will Meet	Attachment G - Business Specifications Approach	Financial Management	147
494	FM003	2	Frequency	Financial Management	Will Meet	Attachment G - Business Specifications Approach	Financial Management	147
495	FM004	2	Extent and type of provider	Financial Management	Will Meet	Attachment G - Business Specifications Approach	Financial Management	147
496	FM005	2	Others as defined by the Department	Financial Management	Will Meet	Attachment G - Business Specifications Approach	Financial Management	147
497	FM006	1	The solution should have the ability to report based on line and subline categories to all claim line details that correspond to the CMS-21 report.	Financial Management	Will Meet	Attachment G - Business Specifications Approach	Financial Management	148
498	FM007	1	The solution should have the ability to report based on line and subline categories to all claim line details that correspond to the CMS-64 report.	Financial Management	Will Meet	Attachment G - Business Specifications Approach	Financial Management	148
499	FM008	1	The solution should have the ability to provide data for budgeting, forecasting, and rate analysis for all benefits, benefit types, and eligibility groups.	Financial Management	Will Meet	Attachment G - Business Specifications Approach	Financial Management	148
500	FM009	1	The solution should have the ability to support data modeling and to import to and export from other software solutions.	Financial Management	Will Meet	Attachment G - Business Specifications Approach	Financial Management	149
501	FM010	1	The solution should be populated with data as defined by the Department during Design, Development, and Implementation (DDI).	Financial Management	Will Meet	Attachment G - Business Specifications Approach	Financial Management	149
502	FM011	1	The solution should have ability to provide data for rate-setting analysis applicable to all provider types and member benefits.	Financial Management	Will Meet	Attachment G - Business Specifications Approach	Financial Management	149
503	FM012	1	The solution should have the ability to add attachments at the detail level of the budget using software applications defined by the Department including, but not limited to:	Financial Management	Will Meet	Attachment G - Business Specifications Approach	Financial Management	150
504	FM013	2	Microsoft Word	Financial Management	Will Meet	Attachment G - Business Specifications Approach	Financial Management	150
505	FM014	2	Microsoft Excel	Financial Management	Will Meet	Attachment G - Business Specifications Approach	Financial Management	150
506	FM015	2	Portable Document Format (PDF)	Financial Management	Will Meet	Attachment G - Business Specifications Approach	Financial Management	150
507	FM016	2	Others as defined by the Department	Financial Management	Will Meet	Attachment G - Business Specifications Approach	Financial Management	150

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508	FM017	1	The solution should have the ability to provide ad hoc reporting that allows authorized solution user flexibility definitions, and it should have the ability to encompass the Department's reporting needs.	Financial Management	Will Meet	Attachment G - Business Specifications Approach	Financial Management	150
509	FM018	1	The solution should have the ability to report across all Medicaid and Social Service payments regardless of service delivery method and financing mechanism including, but not limited to, the use of a master data management system or function.	Financial Management	Will Meet	Attachment G - Business Specifications Approach	Financial Management	151
510	FM019	1	The solution should provide the ability to organize reports based on member enrollment and eligibility criteria.	Financial Management	Will Meet	Attachment G - Business Specifications Approach	Financial Management	151
511	FM020	1	The solution should have the ability to capture data necessary to perform actuarial services and analyses.	Financial Management	Will Meet	Attachment G - Business Specifications Approach	Financial Management	151
512	IN001	1	The solution should have the ability to retain a historical record of all reports created within the solution including, but not limited to:	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	347
513	IN002	2	Report parameters	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	347
514	IN003	2	Date created	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	347
515	IN004	2	The authorized solution user who created the report	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	347
516	IN005	2	All fields included in the report	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	347
517	IN006	2	Others as defined by the Department	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	347
518	IN007	1	The solution should ensure an authorized solution user experience that meets the response time goal for system latency of no more that 20 milliseconds for each workload interaction	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	347
519	IN008	1	The solution should provide tools for maintaining and managing changes and modifications made by authorized solution users to queries and reports.	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	348
520	IN009	1	The solution should have the ability for hardware, operating system, database management software, and other infrastructure software to meet capacity needs including, but not limited to:	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	348
521	IN010	2	Bandwidth	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	348
522	IN011	2	Central processing unit processors and speed	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	348
523	IN012	2	Cache size	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	348
524	IN013	2	Data storage capacity	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	348
525	IN014	2	Retrieval speed	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	348
526	IN015	2	Others as defined by the Department	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	348
527	IN016	1	The solution should have workflow processes that prevent shifting architecture inefficiencies to manual processes performed by authorized solution users.	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	348
528	IN017	1	The Vendor should specify to the Department the hardware, software, main operating system (OS), and configurations necessary to run the solution on client devices.	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	349
529	IN018	1	The solution should have business intelligence that adheres to the Department's business policies and procedures.	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	349
530	IN019	1	The solution should be a service-oriented architecture (SOA) with reusable and interoperable components and services.	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	349
531	IN020	1	The Vendor should document a holistic, multi-dimensional data view that includes pictures, diagrams, and flow charts of the architecture requirements at the summary and detail levels for suppliers, the Department, and authorized solution users to visualize the solution components and interactions.	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	350
532	IN021	1	The Vendor should ensure the architecture and application design used for the solution allow for the volume, frequency, and variety of data to be scalable, added and updated as needed by the Department.	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	350
533	IN022	1	The Vendor should provide independent application environments to support unit testing (software), system integration testing (SIT), user acceptance testing (UAT), and production deployment.	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	351
534	IN023	1	The Vendor should provide independent application environments (sandboxes) to support authorized solution user testing and training.	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	351
535	IN024	1	The Vendor should provide a solution that minimizes the cost of changes to business rules and business processes.	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	351
536	IN025	1	The Vendor should provide a solution that integrates new technology in a way that minimizes any negative impact to the solution and authorized solution users.	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	351

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537	IN026	1	The Vendor should provide modular components and processes that lengthen the solution's life span when components are updated and/or replaced.	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	351
538	IN027	1	The Vendor should provide a solution that is adaptable and extensible to accommodate business and technology changes.	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	351
539	IN028	1	The Vendor should provide the ability for authorized solution users to run multiple sessions concurrently and have multiple views in the same environments, application, and solution components.	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	351
540	IN029	1	The solution should have the ability to provide a toolbar with common toolbar utilities including but not limited to	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	351
541	IN030	2	Highlight	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	351
542	IN031	2	Copy	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	351
543	IN032	2	Paste	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	351
544	IN033	2	Zoom	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	351
545	IN034	2	Others as defined by the Department	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	351
546	IN035	1	The solution should have the ability for screens to be maximized, minimized, scrolled, and zoomed without the use of external, non-solution-based hot keys, and without hindering standard Windows capabilities.	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	351
547	IN036	1	The solution should provide the ability for efficient sharing, management, and stewardship of data and data queries.	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	352
548	IN037	1	The Vendor should work collaboratively with the Department to minimize existing barriers internally and externally, as defined by the Department.	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	352
549	IN038	1	The solution should provide components that deliver asynchronous communication, timely alerts and notifications, and support social and collaborative environments.	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	352
550	IN039	1	The Vendor should document the solution's architecture and clearly define service end points where system abilities can be added and/or modified without requiring changes to the end points of the solution	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	352
551	IN040	1	The Vendor should develop a solution where all components return the same results when the same parameters are used.	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	352
552	IN041	1	The solution should provide the ability for concurrent use of the solution by other applications, components, and/or software.	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	352
553	IN042	1	The Vendor should provide a solution that is compliant with the Medicaid Information Technology Architecture (MITA) Standards and Conditions.	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	352
554	IN043	1	The Vendor should provide a solution that maintains a holistic view of emerging technologies, and aligns with Department, State, and federal health information technology (HIT) standards.	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	352
555	IN044	1	The Vendor should maintain data governance to enable efficient, effective, correct, and relevant decision-making regarding all aspects of data related to the solution.	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	352
556	IN045	1	The Vendor should monitor the solution and anticipate maintenance needs and scheduling.	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	353
557	IN046	1	The Vendor should develop a process to coordinate with the Department on batch control, balancing of input with data source vendors, scheduling extract, transform, load (ETL) processes, and data load cycles.	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	353
558	IN047	1	The Vendor should provide the ability for authorized solution users to reset passwords through a self-service password reset option.	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	354
559	IN048	1	The Vendor should provide the ability for authorized solution users to self-report issues with solution components as an alternative to calling for support.	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	354
560	IN049	1	The Vendor should define and document a process by which the Department and Vendor define new/ desired solution features and/or functionality	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	354
561	IN050	1	The Vendor should provide the ability to participate in an online discussion forum to share information related to the solution including, but not limited to:	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	354
562	IN051	2	Post inquiries	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	354
563	IN052	2	Respond to other participants	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	354
564	IN053	2	Create topical threads on problems	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	354

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565	IN054	2	Moderate the posts and threads	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	354
566	IN055	2	Search posts and threads by date or relevance	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	354
567	IN056	2	Others as defined by the department	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	354
568	IN057	1	The Vendor should provide a schedule for updating solution hardware and software.	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	354
569	IN058	1	The Vendor should develop, implement, and maintain standards for software installation in coordination with the Department to streamline the installation and maintenance of software.	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	354
570	IN059	1	The Vendor should handle scheduled or on-demand requests to refresh the data from production with a full or referentially intact subset of data within two (2) business days.	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	354
571	IN060	1	The Vendor should monitor network availability, throughput, bandwidth, response time, and network congestion between authorized solution users and the solution.	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	354
572	IN061	1	The Vendor should supply the Department with recommendations to develop the solution to support new industry standards, features, and/or functionality as needed	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	354
573	IN062	1	The Vendor should test and troubleshoot interfaces with other contractors or vendors for information exchange.	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	355
574	IN063	1	The Vendor should provide a data access component that works efficiently in the enterprise data solution (EDS) environment.	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	355
575	IN064	1	The Vendor should provide a data access component that allows for integration with tools in current or future use by the Department including, but not limited to:	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	355
576	IN065	2	Microsoft Project	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	355
577	IN066	2	Microsoft Word	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	355
578	IN067	2	Microsoft Excel	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	355
579	IN068	2	Portable Document Format (PDF)	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	355
580	IN069	2	Microsoft Access	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	355
581	IN070	2	Cognos	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	355
582	IN071	2	Tableau	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	356
583	IN072	2	Others as defined by the Department	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	356
584	IN073	1	The Vendor should describe and document in the Security, Privacy, and Confidentiality Plan the proposed approach to hosting and operating the solution including, but not limited to, production and back-up systems in a secure environment	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	356
585	IN074	1	The Vendor should describe and document the operating platform including, but not limited to:	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	356
586	IN075	2	Hardware	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	356
587	IN076	2	Databases	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	356
588	IN077	2	System software	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	356
589	IN078	2	Application software	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	356
590	IN079	2	Telecommunications	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	356
591	IN080	2	Others as defined by the Department.	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	356
592	IN081	1	The Vendor should describe and document how the platform is shared and how the Department's data is partitioned from other customers' data.	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	356
593	IN082	1	The Vendor should document and describe the operational support of the solution including, not limited to:	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	356
594	IN083	2	Disaster recovery	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	356

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595	IN084	2	Data/system back-up	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	356
596	IN085	2	Staffing and management of data center	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	356
597	IN086	2	Data loading	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	357
598	IN087	2	Data validation	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	357
599	IN088	2	Data cleansing for the proposed solution	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	357
600	IN089	2	Others as defined by the Department	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	357
601	IN090	1	The Vendor should describe its approach for installing the technical infrastructure, making any facility alterations (including upgrades), and establishing necessary telecommunications links in the Security, Privacy, and Confidentiality Plan.	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	357
602	IN091	1	The Vendor should provide a site that fully supports all physical needs of the solution including, but not limited to:	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	357
603	IN092	2	Hardware	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	357
604	IN093	2	Electrical	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	357
605	IN094	2	Cabling	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	357
606	IN095	2	All other physical needs of the system	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	357
607	IN096	2	Others as defined by the Department	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	358
608	IN097	1	The Vendor should ensure all component hardware supporting the solution database structures contain an adequate number of parallel threads for authorized solution user needs.	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	358
609	IN098	1	The Vendor should ensure bandwidth between data acquisition and the solution database servers supports refreshes of the solution database with minimal disruption.	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	358
610	IN099	1	The Vendor should ensure solution hardware and software is compatible with internet browsers including, but not limited to:	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	358
611	IN100	2	Microsoft and Apple products	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	358
612	IN101	2	Google Chrome	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	358
613	IN102	2	Firefox	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	358
614	IN103	2	Internet Explorer (IE 7 or greater)	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	358
615	IN104	2	Others as defined by the Department	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	358
616	IN105	1	The Vendor should ensure hardware and operating systems are certified with recent major versions (1.0, 2.0, etc.) of the solution software.	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	359
617	IN106	1	The Vendor should maintain compatibility with hardware and software for the term of the contract.	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	359
618	IN107	1	The Vendor should provide the Department with an inventory of all solution hardware and software.	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	359
619	IN108	1	The Vendor should coordinate and communicate in writing with the Department regarding the delivery, installation, repair, and maintenance of hardware updates, upgrades, and patches.	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	359
620	IN109	1	The Vendor should coordinate and communicate in writing with the Department regarding the delivery, installation, repair, and maintenance of software updates, upgrades, and patches	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	359
621	IN110	1	The Vendor should provide server and storage hardware with the proven ability to support the processor, memory, input/output subsystem bandwidth, and storage for the solution.	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	359
622	IN111	1	The Vendor should provide server and storage hardware with the capacity to handle the average and peak demands of the authorized solution user community with no performance degradation.	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	359
623	IN112	1	The Vendor should provide component hardware supporting the solution that has a proven record that is comparable to the Department's needs.	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	360

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624	IN113	1	The Vendor should install, configure, enhance, and maintain all hardware and software and should provide services for the Vendor's local area network (LAN) up to the point of connection with the Department's wireless area network (WAN) and LAN network.	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	360
625	IN114	1	The Vendor should establish agreements with telecommunications network vendors to install secure data lines to its data center.	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	360
626	IN115	1	The Vendor should provide and maintain servers.	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	360
627	IN116	1	The Vendor should provide and maintain applications, web pages, and secure sockets layer (SSL) devices to support hypertext transfer protocol security (HTTPS).	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	360
628	IN117	1	The Vendor should submit the proposed plans for all connections to the network to the Department for its review and approval prior to implementation.	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	361
629	IN118	1	The Vendor should ensure authorized solution users are able to access the network and any necessary equipment located in the Vendor's data center from the Department's facilities.	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	361
630	IN119	1	The Vendor should ensure that authorized solution users have the ability to access the solution environments remotely	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	361
631	IN120	1	The Vendor should have the ability to provide a firewall solution and proxies between its private network and the connection to the Department's network.	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	361
632	IN121	1	The Vendor should have a firewall solution and proxies in accordance with Department, State, and federal requirements.	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	361
633	IN122	1	The Vendor should allow Department authorized solution users access into the Vendor facilities.	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	361
634	IN123	1	The Vendor should provide network support for the solution that handles a minimum of 75 authorized solution users.	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	361
635	IN124	1	The Vendor should provide network support for the solution that handles 40 authorized solution users accessing the system concurrently.	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	361
636	IN125	1	The Vendor should provide network support for the solution that handles ten percent (10%) growth per year in the total number of authorized solution users and concurrent authorized solution users.	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	362
637	IN126	1	The Vendor should assist in the resolution of solution-related issues.	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	362
638	IN127	1	The Vendor should manage versions, acquire associated software patches and fixes, apply fixes, and test all applied fixes.	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	362
639	IN128	1	The Vendor should assist with analysis of Department requests for new software and hardware for appropriateness to the overall solution and architecture.	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	362
640	IN129	1	The Vendor should develop and maintain an inventory of software including, but not limited to:	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	362
641	IN130	2	Active versions	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	362
642	IN131	2	Licensing requirements	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	362
643	IN132	2	Interdependencies to assist with overall management of software upgrades	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	362
644	IN133	2	Others as defined by the Department	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	362
645	IN134	1	The Vendor should develop and implement standards for software installation including, but not limited to:	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	362
646	IN135	2	Data set names	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	362
647	IN136	2	Architecture names	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	362
648	IN137	2	Volume names to streamline installation and maintenance of software	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	362
649	IN138	2	Others as defined by the Department	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	363
650	IN139	1	The Vendor should manage scheduling of operating system upgrades to accommodate processing schedules and system availability needs of the Department.	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	363
651	IN140	1	The Vendor should provide a plan for the physical security of the solution facilities including, but not limited to these topics:	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	363
652	IN141	2	Designated responsible person(s)	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	363
653	IN142	2	Defined perimeter and protocols for secure access	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	363

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654	IN143	2	Security of the communication network and solution components	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	363
655	IN144	2	Administrative controls	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	363
656	IN145	1	The Vendor should provide and maintain encrypted network connections that align with State, federal, and Department requirements.	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	363
657	IN146	1	The solution should prioritize business intelligence data retrieval over batch extract, transform, load (ETL) processes.	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	363
658	IN147	1	The Vendor should describe and maintain the solution's interface design in interface control documents that are readily available to authorized solution users	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	364
659	IN148	1	The solution should have a web-based browser interface that provides seamless integration to the full solution for authorized solution users.	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	364
660	IN149	1	The solution network architecture, network hardware, and software should be compliant with	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	364
661	IN150	2	All policies and procedures issued by the West Virginia Office of Technology (WVOT)	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	364
662	IN151	2	National Institute of Standards and Technology (NIST) Special Publication 800-53, or the most recent NIST publication	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	364
663	IN152	2	Applicable requirements under the Office of the National Coordinator for Health Information Technology (ONC) certification criteria for electronic health record technology	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	364
664	IN153	2	Others as defined by the Department	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	364
665	IN154	1	The solution should have open application programming interfaces (APIs).	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	365
666	IN155	1	The Vendor should ensure that backups of reports and queries performed by authorized solution users are stored on a single shared drive in the solution.	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	365
667	IN156	1	The solution should leverage existing Department systems to achieve the desired to-be environment detailed within this Request for Proposal (RFP).	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	365
668	IN157	1	The solution should leverage existing Department services to achieve the desired to-be environment detailed within this Request for Proposal (RFP).	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	365
669	IN158	1	The solution should allow for intra- and inter-state leverage and reuse.	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	365
670	IN159	1	The solution's technical architecture should enable flexibility and adaptability to respond quickly to changing business needs or regulatory requirements	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	365
671	IN160	1	The solution's underlying technical hardware and software architecture should promote shared use across the enterprise, including, but not limited to:	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	365
672	IN161	2	N-Tier service-oriented architecture (SOA), or multi-tier architecture, with multiple architecture layers enabling complete separation of the data, application, and presentation tiers	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	365
673	IN162	2	Standards-based interoperability technologies that include Web Service Definition Language (WSDL), Simple Object Access Protocol (SOAP), Extensible Markup Language (XMS), and Java	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	365
674	IN163	2	Others as defined by the Department	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	365
675	IN164	1	The Vendor should maintain and support data management governance, data security, and data quality to ensure all data received from the Enterprise Data Solution (EDS) Interfaces and Exchanges maintains the data's integrity throughout the Extract, Transform, Load (ETL) process.	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	366
676	IN165	1	The Vendor should ensure the data received from the Enterprise Data Solution (EDS) Interfaces and Exchanges is consistent with the Physical Data Model and Data Dictionary	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	367
677	IN166	1	The Vendor should be prepared to assist the Department with discussions as they pertain to data management, data governance, and/or data sharing.	Hardware and Infrastructure	Will Meet	Attachment H - Technical Specifications Approach	Hardware and Infrastructure	367
678	OP001	1	The Vendor should ensure that its staff, as defined by the Department, are located onsite at the Vendor's local facility and readily available to the Department throughout each implementation stage	Operations	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Operations	490
679	OP002	1	The Vendor should supply key staff resumes to the Department for review and approval prior to key staff beginning work under the contract.	Operations	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Operations	490
680	OP003	1	The Vendor should supply resumes for key staff substitutions to the Department for review and approval prior to key staff substitutions performing any work under the contract.	Operations	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Operations	490
681	OP004	1	The Vendor should collaborate with the Department to develop and maintain a process for authorized solution user support.	Operations	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Operations	490
682	OP005	1	The Vendor should provide a help desk Monday through Friday, 8:00 a.m. to 5:00 p.m. ET.	Operations	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Operations	498

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683	OP006	1	The Vendor should maintain and ensure contract personnel staffing levels and competencies to support software applications, data integrity, analytics, user training, and contract administration pursuant to Service Level Agreements (SLAs).	Operations	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Operations	502
684	OP007	1	The Vendor should maintain adequate staff to perform analytic functions including, but not limited to:	Operations	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Operations	502
685	OP008	2	Collaborate with the Department to develop and implement provider performance metrics for specific populations and Department programs	Operations	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Operations	502
686	OP009	2	Evaluate credibility and efficacy of measures and baseline comparisons and recommend improvements where appropriate	Operations	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Operations	503
687	OP010	2	Collaborate with the Department to develop analytics for payment reform activities including, but not limited to:	Operations	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Operations	504
688	OP011	3	Provider incentive payment programs	Operations	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Operations	504
689	OP012	3	Provider shared savings models	Operations	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Operations	504
690	OP013	3	Others as defined by the Department	Operations	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Operations	504
691	OP014	2	Participate in stakeholder meetings to interpret results of analyses	Operations	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Operations	504
692	OP015	2	Provide industry best practice analytics on behalf of the Department including, but not limited to:	Operations	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Operations	505
693	OP016	3	Predictive modeling	Operations	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Operations	505
694	OP017	3	Member risk scores	Operations	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Operations	505
695	OP018	3	Performance monitoring and benchmarking	Operations	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Operations	505
696	OP019	3	Evaluating utilization variances among providers	Operations	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Operations	505
697	OP020	3	Creating provider profiles	Operations	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Operations	505
698	OP021	3	Others as defined by the Department	Operations	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Operations	505
699	OP022	2	Advanced reporting abilities that include both ad hoc and a standard library of reports	Operations	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Operations	506
700	OP023	2	Support analyses that require advanced-level statistics	Operations	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Operations	506
701	OP024	2	Others as defined by the Department and pursuant to Service Level Agreements (SLAs)	Operations	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Operations	506
702	OP025	1	The Vendor should maintain adequate staff to perform operational functions including, but not limited to:	Operations	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Operations	508
703	OP026	2	Identify a primary and back-up point of contact for day-to-day operations	Operations	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Operations	508
704	OP027	2	Maintain effective communications of project updates and problem resolutions	Operations	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Operations	508
705	OP028	2	Maintain current documentation of operational processes and notify designated Department staff of operational issues and remediation plans within the designated timeframes pursuant to Department-defined Service Level Agreements (SLAs)	Operations	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Operations	508
706	OP029	2	Ensure quality control procedures are in place and utilized and that issues are resolved when identified through quality checks	Operations	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Operations	508
707	OP030	2	Adhere to project and report delivery timeframes	Operations	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Operations	508
708	OP031	2	Conduct business use analyses to prepare operational reports	Operations	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Operations	508
709	OP032	2	Work with the Department to automate operational reports	Operations	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Operations	508
710	OP033	2	Others as defined by the Department and pursuant to Service Level Agreements (SLAs)	Operations	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Operations	508
711	OP034	1	The Vendor should maintain adequate staff to perform technical functions including, but not limited to:	Operations	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Operations	516

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712	OP035	2	Maintain systems by researching and resolving problems	Operations	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Operations	516
713	OP036	2	Maintain system and network integrity and security	Operations	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Operations	516
714	OP037	2	Develop and maintain configuration and customization of the solution, solution tools, and rules engine	Operations	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Operations	517
715	OP038	2	Establish, manage, and maintain the solution data exchanges	Operations	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Operations	517
716	OP039	2	Maintain file specifications for solution data exchanges	Operations	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Operations	517
717	OP040	2	Establish, manage, and maintain solution interfaces	Operations	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Operations	517
718	OP041	2	Assure that new processes/new technology installations minimize negative impact on the system and authorized solution users	Operations	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Operations	517
719	OP042	2	Schedule and execute file transfers with external solution data exchange sources	Operations	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Operations	517
720	OP043	2	Provide regular status updates to the Department on system issues and system updates	Operations	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Operations	517
721	OP044	2	Maintain a system of checks and balances such that the underlying data are consistent, complete, and accurate	Operations	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Operations	517
722	OP045	2	Develop and gather requirements	Operations	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Operations	517
723	OP046	2	Design, implement, and maintain solution architecture	Operations	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Operations	517
724	OP047	2	Monitor solution performance and resolve issues	Operations	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Operations	517
725	OP048	2	Analyze test plans, technical specifications, and test results	Operations	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Operations	517
726	OP049	2	Provide system documentation	Operations	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Operations	517
727	OP050	2	Others as defined by the Department and pursuant to Service Level Agreements (SLAs)	Operations	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Operations	517
728	OP051	1	The Vendor should participate in project meetings as directed by the Department	Operations	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Operations	522
729	OP052	1	The Vendor should work collaboratively with the Department to explain and support electronic data solution Vendor-based operations and reporting to stakeholders, auditors, and other parties when necessary.	Operations	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Operations	522
730	OP053	1	The Vendor should participate in audit activities including, but not limited to:	Operations	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Operations	522
731	OP054	2	Attending meetings	Operations	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Operations	522
732	OP055	2	Running reports	Operations	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Operations	523
733	OP056	2	Providing documentation	Operations	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Operations	523
734	OP057	2	Providing access to all system components and modules as requested by the Department	Operations	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Operations	523
735	OP058	1	The Vendor should support the State with data integration needs prior to and subsequent to the solution's implementation.	Operations	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Operations	523
736	OP059	1	The Vendor should provide the Department with a Data Management Plan as defined in Appendix 2 - Deliverables and Milestones Dictionary.	Operations	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Operations	523
737	OP060	1	The Vendor should agree to perform according to approved Service Level Agreements (SLA) and identified Key Performance Indicators (KPI) with associated metrics in the areas of system availability, performance, data quality, and problem management, and should consent to the Department retaining a percentage of payment if agreed-upon metrics are not achieved.	Operations	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Operations	524
738	OP061	1	The Vendor should develop, maintain, and implement a Department-approved System Operations Plan as defined in Appendix 2 - Deliverables and Milestones Dictionary	Operations	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Operations	525
739	OP062	1	The Vendor should pay and arrange for an annual Statement on Standards for Attestation Engagements, System, and Organization Controls (SOC) 1, Type II audit, using the most current version of the audit, which should cover work performed by the Vendor at the Vendor's facility and data center sites.	Operations	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Operations	525

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740	OP063	1	The Vendor should submit the annual Statement on Standards for Attestation Engagements, System and Organization Controls (SOC) 1, Type II audit report, using the most current version of the audit, to the Department for approval with an action plan to remediate findings within a timeframe agreed upon by the Vendor and the Department.	Operations	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Operations	525
741	OP064	1	The solution should provide an authorized solution user test environment (sandbox) to test new queries and reports prior to execution in production.	Operations	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Operations	526
742	OP065	1	The solution should have test environments (sandboxes) that include metadata necessary to test new queries and reports prior to execution in production.	Operations	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Operations	526
743	OP066	1	The solution should have a test environment (sandbox) that can be refreshed as requested by the Department.	Operations	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Operations	526
744	OP067	1	The solution should utilize the same hardware, operating system, and relational database management in the test environments (sandboxes) that are used in production.	Operations	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Operations	526
745	OP068	1	The solution should have test environments (sandboxes) that mirror the production environment.	Operations	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Operations	526
746	OP069	1	The Vendor should develop, implement, and maintain a configuration management solution to migrate tested hardware and software to the production environment.	Operations	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Operations	526
747	OP070	1	The solution should supply access to the user acceptance testing (UAT) environment on the enterprise data solution (EDS) portal for authorized solution users.	Operations	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Operations	527
748	OP071	1	The solution should provide access to the enterprise data solution (EDS) portal test environments (sandboxes) for authorized solution users.	Operations	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Operations	527
749	OP072	1	The Vendor should provide access for authorized solution users to all solution test environments as requested by the Department.	Operations	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Operations	527
750	OP073	1	The solution should have a development environment to develop and unit-test all software contained within the solution.	Operations	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Operations	528
751	OP074	1	The solution's user acceptance testing (UAT) environment should have the ability to support all components of the solution.	Operations	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Operations	528
752	OP075	1	The solution's unit test environment should have the ability to perform full-scale system integration testing (SIT) for the solution.	Operations	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Operations	528
753	OP076	1	The solution should have a unit test environment that mirrors production in hardware, software stack, and data volumes.	Operations	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Operations	528
754	OP077	1	The solution should have a unit test environment that exists for all relevant components.	Operations	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Operations	528
755	PG001	1	The solution should support a range of analysis actions including, but not limited to:	Program Management	Will Meet	Attachment J - Maintenance and Operations Specifications Approach	Operations	529
756	PG002	2	Benefit modeling	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	151
757	PG003	2	Clinical review	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	151
758	PG004	2	Utilization management	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	151
759	PG005	2	Provider-member-Managed Care Organization (MCO) profiling	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	151
760	PG006	2	Program planning	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	152
761	PG007	2	Forecasting	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	152
762	PG008	2	Program assessment	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	152
763	PG009	2	Provider or contractor performance	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	152
764	PG010	2	Quality assurance	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	152
765	PG011	2	Fraud, waste, and abuse detection	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	152
766	PG012	2	Comparison of fee-for-service (FFS) and managed care	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	152
767	PG013	2	Other functions as described in the Advanced Planning Document (APD) and/or the Request for Proposal (RFP)	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	152
768	PG014	1	The Vendor should comply fully with all applicable Department, State, and federal requirements and regulations including, but not limited to	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	155
769	PG015	2	State Medicaid Manual	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	155
770	PG016	2	Centers for Medicare & Medicaid Services (CMS)	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	155
771	PG017	2	West Virginia State Medicaid Plan	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	155
772	PG018	2	Section 1902 and 2103 of the Social Security Act	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	155
773	PG019	2	Title 42, Code of Federal Regulations	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	155
774	PG020	2	Applicable West Virginia Code	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	155
775	PG021	2	Chapter 9, Human Services	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	155
776	PG022	2	Section 504 and 508 of the Rehabilitation Act of 1973 as amended	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	155
777	PG023	2	West Virginia Children's Health Insurance Program (CHIP) State Plan	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	155
778	PG024	1	The Vendor should address how data fields to be included in the data warehouse are defined and agreed upon during Design, Development and Implementation (DDI) as well as how new fields will be added.	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	156
779	PG025	1	The solution should mirror all fields and field naming conventions (both current and future) within the Medicaid Management Information System (MMIS).	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	156

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780	PG026	1	The Vendor should propose, develop, produce, and maintain a searchable and indexed library embedded within all solution applications including, but not limited to	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	156
781	PG027	2	Solution policy manuals	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	156
782	PG028	2	Training materials	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	156
783	PG029	2	User guides	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	156
784	PG030	2	Implementation memos	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	157
785	PG031	2	Data dictionary	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	157
786	PG032	2	Frequently Asked Questions (FAQs)	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	157
787	PG033	1	The Vendor should provide full documentation of developed reports in a searchable, electronic, legible format that is available within the solution.	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	157
788	PG034	1	The solution should maintain updated industry standard and third-party reference data as it changes including, but not limited to	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	159
789	PG035	2	Inpatient hospital Diagnosis Related Groups (DRGs)	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	159
790	PG036	2	Current Procedural Terminology (CPT)	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	159
791	PG037	2	Healthcare Common Procedure Coding System (HCPCS)	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	159
792	PG038	2	Therapeutic classes	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	159
793	PG039	1	The solution should have the ability to review utilization by Department-defined member categories to determine the extent of participation and related cost.	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	159
794	PG040	1	The solution should have the ability to review utilization by Department-defined provider categories to determine the extent of participation and related cost	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	160
795	PG041	1	The solution should have the ability to review utilization by Department-defined Managed Care Organization (MCO) categories to determine the extent of participation and related cost.	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	160
796	PG042	1	The solution should have the ability to archive and retain data in accordance with Department, State, and federal regulations, laws, policies, and/or procedures.	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	160
797	PG043	1	The solution should have the ability to receive data from the Medicaid Management Information System (MMIS) including, but not limited to:	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	160
798	PG044	2	Claims history	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	160
799	PG045	2	Member enrollment	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	160
800	PG046	2	Provider enrollment	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	161
801	PG047	2	Primary reference data such as:	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	161
802	PG048	3	Diagnosis	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	161
803	PG049	3	Procedure	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	161
804	PG050	3	National Drug Code (NDC)	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	161
805	PG051	3	Pricing	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	161
806	PG052	1	The solution should have the ability to refresh or replace all historical claims data, member enrollment, provider enrollment, and other primary reference data on a scheduled basis as approved by the Department	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	161
807	PG053	1	The solution should have the ability to refresh or replace all historical claims data, member enrollment, provider enrollment, and other primary reference data as defined by the Department.	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	161
808	PG054	1	The solution should provide the ability to manage offline storage and retrieval of archived data.	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	161
809	PG055	1	The solution should have the ability to look up information such as subsets, norms, benchmarks, query creation, and all other objects.	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	162
810	PG056	1	The solution should have the ability to receive data in different formats and from different sources including but not limited to:	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	162
811	PG057	2	Vital statistics data	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	162
812	PG058	2	Encounter data	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	162
813	PG059	2	Managed Care Organization (MCO) encounter data	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	162
814	PG060	2	Pharmacy data	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	162
815	PG061	2	Rebate data	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	162
816	PG062	2	Dental data	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	162
817	PG063	2	Behavioral health data	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	162
818	PG064	2	Waiver program data such as enrollment	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	162
819	PG065	2	Others identified by the Department	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	162
820	PG066	1	The solution should provide the ability to report any issues impacting integration and interoperability between the proposed solution and related data sources within one (1) business day of discovery	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	163
821	PG067	1	The solution should have the ability to integrate data from sources including, but not limited to:	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	164
822	PG068	2	Eligibility	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	164
823	PG069	2	Capitation	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	164
824	PG070	2	Claims system	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	164
825	PG071	2	Managed care encounter data	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	164
826	PG072	1	The solution should have the ability to integrate data from contractors including, but not limited to:	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	164
827	PG073	2	Pharmacy benefit manager (PBM)	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	165

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828	PG074	2	Behavioral health plans	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	165
829	PG075	2	Managed Care Organization (MCO) health plans	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	165
830	PG076	2	Children's Health Insurance Program (CHIP) contractors	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	165
831	PG077	2	Others as defined by the Department	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	165
832	PG078	2	All data sources as defined by the Department	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	165
833	PG079	2	Providers	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	165
834	PG080	2	Reference files	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	165
835	PG081	1	The solution should have the ability to securely load, save, and report on confidential and/or proprietary data/information, and limit access to authorized solution users.	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	165
836	PG082	1	The solution should have the ability to incorporate current standards and benchmarks as defined by the Department relevant to Medicaid and other health care programs including, but not limited to:	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	166
837	PG083	2	Utilization	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	166
838	PG084	2	Cost	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	166
839	PG085	2	Quality of Care	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	166
840	PG086	2	Outcomes	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	166
841	PG087	2	Prevention	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	166
842	PG088	2	Access to Care	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	166
843	PG089	2	Eligibility	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	166
844	PG090	2	Administrative Performance	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	166
845	PG091	1	The solution should have the ability to track claims processing activities and report on current status of payments.	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	166
846	PG092	1	The solution should have the ability to access and report on third-party avoidance and collections per West Virginia Medicaid State Plan for the Department's review	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	166
847	PG093	1	The solution should have the ability to track claims at any status or location including, but not limited	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	167
848	PG094	2	Claims backlog	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	167
849	PG095	2	Key entry backlog	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	167
850	PG096	2	File status	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	167
851	PG097	2	Other indicators as identified by the Department	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	167
852	PG098	1	The solution should have the ability to analyze and report on timely claims filing by providers	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	167
853	PG099	1	The solution should have the ability to report on and accurately reflect payments on dual eligibles.	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	167
854	PG100	1	The solution should have the ability to aggregate and report on services including, but not limited to	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	167
855	PG101	2	Specified time periods	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	168
856	PG102	2	Service categories	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	168
857	PG103	2	Unduplicated claims	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	168
858	PG104	2	Members	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	168
859	PG105	2	Providers	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	168
860	PG106	1	The solution should have the ability to identify payments by type, as defined by the Department.	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	168
861	PG107	1	The solution should have the ability to track and report on claims by all attributes of the claim including but not limited to:	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	169
862	PG108	2	Claim and line identifier	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	169
863	PG109	2	Payment status	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	169
864	PG110	2	Member	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	169
865	PG111	2	Provider and entity identifiers	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	169
866	PG112	2	Diagnosis	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	169
867	PG113	2	Diagnosis code	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	169
868	PG114	2	Procedure	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	169
869	PG115	2	Procedure code	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	169
870	PG116	2	Treatment	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	169
871	PG117	2	Dates	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	169
872	PG118	2	Reviewing entity	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	169
873	PG119	2	Others identified by the Department	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	169
874	PG120	1	The solution should have the ability to assist auditors in reviewing provider cost reports and establishing a basis for cost settlements.	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	170
875	PG121	1	The solution should have the ability to analyze and report on individual provider payments.	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	170
876	PG122	1	The solution should have the ability to retrieve data, on an ad hoc basis, relevant to specific operational units including, but not limited to	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	170
877	PG123	2	Claims resolution	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	170
878	PG124	2	Prior authorization	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	170
879	PG125	2	Medical necessity review	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	170
880	PG126	2	Others identified by the Department	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	170

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881	PG127	1	The solution should have the ability to maintain online access to selected management reports and annual reports for the time period specified by the Department, with flexibility for the Department to alter the length of the retention period.	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	171
882	PG128	1	The solution should have the ability to produce the current volume of Department standard and operational reports	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	171
883	PG129	1	The solution should have the ability to populate new data fields with historical data.	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	171
884	PG130	1	The solution should have the ability to allow authorized solution users to promote rules to permanent tables upon approval through the Change Management Process	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	172
885	PG131	1	The solution should have the ability to create and modify automated authorized solution user-configurable business rules that link, classify, and relate rules and rule groups by patterns, mathematical sets, dependencies, and other factors.	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	172
886	PG132	1	The solution should have the ability to allow authorized solution users to use online screens and services inside the solution to promote rules to user-specific tables.	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	173
887	PG133	1	The solution should have the ability to configure rules to be date-specific including, but not limited to:	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	173
888	PG134	2	Date added	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	173
889	PG135	2	Date modified	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	173
890	PG136	2	Start and end dates	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	173
891	PG137	2	Effective date	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	173
892	PG138	1	The solution should have the ability to allow authorized solution users to create and modify user-specific or shared business rules that link, classify, and relate rules and rule groups by patterns, mathematical sets, dependencies, and other factors	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	174
893	PG139	1	The solution should have the ability to allow authorized solution users to apply identifying codes to any record based on rules engine criteria.	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	174
894	PG140	1	The solution should have the ability for authorized solution users to receive push notifications based on user-configurable parameters	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	174
895	PG141	1	The solution should have the ability for authorized solution users to review and validate rules without the need to learn a specialized coding language.	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	174
896	PG142	1	The solution should have the ability to process multi-level rule review and approval that validates logic errors, conflicts, redundancy, and incompleteness across business rules as they are being developed, tested, and implemented.	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	175
897	PG143	1	The solution should have the ability for authorized solution users to test rules against replicated data prior to implementation, including full user acceptance testing (UAT) of the rules.	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	176
898	PG144	1	The solution should have the ability to track and report rule usage, exception usage, and when rules fail to work as designed, and provide recommendations to resolve rule failure	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	176
899	PG145	1	The solution should have the ability to capture care management data including, but not limited to:	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	176
900	PG146	2	Treatment plan	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	176
901	PG147	2	Outcomes	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	176
902	PG148	2	Prior authorization information	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	176
903	PG149	2	Others as defined by the Department	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	176
904	PG150	1	The solution should have the ability to capture compliance incident data including, but not limited to.	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	176
905	PG151	2	Anomalies and adverse actions, such as:	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	176
906	PG152	3	Termination	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	176
907	PG153	3	Suspension	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	177
908	PG154	3	Nonrenewals	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	177
909	PG155	3	Denial of contracts	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	177
910	PG156	3	Others as defined by the Department	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	178
911	PG157	1	The solution should have the ability to capture claims data including, but not limited to:	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	178
912	PG158	2	Payment	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	178
913	PG159	2	In-house claim number	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	178
914	PG160	2	Member number	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	178
915	PG161	2	Patient account number	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	178
916	PG162	2	Encounters	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	178
917	PG163	2	Adjudication	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	178
918	PG164	2	Historical payment information	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	178
919	PG165	2	Others as defined by the Department	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	178
920	PG166	1	The solution should have the ability to capture encounter data including, but not limited to.	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	178
921	PG167	2	Adjudication and encounter payment history information	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	178
922	PG168	2	Others as defined by the Department	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	178
923	PG169	1	The solution should have the ability to capture reference data including, but not limited to:	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	178
924	PG170	2	Filing deadlines	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	178
925	PG171	2	Code sets	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	178
926	PG172	2	Drug status (preferred, non-preferred, non-managed)	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	178

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927	PG173	2	Procedure code	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	178
928	PG174	2	Diagnosis-related group (DRG)	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	178
929	PG175	2	Ambulatory payment classification	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	178
930	PG176	2	National Correct Coding Initiative (NCCI) information	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	178
931	PG177	2	Others as defined by the Department	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	178
932	PG178	1	The solution should have the ability to capture plan data, as defined by the Department.	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	178
933	PG179	1	The solution should have the ability to capture carrier data including, but not limited to:	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	178
934	PG180	2	Third-party policy type	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	178
935	PG181	2	Coverage	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	178
936	PG182	2	Policy number	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	179
937	PG183	2	Effective date	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	179
938	PG184	2	Benefits	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	179
939	PG185	2	Others defined by the Department	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	179
940	PG186	1	The solution should have the ability to capture data source contracting information including, but not limited to:	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	179
941	PG187	2	Provider network	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	180
942	PG188	2	Contract	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	180
943	PG189	2	Grievance and appeals information	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	180
944	PG190	2	Others defined by the Department	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	180
945	PG191	1	The solution should have the ability to capture member data including, but not limited to:	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	180
946	PG192	2	Demographics	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	180
947	PG193	2	Eligibility	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	180
948	PG194	2	Enrollment	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	180
949	PG195	2	Grievance and appeals information	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	180
950	PG196	2	Others defined by the Department	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	181
951	PG197	1	The solution should have the ability to provide authorized solution users with analytical tools including statistical, comparative, and financial trend analyses, as well as case-mix adjustments.	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	181
952	PG198	1	The solution should have the ability to compare current expenditures by service type and/or member/eligibility category with previous period expenditures to establish a frame of reference for analyzing trends.	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	181
953	PG199	1	The solution should have the ability to compare actual expenditures against budget to determine control of current and projected financial positions.	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	181
954	PG200	1	The solution should have the ability to analyze expenditures to identify areas of greatest cost.	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	181
955	PG201	1	The solution should have the ability to report on utilization and cost of services against benefit limitations.	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	181
956	PG202	1	The solution should have the ability to provide member enrollment and participation analyses and overall summary, showing utilization rates, payments, and numbers of members by eligibility category.	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	182
957	PG203	1	The solution should have the ability to provide expenditure data by service codes including, but not limited to, current versions of:	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	182
958	PG204	2	Healthcare Common Procedure Coding System (HCPCS)	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	182
959	PG205	2	International Classification of Diseases (ICD)	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	183
960	PG206	2	Clinical modifiers	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	183
961	PG207	2	National Drug Code (NDC)	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	183
962	PG208	2	Revenue codes	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	183
963	PG209	1	The solution should have the ability to support determining reimbursement methodologies by providing expenditure data by service codes including, but not limited to, current versions of:	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	183
964	PG210	2	Healthcare Common Procedure Coding System (HCPCS)	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	183
965	PG211	2	International Classification of Diseases (ICD)	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	183
966	PG212	2	Clinical modifiers	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	183
967	PG213	2	National Drug Code (NDC)	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	184
968	PG214	2	Revenue codes	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	184
969	PG215	1	The solution should have the ability to analyze provider participation data by criteria including, but not limited to:	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	184
970	PG216	2	Payments	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	184
971	PG217	2	Services	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	184
972	PG218	2	Types of services	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	184
973	PG219	2	Member eligibility categories	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	184
974	PG220	2	Others defined by the Department	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	184
975	PG221	1	The solution should have the ability to summarize expenditures based on type of federal expenditure and the member's eligibility and program.	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	184

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976	PG222	1	The solution should have the ability for authorized solution users to perform prospective and retrospective policy modeling (what-if analyses) on claims edit checking and adjudication rules, claims parameters and payment rules, provider payment rules or amounts, or claims sequencing.	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	184
977	PG223	1	The solution should have the ability for authorized solution users to perform prospective and retrospective policy modeling (what-if analyses) on changes in provider profiles.	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	184
978	PG224	1	The solution should have the ability for authorized solution users to perform prospective and retrospective policy modeling (what-if analyses) on changes in member profiles.	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	185
979	PG225	1	The solution should have the ability for authorized solution users to perform prospective and retrospective policy modeling (what-if analyses) on changes in benefit plans.	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	185
980	PG226	1	The solution should have the ability for authorized solution users to perform prospective and retrospective policy modeling (what-if analyses) on patterns in relationships between disparate data.	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	185
981	PG227	1	The solution should have the ability for authorized solution users to perform policy modeling (what-if analyses) on other criteria as defined by the Department.	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	185
982	PG228	1	The solution should have the ability for authorized solution users to perform retrospective reviews on claims that appear to have been inappropriately paid, such as:	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	185
983	PG229	2	Excessive units	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	185
984	PG230	2	Duplicate services	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	185
985	PG231	2	Coding errors, or other errors	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	185
986	PG232	1	The solution should have the ability for authorized solution users to perform retrospective reviews to determine whether services and billings were a medically-necessary exception to usual practice.	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	186
987	PG233	1	The solution should have the ability to compare encounter data and claims with capitation versus fee-for-service (FFS) payment data to determine optimal utilization and payment scenarios.	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	187
988	PG234	1	The solution should have the ability to report health care quality measures in accordance with the Centers for Medicare & Medicaid Services (CMS) Technical Specifications including, but not limited to:	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	187
989	PG235	2	Adult Core Set	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	187
990	PG236	2	Child Core Set	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	187
991	PG237	2	Health Home Core Set	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	187
992	PG238	2	Substance Use Disorder (SUD) Waiver Measures	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	187
993	PG239	2	Others identified by the CMS and/or the Department	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	187
994	PG240	1	The solution should have the ability to provide on an annual basis pre-built queries for the Centers for Medicare & Medicaid Services (CMS) Adult Core Set, Child Core Set, Health Home Core Set, Substance Use Disorder (SUD) Waiver Measures, and others identified by CMS and/or the Department, and the Vendor should review the queries with Department staff once they are complete within a timeline agreed upon with the Department.	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	188
995	PG241	1	The solution should maintain all historical queries for the Centers for Medicare & Medicaid Services (CMS) Adult Core Set, Child Core Set, Health Home Core Set, Substance Use Disorder (SUD) Waiver Measures, and others identified by the Department and/or CMS for a minimum of ten (10) years.	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	189
996	PG242	1	The solution should have the ability to report state-defined healthcare quality measures in accordance with specification criteria from various measure stewards such as:	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	189
997	PG243	2	Pharmacy Quality Alliance (PQA)	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	189
998	PG244	2	National Quality Forum (NQF)	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	189
999	PG245	2	National Committee for Quality Assurance (NCQA)	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	189
1000	PG246	2	Healthcare Effectiveness Data and Information Set (HEDIS) Measures	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	189
1001	PG247	2	The Joint Commission (TJC) National Quality Measures	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	189
1002	PG248	2	Centers for Medicare & Medicaid Services (CMS) Measures	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	189
1003	PG249	2	U.S. Office of Population Affairs (OPA)	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	189
1004	PG250	2	Agency for Healthcare Research and Quality (AHRQ)	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	189
1005	PG251	2	Centers for Disease Control (CDC)	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	189
1006	PG252	2	Others as identified by the Department	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	189
1007	PG253	1	The solution should provide the ability to produce multidimensional, flexible, ad hoc reports across business functions which meet reporting needs including, but not limited to:	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	190
1008	PG254	2	Financial reporting	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	190
1009	PG255	2	Budget forecasting	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	190
1010	PG256	2	Fiscal planning and control	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	190
1011	PG257	2	Claims payment accuracy	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	190
1012	PG258	2	Expenditures	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	190
1013	PG259	2	Timely reimbursement analysis	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	190
1014	PG260	2	Cost/benefit analysis	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	191
1015	PG261	2	Eligibility and benefit design	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	191
1016	PG262	2	Geographical analysis	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	191

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1017	PG263	2	Program planning	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	191
1018	PG264	2	Policy Analysis	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	191
1019	PG265	2	Federal waiver program evaluation	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	191
1020	PG266	2	Adequacy of and access to care	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	191
1021	PG267	2	Quality of care	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	191
1022	PG268	2	Outcomes assessment	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	191
1023	PG269	2	Disease management	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	191
1024	PG270	2	Managed care plan planning and analyses	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	191
1025	PG271	2	Others as defined by the Department	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	191
1026	PG272	1	The solution should have the ability to calculate Department-specified calculations in temporary arrays allowing for multi-step array-based queries.	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	193
1027	PG273	1	The solution's data access component should allow the authorized solution user to have the ability to type or select from any menu options available in the solution that include measures, dimensions, subsets, and time periods.	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	194
1028	PG274	1	The solution's data access component should provide the authorized solution user with search capability for all unique values for macros whose size exceeds system limitations.	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	194
1029	PG275	1	The solution should have the ability to capture data collected by each contracted Managed Care Organization (MCO) including, but not limited to:	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	194
1030	PG276	2	Social determinants of health	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	194
1031	PG277	2	Others as defined by the Department	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	194
1032	PG278	1	The solution should have the ability to produce a hospice report comparing hospice days to inpatient days for each enrolled hospice member and for all hospice providers	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	194
1033	PG279	1	The solution should track the impact of the Medicare drug program.	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	194
1034	PG280	1	The solution should provide information required for the review and development of medical assistance policy and regulations.	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	195
1035	PG281	1	The solution should support the projection of the cost of program services for future periods.	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	195
1036	PG282	1	The solution should meet Transformed Medicaid Statistical Information System (T-MSIS) reporting timelines, providing T-MSIS tapes for submission in accordance with the tape delivery schedules	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	195
1037	PG283	1	The solution should comply with the information reporting requirements of section 6041 of the Internal Revenue Code (26 U.S.C. 6041). Section 6041 requires the filing of annual information returns showing amounts paid to providers, who are identified by name, address, and social security number or employer identification number.	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	196
1038	PG284	1	The solution should provide the ability to create a quarterly report on expenditures under the Money Follows the Person program based on the Department's rules.	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	196
1039	PG285	1	The solution development efforts should be tied to and supportive of agency goals and objectives including, but not limited to:	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	196
1040	PG286	2	Managing long term care costs	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	196
1041	PG287	2	Acute care	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	196
1042	PG288	2	Others as defined by the Department	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	196
1043	PG289	1	The solution should have the ability to meet Department-defined time frames and prioritization for processing authorized solution user requests.	Program Management	Will Meet	Attachment G - Business Specifications Approach	Program Management	197
1044	PI001	1	The solution should have the ability to search, sort, filter, and group by any field to support investigative case management	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	198
1045	PI002	1	The solution should have the ability to associate providers with their members and members with their providers to view those relationships and to access all associated data including, but not limited to:	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	199
1046	PI003	2	Member records	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	199
1047	PI004	2	Provider records	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	199
1048	PI005	2	Prior authorizations	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	199
1049	PI006	2	Member case management data	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	200
1050	PI007	2	Claim/encounter records when accessing any one of them in the solution	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	200
1051	PI008	1	The solution should have the ability to associate providers to providers and providers to members to view those relationships and to access all associated data including, but not limited to:	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	200
1052	PI009	2	Member records	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	200
1053	PI010	2	Provider records	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	200
1054	PI011	2	Prior authorizations	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	200
1055	PI012	2	Member case management data	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	200
1056	PI013	2	Claim/encounter records when accessing any one of them in the solution	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	200
1057	PI014	1	The solution should include an Investigative Case Management component with the ability to capture, store, track, and report on all actions, determinations, and resolutions through to final resolution including, but not limited to:	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	201
1058	PI015	2	Suspensions	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	201
1059	PI016	2	Terminations	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	201

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1060	PI017	2	Criminal/civil convictions	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	201
1061	PI018	2	Recovered amounts from referrals of potential fraud, waste, and abuse	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	201
1062	PI019	2	Recovered amounts from improper payment	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	201
1063	PI020	2	Recovered amounts from various third-party recoveries including, but not limited to:	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	201
1064	PI021	3	Tort and casualty	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	201
1065	PI022	3	Restitution	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	201
1066	PI023	3	Trust and trust recoveries	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	201
1067	PI024	1	The solution should include an Investigative Case Management component that manages recoveries including, but not limited to:	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	202
1068	PI025	2	Tracking payments received	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	202
1069	PI026	2	Payment plans	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	202
1070	PI027	2	Offsets	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	202
1071	PI028	2	Claim/encounter adjustments	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	202
1072	PI029	2	Settlements	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	202
1073	PI030	2	Restitutions	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	202
1074	PI031	2	Multiple payments and checks	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	202
1075	PI032	2	Amounts remaining due	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	202
1076	PI033	2	Due dates	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	202
1077	PI034	2	Court case numbers and jurisdictions	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	202
1078	PI035	2	Defendant names	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	203
1079	PI036	2	Recovery supplier payments	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	203
1080	PI037	2	Federal share calculations	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	203
1081	PI038	2	Bankruptcies	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	203
1082	PI039	2	Business status including out of business	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	203
1083	PI040	1	The solution should include an Investigative Case Management component that manages recoveries with the ability to link all claims associated with an investigation.	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	203
1084	PI041	1	The solution should include an Investigative Case Management component that manages recoveries including the stage of review with respect to:	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	203
1085	PI042	2	Investigations	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	203
1086	PI043	2	Appeals	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	203
1087	PI044	2	Final dispositions	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	203
1088	PI045	2	Referrals	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	203
1089	PI046	2	Active status	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	203
1090	PI047	2	Managed Care Organizations (MCOs)	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	203
1091	PI048	2	Responsible parties	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	203
1092	PI049	2	Linked investigation claims	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	203
1093	PI050	2	Others as defined by the Department	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	203
1094	PI051	1	The solution should include an Investigative Case Management component that has an audit trail on each record including, but not limited to:	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	204
1095	PI052	2	Notes	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	204
1096	PI053	2	Capturing changes by authorized solution user identification	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	204
1097	PI054	2	Date and time of change	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	204
1098	PI055	1	The solution should have an Investigative Case Management component that supports multiple ongoing Department-specific reviews within a single case	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	204
1099	PI056	1	The solution should have an Investigative Case Management component that supports reporting on all case information including, but not limited to:	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	205
1100	PI057	2	Overall case status	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	205
1101	PI058	2	Department-specific audit status	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	205
1102	PI059	1	The solution should include an Investigative Case Management component that includes automatic and scheduled notification of case status changes, and other criteria as defined by the Department	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	205
1103	PI060	1	The solution should include an Investigative Case Management component that allows claims and encounter data to be flagged to indicate the current audit process stage including, but not limited to:	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	205
1104	PI061	2	Open	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	205
1105	PI062	2	Under review	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	205
1106	PI063	2	Finalized	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	205
1107	PI064	2	Needs follow-up	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	205
1108	PI065	2	Other statuses identified by the Department	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	205
1109	PI066	1	The solution should have the ability to produce comprehensive statistical profiles of providers by peer groups for all categories of service authorized under the Medicaid program.	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	206
1110	PI067	1	The solution should have the ability to perform analyses and produce reports responsive to requests from the Department by means of computerized exception processing techniques	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	206

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1111	PI068	1	The solution should have the ability to suppress processing on a member within specified categories on a run-to-run basis.	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	206
1112	PI069	1	The solution should provide access to all data elements outlined in the State Medicaid Manual (SMM) Part 11, section 11335, and all additional data required for appropriate analysis of the program.	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	206
1113	PI070	1	The solution should have the ability to export claims-based class groupings such that data can be used within a spreadsheet or database software.	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	206
1114	PI071	1	The solution should include a process to weight and rank exception report items to facilitate identification of the highest deviators.	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	207
1115	PI072	1	The solution should have the ability to capture provider and member use of covered services and items including, but not limited to, prescribed drugs.	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	207
1116	PI073	1	The solution should have the ability to classify members into peer groups to develop peer group statistical profiles using criteria including, but not limited to:	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	208
1117	PI074	2	Age	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	208
1118	PI075	2	Gender	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	208
1119	PI076	2	Race	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	208
1120	PI077	2	Geographic region	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	208
1121	PI078	2	Eligibility Category	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	208
1122	PI079	2	Special programs code	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	208
1123	PI080	2	Claims data elements	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	208
1124	PI081	2	Other criteria defined by the Department	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	208
1125	PI082	1	The solution should have the ability to classify providers into peer groups to develop peer group statistical profiles for comparative analyses using criteria including, but not limited to:	Program Integrity	Will Meet	Attachment C - Business Specifications Approach	Program Integrity	209
1126	PI083	2	Category of service	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	209
1127	PI084	2	Provider type	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	209
1128	PI085	2	Provider specialty	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	209
1129	PI086	2	Type of practice	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	209
1130	PI087	2	Enrollment status	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	209
1131	PI088	2	Facility type	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	209
1132	PI089	2	Geographic region	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	209
1133	PI090	2	Place of service	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	209
1134	PI091	2	Billing versus rendering provider	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	209
1135	PI092	2	Number of beds	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	209
1136	PI093	2	Claim data elements	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	209
1137	PI094	2	Provider ownership	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	209
1138	PI095	2	Referring provider	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	209
1139	PI096	2	Ordering provider	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	209
1140	PI097	2	Prescribing provider	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	209
1141	PI098	2	Individual providers within group practices	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	209
1142	PI099	2	Other criteria defined by the Department	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	209
1143	PI100	1	The solution should have the ability to develop provider and member profiles sufficient to provide specific information as to the use of covered types of services and items including, but not limited to prescribed drugs.	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	209
1144	PI101	1	The solution should have the ability to classify treatment to develop statistical profiles by diagnosis codes and/or diagnosis code ranges	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	210
1145	PI102	1	The solution should have the ability to classify treatment to develop statistical profiles by procedure codes and/or procedure code ranges.	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	210
1146	PI103	1	The solution should have the ability to track readmissions for members readmitted to the same or different inpatient facility(ies)	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	210
1147	PI104	1	The solution should have the ability to analyze rendering, ordering, referring, prescribing, and billing provider practices to report atypical utilization and/or billing patterns.	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	210
1148	PI105	1	The solution should have the ability to provide statistically valid random samples as defined by the Department and extract data for provider audits, member utilization analysis, and recoupment of funds.	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	210
1149	PI106	1	The solution should have the ability to support analytics of service and billing practices to detect utilization and billing problems including, but not limited to:	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	210
1150	PI107	2	Incidental procedures	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	210
1151	PI108	2	Mutually exclusive procedures and/or procedure codes	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	210
1152	PI109	2	Mutually required procedures and/or procedure codes	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	210
1153	PI110	2	Unbundling of procedure codes	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	210
1154	PI111	2	Bill splitting	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	210
1155	PI112	2	Other fields identified by the Department	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	210

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1156	PI113	1	The solution should have the ability to create random sample reports that include appropriate universe and sample totals to support analyses at varying levels of confidence.	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	211
1157	PI114	1	The solution should maintain a date-driven parameter control file with online, real-time edit and update capability that allows the Department to specify criteria including, but not limited to:	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	211
1158	PI115	2	Data extraction criteria	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	211
1159	PI116	2	Report content	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	211
1160	PI117	2	Date parameters	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	211
1161	PI118	2	Exception parameters	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	211
1162	PI119	2	Others as defined by the Department	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	211
1163	PI120	1	The solution should have the ability to generate frequency distributions and rankings for authorized solution user-selected report and statistical items.	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	212
1164	PI121	1	The solution should include all claims data elements	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	212
1165	PI122	1	The solution should have the ability to flag a claim's most recent iteration.	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	212
1166	PI123	1	The solution should have the ability to review all iterations of claims in order to ensure claims are processed within Department policy guidelines, contractual requirements, and all applicable State and federal laws and requirements	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	212
1167	PI124	1	The solution should have the ability to review paid claims in order to:	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	212
1168	PI125	2	Ensure claims are paid within Department policy guidelines, contractual requirements, and all applicable State and federal laws and requirements	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	212
1169	PI126	2	Ensure accuracy	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	212
1170	PI127	2	Identify excessive quantities and/or duplicate billing for the same procedure and/or procedure code ranges	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	212
1171	PI128	2	Identify excessive use of Healthcare Common Procedure Coding System (HCPCS) codes, surgical codes and/or procedure code ranges and other codes identified by the Department	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	212
1172	PI129	2	Identify claims paid above the quantity of claims, monetary, or other Department-specified limits	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	212
1173	PI130	2	Other criteria defined by the Department	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	212
1174	PI131	1	The Vendor should assist the Department staff in responding to any audit requests from federal and State agencies and external entities.	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	215
1175	PI132	1	The solution should have the ability to use historical data to support types of investigations including, but not limited to:	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	215
1176	PI133	2	Provider utilization review	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	215
1177	PI134	2	Provider compliance review	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	215
1178	PI135	2	Member compliance review	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	215
1179	PI136	2	Member utilization review	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	215
1180	PI137	2	Drug utilization review	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	215
1181	PI138	2	Other as defined by the Department	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	215
1182	PI139	1	The solution should have the ability to interface with all Department-specified claims processing systems.	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	216
1183	PI140	1	The solution should have the ability to conduct surveillance and utilization review (SUR) across all Medicaid services and Social Services payments regardless of the service delivery method or financing mechanism.	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	216
1184	PI141	1	The solution should have the ability to link all services to a single member regardless of the number of historical changes in the member identification (ID) number.	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	216
1185	PI142	1	The solution should have the ability to maintain appropriate controls and audit trails to ensure that the most current surveillance and utilization review (SUR) data are used in all processes relying on the SUR data repository.	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	216
1186	PI143	1	The solution should have surveillance and utilization review (SUR) functions to produce management summary reports and to edit control files for inactive service codes including, but not limited to	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	216
1187	PI144	2	Procedure codes	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	216
1188	PI145	2	Revenue codes	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	216
1189	PI146	1	The solution should have the ability to track federally-assisted program participants separately from other categories of assistance.	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	217
1190	PI147	1	The solution should have the ability to identify members who exceed program norms, ranked by severity	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	217
1191	PI148	1	The solution should have the ability to identify services received by members who are enrolled in selected programs.	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	217
1192	PI149	1	The solution should have the ability to identify services received by members who have specified diagnoses	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	217
1193	PI150	1	The solution should have the ability to profile all services provided to a member during a single episode of care.	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	217
1194	PI151	1	The solution should have the ability to generate reports of individual members by peer group	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	217

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1195	PI152	1	The solution should have the ability to select claims and encounter data dating back to whatever time period is appropriate for the specific research.	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	218
1196	PI153	1	The solution should have the ability to produce claim and encounter detail and special reports by provider type and member classification including, but not limited to:	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	218
1197	PI154	2	Category of service	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	218
1198	PI155	2	Group practice	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	218
1199	PI156	2	Case	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	218
1200	PI157	1	The solution should have the ability to provide and store all utilization reports in the medium designated by the Department.	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	218
1201	PI158	1	The solution should have the ability to provide standard Department and Centers for Medicare & Medicaid Services (CMS) program integrity reports in accordance with Department reporting standards.	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	218
1202	PI159	1	The solution should have the ability to provide the flexibility to vary time periods for reporting purposes and produce reports on a daily, monthly, quarterly, or other frequency as specified by the Department.	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	218
1203	PI160	1	The solution should have the ability to display all relevant data by National Provider Identifier (NPI) or by a subset of the provider's practice.	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	219
1204	PI161	1	The solution should have the ability to develop and implement technical and authorized solution user training programs.	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	219
1205	PI162	1	The solution should have the ability to automatically identify exceptions to norms of utilization or quality of care standards established by the Department for any type of member covered by the Department plan.	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	219
1206	PI163	1	The solution should have the ability to automatically identify deficiencies and generate reports on levels of care and quality of care by provider type.	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	219
1207	PI164	1	The solution should have the ability to support pattern recognition and provide an automated fraud and abuse profiling system, that includes pre-built algorithms for the ongoing monitoring of provider and member claims to detect patterns of potential fraud, waste, and abuse, including excessive billing.	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	219
1208	PI165	1	The solution should have the ability to automatically report on details of the practice of providers identified as exceptions or outliers.	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	219
1209	PI166	1	The solution should have the ability to identify misutilization of services by individual members and promote corrective actions.	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	220
1210	PI167	1	The solution should have the ability to automatically identify exceptions to norms of practice established by the Department for any type of provider covered by the Department plan.	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	220
1211	PI168	1	The solution should have the ability to apply clinically-approved guidelines against episodes of care to identify instances of treatment inconsistent with guidelines.	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	220
1212	PI169	1	The solution should have the ability to generate early warning reports of high-cost services and service misutilization based on current payment data to quickly identify high-volume practices.	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	220
1213	PI170	1	The solution should have the ability to support provider performance reviews to determine the adequacy and extent of participation and service delivery.	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	221
1214	PI171	1	The solution should have the ability to review provider participation and analyze provider service capacity in terms of member access to health care	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	221
1215	PI172	1	The solution should have the ability to support report balancing and verification procedures.	Program Integrity	Will Meet	Attachment G - Business Specifications Approach	Program Integrity	221
1216	PM001	1	The solution should align with the Department's vision for the to-be Enterprise Data Solution (EDS) environment.	Project Management	Will Meet	Attachment G - Business Specifications Approach	Proposed Solution	129
1217	PM002	1	The solution's initial data load should consist of all data contained within the existing data warehouse decision support system (DW/DSS) at the time of the implementation of the Enterprise Data Solution (EDS).	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Implementation Methodology / Requirements Analysis and Solution Design Methodology	418
1218	PM003	1	The solution's initial data load should be inclusive of all data sources identified by the Department.	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Implementation Methodology / Requirements Analysis and Solution Design Methodology	419
1219	PM004	1	The solution should support daily, weekly, monthly, and as needed data loads from all data sources identified by the Department.	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Implementation Methodology / Requirements Analysis and Solution Design Methodology	419

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1220	PM005	1	The Vendor should assist the Department in obtaining, integrating, and maintaining data that includes but is not limited to.	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Implementation Methodology / Requirements Analysis and Solution Design Methodology	420
1221	PM006	2	Medicaid data	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Implementation Methodology / Requirements Analysis and Solution Design Methodology	420
1222	PM007	2	Medicare data	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Implementation Methodology / Requirements Analysis and Solution Design Methodology	420
1223	PM008	2	Commercial payer data	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Implementation Methodology / Requirements Analysis and Solution Design Methodology	420
1224	PM009	2	West Virginia Children's Health Insurance Program (WVCHIP) data	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Implementation Methodology / Requirements Analysis and Solution Design Methodology	420
1225	PM010	2	Managed Care Organization (MCO) data	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Implementation Methodology / Requirements Analysis and Solution Design Methodology	420
1226	PM011	2	Higher education facilities and universities data	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Implementation Methodology / Requirements Analysis and Solution Design Methodology	420
1227	PM012	2	Administrative Services Organization (ASO) data	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Implementation Methodology / Requirements Analysis and Solution Design Methodology	420
1228	PM013	2	Health Statistics Center (HSC) data	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Implementation Methodology / Requirements Analysis and Solution Design Methodology	420
1229	PM014	2	Public Employees Insurance Agency (PEIA) data	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Implementation Methodology / Requirements Analysis and Solution Design Methodology	420
1230	PM015	2	West Virginia Health Information Network (WVHIN) data	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Implementation Methodology / Requirements Analysis and Solution Design Methodology	420
1231	PM016	2	Hospital Data	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Implementation Methodology / Requirements Analysis and Solution Design Methodology	420

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1232	PM017	2	Others as defined by the Department	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Implementation Methodology / Requirements Analysis and Solution Design Methodology	420
1233	PM018	1	The solution should support the integration, management, and use of data from the following data sources including, but not limited to:	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Implementation Methodology / Requirements Analysis and Solution Design Methodology	421
1234	PM019	2	Medicaid data	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Implementation Methodology / Requirements Analysis and Solution Design Methodology	421
1235	PM020	2	Medicare data	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Implementation Methodology / Requirements Analysis and Solution Design Methodology	421
1236	PM021	2	Commercial payer data	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Implementation Methodology / Requirements Analysis and Solution Design Methodology	421
1237	PM022	2	West Virginia Children's Health Insurance Program (WVCHIP) data	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Implementation Methodology / Requirements Analysis and Solution Design Methodology	421
1238	PM023	2	Managed Care Organization (MCO) data	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Implementation Methodology / Requirements Analysis and Solution Design Methodology	422
1239	PM024	2	Higher education facilities and universities data	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Implementation Methodology / Requirements Analysis and Solution Design Methodology	422
1240	PM025	2	Administrative Services Organization (ASO) data	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Implementation Methodology / Requirements Analysis and Solution Design Methodology	422
1241	PM026	2	Health Statistics Center (HSC) data	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Implementation Methodology / Requirements Analysis and Solution Design Methodology	422
1242	PM027	2	Public Employees Insurance Agency (PEIA) data	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Implementation Methodology / Requirements Analysis and Solution Design Methodology	422
1243	PM028	2	West Virginia Health Information Network (WVHIN) data	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Implementation Methodology / Requirements Analysis and Solution Design Methodology	422

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1244	PM029	2	Hospital data	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Implementation Methodology / Requirements Analysis and Solution Design Methodology	422
1245	PM030	2	Others as defined by the Department	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Implementation Methodology / Requirements Analysis and Solution Design Methodology	422
1246	PM031	1	The solution should have the ability to support data quality assurance and control activities.	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Implementation Methodology / Requirements Analysis and Solution Design Methodology	423
1247	PM032	1	The solution should be implemented and fully functional prior to the contract close of the existing data warehouse decision support system (DW/DSS).	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Deployment Methodology / Implementation Methodology and Timeline	456
1248	PM033	1	The Vendor's quality management approach should be consistent with the Department's policies and procedures.	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Project Management Metodology / Quality Management	398
1249	PM034	1	The Vendor should submit each deliverable to the Department in final form and be ready for signature approval.	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Project Management Metodology	389
1250	PM035	1	The Vendor should submit each project deliverable to the Department in accordance with each date in the project schedule.	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Project Management Metodology	390
1251	PM036	1	The Vendor should work with the Department to develop acceptance criteria for each project deliverable.	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Project Management Metodology	390
1252	PM037	1	The Vendor should work with the Department's project management vendor regarding all project related activities.	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Project Management Metodology	391
1253	PM038	1	The Vendor should conduct deliverable walk-throughs for all project deliverables prior to their submission, unless otherwise approved in writing by the Department.	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Project Management Metodology	391
1254	PM039	1	The Vendor should submit all meeting materials to the Department 24 hours prior to each meeting.	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Project Management Metodology	391
1255	PM040	1	The Vendor should capture meeting minutes at each meeting.	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Project Management Metodology	391
1256	PM041	1	The Vendor should distribute meeting minutes within 48 hours after a meeting occurs.	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Project Management Metodology	391
1257	PM042	1	The Vendor should store and maintain all project documentation in an agreed upon document repository such as a SharePoint location.	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Project Management Metodology	391
1258	PM043	1	The Vendor should make all project documentation accessible to all stakeholders identified by the Department.	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Project Management Metodology	391
1259	PM044	1	The Vendor should utilize a change management methodology that is based on industry standards and best practices and is approved by the Department.	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Project Management Metodology / Change Management	406
1260	PM045	1	The Vendor should propose a change management methodology including, but not limited to:	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Project Management Metodology / Change Management	406
1261	PM046	2	Approach across all project phases	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Project Management Metodology / Change Management	406
1262	PM047	2	Roles and responsibilities	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Project Management Metodology / Change Management	406
1263	PM048	2	Tools necessary to support change management	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Project Management Metodology / Change Management	406
1264	PM049	2	Reporting	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Project Management Metodology / Change Management	406

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1265	PM050	2	Others as defined by the Department	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Project Management Metodology / Change Management	406
1266	PM051	1	The Vendor should propose an organizational change management methodology in support of the Enterprise Data Solution (EDS) implementation.	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Project Management Metodology / Organizational Change Management	410
1267	PM052	1	The Vendor should conduct requirements analysis sessions with the Department during which the Vendor will review, refine, and seek approval for all requirements included in this Request for Proposal (RFP)	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Implementation Methodology / Requirements Analysis and Solution Design Methodology	424
1268	PM053	1	The Vendor should work with the Department to design the system in accordance with the following design phases:	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Implementation Methodology / Requirements Analysis and Solution Design Methodology	424
1269	PM054	2	Preliminary System Design	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Implementation Methodology / Requirements Analysis and Solution Design Methodology	424
1270	PM055	2	Detailed System Design	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Implementation Methodology / Requirements Analysis and Solution Design Methodology	424
1271	PM056	2	Final System Design	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Implementation Methodology / Requirements Analysis and Solution Design Methodology	425
1272	PM057	1	The Vendor should be responsible for all costs associated with requirements analysis and solution design.	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Implementation Methodology / Requirements Analysis and Solution Design Methodology	425
1273	PM058	1	The solution should be developed and implemented in accordance with the project work plan.	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Implementation Methodology / Requirements Analysis and Solution Design Methodology	425
1274	PM059	1	The Vendor should detail their approach to both requirements validation and joint application design in support of requirements analysis and solution design activities.	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Implementation Methodology / Requirements Analysis and Solution Design Methodology	425
1275	PM060	1	The Vendor should maintain a requirements traceability matrix (RTM) throughout the lifecycle of the project.	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Implementation Methodology / Requirements Analysis and Solution Design Methodology	427
1276	PM061	1	The Vendor should provide all stakeholders identified by the Department access to the requirements traceability matrix (RTM).	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Implementation Methodology / Requirements Analysis and Solution Design Methodology	427

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1277	PM062	1	The Vendor should document in the requirements traceability matrix (RTM) where each requirement is accounted for within the following areas:	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Implementation Methodology / Requirements Analysis and Solution Design Methodology	428
1278	PM063	2	Design documentation	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Implementation Methodology / Requirements Analysis and Solution Design Methodology	428
1279	PM064	2	Code modules	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Implementation Methodology / Requirements Analysis and Solution Design Methodology	428
1280	PM065	2	Test conditions	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Implementation Methodology / Requirements Analysis and Solution Design Methodology	428
1281	PM066	2	Test scenarios	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Implementation Methodology / Requirements Analysis and Solution Design Methodology	428
1282	PM067	2	Test cases	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Implementation Methodology / Requirements Analysis and Solution Design Methodology	428
1283	PM068	2	Certification criteria	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Implementation Methodology / Requirements Analysis and Solution Design Methodology	428
1284	PM069	2	Medicaid Information Technology Architecture (MITA) business areas and processes	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Implementation Methodology / Requirements Analysis and Solution Design Methodology	428
1285	PM070	2	Medicaid Information Technology Architecture (MITA) Standards and Conditions	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Implementation Methodology / Requirements Analysis and Solution Design Methodology	428
1286	PM071	2	Others as defined by the Department	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Implementation Methodology / Requirements Analysis and Solution Design Methodology	428
1287	PM072	1	The Vendor should demonstrate through the requirements traceability matrix (RTM) that all documented and approved specifications have been traced throughout the development lifecycle.	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Implementation Methodology / Requirements Analysis and Solution Design Methodology	428
1288	PM073	1	The Vendor should work with the Department to fully understand the scope, purpose, and implications of each Request for Proposal (RFP) specification.	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Implementation Methodology / Requirements Analysis and Solution Design Methodology	428

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1289	PM074	1	The Vendor should identify and work with the Department to resolve gaps between the Vendor and the Department's understanding of a specification.	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Implementation Methodology / Requirements Analysis and Solution Design Methodology	429
1290	PM075	1	The Vendor should conduct the following types of testing in support of the solution:	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Testing	462
1291	PM076	2	Unit testing	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Testing	462
1292	PM077	2	Integration testing	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Testing	462
1293	PM078	2	Iterative functional testing	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Testing	462
1294	PM079	2	System integration testing (SIT)	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Testing	462
1295	PM080	2	Interface testing	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Testing	462
1296	PM081	2	Regression testing	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Testing	462
1297	PM082	2	End-to-end testing	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Testing	463
1298	PM083	2	Security testing	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Testing	463
1299	PM084	2	Performance testing	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Testing	463
1300	PM085	2	Usability/Accessibility testing	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Testing	463
1301	PM086	2	Browser testing	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Testing	463
1302	PM087	2	User acceptance testing (UAT)	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Testing	463
1303	PM088	2	Data conversion testing	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Testing	463
1304	PM089	2	Operational readiness testing (ORT)	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Testing	463
1305	PM090	2	Parallel testing	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Testing	463
1306	PM091	2	Other testing as identified by the Department and/or Vendor	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Testing	463
1307	PM092	1	The Vendor should be prepared to assist the Department with User acceptance testing (UAT).	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Testing	463
1308	PM093	1	The Vendor should be prepared to conduct User acceptance testing (UAT) in all cases whereby the Department does not elect to conduct UAT.	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Testing	466
1309	PM094	1	The Vendor should complete regression testing subsequent to, but not limited to, the following:	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Testing	466
1310	PM095	2	Deployment of new solution components	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Testing	466
1311	PM096	2	Integration of each solution component into the primary solution	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Testing	467
1312	PM097	2	Every migration of new build versions to each test environment	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Testing	467
1313	PM098	2	Solution fixes	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Testing	467
1314	PM099	2	Solution patches	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Testing	467
1315	PM100	2	Solution releases	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Testing	467
1316	PM101	2	Others as defined by the Department	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Testing	467
1317	PM102	1	The Vendor should utilize a subset of system integration testing (SIT) scenarios representative of maximum functional and technical solution coverage for the purposes of regression testing.	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Testing	468
1318	PM103	1	The Vendor should obtain approval from the Department on which system integration testing (SIT) should be used for regression testing.	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Testing	469
1319	PM104	1	The Vendor should utilize end-to-end test cases in support of regression testing.	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Testing	469
1320	PM105	1	The Vendor should perform security testing on functional, technical, and infrastructure components to ensure the solution meets all State, Department and Federal security requirements.	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Testing	469
1321	PM106	1	The Vendor should propose security testing scenarios and/or cases to the Department for their approval.	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Testing	470
1322	PM107	1	The Vendor should supply, on an annual basis, a report of the results of a security risk assessment, including all tools used for the assessment, and an action plan detailing the approach for remediation of security risk vulnerabilities.	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Testing	470
1323	PM108	1	The Vendor's performance testing methodology should allow for performance tests to be representative of the expected peak period volumes for solution operation.	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Testing	470
1324	PM109	1	The Vendor's performance testing should occur on a production ready version of the solution.	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Testing	470
1325	PM110	1	The solution's performance testing environment should mirror the final production solution specifications.	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Testing	470
1326	PM111	1	The Vendor's usability/accessibility testing should include testing of the user interface for the following users:	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Testing	471
1327	PM112	2	Internal users	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Testing	471
1328	PM113	2	External users	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Testing	471
1329	PM114	2	Power users	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Testing	471
1330	PM115	2	Users with limited computer skills	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Testing	471
1331	PM116	2	Prospective new users	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Testing	471
1332	PM117	2	Users who will require solution training to complete their daily work	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Testing	471
1333	PM118	2	Users with disabilities	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Testing	471
1334	PM119	2	Others as defined by the Department	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Testing	471
1335	PM120	1	The Vendor's usability/accessibility testing approach should account for testing for compliance with sections 504 and 508 of the Americans with Disabilities Act (ADA).	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Testing	472

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1336	PM121	1	The Vendor's browser testing should be performed using a minimum of a subset of system integration test scripts that ensures maximum solution coverage.	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Testing	473
1337	PM122	1	The Vendor should supply the data, environments, and test scripts necessary to support user acceptance testing (UAT).	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Testing	473
1338	PM123	1	The Vendor should work with the Department to define user acceptance testing (UAT) cases representative of the full solution environment.	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Testing	473
1339	PM124	1	The Vendor should be responsible for working with the Department to define the user acceptance test (UAT) scenarios the Department deems as critical for UAT.	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Testing	474
1340	PM125	1	The Vendor should be responsible for drafting all user acceptance testing (UAT) cases.	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Testing	474
1341	PM126	1	The Vendor should review all user acceptance testing (UAT) results with the Department, and a strategy for mitigation should be agreed upon for each defect based on the defect's severity, priority, and impact.	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Testing	474
1342	PM127	1	The Vendor should discuss and obtain the Department's approval on data conversion exception tolerance levels prior to the commencement of data conversion testing.	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Testing	475
1343	PM128	1	The Vendor should review and obtain the Department's approval of data conversion test results prior to commencement of production data conversion.	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Testing	475
1344	PM129	1	The Vendor should propose a source code management tool for review and approval by the Department.	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Testing	475
1345	PM130	1	The Vendor should work with the Department to define an operational readiness testing (ORT) approach that encompasses all Department and Vendor responsible solution operational processes and procedures.	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Testing	475
1346	PM131	1	The Vendor should propose and execute a plan for a phased approach to the solution's development, including all of the solution's components and modules.	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Implementation Methodology / Solution Development Methodology	429
1347	PM132	1	The Vendor should propose a solution development plan that includes but is not limited to the following elements:	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Implementation Methodology / Solution Development Methodology	430
1348	PM133	2	Code base management	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Implementation Methodology / Solution Development Methodology	430
1349	PM134	2	Source code security analysis	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Implementation Methodology / Solution Development Methodology	430
1350	PM135	2	Development standards	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Implementation Methodology / Solution Development Methodology	430
1351	PM136	2	Individual developer machine configuration requirements	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Implementation Methodology / Solution Development Methodology	430
1352	PM137	2	Build machine configuration requirements	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Implementation Methodology / Solution Development Methodology	431
1353	PM138	2	Code check-out and check-in procedures	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Implementation Methodology / Solution Development Methodology	431
1354	PM139	2	Developer tool expectations	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Implementation Methodology / Solution Development Methodology	431
1355	PM140	2	Others as defined by the Department	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Implementation Methodology / Solution Development Methodology	431

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1356	PM141	1	The Vendor should develop the solution using an iterative development approach.	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Implementation Methodology / Solution Development Methodology	432
1357	PM142	1	The Vendor should review and test in logical functional groups of system components or modules.	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Implementation Methodology / Solution Development Methodology	437
1358	PM143	1	The Vendor should ensure that all design documentation is kept current throughout the contract.	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Implementation Methodology / Solution Development Methodology	443
1359	PM144	1	The Vendor should support all data conversion related activities.	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Implementation Methodology / Solution Development Methodology	443
1360	PM145	1	The Vendor's data conversion strategy should minimize risk and the disruption to other enterprise solutions affected with the solution's development and implementation	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Testing	476
1361	PM146	1	The Vendor should be responsible for the data cleansing of all data being migrated from the existing data warehouse decision support system (DW/DSS) and converted to the new solution.	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Testing	477
1362	PM147	1	The Vendor should propose an industry standard data conversion methodology that includes but is not limited to:	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Testing	477
1363	PM148	2	Data analysis techniques	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Testing	477
1364	PM149	2	Checks and balances for ensuring data quality and accuracy	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Testing	477
1365	PM150	2	Data conversion tool sets	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Testing	477
1366	PM151	1	The Vendor should complete a full analysis of the Department enterprise to understand what source solutions and corresponding data will need to be integrated into the solution.	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Testing	479
1367	PM152	1	The Vendor should complete an assessment of the as-is and to-be environment to understand what reports will be needed in support of operations.	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Testing	479
1368	PM153	1	The Vendor should develop and obtain Department approval of all reports identified as needed in support of operations.	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Testing	479
1369	PM154	1	The Vendor should be prepared to work with the Department to identify and integrate data from the Department-identified primary source solutions.	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Testing	479
1370	PM155	1	The Vendor should propose and manage a process by which data from additional solutions can be identified and integrated into the Enterprise Data Solution (EDS).	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Testing	480
1371	PM156	1	The solution should have the ability to support quality measures as defined by the Department.	Project Management	Will Meet	Attachment I - Implementation Specifications Approach	Testing	480
1372	SM001	1	The solution should have security controls, safeguards, and alerts to prevent, monitor, and detect potential and actual violations in accordance with Department, State, and federal security and privacy laws, policies, and/or procedures.	Security Management	Will Meet	Attachment H - Technical Specifications Approach	Security Management	367
1373	SM002	1	The Vendor should deliver a Security, Privacy, and Confidentiality Plan within 30 calendar days of contract startup.	Security Management	Will Meet	Attachment H - Technical Specifications Approach	Security Management	369
1374	SM003	1	The Vendor should submit an updated Security, Privacy, and Confidentiality Plan to the Department for review and approval 30 business days prior to the start of solution operations.	Security Management	Will Meet	Attachment H - Technical Specifications Approach	Security Management	369
1375	SM004	1	The Vendor should perform a review of the Security, Privacy, and Confidentiality Plan annually and submit to the Department for review and approval within 30 calendar days of the review.	Security Management	Will Meet	Attachment H - Technical Specifications Approach	Security Management	369
1376	SM005	1	The Vendor should submit substantive change(s) to the Security, Privacy, and Confidentiality Plan for review and approval within 30 calendar days of the proposed change(s).	Security Management	Will Meet	Attachment H - Technical Specifications Approach	Security Management	370
1377	SM006	1	The Vendor should maintain a Department-approved Security, Privacy, and Confidentiality Plan that details how the solution complies with applicable Department, State, and federal security and privacy laws, policies, and/or procedures.	Security Management	Will Meet	Attachment H - Technical Specifications Approach	Security Management	370
1378	SM007	1	The solution should maintain an audit trail that can be used to identify unauthorized attempts to access the solution and log the IP address from where the intrusion attempt occurred, in accordance with Department, State, and federal security and privacy laws, policies, and/or procedures.	Security Management	Will Meet	Attachment H - Technical Specifications Approach	Security Management	370
1379	SM008	1	The solution should provide an audit of all attempts to access or use sensitive data, consistent with Health Insurance Portability and Accountability Act (HIPAA), Centers for Medicare & Medicaid Services (CMS), and other Department, State, and federal laws and regulations.	Security Management	Will Meet	Attachment H - Technical Specifications Approach	Security Management	371
1380	SM009	1	The solution should have the ability to prevent, monitor, and detect malicious software and code	Security Management	Will Meet	Attachment H - Technical Specifications Approach	Security Management	371
1381	SM010	1	The solution should have the ability to provide security incident reporting and mitigation mechanisms according to State and federal requirements and in accordance with the Department's Incident Reporting and Response Policy including, but not limited to:	Security Management	Will Meet	Attachment H - Technical Specifications Approach	Security Management	372
1382	SM011	2	Terminating access and generating a report when a potential security violation is detected	Security Management	Will Meet	Attachment H - Technical Specifications Approach	Security Management	372

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1383	SM012	2	Preserving and reporting specified audit data when a potential security violation is detected	Security Management	Will Meet	Attachment H - Technical Specifications Approach	Security Management	372
1384	SM013	2	Others as defined by the Department	Security Management	Will Meet	Attachment H - Technical Specifications Approach	Security Management	372
1385	SM014	1	The Vendor should ensure that any and all security and privacy breaches, incidents, and/or unauthorized disclosures are reported according, to State and federal requirements and in accordance with the Department's Incident Reporting and Response Policy.	Security Management	Will Meet	Attachment H - Technical Specifications Approach	Security Management	372
1386	SM015	1	The solution should have the ability to log all authorized solution user activity and correlate, analyze, and report on all logged user events and associated data.	Security Management	Will Meet	Attachment H - Technical Specifications Approach	Security Management	373
1387	SM016	1	The solution should have the ability to provide a report of authorized solution user activity as determined by the Department in the Design, Development, and Implementation (DDI) phase.	Security Management	Will Meet	Attachment H - Technical Specifications Approach	Security Management	373
1388	SM017	1	The solution should provide an audit trail of record changes, including authorized solution user, date, and time of change.	Security Management	Will Meet	Attachment H - Technical Specifications Approach	Security Management	374
1389	SM018	1	The solution should have the ability for audit trails to allow information on source documents to be traced through the processing stages to the point where the information is finally recorded.	Security Management	Will Meet	Attachment H - Technical Specifications Approach	Security Management	374
1390	SM019	1	The solution should have the ability to trace data from the final place of recording back to its source of entry.	Security Management	Will Meet	Attachment H - Technical Specifications Approach	Security Management	374
1391	SM020	1	The solution should continuously monitor, authorize, document, and allow access only through controlled interfaces for all connections originating from outside the security boundary of the system in accordance with Department, State, and federal security and privacy laws, policies, and/or procedures.	Security Management	Will Meet	Attachment H - Technical Specifications Approach	Security Management	374
1392	SM021	1	The solution should ensure remote connection is performed using multi-factor authentication in accordance with Department, State, and federal security and privacy laws, policies, and/or procedures.	Security Management	Will Meet	Attachment H - Technical Specifications Approach	Security Management	374
1393	SM022	1	The solution should limit data sharing to only those entities and individuals located in the United States and/or U.S. territories that maintain a current data sharing agreement with the Department consistent with Department-required agreements and security and privacy policies and procedures.	Security Management	Will Meet	Attachment H - Technical Specifications Approach	Security Management	375
1394	SM023	1	The solution should have the ability to control access rights to data and system functions based on authorized solution user role-based access.	Security Management	Will Meet	Attachment H - Technical Specifications Approach	Security Management	375
1395	SM024	1	The Vendor should work with the Department to define the process for access to the solution in the Design, Development, and Implementation (DDI) phase.	Security Management	Will Meet	Attachment H - Technical Specifications Approach	Security Management	375
1396	SM025	1	The solution should support role-based user access.	Security Management	Will Meet	Attachment H - Technical Specifications Approach	Security Management	375
1397	SM026	1	The solution should provide an interactive, adjustable time-out feature for authorized solution user inactivity in accordance with Department, State, and federal security and privacy laws, policies, and/or procedures.	Security Management	Will Meet	Attachment H - Technical Specifications Approach	Security Management	376
1398	SM027	1	The solution should provide alerts to authorized solution users that inactivity will result in being timed out after the specified period of inactivity in accordance with Department, State, and federal security and privacy laws, policies, and/or procedures.	Security Management	Will Meet	Attachment H - Technical Specifications Approach	Security Management	376
1399	SM028	1	The solution should have the ability to enforce password policies for length, character requirements, and required updates in accordance with Department, State, and federal security and privacy laws, policies, and/or procedures.	Security Management	Will Meet	Attachment H - Technical Specifications Approach	Security Management	376
1400	SM029	1	The solution should store passwords in encrypted form in accordance with Department, State, and federal security and privacy laws, policies, and/or procedures.	Security Management	Will Meet	Attachment H - Technical Specifications Approach	Security Management	376
1401	SM030	1	The solution should permit system administrators to reset authorized solution user passwords.	Security Management	Will Meet	Attachment H - Technical Specifications Approach	Security Management	376
1402	SM031	1	The solution should allow authorized solution users to reset their own passwords at any time by following system-defined standards in accordance with Department, State, and federal security and privacy laws, policies, and/or procedures.	Security Management	Will Meet	Attachment H - Technical Specifications Approach	Security Management	377
1403	SM032	1	The solution should permit authorized solution users to set and modify user security access profiles.	Security Management	Will Meet	Attachment H - Technical Specifications Approach	Security Management	377
1404	SM033	1	The solution should have the ability to supply authorized data sets to authorized solution users	Security Management	Will Meet	Attachment H - Technical Specifications Approach	Security Management	377
1405	SM034	1	The solution should have the ability to provide an audit log that identifies amendments to the designated record set for an authorized solution user.	Security Management	Will Meet	Attachment H - Technical Specifications Approach	Security Management	377
1406	SM035	1	The solution should have the ability to store audit logs of authorized solution user activity in a location determined by the Department in the Design, Development, and Implementation (DDI) phase.	Security Management	Will Meet	Attachment H - Technical Specifications Approach	Security Management	377
1407	SM036	1	The solution should establish responsibilities and procedures for remote use in compliance with Department security policy.	Security Management	Will Meet	Attachment H - Technical Specifications Approach	Security Management	377
1408	SM037	1	The solution should block pop-ups, spam, advertisements, and malware.	Security Management	Will Meet	Attachment H - Technical Specifications Approach	Security Management	378
1409	SM038	1	The solution should have the ability to remove or disable systems, services, components, and modules as defined by the Department.	Security Management	Will Meet	Attachment H - Technical Specifications Approach	Security Management	378
1410	SM039	1	The solution should have secure transmission and data integrity controls to detect improper modification of transmitted information.	Security Management	Will Meet	Attachment H - Technical Specifications Approach	Security Management	378
1411	SM040	1	The solution should use Secure Sockets Layer (SSL) certificates that are consistent with State and federal requirements for data in transit.	Security Management	Will Meet	Attachment H - Technical Specifications Approach	Security Management	378
1412	SM041	1	The solution should have the ability to restrict release of sensitive data.	Security Management	Will Meet	Attachment H - Technical Specifications Approach	Security Management	378

		B	C	D	E	F	G	
1413	SM042	1	The solution should support data integrity by preventing and detecting unauthorized alteration or destruction.	Security Management	Will Meet	Attachment H - Technical Specifications Approach	Security Management	378
1414	SM043	1	The Vendor should maintain procedures that ensure all emergency and non-emergency production system changes follow a Department-approved change control process, including a risk analysis.	Security Management	Will Meet	Attachment H - Technical Specifications Approach	Security Management	378
1415	SM044	1	The solution should support record, database, table, and field-level access.	Security Management	Will Meet	Attachment H - Technical Specifications Approach	Security Management	379
1416	SM045	1	The solution should support secure file and folder access.	Security Management	Will Meet	Attachment H - Technical Specifications Approach	Security Management	379
1417	SM046	1	The solution should support workforce privacy and security awareness through such methods as security reminders, training reminders, online training capabilities, and/or training tracking.	Security Management	Will Meet	Attachment H - Technical Specifications Approach	Security Management	379
1418	SM047	1	The Vendor should collaborate with the Department to determine a security approach that integrates with other solution components to supply role-based single-sign-on access.	Security Management	Will Meet	Attachment H - Technical Specifications Approach	Security Management	380
1419	SM048	1	The solution should have the ability to provide authorized solution users access to view and audit records of changes to free-form text data fields by capturing information including, but not limited to:	Security Management	Will Meet	Attachment H - Technical Specifications Approach	Security Management	380
1420	SM049	2	The name of the authorized solution user who updated a field	Security Management	Will Meet	Attachment H - Technical Specifications Approach	Security Management	380
1421	SM050	2	The date and time a field was updated	Security Management	Will Meet	Attachment H - Technical Specifications Approach	Security Management	380
1422	SM051	2	Others defined by the Department	Security Management	Will Meet	Attachment H - Technical Specifications Approach	Security Management	380
1423	SM052	1	The solution should have data encryption standards in accordance with Department, State, and federal security and privacy laws, policies, and/or procedures.	Security Management	Will Meet	Attachment H - Technical Specifications Approach	Security Management	381
1424	SM053	1	The Vendor should provide documentation on how the solution governs the confidential nature of information about applicants and members, including the legal sanctions that can be provided, to the State, applicants, members, and other persons and agencies to whom information is disclosed.	Security Management	Will Meet	Attachment H - Technical Specifications Approach	Security Management	381
1425	SM054	1	The Vendor should be prepared to demonstrate how the solution of interest supports regulations governing the safeguard of information about applicants and beneficiaries including, but not limited to:	Security Management	Will Meet	Attachment H - Technical Specifications Approach	Security Management	381
1426	SM055	2	Names	Security Management	Will Meet	Attachment H - Technical Specifications Approach	Security Management	381
1427	SM056	2	Addresses	Security Management	Will Meet	Attachment H - Technical Specifications Approach	Security Management	381
1428	SM057	2	Medical services provided	Security Management	Will Meet	Attachment H - Technical Specifications Approach	Security Management	381
1429	SM058	2	Social and economic conditions or circumstances	Security Management	Will Meet	Attachment H - Technical Specifications Approach	Security Management	381
1430	SM059	2	Agency evaluation of personal information	Security Management	Will Meet	Attachment H - Technical Specifications Approach	Security Management	381
1431	SM060	2	Medical data, including diagnosis and past history of disease or disability	Security Management	Will Meet	Attachment H - Technical Specifications Approach	Security Management	381
1432	SM061	2	Any information received for verifying income eligibility and amount of medical assistance payments	Security Management	Will Meet	Attachment H - Technical Specifications Approach	Security Management	381
1433	SM062	2	Any information received in connection with the identification of legally liable third party resources	Security Management	Will Meet	Attachment H - Technical Specifications Approach	Security Management	381
1434	SM063	2	Others as defined by the Department, State, and federal security and privacy policies	Security Management	Will Meet	Attachment H - Technical Specifications Approach	Security Management	381
1435	SM064	2	Others as defined by the Department	Security Management	Will Meet	Attachment H - Technical Specifications Approach	Security Management	381
1436	SM065	1	The Vendor should be prepared to demonstrate that the solution supports safeguarding income information that is received from the Social Security Administration (SSA) or the Internal Revenue Service (IRS).	Security Management	Will Meet	Attachment H - Technical Specifications Approach	Security Management	381
1437	SM066	1	The solution should disable accounts after three consecutive invalid log in attempts and protect against further user authentication attempts using a Department approved lock-out mechanism.	Security Management	Will Meet	Attachment H - Technical Specifications Approach	Security Management	381
1438	TN001	1	The Vendor should provide a sandbox training environment for authorized solution users within the solution that uses de-identified data and is compliant with the Health Insurance Portability and Accountability Act (HIPAA), Department, and other State and federal regulations.	Training	Will Meet	Attachment I - Implementation Specifications Approach	Project Management Methodology / Training Approach	413
1439	TN002	1	The Vendor should develop and maintain a sandbox environment for training that mirrors production.	Training	Will Meet	Attachment I - Implementation Specifications Approach	Project Management Methodology / Training Approach	413
1440	TN003	1	The solution's training environment should have the capacity to support all components of the solution.	Training	Will Meet	Attachment I - Implementation Specifications Approach	Project Management Methodology / Training Approach	414
1441	TN004	1	The Vendor should ensure that no aspect of training uses protected health information (PHI), personally identifiable information (PII), or federal tax information (FTI), and that the training materials and environments are compliant with the Health Insurance Portability and Accountability Act (HIPAA), Department, and other State and federal regulations.	Training	Will Meet	Attachment I - Implementation Specifications Approach	Project Management Methodology / Training Approach	414
1442	TN005	1	The Vendor should provide the necessary training and ongoing support to all Department authorized solution users participating in data conversion validation and user acceptance testing (UAT) of the solution components, reporting options, and data structure.	Training	Will Meet	Attachment I - Implementation Specifications Approach	Project Management Methodology / Training Approach	414
1443	TN006	1	The Vendor should provide initial and ongoing training and associated reference documentation to authorized solution users for the duration of the contract, at the request of the Department.	Training	Will Meet	Attachment I - Implementation Specifications Approach	Project Management Methodology / Training Approach	414
1444	TN007	1	Throughout the duration of the contract, the Vendor should provide regular training sessions for authorized solution users on updated or new functionality and/or business processes related to the solution, at the request of the Department.	Training	Will Meet	Attachment I - Implementation Specifications Approach	Project Management Methodology / Training Approach	414
1445	TN008	1	The Vendor should track and provide confirmation of attendance at all training sessions and report on which versions of training materials were presented at the training.	Training	Will Meet	Attachment I - Implementation Specifications Approach	Project Management Methodology / Training Approach	415

	A	B	C	D	E	F	G	H
1446	TN009	1	The Vendor should provide evaluation feedback forms to training participants at the end of each training and provide summaries of these evaluations to the Department.	Training	Will Meet	Attachment I - Implementation Specifications Approach	Project Management Methodology / Training Approach	415
1447	TN010	1	The Vendor should provide hands-on, in-person, remote, and/or online training.	Training	Will Meet	Attachment I - Implementation Specifications Approach	Project Management Methodology / Training Approach	415
1448	TN011	1	The Vendor should provide Department-approved, commercially-available training and/or guide books addressing all components of the solution and provide to the Department at least four (4) copies of each book for distribution as well as online electronic copies	Training	Will Meet	Attachment I - Implementation Specifications Approach	Project Management Methodology / Training Approach	415
1449	TN012	1	The Vendor should ensure that all Department-approved training documentation for the solution is posted where authorized solution users can access it on demand.	Training	Will Meet	Attachment I - Implementation Specifications Approach	Project Management Methodology / Training Approach	415
1450	TN013	1	The Vendor should propose a role-based training approach.	Training	Will Meet	Attachment I - Implementation Specifications Approach	Project Management Methodology / Training Approach	415
1451	TN014	1	The Vendor should develop training materials that support each training.	Training	Will Meet	Attachment I - Implementation Specifications Approach	Project Management Methodology / Training Approach	416
1452	TN015	1	The Vendor should conduct training evaluations that provide feedback on the effectiveness of each training.	Training	Will Meet	Attachment I - Implementation Specifications Approach	Project Management Methodology / Training Approach	416
1453	TN016	1	The Vendor should provide as-is necessary the training facilities and equipment to best ensure the training's success.	Training	Will Meet	Attachment I - Implementation Specifications Approach	Project Management Methodology / Training Approach	417
1454	TN017	1	The Vendor should provide user acceptance testing (UAT) training	Training	Will Meet	Attachment I - Implementation Specifications Approach	Project Management Methodology / Training Approach	417
1455	TN018	1	The Vendor should provide train-the-trainer training sessions.	Training	Will Meet	Attachment I - Implementation Specifications Approach	Project Management Methodology / Training Approach	417
1456	TN019	1	The Vendor should support all aspects of training that the Department and Vendor agree are key towards the trainings delivery.	Training	Will Meet	Attachment I - Implementation Specifications Approach	Project Management Methodology / Training Approach	417
1457	TN020	1	The solution's training environments should be reflective of real-world data.	Training	Will Meet	Attachment I - Implementation Specifications Approach	Project Management Methodology / Training Approach	417
1458	TN021	1	The solution's training environments should include end-to-end training on processes during applicable phases of the project	Training	Will Meet	Attachment I - Implementation Specifications Approach	Project Management Methodology / Training Approach	417

APPENDIX 2 WORK PLAN

Work Plan

WV EDW

ID	WBS	Task Name	Predecessors	Duration	Start	Finish	Resource Names
1	1	**WV EDS Implementation**		**2555 days**	**Mon 5/4/20**	**Wed 4/10/30**	
2	1.1	Milestone: Project Start		0 days	Mon 5/4/20	Mon 5/4/20	
3	1.2	Milestone: Contract Executed	2	0 days	Mon 5/4/20	Mon 5/4/20	
4	1.3	**Phase I: DDI**		**383 days**	**Mon 5/4/20**	**Thu 11/4/21**	
5	1.3.1	**Project Initiation and Project Planning**		**102 days**	**Mon 5/4/20**	**Fri 9/25/20**	
6	1.3.1.1	**Project 1-5: Project Kickoff**		**10 days**	**Mon 5/4/20**	**Fri 5/15/20**	
7	1.3.1.1.1	**Project IBM WH Internal Kickoff**		**5 days**	**Mon 5/4/20**	**Fri 5/8/20**	
8	1.3.1.1.1.1	Deliver Project Kickoff materials	2	3 days	Mon 5/4/20	Wed 5/6/20	PM[25%]
9	1.3.1.1.1.2	Identify Kickoff attendees	8	1 day	Thu 5/7/20	Thu 5/7/20	PM[10%],Acct Mngr[10%],Impl Mngr[10%],State[10%]
10	1.3.1.1.1.3	Perform Kickoff	9	1 day	Fri 5/8/20	Fri 5/8/20	AC[25%],BI Architect[25%],BI Dev[25%],BA[25%],PM[25%],Impl Mngr[25%],State[25%]
11	1.3.1.1.1.4	Milestone: IBM WH Internal Kickoff	10	0 days	Fri 5/8/20	Fri 5/8/20	
12	1.3.1.1.2	**External Project Kickoff**		**6 days**	**Mon 5/4/20**	**Mon 5/11/20**	
13	1.3.1.1.2.1	Kickoff agenda preparation	2	3 days	Mon 5/4/20	Wed 5/6/20	Acct Mngr[10%],PM[10%],Impl Mngr[10%]
14	1.3.1.1.2.2	Finalize Agenda, time, and stakeholders	13	1 day	Thu 5/7/20	Thu 5/7/20	Acct Mngr[10%],PM[10%],State[10%]
15	1.3.1.1.2.3	Configure External Project Kickoff materials	14	1 day	Fri 5/8/20	Fri 5/8/20	Acct Mngr[25%],PM[25%],BA[25%]
16	1.3.1.1.2.4	Perform External Kickoff	15	1 day	Mon 5/11/20	Mon 5/11/20	State,AC,BI Architect,BI Dev,BA,PM,Impl Mngr
17	1.3.1.1.2.5	Milestone: Complete Stakeholder Kickoff	16	0 days	Mon 5/11/20	Mon 5/11/20	
18	1.3.1.1.3	**Facility Setup**		**10 days**	**Mon 5/4/20**	**Fri 5/15/20**	
19	1.3.1.1.3.1	Ensure Office Space is setup as contractually required	3	10 days	Mon 5/4/20	Fri 5/15/20	Acct Mngr[10%]
20	1.3.1.1.3.2	Provide access to IBM & DHHR staff	19FF	5 days	Mon 5/11/20	Fri 5/15/20	Acct Mngr[10%]
21	1.3.1.1.3.3	Milestone: Facility Setup Complete	20	0 days	Fri 5/15/20	Fri 5/15/20	
22	1.3.1.1.4	Milestone: Project 1-5: Project Kickoff Complete	11,17,21	0 days	Fri 5/15/20	Fri 5/15/20	
23	1.3.1.2	**Deliverables**		**102 days**	**Mon 5/4/20**	**Fri 9/25/20**	
24	1.3.1.2.1	**D001 Project Kickoff Meeting Materials**		**30 days**	**Mon 5/4/20**	**Mon 6/15/20**	
25	1.3.1.2.1.1	Develop Meeting Agenda	2	3 days	Mon 5/4/20	Wed 5/6/20	Acct Mngr[20%],Impl Mngr[20%]
26	1.3.1.2.1.2	**Develop Presentation Slide Deck**		**1 day**	**Mon 5/4/20**	**Mon 5/4/20**	
27	1.3.1.2.1.2.1	Compile Project Overview	2	1 day	Mon 5/4/20	Mon 5/4/20	Acct Mngr[20%],Impl Mngr[20%]
28	1.3.1.2.1.2.2	Define Project Scope	2	1 day	Mon 5/4/20	Mon 5/4/20	Acct Mngr[20%],Impl Mngr[20%]
29	1.3.1.2.1.2.3	Identify High-level project approval	2	1 day	Mon 5/4/20	Mon 5/4/20	Acct Mngr[20%],Impl Mngr[20%]
30	1.3.1.2.1.2.4	Confirm Project timeline	2	1 day	Mon 5/4/20	Mon 5/4/20	Acct Mngr[20%],Impl Mngr[20%]
31	1.3.1.2.1.2.5	Define project team roles and responsibilities	2	1 day	Mon 5/4/20	Mon 5/4/20	Acct Mngr[20%],Impl Mngr[20%]
32	1.3.1.2.1.2.6	Determine success factors	2	1 day	Mon 5/4/20	Mon 5/4/20	Acct Mngr[20%],Impl Mngr[20%]
33	1.3.1.2.1.2.7	Identify next steps	2	1 day	Mon 5/4/20	Mon 5/4/20	Acct Mngr[20%],Impl Mngr[20%]
34	1.3.1.2.1.3	Create Invitee List	2	1 day	Mon 5/4/20	Mon 5/4/20	Acct Mngr[20%],Impl Mngr[20%],State[20%]
35	1.3.1.2.1.4	Create Attendee List	9	1 day	Fri 5/8/20	Fri 5/8/20	Acct Mngr[20%],Impl Mngr[20%],State[20%]
36	1.3.1.2.1.5	Create Meeting Notes	11	3 days	Mon 5/11/20	Wed 5/13/20	PM[50%]
37	1.3.1.2.1.6	Compile deliverable	36	2 days	Thu 5/14/20	Fri 5/15/20	PM[50%]
38	1.3.1.2.1.7	Initial DHHR Review	37	10 days	Mon 5/18/20	Mon 6/1/20	State[20%]
39	1.3.1.2.1.8	IBM WH Revise and Review	38	5 days	Tue 6/2/20	Mon 6/8/20	PM[50%]
40	1.3.1.2.1.9	Final DHHR Review & Approval	39	5 days	Tue 6/9/20	Mon 6/15/20	State[20%]
41	1.3.1.2.1.10	Milestone: Kickoff Meeting Materials Approved	39,27,28,29,30,3	0 days	Mon 6/15/20	Mon 6/15/20	
42	1.3.1.2.2	**D002 - D014 Project Management Plan**		**72 days**	**Mon 5/4/20**	**Thu 8/13/20**	
43	1.3.1.2.2.1	**D002 Change Management Plan**		**71 days**	**Mon 5/4/20**	**Wed 8/12/20**	
44	1.3.1.2.2.1.1	**Develop DED**		**7 days**	**Mon 5/4/20**	**Tue 5/12/20**	
45	1.3.1.2.2.1.1	Review deliverable requirements	2	2 days	Mon 5/4/20	Tue 5/5/20	PM[10%],Doc Mngr[50%]
46	1.3.1.2.2.1.1	Draft DED	45	3 days	Wed 5/6/20	Fri 5/8/20	PM[10%],Doc Mngr[50%],Change / Release Manager[10%]
47	1.3.1.2.2.1.1	Review DED	46	1 day	Mon 5/11/20	Mon 5/11/20	PM[10%],Doc Mngr[50%],Change / Release Manager[10%]
48	1.3.1.2.2.1.1	Finalize DED	47	1 day	Tue 5/12/20	Tue 5/12/20	PM[10%],Doc Mngr[50%],Change / Release Manager[10%]
49	1.3.1.2.2.1.2	**Internally Review DED**		**6 days**	**Wed 5/13/20**	**Wed 5/20/20**	
50	1.3.1.2.2.1.2	Complete Contract Review	48	2 days	Wed 5/13/20	Thu 5/14/20	PM[10%]
51	1.3.1.2.2.1.2	Complete Peer Review	48	2 days	Wed 5/13/20	Thu 5/14/20	Doc Mngr[10%],Change / Release Manager[10%],Impl Mngr[10%]
52	1.3.1.2.2.1.2	Complete QA Review	50,51	2 days	Fri 5/15/20	Mon 5/18/20	Doc Mngr[25%]
53	1.3.1.2.2.1.2	Update with feedback	52	2 days	Tue 5/19/20	Wed 5/20/20	Doc Mngr[10%],Change / Release Manager[10%],Impl Mngr[10%]
54	1.3.1.2.2.1.3	Submit for State Review	53	1 day	Thu 5/21/20	Thu 5/21/20	PM[10%]
55	1.3.1.2.2.1.4	State reviews document and provides feedback	54	3 days	Fri 5/22/20	Wed 5/27/20	State[20%]
56	1.3.1.2.2.1.5	**DED: Review Cycle (1)**		**4 days**	**Thu 5/28/20**	**Tue 6/2/20**	
57	1.3.1.2.2.1.5	Update DED with feedback	55	1 day	Thu 5/28/20	Thu 5/28/20	PM[5%],Doc Mngr[10%],Change / Release Manager[10%]
58	1.3.1.2.2.1.5	QA review and update	57	0.5 days	Fri 5/29/20	Fri 5/29/20	Doc Mngr[40%],Change / Release Manager[25%]
59	1.3.1.2.2.1.5	Resubmit for State Review	58	0.5 days	Fri 5/29/20	Fri 5/29/20	PM[10%]
60	1.3.1.2.2.1.5	State reviews	59	2 days	Mon 6/1/20	Tue 6/2/20	State[20%]
61	1.3.1.2.2.1.6	**DED: Review Cycle (2)**		**5 days**	**Wed 6/3/20**	**Tue 6/9/20**	
62	1.3.1.2.2.1.6	Update DED with feedback	60	1 day	Wed 6/3/20	Wed 6/3/20	PM[5%],Doc Mngr[10%],Change / Release Manager[10%]
63	1.3.1.2.2.1.6	QA review and update	62	0.5 days	Thu 6/4/20	Thu 6/4/20	Doc Mngr[40%],Change / Release Manager[25%]
64	1.3.1.2.2.1.6	Resubmit for State Review	63	0.5 days	Thu 6/4/20	Thu 6/4/20	PM[10%]
65	1.3.1.2.2.1.6	State reviews	64	2 days	Fri 6/5/20	Mon 6/8/20	State[20%]
66	1.3.1.2.2.1.6	State approves DED	65	1 day	Tue 6/9/20	Tue 6/9/20	State[20%]

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ID	WBS	Task Name	Predecessors	Duration	Start	Finish	Resource Names
67	**1.3.1.2.2.1.7**	**Develop Deliverable**		**13 days**	**Wed 6/10/20**	**Fri 6/26/20**	
68	1.3.1.2.2.1.7	Create baseline from approved DED	66	5 days	Wed 6/10/20	Tue 6/16/20	PM[5%],Doc Mngr[10%],Change / Release Manager[10%]
69	1.3.1.2.2.1.7	Update deliverable	68	5 days	Wed 6/17/20	Tue 6/23/20	PM[5%],Doc Mngr[10%],Change / Release Manager[10%]
70	1.3.1.2.2.1.7	Conduct Internal Review	69	2 days	Wed 6/24/20	Thu 6/25/20	PM[5%],Doc Mngr[10%],Change / Release Manager[10%]
71	1.3.1.2.2.1.7	Final QA Review/Update of Deliverable	70	1 day	Fri 6/26/20	Fri 6/26/20	Doc Mngr[40%],Change / Release Manager[25%]
72	1.3.1.2.2.1.8	Submit Deliverable for State Review	71	1 day	Mon 6/29/20	Mon 6/29/20	PM[10%]
73	1.3.1.2.2.1.9	State reviews document and provides feedback	72	10 days	Tue 6/30/20	Tue 7/14/20	State[20%]
74	**1.3.1.2.2.1.1**	**Deliverable: Review Cycle (1)**		**10 days**	**Wed 7/15/20**	**Tue 7/28/20**	
75	1.3.1.2.2.1.1	Update deliverable with feedback	73	3 days	Wed 7/15/20	Fri 7/17/20	PM[5%],Doc Mngr[10%],Change / Release Manager[10%]
76	1.3.1.2.2.1.1	QA review and update	75	1.5 days	Mon 7/20/20	Tue 7/21/20	Doc Mngr[40%],Change / Release Manager[25%]
77	1.3.1.2.2.1.1	Submit for State approval	76	0.5 days	Tue 7/21/20	Tue 7/21/20	PM[10%]
78	1.3.1.2.2.1.1	State reviews	77	5 days	Wed 7/22/20	Tue 7/28/20	State[20%]
79	**1.3.1.2.2.1.1**	**Deliverable: Review Cycle (2)**		**10 days**	**Wed 7/29/20**	**Tue 8/11/20**	
80	1.3.1.2.2.1.1	Update deliverable with feedback	78	3 days	Wed 7/29/20	Fri 7/31/20	PM[5%],Doc Mngr[10%],Change / Release Manager[10%]
81	1.3.1.2.2.1.1	QA review and update	80	1.5 days	Mon 8/3/20	Tue 8/4/20	Doc Mngr[40%],Change / Release Manager[25%]
82	1.3.1.2.2.1.1	Submit for State approval	81	0.5 days	Tue 8/4/20	Tue 8/4/20	PM[10%]
83	1.3.1.2.2.1.1	State reviews	82	5 days	Wed 8/5/20	Tue 8/11/20	State[20%]
84	1.3.1.2.2.1.1	State Provides Final Approval	83	1 day	Wed 8/12/20	Wed 8/12/20	State[20%]
85	1.3.1.2.2.1.1	Milestone: Change Management Plan Approved	84	0 days	Wed 8/12/20	Wed 8/12/20	
86	**1.3.1.2.2.2**	**D003 Communication Management Plan**		**71 days**	**Mon 5/4/20**	**Wed 8/12/20**	
87	**1.3.1.2.2.2.1**	**Develop DED**		**7 days**	**Mon 5/4/20**	**Tue 5/12/20**	
88	1.3.1.2.2.2.1	Review deliverable requirements	2	2 days	Mon 5/4/20	Tue 5/5/20	PM[10%],Doc Mngr[50%]
89	1.3.1.2.2.2.1	Draft DED	88	3 days	Wed 5/6/20	Fri 5/8/20	PM[10%],Doc Mngr[50%],Impl Mngr[10%]
90	1.3.1.2.2.2.1	Review DED	89	1 day	Mon 5/11/20	Mon 5/11/20	PM[10%],Doc Mngr[50%],Impl Mngr[10%]
91	1.3.1.2.2.2.1	Finalize DED	90	1 day	Tue 5/12/20	Tue 5/12/20	PM[10%],Doc Mngr[50%],Impl Mngr[10%]
92	**1.3.1.2.2.2.2**	**Internally Review DED**		**6 days**	**Wed 5/13/20**	**Wed 5/20/20**	
93	1.3.1.2.2.2.2	Complete Contract Review	91	2 days	Wed 5/13/20	Thu 5/14/20	PM[10%]
94	1.3.1.2.2.2.2	Complete Peer Review	91	2 days	Wed 5/13/20	Thu 5/14/20	Doc Mngr[10%],Impl Mngr[10%],Acct Mngr[10%]
95	1.3.1.2.2.2.2	Complete QA Review	93,94	2 days	Fri 5/15/20	Mon 5/18/20	Doc Mngr[25%]
96	1.3.1.2.2.2.2	Update with feedback	95	2 days	Tue 5/19/20	Wed 5/20/20	Doc Mngr[10%],Impl Mngr[10%],Acct Mngr[10%]
97	1.3.1.2.2.2.3	Submit for State Review	96	1 day	Thu 5/21/20	Thu 5/21/20	PM[10%]
98	1.3.1.2.2.2.4	State reviews document and provides feedback	97	3 days	Fri 5/22/20	Wed 5/27/20	State[20%]
99	**1.3.1.2.2.2.5**	**DED: Review Cycle (1)**		**4 days**	**Thu 5/28/20**	**Tue 6/2/20**	
100	1.3.1.2.2.2.5	Update DED with feedback	98	1 day	Thu 5/28/20	Thu 5/28/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
101	1.3.1.2.2.2.5	QA review and update	100	0.5 days	Fri 5/29/20	Fri 5/29/20	Doc Mngr[40%],Impl Mngr[25%]
102	1.3.1.2.2.2.5	Resubmit for State Review	101	0.5 days	Fri 5/29/20	Fri 5/29/20	PM[10%]
103	1.3.1.2.2.2.5	State reviews	102	2 days	Mon 6/1/20	Tue 6/2/20	State[20%]
104	**1.3.1.2.2.2.6**	**DED: Review Cycle (2)**		**5 days**	**Wed 6/3/20**	**Tue 6/9/20**	
105	1.3.1.2.2.2.6	Update DED with feedback	103	1 day	Wed 6/3/20	Wed 6/3/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
106	1.3.1.2.2.2.6	QA review and update	105	0.5 days	Thu 6/4/20	Thu 6/4/20	Doc Mngr[40%],Impl Mngr[25%]
107	1.3.1.2.2.2.6	Resubmit for State Review	106	0.5 days	Thu 6/4/20	Thu 6/4/20	PM[10%]
108	1.3.1.2.2.2.6	State reviews	107	2 days	Fri 6/5/20	Mon 6/8/20	State[20%]
109	1.3.1.2.2.2.6	State approves DED	108	1 day	Tue 6/9/20	Tue 6/9/20	State[20%]
110	**1.3.1.2.2.2.7**	**Develop Deliverable**		**13 days**	**Wed 6/10/20**	**Fri 6/26/20**	
111	1.3.1.2.2.2.7	Create baseline from approved DED	109	5 days	Wed 6/10/20	Tue 6/16/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
112	1.3.1.2.2.2.7	Update deliverable	111	5 days	Wed 6/17/20	Tue 6/23/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
113	1.3.1.2.2.2.7	Conduct Internal Review	112	2 days	Wed 6/24/20	Thu 6/25/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
114	1.3.1.2.2.2.7	Final QA Review/Update of Deliverable	113	1 day	Fri 6/26/20	Fri 6/26/20	Doc Mngr[40%],Impl Mngr[25%]
115	1.3.1.2.2.2.8	Submit Deliverable for State Review	114	1 day	Mon 6/29/20	Mon 6/29/20	PM[10%]
116	1.3.1.2.2.2.9	State reviews document and provides feedback	115	10 days	Tue 6/30/20	Tue 7/14/20	State[20%]
117	**1.3.1.2.2.2.1**	**Deliverable: Review Cycle (1)**		**10 days**	**Wed 7/15/20**	**Tue 7/28/20**	
118	1.3.1.2.2.2.1	Update deliverable with feedback	116	3 days	Wed 7/15/20	Fri 7/17/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
119	1.3.1.2.2.2.1	QA review and update	118	1.5 days	Mon 7/20/20	Tue 7/21/20	Doc Mngr[40%],Impl Mngr[25%]
120	1.3.1.2.2.2.1	Submit for State approval	119	0.5 days	Tue 7/21/20	Tue 7/21/20	PM[10%]
121	1.3.1.2.2.2.1	State reviews	120	5 days	Wed 7/22/20	Tue 7/28/20	State[20%]
122	**1.3.1.2.2.2.1**	**Deliverable: Review Cycle (2)**		**10 days**	**Wed 7/29/20**	**Tue 8/11/20**	
123	1.3.1.2.2.2.1	Update deliverable with feedback	121	3 days	Wed 7/29/20	Fri 7/31/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
124	1.3.1.2.2.2.1	QA review and update	123	1.5 days	Mon 8/3/20	Tue 8/4/20	Doc Mngr[40%],Impl Mngr[25%]
125	1.3.1.2.2.2.1	Submit for State approval	124	0.5 days	Tue 8/4/20	Tue 8/4/20	PM[10%]
126	1.3.1.2.2.2.1	State reviews	125	5 days	Wed 8/5/20	Tue 8/11/20	State[20%]
127	1.3.1.2.2.2.1	State Provides Final Approval	126	1 day	Wed 8/12/20	Wed 8/12/20	State[20%]
128	1.3.1.2.2.2.1	Milestone: Communication Management Plan Approved	127	0 days	Wed 8/12/20	Wed 8/12/20	
129	**1.3.1.2.2.3**	**D004 Cost Management Plan**		**71 days**	**Mon 5/4/20**	**Wed 8/12/20**	
130	**1.3.1.2.2.3.1**	**Develop DED**		**7 days**	**Mon 5/4/20**	**Tue 5/12/20**	
131	1.3.1.2.2.3.1	Review deliverable requirements	2	2 days	Mon 5/4/20	Tue 5/5/20	PM[10%],Doc Mngr[50%]
132	1.3.1.2.2.3.1	Draft DED	131	3 days	Wed 5/6/20	Fri 5/8/20	PM[10%],Doc Mngr[50%],Acct Mngr[10%]
133	1.3.1.2.2.3.1	Review DED	132	1 day	Mon 5/11/20	Mon 5/11/20	PM[10%],Doc Mngr[50%],Acct Mngr[10%]

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ID	WBS	Task Name	Predecessors	Duration	Start	Finish	Resource Names
134	1.3.1.2.2.3.1	Finalize DED	133	1 day	Tue 5/12/20	Tue 5/12/20	PM[10%],Doc Mngr[50%],Acct Mngr[10%]
135	**1.3.1.2.2.3.2**	**Internally Review DED**		**6 days**	**Wed 5/13/20**	**Wed 5/20/20**	
136	1.3.1.2.2.3.2	Complete Contract Review	134	2 days	Wed 5/13/20	Thu 5/14/20	PM[10%]
137	1.3.1.2.2.3.2	Complete Peer Review	134	2 days	Wed 5/13/20	Thu 5/14/20	Doc Mngr[10%],Impl Mngr[10%],Acct Mngr[10%]
138	1.3.1.2.2.3.2	Complete QA Review	136,137	2 days	Fri 5/15/20	Mon 5/18/20	Doc Mngr[25%]
139	1.3.1.2.2.3.2	Update with feedback	138	2 days	Tue 5/19/20	Wed 5/20/20	Doc Mngr[10%],Impl Mngr[10%],Acct Mngr[10%]
140	1.3.1.2.2.3.3	Submit for State Review	139	1 day	Thu 5/21/20	Thu 5/21/20	PM[10%]
141	1.3.1.2.2.3.4	State reviews document and provides feedback	140	3 days	Fri 5/22/20	Wed 5/27/20	State[20%]
142	**1.3.1.2.2.3.5**	**DED: Review Cycle (1)**		**4 days**	**Thu 5/28/20**	**Tue 6/2/20**	
143	1.3.1.2.2.3.5	Update DED with feedback	141	1 day	Thu 5/28/20	Thu 5/28/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
144	1.3.1.2.2.3.5	QA review and update	143	0.5 days	Fri 5/29/20	Fri 5/29/20	Doc Mngr[40%],Impl Mngr[25%]
145	1.3.1.2.2.3.5	Resubmit for State Review	144	0.5 days	Fri 5/29/20	Fri 5/29/20	PM[10%]
146	1.3.1.2.2.3.5	State reviews	145	2 days	Mon 6/1/20	Tue 6/2/20	State[20%]
147	**1.3.1.2.2.3.6**	**DED: Review Cycle (2)**		**5 days**	**Wed 6/3/20**	**Tue 6/9/20**	
148	1.3.1.2.2.3.6	Update DED with feedback	146	1 day	Wed 6/3/20	Wed 6/3/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
149	1.3.1.2.2.3.6	QA review and update	148	0.5 days	Thu 6/4/20	Thu 6/4/20	Doc Mngr[40%],Impl Mngr[25%]
150	1.3.1.2.2.3.6	Resubmit for State Review	149	0.5 days	Thu 6/4/20	Thu 6/4/20	PM[10%]
151	1.3.1.2.2.3.6	State reviews	150	2 days	Fri 6/5/20	Mon 6/8/20	State[20%]
152	1.3.1.2.2.3.6	State approves DED	151	1 day	Tue 6/9/20	Tue 6/9/20	State[20%]
153	**1.3.1.2.2.3.7**	**Develop Deliverable**		**13 days**	**Wed 6/10/20**	**Fri 6/26/20**	
154	1.3.1.2.2.3.7	Create baseline from approved DED	152	5 days	Wed 6/10/20	Tue 6/16/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
155	1.3.1.2.2.3.7	Update deliverable	154	5 days	Wed 6/17/20	Tue 6/23/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
156	1.3.1.2.2.3.7	Conduct Internal Review	155	2 days	Wed 6/24/20	Thu 6/25/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
157	1.3.1.2.2.3.7	Final QA Review/Update of Deliverable	156	1 day	Fri 6/26/20	Fri 6/26/20	Doc Mngr[40%],Impl Mngr[25%]
158	1.3.1.2.2.3.8	Submit Deliverable for State Review	157	1 day	Mon 6/29/20	Mon 6/29/20	PM[10%]
159	1.3.1.2.2.3.9	State reviews document and provides feedback	158	10 days	Tue 6/30/20	Tue 7/14/20	State[20%]
160	**1.3.1.2.2.3.1**	**Deliverable: Review Cycle (1)**		**10 days**	**Wed 7/15/20**	**Tue 7/28/20**	
161	1.3.1.2.2.3.1	Update deliverable with feedback	159	3 days	Wed 7/15/20	Fri 7/17/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
162	1.3.1.2.2.3.1	QA review and update	161	1.5 days	Mon 7/20/20	Tue 7/21/20	Doc Mngr[40%],Impl Mngr[25%]
163	1.3.1.2.2.3.1	Submit for State approval	162	0.5 days	Tue 7/21/20	Tue 7/21/20	PM[10%]
164	1.3.1.2.2.3.1	State reviews	163	5 days	Wed 7/22/20	Tue 7/28/20	State[20%]
165	**1.3.1.2.2.3.1**	**Deliverable: Review Cycle (2)**		**10 days**	**Wed 7/29/20**	**Tue 8/11/20**	
166	1.3.1.2.2.3.1	Update deliverable with feedback	164	3 days	Wed 7/29/20	Fri 7/31/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
167	1.3.1.2.2.3.1	QA review and update	166	1.5 days	Mon 8/3/20	Tue 8/4/20	Doc Mngr[40%],Impl Mngr[25%]
168	1.3.1.2.2.3.1	Submit for State approval	167	0.5 days	Tue 8/4/20	Tue 8/4/20	PM[10%]
169	1.3.1.2.2.3.1	State reviews	168	5 days	Wed 8/5/20	Tue 8/11/20	State[20%]
170	1.3.1.2.2.3.1	State Provides Final Approval	169	1 day	Wed 8/12/20	Wed 8/12/20	State[20%]
171	1.3.1.2.2.3.1	Milestone: Cost Management Plan Approved	170	0 days	Wed 8/12/20	Wed 8/12/20	
172	**1.3.1.2.2.4**	**D005 Human Resources Plan**		**71 days**	**Mon 5/4/20**	**Wed 8/12/20**	
173	**1.3.1.2.2.4.1**	**Develop DED**		**7 days**	**Mon 5/4/20**	**Tue 5/12/20**	
174	1.3.1.2.2.4.1	Review deliverable requirements	2	2 days	Mon 5/4/20	Tue 5/5/20	PM[10%],Doc Mngr[50%]
175	1.3.1.2.2.4.1	Draft DED	174	3 days	Wed 5/6/20	Fri 5/8/20	PM[10%],Doc Mngr[50%],Acct Mngr[10%]
176	1.3.1.2.2.4.1	Review DED	175	1 day	Mon 5/11/20	Mon 5/11/20	PM[10%],Doc Mngr[50%],Acct Mngr[10%]
177	1.3.1.2.2.4.1	Finalize DED	176	1 day	Tue 5/12/20	Tue 5/12/20	PM[10%],Doc Mngr[50%],Acct Mngr[10%]
178	**1.3.1.2.2.4.2**	**Internally Review DED**		**6 days**	**Wed 5/13/20**	**Wed 5/20/20**	
179	1.3.1.2.2.4.2	Complete Contract Review	177	2 days	Wed 5/13/20	Thu 5/14/20	PM[10%]
180	1.3.1.2.2.4.2	Complete Peer Review	177	2 days	Wed 5/13/20	Thu 5/14/20	Doc Mngr[10%],Impl Mngr[10%],Acct Mngr[10%]
181	1.3.1.2.2.4.2	Complete QA Review	179,180	2 days	Fri 5/15/20	Mon 5/18/20	Doc Mngr[25%]
182	1.3.1.2.2.4.2	Update with feedback	181	2 days	Tue 5/19/20	Wed 5/20/20	Doc Mngr[10%],Impl Mngr[10%],Acct Mngr[10%]
183	1.3.1.2.2.4.3	Submit for State Review	182	1 day	Thu 5/21/20	Thu 5/21/20	PM[10%]
184	1.3.1.2.2.4.4	State reviews document and provides feedback	183	3 days	Fri 5/22/20	Wed 5/27/20	State[20%]
185	**1.3.1.2.2.4.5**	**DED: Review Cycle (1)**		**4 days**	**Thu 5/28/20**	**Tue 6/2/20**	
186	1.3.1.2.2.4.5	Update DED with feedback	184	1 day	Thu 5/28/20	Thu 5/28/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
187	1.3.1.2.2.4.5	QA review and update	186	0.5 days	Fri 5/29/20	Fri 5/29/20	Doc Mngr[40%],Impl Mngr[25%]
188	1.3.1.2.2.4.5	Resubmit for State Review	187	0.5 days	Fri 5/29/20	Fri 5/29/20	PM[10%]
189	1.3.1.2.2.4.5	State reviews	188	2 days	Mon 6/1/20	Tue 6/2/20	State[20%]
190	**1.3.1.2.2.4.6**	**DED: Review Cycle (2)**		**5 days**	**Wed 6/3/20**	**Tue 6/9/20**	
191	1.3.1.2.2.4.6	Update DED with feedback	189	1 day	Wed 6/3/20	Wed 6/3/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
192	1.3.1.2.2.4.6	QA review and update	191	0.5 days	Thu 6/4/20	Thu 6/4/20	Doc Mngr[40%],Impl Mngr[25%]
193	1.3.1.2.2.4.6	Resubmit for State Review	192	0.5 days	Thu 6/4/20	Thu 6/4/20	PM[10%]
194	1.3.1.2.2.4.6	State reviews	193	2 days	Fri 6/5/20	Mon 6/8/20	State[20%]
195	1.3.1.2.2.4.6	State approves DED	194	1 day	Tue 6/9/20	Tue 6/9/20	State[20%]
196	**1.3.1.2.2.4.7**	**Develop Deliverable**		**13 days**	**Wed 6/10/20**	**Fri 6/26/20**	
197	1.3.1.2.2.4.7	Create baseline from approved DED	195	5 days	Wed 6/10/20	Tue 6/16/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
198	1.3.1.2.2.4.7	Update deliverable	197	5 days	Wed 6/17/20	Tue 6/23/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
199	1.3.1.2.2.4.7	Conduct Internal Review	198	2 days	Wed 6/24/20	Thu 6/25/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
200	1.3.1.2.2.4.7	Final QA Review/Update of Deliverable	199	1 day	Fri 6/26/20	Fri 6/26/20	Doc Mngr[40%],Impl Mngr[25%]

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ID	WBS	Task Name	Predecessors	Duration	Start	Finish	Resource Names
201	1.3.1.2.2.4.8	Submit Deliverable for State Review	200	1 day	Mon 6/29/20	Mon 6/29/20	PM[10%]
202	1.3.1.2.2.4.9	State reviews document and provides feedback	201	10 days	Tue 6/30/20	Tue 7/14/20	State[20%]
203	**1.3.1.2.2.4.1**	**Deliverable: Review Cycle (1)**		**10 days**	**Wed 7/15/20**	**Tue 7/28/20**	
204	1.3.1.2.2.4.1	Update deliverable with feedback	202	3 days	Wed 7/15/20	Fri 7/17/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
205	1.3.1.2.2.4.1	QA review and update	204	1.5 days	Mon 7/20/20	Tue 7/21/20	Doc Mngr[40%],Impl Mngr[25%]
206	1.3.1.2.2.4.1	Submit for State approval	205	0.5 days	Tue 7/21/20	Tue 7/21/20	PM[10%]
207	1.3.1.2.2.4.1	State reviews	206	5 days	Wed 7/22/20	Tue 7/28/20	State[20%]
208	**1.3.1.2.2.4.1**	**Deliverable: Review Cycle (2)**		**10 days**	**Wed 7/29/20**	**Tue 8/11/20**	
209	1.3.1.2.2.4.1	Update deliverable with feedback	207	3 days	Wed 7/29/20	Fri 7/31/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
210	1.3.1.2.2.4.1	QA review and update	209	1.5 days	Mon 8/3/20	Tue 8/4/20	Doc Mngr[40%],Impl Mngr[25%]
211	1.3.1.2.2.4.1	Submit for State approval	210	0.5 days	Tue 8/4/20	Tue 8/4/20	PM[10%]
212	1.3.1.2.2.4.1	State reviews	211	5 days	Wed 8/5/20	Tue 8/11/20	State[20%]
213	1.3.1.2.2.4.1	State Provides Final Approval	212	1 day	Wed 8/12/20	Wed 8/12/20	State[20%]
214	1.3.1.2.2.4.1	Milestone: Human Resources Plan Approved	213	0 days	Wed 8/12/20	Wed 8/12/20	
215	**1.3.1.2.2.5**	**D006 Modularity and Reusability Plans**		**71 days**	**Mon 5/4/20**	**Wed 8/12/20**	
216	**1.3.1.2.2.5.1**	**Develop DED**		**7 days**	**Mon 5/4/20**	**Tue 5/12/20**	
217	1.3.1.2.2.5.1	Review deliverable requirements	2	2 days	Mon 5/4/20	Tue 5/5/20	PM[10%],Doc Mngr[50%]
218	1.3.1.2.2.5.1	Draft DED	217	3 days	Wed 5/6/20	Fri 5/8/20	PM[10%],Doc Mngr[50%],CMS Cert SME[10%]
219	1.3.1.2.2.5.1	Review DED	218	1 day	Mon 5/11/20	Mon 5/11/20	PM[10%],Doc Mngr[50%],CMS Cert SME[10%]
220	1.3.1.2.2.5.1	Finalize DED	219	1 day	Tue 5/12/20	Tue 5/12/20	PM[10%],Doc Mngr[50%],CMS Cert SME[10%]
221	**1.3.1.2.2.5.2**	**Internally Review DED**		**6 days**	**Wed 5/13/20**	**Wed 5/20/20**	
222	1.3.1.2.2.5.2	Complete Contract Review	220	2 days	Wed 5/13/20	Thu 5/14/20	PM[10%]
223	1.3.1.2.2.5.2	Complete Peer Review	220	2 days	Wed 5/13/20	Thu 5/14/20	Doc Mngr[10%],Impl Mngr[10%],CMS Cert SME[10%]
224	1.3.1.2.2.5.2	Complete QA Review	222,223	2 days	Fri 5/15/20	Mon 5/18/20	Doc Mngr[25%]
225	1.3.1.2.2.5.2	Update with feedback	224	2 days	Tue 5/19/20	Wed 5/20/20	Doc Mngr[10%],Impl Mngr[10%],CMS Cert SME[10%]
226	1.3.1.2.2.5.3	Submit for State Review	225	1 day	Thu 5/21/20	Thu 5/21/20	PM[10%]
227	1.3.1.2.2.5.4	State reviews document and provides feedback	226	3 days	Fri 5/22/20	Wed 5/27/20	State[20%]
228	**1.3.1.2.2.5.5**	**DED: Review Cycle (1)**		**4 days**	**Thu 5/28/20**	**Tue 6/2/20**	
229	1.3.1.2.2.5.5	Update DED with feedback	227	1 day	Thu 5/28/20	Thu 5/28/20	PM[5%],Doc Mngr[10%],CMS Cert SME[10%]
230	1.3.1.2.2.5.5	QA review and update	229	0.5 days	Fri 5/29/20	Fri 5/29/20	Doc Mngr[40%],CMS Cert SME[25%]
231	1.3.1.2.2.5.5	Resubmit for State Review	230	0.5 days	Fri 5/29/20	Fri 5/29/20	PM[10%]
232	1.3.1.2.2.5.5	State reviews	231	2 days	Mon 6/1/20	Tue 6/2/20	State[20%]
233	**1.3.1.2.2.5.6**	**DED: Review Cycle (2)**		**5 days**	**Wed 6/3/20**	**Tue 6/9/20**	
234	1.3.1.2.2.5.6	Update DED with feedback	232	1 day	Wed 6/3/20	Wed 6/3/20	PM[5%],Doc Mngr[10%],CMS Cert SME[10%]
235	1.3.1.2.2.5.6	QA review and update	234	0.5 days	Thu 6/4/20	Thu 6/4/20	Doc Mngr[40%],CMS Cert SME[25%]
236	1.3.1.2.2.5.6	Resubmit for State Review	235	0.5 days	Thu 6/4/20	Thu 6/4/20	PM[10%]
237	1.3.1.2.2.5.6	State reviews	236	2 days	Fri 6/5/20	Mon 6/8/20	State[20%]
238	1.3.1.2.2.5.6	State approves DED	237	1 day	Tue 6/9/20	Tue 6/9/20	State[20%]
239	**1.3.1.2.2.5.7**	**Develop Deliverable**		**13 days**	**Wed 6/10/20**	**Fri 6/26/20**	
240	1.3.1.2.2.5.7	Create baseline from approved DED	238	5 days	Wed 6/10/20	Tue 6/16/20	PM[5%],Doc Mngr[10%],CMS Cert SME[10%]
241	1.3.1.2.2.5.7	Update deliverable	240	5 days	Wed 6/17/20	Tue 6/23/20	PM[5%],Doc Mngr[10%],CMS Cert SME[10%]
242	1.3.1.2.2.5.7	Conduct Internal Review	241	2 days	Wed 6/24/20	Thu 6/25/20	PM[5%],Doc Mngr[10%],CMS Cert SME[10%]
243	1.3.1.2.2.5.7	Final QA Review/Update of Deliverable	242	1 day	Fri 6/26/20	Fri 6/26/20	Doc Mngr[40%],CMS Cert SME[25%]
244	1.3.1.2.2.5.8	Submit Deliverable for State Review	243	1 day	Mon 6/29/20	Mon 6/29/20	PM[10%]
245	1.3.1.2.2.5.9	State reviews document and provides feedback	244	10 days	Tue 6/30/20	Tue 7/14/20	State[20%]
246	**1.3.1.2.2.5.1**	**Deliverable: Review Cycle (1)**		**10 days**	**Wed 7/15/20**	**Tue 7/28/20**	
247	1.3.1.2.2.5.1	Update deliverable with feedback	245	3 days	Wed 7/15/20	Fri 7/17/20	PM[5%],Doc Mngr[10%],CMS Cert SME[10%]
248	1.3.1.2.2.5.1	QA review and update	247	1.5 days	Mon 7/20/20	Tue 7/21/20	Doc Mngr[40%],CMS Cert SME[25%]
249	1.3.1.2.2.5.1	Submit for State approval	248	0.5 days	Tue 7/21/20	Tue 7/21/20	PM[10%]
250	1.3.1.2.2.5.1	State reviews	249	5 days	Wed 7/22/20	Tue 7/28/20	State[20%]
251	**1.3.1.2.2.5.1**	**Deliverable: Review Cycle (2)**		**10 days**	**Wed 7/29/20**	**Tue 8/11/20**	
252	1.3.1.2.2.5.1	Update deliverable with feedback	250	3 days	Wed 7/29/20	Fri 7/31/20	PM[5%],Doc Mngr[10%],CMS Cert SME[10%]
253	1.3.1.2.2.5.1	QA review and update	252	1.5 days	Mon 8/3/20	Tue 8/4/20	Doc Mngr[40%],CMS Cert SME[25%]
254	1.3.1.2.2.5.1	Submit for State approval	253	0.5 days	Tue 8/4/20	Tue 8/4/20	PM[10%]
255	1.3.1.2.2.5.1	State reviews	254	5 days	Wed 8/5/20	Tue 8/11/20	State[20%]
256	1.3.1.2.2.5.1	State Provides Final Approval	255	1 day	Wed 8/12/20	Wed 8/12/20	State[20%]
257	1.3.1.2.2.5.1	Milestone: Modularity and Reusability Plan Approved	256	0 days	Wed 8/12/20	Wed 8/12/20	
258	**1.3.1.2.2.6**	**D007 Project Work Plan**		**71 days**	**Mon 5/4/20**	**Wed 8/12/20**	
259	**1.3.1.2.2.6.1**	**Develop DED**		**7 days**	**Mon 5/4/20**	**Tue 5/12/20**	
260	1.3.1.2.2.6.1	Review deliverable requirements	2	2 days	Mon 5/4/20	Tue 5/5/20	PM[10%],Doc Mngr[50%]
261	1.3.1.2.2.6.1	Draft DED	260	3 days	Wed 5/6/20	Fri 5/8/20	PM[10%],Doc Mngr[50%],Impl Mngr[10%]
262	1.3.1.2.2.6.1	Review DED	261	1 day	Mon 5/11/20	Mon 5/11/20	PM[10%],Doc Mngr[50%],Impl Mngr[10%]
263	1.3.1.2.2.6.1	Finalize DED	262	1 day	Tue 5/12/20	Tue 5/12/20	PM[10%],Doc Mngr[50%],Impl Mngr[10%]
264	**1.3.1.2.2.6.2**	**Internally Review DED**		**6 days**	**Wed 5/13/20**	**Wed 5/20/20**	
265	1.3.1.2.2.6.2	Complete Contract Review	263	2 days	Wed 5/13/20	Thu 5/14/20	PM[10%]
266	1.3.1.2.2.6.2	Complete Peer Review	263	2 days	Wed 5/13/20	Thu 5/14/20	Doc Mngr[10%],Impl Mngr[10%],Acct Mngr[10%]
267	1.3.1.2.2.6.2	Complete QA Review	265,266	2 days	Fri 5/15/20	Mon 5/18/20	Doc Mngr[25%]

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ID	WBS	Task Name	Predecessors	Duration	Start	Finish	Resource Names
268	1.3.1.2.2.6.2	Update with feedback	267	2 days	Tue 5/19/20	Wed 5/20/20	Doc Mngr[10%],Impl Mngr[10%],Acct Mngr[10%]
269	1.3.1.2.2.6.3	Submit for State Review	268	1 day	Thu 5/21/20	Thu 5/21/20	PM[10%]
270	1.3.1.2.2.6.4	State reviews document and provides feedback	269	3 days	Fri 5/22/20	Wed 5/27/20	State[20%]
271	**1.3.1.2.2.6.5**	**DED: Review Cycle (1)**		**4 days**	**Thu 5/28/20**	**Tue 6/2/20**	
272	1.3.1.2.2.6.5	Update DED with feedback	270	1 day	Thu 5/28/20	Thu 5/28/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
273	1.3.1.2.2.6.5	QA review and update	272	0.5 days	Fri 5/29/20	Fri 5/29/20	Doc Mngr[40%],Impl Mngr[25%]
274	1.3.1.2.2.6.5	Resubmit for State Review	273	0.5 days	Fri 5/29/20	Fri 5/29/20	PM[10%]
275	1.3.1.2.2.6.5	State reviews	274	2 days	Mon 6/1/20	Tue 6/2/20	State[20%]
276	**1.3.1.2.2.6.6**	**DED: Review Cycle (2)**		**5 days**	**Wed 6/3/20**	**Tue 6/9/20**	
277	1.3.1.2.2.6.6	Update DED with feedback	275	1 day	Wed 6/3/20	Wed 6/3/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
278	1.3.1.2.2.6.6	QA review and update	277	0.5 days	Thu 6/4/20	Thu 6/4/20	Doc Mngr[40%],Impl Mngr[25%]
279	1.3.1.2.2.6.6	Resubmit for State Review	278	0.5 days	Thu 6/4/20	Thu 6/4/20	PM[10%]
280	1.3.1.2.2.6.6	State reviews	279	2 days	Fri 6/5/20	Mon 6/8/20	State[20%]
281	1.3.1.2.2.6.6	State approves DED	280	1 day	Tue 6/9/20	Tue 6/9/20	State[20%]
282	**1.3.1.2.2.6.7**	**Develop Deliverable**		**13 days**	**Wed 6/10/20**	**Fri 6/26/20**	
283	1.3.1.2.2.6.7	Create baseline from approved DED	281	5 days	Wed 6/10/20	Tue 6/16/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
284	1.3.1.2.2.6.7	Update deliverable	283	5 days	Wed 6/17/20	Tue 6/23/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
285	1.3.1.2.2.6.7	Conduct Internal Review	284	2 days	Wed 6/24/20	Thu 6/25/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
286	1.3.1.2.2.6.7	Final QA Review/Update of Deliverable	285	1 day	Fri 6/26/20	Fri 6/26/20	Doc Mngr[40%],Impl Mngr[25%]
287	1.3.1.2.2.6.8	Submit Deliverable for State Review	286	1 day	Mon 6/29/20	Mon 6/29/20	PM[10%]
288	1.3.1.2.2.6.9	State reviews document and provides feedback	287	10 days	Tue 6/30/20	Tue 7/14/20	State[20%]
289	**1.3.1.2.2.6.1**	**Deliverable: Review Cycle (1)**		**10 days**	**Wed 7/15/20**	**Tue 7/28/20**	
290	1.3.1.2.2.6.1	Update deliverable with feedback	288	3 days	Wed 7/15/20	Fri 7/17/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
291	1.3.1.2.2.6.1	QA review and update	290	1.5 days	Mon 7/20/20	Tue 7/21/20	Doc Mngr[40%],Impl Mngr[25%]
292	1.3.1.2.2.6.1	Submit for State approval	291	0.5 days	Tue 7/21/20	Tue 7/21/20	PM[10%]
293	1.3.1.2.2.6.1	State reviews	292	5 days	Wed 7/22/20	Tue 7/28/20	State[20%]
294	**1.3.1.2.2.6.1**	**Deliverable: Review Cycle (2)**		**10 days**	**Wed 7/29/20**	**Tue 8/11/20**	
295	1.3.1.2.2.6.1	Update deliverable with feedback	293	3 days	Wed 7/29/20	Fri 7/31/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
296	1.3.1.2.2.6.1	QA review and update	295	1.5 days	Mon 8/3/20	Tue 8/4/20	Doc Mngr[40%],Impl Mngr[25%]
297	1.3.1.2.2.6.1	Submit for State approval	296	0.5 days	Tue 8/4/20	Tue 8/4/20	PM[10%]
298	1.3.1.2.2.6.1	State reviews	297	5 days	Wed 8/5/20	Tue 8/11/20	State[20%]
299	1.3.1.2.2.6.1	State Provides Final Approval	298	1 day	Wed 8/12/20	Wed 8/12/20	State[20%]
300	1.3.1.2.2.6.1	Milestone: Project Work Plan Approved	299	0 days	Wed 8/12/20	Wed 8/12/20	
301	**1.3.1.2.2.7**	**D008 Quality Management Plan**		**72 days**	**Mon 5/4/20**	**Thu 8/13/20**	
302	**1.3.1.2.2.7.1**	**Develop DED**		**7 days**	**Mon 5/4/20**	**Tue 5/12/20**	
303	1.3.1.2.2.7.1	Review deliverable requirements	2	2 days	Mon 5/4/20	Tue 5/5/20	PM[10%],Doc Mngr[50%]
304	1.3.1.2.2.7.1	Draft DED	303	3 days	Wed 5/6/20	Fri 5/8/20	PM[10%],Doc Mngr[50%],QA Mngr[10%]
305	1.3.1.2.2.7.1	Review DED	304	1 day	Mon 5/11/20	Mon 5/11/20	PM[10%],Doc Mngr[50%],QA Mngr[10%]
306	1.3.1.2.2.7.1	Finalize DED	305	1 day	Tue 5/12/20	Tue 5/12/20	PM[10%],Doc Mngr[50%],QA Mngr[10%]
307	**1.3.1.2.2.7.2**	**Internally Review DED**		**6 days**	**Wed 5/13/20**	**Wed 5/20/20**	
308	1.3.1.2.2.7.2	Complete Contract Review	306	2 days	Wed 5/13/20	Thu 5/14/20	PM[10%]
309	1.3.1.2.2.7.2	Complete Peer Review	306	2 days	Wed 5/13/20	Thu 5/14/20	Doc Mngr[10%],Impl Mngr[10%],QA Mngr[10%]
310	1.3.1.2.2.7.2	Complete QA Review	308,309	2 days	Fri 5/15/20	Mon 5/18/20	Doc Mngr[25%]
311	1.3.1.2.2.7.2	Update with feedback	310	2 days	Tue 5/19/20	Wed 5/20/20	Doc Mngr[10%],Impl Mngr[10%],QA Mngr[10%]
312	1.3.1.2.2.7.3	Submit for State Review	311	1 day	Thu 5/21/20	Thu 5/21/20	PM[10%]
313	1.3.1.2.2.7.4	State reviews document and provides feedback	312	3 days	Fri 5/22/20	Wed 5/27/20	State[20%]
314	**1.3.1.2.2.7.5**	**DED: Review Cycle (1)**		**4 days**	**Thu 5/28/20**	**Tue 6/2/20**	
315	1.3.1.2.2.7.5	Update DED with feedback	313	1 day	Thu 5/28/20	Thu 5/28/20	PM[5%],Doc Mngr[10%],QA Mngr[10%]
316	1.3.1.2.2.7.5	QA review and update	315	0.5 days	Fri 5/29/20	Fri 5/29/20	Doc Mngr[40%],QA Mngr[25%]
317	1.3.1.2.2.7.5	Resubmit for State Review	316	0.5 days	Fri 5/29/20	Fri 5/29/20	PM[10%]
318	1.3.1.2.2.7.5	State reviews	317	2 days	Mon 6/1/20	Tue 6/2/20	State[20%]
319	**1.3.1.2.2.7.6**	**DED: Review Cycle (2)**		**6 days**	**Wed 6/3/20**	**Wed 6/10/20**	
320	1.3.1.2.2.7.6	Update DED with feedback	318	1 day	Wed 6/3/20	Wed 6/3/20	PM[5%],Doc Mngr[10%],QA Mngr[10%]
321	1.3.1.2.2.7.6	QA review and update	320	0.5 days	Thu 6/4/20	Thu 6/4/20	Doc Mngr[40%],QA Mngr[25%]
322	1.3.1.2.2.7.6	Resubmit for State Review	321	0.5 days	Thu 6/4/20	Thu 6/4/20	PM[10%]
323	1.3.1.2.2.7.6	State reviews	322	2 days	Fri 6/5/20	Mon 6/8/20	State[20%]
324	1.3.1.2.2.7.6	State approves DED	323	2 days	Tue 6/9/20	Wed 6/10/20	State[20%]
325	**1.3.1.2.2.7.7**	**Develop Deliverable**		**13 days**	**Thu 6/11/20**	**Mon 6/29/20**	
326	1.3.1.2.2.7.7	Create baseline from approved DED	324	5 days	Thu 6/11/20	Wed 6/17/20	PM[5%],Doc Mngr[10%],QA Mngr[10%]
327	1.3.1.2.2.7.7	Update deliverable	326	5 days	Thu 6/18/20	Wed 6/24/20	PM[5%],Doc Mngr[10%],QA Mngr[10%]
328	1.3.1.2.2.7.7	Conduct Internal Review	327	2 days	Thu 6/25/20	Fri 6/26/20	PM[5%],Doc Mngr[10%],QA Mngr[10%]
329	1.3.1.2.2.7.7	Final QA Review/Update of Deliverable	328	1 day	Mon 6/29/20	Mon 6/29/20	Doc Mngr[40%],QA Mngr[25%]
330	1.3.1.2.2.7.8	Submit Deliverable for State Review	329	1 day	Tue 6/30/20	Tue 6/30/20	PM[10%]
331	1.3.1.2.2.7.9	State reviews document and provides feedback	330	10 days	Wed 7/1/20	Wed 7/15/20	State[20%]
332	**1.3.1.2.2.7.1**	**Deliverable: Review Cycle (1)**		**10 days**	**Thu 7/16/20**	**Wed 7/29/20**	
333	1.3.1.2.2.7.1	Update deliverable with feedback	331	3 days	Thu 7/16/20	Mon 7/20/20	PM[5%],Doc Mngr[10%],QA Mngr[10%]
334	1.3.1.2.2.7.1	QA review and update	333	1.5 days	Tue 7/21/20	Wed 7/22/20	Doc Mngr[40%],QA Mngr[25%]

ID	WBS	Task Name	Predecessors	Duration	Start	Finish	Resource Names
335	1.3.1.2.2.7.1	Submit for State approval	334	0.5 days	Wed 7/22/20	Wed 7/22/20	PM[10%]
336	1.3.1.2.2.7.1	State reviews	335	5 days	Thu 7/23/20	Wed 7/29/20	State[20%]
337	**1.3.1.2.2.7.1**	**Deliverable: Review Cycle (2)**		**10 days**	**Thu 7/30/20**	**Wed 8/12/20**	
338	1.3.1.2.2.7.1	Update deliverable with feedback	336	3 days	Thu 7/30/20	Mon 8/3/20	PM[5%],Doc Mngr[10%],QA Mngr[10%]
339	1.3.1.2.2.7.1	QA review and update	338	1.5 days	Tue 8/4/20	Wed 8/5/20	Doc Mngr[40%],QA Mngr[25%]
340	1.3.1.2.2.7.1	Submit for State approval	339	0.5 days	Wed 8/5/20	Wed 8/5/20	PM[10%]
341	1.3.1.2.2.7.1	State reviews	340	5 days	Thu 8/6/20	Wed 8/12/20	State[20%]
342	1.3.1.2.2.7.1	State Provides Final Approval	341	1 day	Thu 8/13/20	Thu 8/13/20	State[20%]
343	1.3.1.2.2.7.1	Milestone: Quality Management Plan Approved	342	0 days	Thu 8/13/20	Thu 8/13/20	
344	**1.3.1.2.2.8**	**D009 Documentation Management Plan**		**71 days**	**Mon 5/4/20**	**Wed 8/12/20**	
345	**1.3.1.2.2.8.1**	**Develop DED**		**7 days**	**Mon 5/4/20**	**Tue 5/12/20**	
346	1.3.1.2.2.8.1	Review deliverable requirements	2	2 days	Mon 5/4/20	Tue 5/5/20	PM[10%],Doc Mngr[50%]
347	1.3.1.2.2.8.1	Draft DED	346	3 days	Wed 5/6/20	Fri 5/8/20	PM[10%],Doc Mngr[50%],Impl Mngr[10%]
348	1.3.1.2.2.8.1	Review DED	347	1 day	Mon 5/11/20	Mon 5/11/20	PM[10%],Doc Mngr[50%],Impl Mngr[10%]
349	1.3.1.2.2.8.1	Finalize DED	348	1 day	Tue 5/12/20	Tue 5/12/20	PM[10%],Doc Mngr[50%],Impl Mngr[10%]
350	**1.3.1.2.2.8.2**	**Internally Review DED**		**6 days**	**Wed 5/13/20**	**Wed 5/20/20**	
351	1.3.1.2.2.8.2	Complete Contract Review	349	2 days	Wed 5/13/20	Thu 5/14/20	PM[10%]
352	1.3.1.2.2.8.2	Complete Peer Review	349	2 days	Wed 5/13/20	Thu 5/14/20	Doc Mngr[10%],Impl Mngr[10%],Acct Mngr[10%]
353	1.3.1.2.2.8.2	Complete QA Review	351,352	2 days	Fri 5/15/20	Mon 5/18/20	Doc Mngr[25%]
354	1.3.1.2.2.8.2	Update with feedback	353	2 days	Tue 5/19/20	Wed 5/20/20	Doc Mngr[10%],Impl Mngr[10%],Acct Mngr[10%]
355	1.3.1.2.2.8.3	Submit for State Review	354	1 day	Thu 5/21/20	Thu 5/21/20	PM[10%]
356	1.3.1.2.2.8.4	State reviews document and provides feedback	355	3 days	Fri 5/22/20	Wed 5/27/20	State[20%]
357	**1.3.1.2.2.8.5**	**DED: Review Cycle (1)**		**4 days**	**Thu 5/28/20**	**Tue 6/2/20**	
358	1.3.1.2.2.8.5	Update DED with feedback	356	1 day	Thu 5/28/20	Thu 5/28/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
359	1.3.1.2.2.8.5	QA review and update	358	0.5 days	Fri 5/29/20	Fri 5/29/20	Doc Mngr[40%],Impl Mngr[25%]
360	1.3.1.2.2.8.5	Resubmit for State Review	359	0.5 days	Fri 5/29/20	Fri 5/29/20	PM[10%]
361	1.3.1.2.2.8.5	State reviews	360	2 days	Mon 6/1/20	Tue 6/2/20	State[20%]
362	**1.3.1.2.2.8.6**	**DED: Review Cycle (2)**		**5 days**	**Wed 6/3/20**	**Tue 6/9/20**	
363	1.3.1.2.2.8.6	Update DED with feedback	361	1 day	Wed 6/3/20	Wed 6/3/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
364	1.3.1.2.2.8.6	QA review and update	363	0.5 days	Thu 6/4/20	Thu 6/4/20	Doc Mngr[40%],Impl Mngr[25%]
365	1.3.1.2.2.8.6	Resubmit for State Review	364	0.5 days	Thu 6/4/20	Thu 6/4/20	PM[10%]
366	1.3.1.2.2.8.6	State reviews	365	2 days	Fri 6/5/20	Mon 6/8/20	State[20%]
367	1.3.1.2.2.8.6	State approves DED	366	1 day	Tue 6/9/20	Tue 6/9/20	State[20%]
368	**1.3.1.2.2.8.7**	**Develop Deliverable**		**13 days**	**Wed 6/10/20**	**Fri 6/26/20**	
369	1.3.1.2.2.8.7	Create baseline from approved DED	367	5 days	Wed 6/10/20	Tue 6/16/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
370	1.3.1.2.2.8.7	Update deliverable	369	5 days	Wed 6/17/20	Tue 6/23/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
371	1.3.1.2.2.8.7	Conduct Internal Review	370	2 days	Wed 6/24/20	Thu 6/25/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
372	1.3.1.2.2.8.7	Final QA Review/Update of Deliverable	371	1 day	Fri 6/26/20	Fri 6/26/20	Doc Mngr[40%],Impl Mngr[25%]
373	1.3.1.2.2.8.8	Submit Deliverable for State Review	372	1 day	Mon 6/29/20	Mon 6/29/20	PM[10%]
374	1.3.1.2.2.8.9	State reviews document and provides feedback	373	10 days	Tue 6/30/20	Tue 7/14/20	State[20%]
375	**1.3.1.2.2.8.1**	**Deliverable: Review Cycle (1)**		**10 days**	**Wed 7/15/20**	**Tue 7/28/20**	
376	1.3.1.2.2.8.1	Update deliverable with feedback	374	3 days	Wed 7/15/20	Fri 7/17/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
377	1.3.1.2.2.8.1	QA review and update	376	1.5 days	Mon 7/20/20	Tue 7/21/20	Doc Mngr[40%],Impl Mngr[25%]
378	1.3.1.2.2.8.1	Submit for State approval	377	0.5 days	Tue 7/21/20	Tue 7/21/20	PM[10%]
379	1.3.1.2.2.8.1	State reviews	378	5 days	Wed 7/22/20	Tue 7/28/20	State[20%]
380	**1.3.1.2.2.8.1**	**Deliverable: Review Cycle (2)**		**10 days**	**Wed 7/29/20**	**Tue 8/11/20**	
381	1.3.1.2.2.8.1	Update deliverable with feedback	379	3 days	Wed 7/29/20	Fri 7/31/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
382	1.3.1.2.2.8.1	QA review and update	381	1.5 days	Mon 8/3/20	Tue 8/4/20	Doc Mngr[40%],Impl Mngr[25%]
383	1.3.1.2.2.8.1	Submit for State approval	382	0.5 days	Tue 8/4/20	Tue 8/4/20	PM[10%]
384	1.3.1.2.2.8.1	State reviews	383	5 days	Wed 8/5/20	Tue 8/11/20	State[20%]
385	1.3.1.2.2.8.1	State Provides Final Approval	384	1 day	Wed 8/12/20	Wed 8/12/20	State[20%]
386	1.3.1.2.2.8.1	Milestone: Documentation Management Plan Approved	385	0 days	Wed 8/12/20	Wed 8/12/20	
387	**1.3.1.2.2.9**	**D010 Risk and Issue Management Plan**		**71 days**	**Mon 5/4/20**	**Wed 8/12/20**	
388	**1.3.1.2.2.9.1**	**Develop DED**		**7 days**	**Mon 5/4/20**	**Tue 5/12/20**	
389	1.3.1.2.2.9.1	Review deliverable requirements	2	2 days	Mon 5/4/20	Tue 5/5/20	PM[10%],Doc Mngr[50%]
390	1.3.1.2.2.9.1	Draft DED	389	3 days	Wed 5/6/20	Fri 5/8/20	PM[10%],Doc Mngr[50%],Impl Mngr[10%]
391	1.3.1.2.2.9.1	Review DED	390	1 day	Mon 5/11/20	Mon 5/11/20	PM[10%],Doc Mngr[50%],Impl Mngr[10%]
392	1.3.1.2.2.9.1	Finalize DED	391	1 day	Tue 5/12/20	Tue 5/12/20	PM[10%],Doc Mngr[50%],Impl Mngr[10%]
393	**1.3.1.2.2.9.2**	**Internally Review DED**		**6 days**	**Wed 5/13/20**	**Wed 5/20/20**	
394	1.3.1.2.2.9.2	Complete Contract Review	392	2 days	Wed 5/13/20	Thu 5/14/20	PM[10%]
395	1.3.1.2.2.9.2	Complete Peer Review	392	2 days	Wed 5/13/20	Thu 5/14/20	Doc Mngr[10%],Impl Mngr[10%],Acct Mngr[10%]
396	1.3.1.2.2.9.2	Complete QA Review	394,395	2 days	Fri 5/15/20	Mon 5/18/20	Doc Mngr[25%]
397	1.3.1.2.2.9.2	Update with feedback	396	2 days	Tue 5/19/20	Wed 5/20/20	Doc Mngr[10%],Impl Mngr[10%],Acct Mngr[10%]
398	1.3.1.2.2.9.3	Submit for State Review	397	1 day	Thu 5/21/20	Thu 5/21/20	PM[10%]
399	1.3.1.2.2.9.4	State reviews document and provides feedback	398	3 days	Fri 5/22/20	Wed 5/27/20	State[20%]
400	**1.3.1.2.2.9.5**	**DED: Review Cycle (1)**		**4 days**	**Thu 5/28/20**	**Tue 6/2/20**	
401	1.3.1.2.2.9.5	Update DED with feedback	399	1 day	Thu 5/28/20	Thu 5/28/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]

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ID	WBS	Task Name	Predecessors	Duration	Start	Finish	Resource Names
402	1.3.1.2.2.9.5	QA review and update	401	0.5 days	Fri 5/29/20	Fri 5/29/20	Doc Mngr[40%],Impl Mngr[25%]
403	1.3.1.2.2.9.5	Resubmit for State Review	402	0.5 days	Fri 5/29/20	Fri 5/29/20	PM[10%]
404	1.3.1.2.2.9.5	State reviews	403	2 days	Mon 6/1/20	Tue 6/2/20	State[20%]
405	**1.3.1.2.2.9.6**	**DED: Review Cycle (2)**		**5 days**	**Wed 6/3/20**	**Tue 6/9/20**	
406	1.3.1.2.2.9.6	Update DED with feedback	404	1 day	Wed 6/3/20	Wed 6/3/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
407	1.3.1.2.2.9.6	QA review and update	406	0.5 days	Thu 6/4/20	Thu 6/4/20	Doc Mngr[40%],Impl Mngr[25%]
408	1.3.1.2.2.9.6	Resubmit for State Review	407	0.5 days	Thu 6/4/20	Thu 6/4/20	PM[10%]
409	1.3.1.2.2.9.6	State reviews	408	2 days	Fri 6/5/20	Mon 6/8/20	State[20%]
410	1.3.1.2.2.9.6	State approves DED	409	1 day	Tue 6/9/20	Tue 6/9/20	State[20%]
411	**1.3.1.2.2.9.7**	**Develop Deliverable**		**13 days**	**Wed 6/10/20**	**Fri 6/26/20**	
412	1.3.1.2.2.9.7	Create baseline from approved DED	410	5 days	Wed 6/10/20	Tue 6/16/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
413	1.3.1.2.2.9.7	Update deliverable	412	5 days	Wed 6/17/20	Tue 6/23/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
414	1.3.1.2.2.9.7	Conduct Internal Review	413	2 days	Wed 6/24/20	Thu 6/25/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
415	1.3.1.2.2.9.7	Final QA Review/Update of Deliverable	414	1 day	Fri 6/26/20	Fri 6/26/20	Doc Mngr[40%],Impl Mngr[25%]
416	1.3.1.2.2.9.8	Submit Deliverable for State Review	415	1 day	Mon 6/29/20	Mon 6/29/20	PM[10%]
417	1.3.1.2.2.9.9	State reviews document and provides feedback	416	10 days	Tue 6/30/20	Tue 7/14/20	State[20%]
418	**1.3.1.2.2.9.1**	**Deliverable: Review Cycle (1)**		**10 days**	**Wed 7/15/20**	**Tue 7/28/20**	
419	1.3.1.2.2.9.1	Update deliverable with feedback	417	3 days	Wed 7/15/20	Fri 7/17/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
420	1.3.1.2.2.9.1	QA review and update	419	1.5 days	Mon 7/20/20	Tue 7/21/20	Doc Mngr[40%],Impl Mngr[25%]
421	1.3.1.2.2.9.1	Submit for State approval	420	0.5 days	Tue 7/21/20	Tue 7/21/20	PM[10%]
422	1.3.1.2.2.9.1	State reviews	421	5 days	Wed 7/22/20	Tue 7/28/20	State[20%]
423	**1.3.1.2.2.9.1**	**Deliverable: Review Cycle (2)**		**10 days**	**Wed 7/29/20**	**Tue 8/11/20**	
424	1.3.1.2.2.9.1	Update deliverable with feedback	422	3 days	Wed 7/29/20	Fri 7/31/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
425	1.3.1.2.2.9.1	QA review and update	424	1.5 days	Mon 8/3/20	Tue 8/4/20	Doc Mngr[40%],Impl Mngr[25%]
426	1.3.1.2.2.9.1	Submit for State approval	425	0.5 days	Tue 8/4/20	Tue 8/4/20	PM[10%]
427	1.3.1.2.2.9.1	State reviews	426	5 days	Wed 8/5/20	Tue 8/11/20	State[20%]
428	1.3.1.2.2.9.1	State Provides Final Approval	427	1 day	Wed 8/12/20	Wed 8/12/20	State[20%]
429	1.3.1.2.2.9.1	Milestone: Risk and Issue Management Plan Approved	428	0 days	Wed 8/12/20	Wed 8/12/20	
430	**1.3.1.2.2.10**	**D011 Schedule Management Plan**		**71 days**	**Mon 5/4/20**	**Wed 8/12/20**	
431	**1.3.1.2.2.10**	**Develop DED**		**7 days**	**Mon 5/4/20**	**Tue 5/12/20**	
432	1.3.1.2.2.10	Review deliverable requirements	2	2 days	Mon 5/4/20	Tue 5/5/20	PM[10%],Doc Mngr[50%]
433	1.3.1.2.2.10	Draft DED	432	3 days	Wed 5/6/20	Fri 5/8/20	PM[10%],Doc Mngr[50%],Impl Mngr[10%]
434	1.3.1.2.2.10	Review DED	433	1 day	Mon 5/11/20	Mon 5/11/20	PM[10%],Doc Mngr[50%],Impl Mngr[10%]
435	1.3.1.2.2.10	Finalize DED	434	1 day	Tue 5/12/20	Tue 5/12/20	PM[10%],Doc Mngr[50%],Impl Mngr[10%]
436	**1.3.1.2.2.10**	**Internally Review DED**		**6 days**	**Wed 5/13/20**	**Wed 5/20/20**	
437	1.3.1.2.2.10	Complete Contract Review	435	2 days	Wed 5/13/20	Thu 5/14/20	PM[10%]
438	1.3.1.2.2.10	Complete Peer Review	435	2 days	Wed 5/13/20	Thu 5/14/20	Doc Mngr[10%],Impl Mngr[10%],Acct Mngr[10%]
439	1.3.1.2.2.10	Complete QA Review	437,438	2 days	Fri 5/15/20	Mon 5/18/20	Doc Mngr[25%]
440	1.3.1.2.2.10	Update with feedback	439	2 days	Tue 5/19/20	Wed 5/20/20	Doc Mngr[10%],Impl Mngr[10%],Acct Mngr[10%]
441	1.3.1.2.2.10	Submit for State Review	440	1 day	Thu 5/21/20	Thu 5/21/20	PM[10%]
442	1.3.1.2.2.10	State reviews document and provides feedback	441	3 days	Fri 5/22/20	Wed 5/27/20	State[20%]
443	**1.3.1.2.2.10**	**DED: Review Cycle (1)**		**4 days**	**Thu 5/28/20**	**Tue 6/2/20**	
444	1.3.1.2.2.10	Update DED with feedback	442	1 day	Thu 5/28/20	Thu 5/28/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
445	1.3.1.2.2.10	QA review and update	444	0.5 days	Fri 5/29/20	Fri 5/29/20	Doc Mngr[40%],Impl Mngr[25%]
446	1.3.1.2.2.10	Resubmit for State Review	445	0.5 days	Fri 5/29/20	Fri 5/29/20	PM[10%]
447	1.3.1.2.2.10	State reviews	446	2 days	Mon 6/1/20	Tue 6/2/20	State[20%]
448	**1.3.1.2.2.10**	**DED: Review Cycle (2)**		**5 days**	**Wed 6/3/20**	**Tue 6/9/20**	
449	1.3.1.2.2.10	Update DED with feedback	447	1 day	Wed 6/3/20	Wed 6/3/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
450	1.3.1.2.2.10	QA review and update	449	0.5 days	Thu 6/4/20	Thu 6/4/20	Doc Mngr[40%],Impl Mngr[25%]
451	1.3.1.2.2.10	Resubmit for State Review	450	0.5 days	Thu 6/4/20	Thu 6/4/20	PM[10%]
452	1.3.1.2.2.10	State reviews	451	2 days	Fri 6/5/20	Mon 6/8/20	State[20%]
453	1.3.1.2.2.10	State approves DED	452	1 day	Tue 6/9/20	Tue 6/9/20	State[20%]
454	**1.3.1.2.2.10**	**Develop Deliverable**		**13 days**	**Wed 6/10/20**	**Fri 6/26/20**	
455	1.3.1.2.2.10	Create baseline from approved DED	453	5 days	Wed 6/10/20	Tue 6/16/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
456	1.3.1.2.2.10	Update deliverable	455	5 days	Wed 6/17/20	Tue 6/23/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
457	1.3.1.2.2.10	Conduct Internal Review	456	2 days	Wed 6/24/20	Thu 6/25/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
458	1.3.1.2.2.10	Final QA Review/Update of Deliverable	457	1 day	Fri 6/26/20	Fri 6/26/20	Doc Mngr[40%],Impl Mngr[25%]
459	1.3.1.2.2.10	Submit Deliverable for State Review	458	1 day	Mon 6/29/20	Mon 6/29/20	PM[10%]
460	1.3.1.2.2.10	State reviews document and provides feedback	459	10 days	Tue 6/30/20	Tue 7/14/20	State[20%]
461	**1.3.1.2.2.10**	**Deliverable: Review Cycle (1)**		**10 days**	**Wed 7/15/20**	**Tue 7/28/20**	
462	1.3.1.2.2.10	Update deliverable with feedback	460	3 days	Wed 7/15/20	Fri 7/17/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
463	1.3.1.2.2.10	QA review and update	462	1.5 days	Mon 7/20/20	Tue 7/21/20	Doc Mngr[40%],Impl Mngr[25%]
464	1.3.1.2.2.10	Submit for State approval	463	0.5 days	Tue 7/21/20	Tue 7/21/20	PM[10%]
465	1.3.1.2.2.10	State reviews	464	5 days	Wed 7/22/20	Tue 7/28/20	State[20%]
466	**1.3.1.2.2.10**	**Deliverable: Review Cycle (2)**		**10 days**	**Wed 7/29/20**	**Tue 8/11/20**	
467	1.3.1.2.2.10	Update deliverable with feedback	465	3 days	Wed 7/29/20	Fri 7/31/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
468	1.3.1.2.2.10	QA review and update	467	1.5 days	Mon 8/3/20	Tue 8/4/20	Doc Mngr[40%],Impl Mngr[25%]

ID	WBS	Task Name	Predecessors	Duration	Start	Finish	Resource Names
469	1.3.1.2.2.10	Submit for State approval	468	0.5 days	Tue 8/4/20	Tue 8/4/20	PM[10%]
470	1.3.1.2.2.10	State reviews	469	5 days	Wed 8/5/20	Tue 8/11/20	State[20%]
471	1.3.1.2.2.10	State Provides Final Approval	470	1 day	Wed 8/12/20	Wed 8/12/20	State[20%]
472	1.3.1.2.2.10	Milestone: Schedule Management Plan Approved	471	0 days	Wed 8/12/20	Wed 8/12/20	
473	**1.3.1.2.2.11**	**D012 Scope Management Plan**		**71 days**	**Mon 5/4/20**	**Wed 8/12/20**	
474	**1.3.1.2.2.11**	**Develop DED**		**7 days**	**Mon 5/4/20**	**Tue 5/12/20**	
475	1.3.1.2.2.11	Review deliverable requirements	2	2 days	Mon 5/4/20	Tue 5/5/20	PM[10%],Doc Mngr[50%]
476	1.3.1.2.2.11	Draft DED	475	3 days	Wed 5/6/20	Fri 5/8/20	PM[10%],Doc Mngr[50%],Impl Mngr[10%]
477	1.3.1.2.2.11	Review DED	476	1 day	Mon 5/11/20	Mon 5/11/20	PM[10%],Doc Mngr[50%],Impl Mngr[10%]
478	1.3.1.2.2.11	Finalize DED	477	1 day	Tue 5/12/20	Tue 5/12/20	PM[10%],Doc Mngr[50%],Impl Mngr[10%]
479	**1.3.1.2.2.11**	**Internally Review DED**		**6 days**	**Wed 5/13/20**	**Wed 5/20/20**	
480	1.3.1.2.2.11	Complete Contract Review	478	2 days	Wed 5/13/20	Thu 5/14/20	PM[10%]
481	1.3.1.2.2.11	Complete Peer Review	478	2 days	Wed 5/13/20	Thu 5/14/20	Doc Mngr[10%],Impl Mngr[10%],Acct Mngr[10%]
482	1.3.1.2.2.11	Complete QA Review	480,481	2 days	Fri 5/15/20	Mon 5/18/20	Doc Mngr[25%]
483	1.3.1.2.2.11	Update with feedback	482	2 days	Tue 5/19/20	Wed 5/20/20	Doc Mngr[10%],Impl Mngr[10%],Acct Mngr[10%]
484	1.3.1.2.2.11	Submit for State Review	483	1 day	Thu 5/21/20	Thu 5/21/20	PM[10%]
485	1.3.1.2.2.11	State reviews document and provides feedback	484	3 days	Fri 5/22/20	Wed 5/27/20	State[20%]
486	**1.3.1.2.2.11**	**DED: Review Cycle (1)**		**4 days**	**Thu 5/28/20**	**Tue 6/2/20**	
487	1.3.1.2.2.11	Update DED with feedback	485	1 day	Thu 5/28/20	Thu 5/28/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
488	1.3.1.2.2.11	QA review and update	487	0.5 days	Fri 5/29/20	Fri 5/29/20	Doc Mngr[40%],Impl Mngr[25%]
489	1.3.1.2.2.11	Resubmit for State Review	488	0.5 days	Fri 5/29/20	Fri 5/29/20	PM[10%]
490	1.3.1.2.2.11	State reviews	489	2 days	Mon 6/1/20	Tue 6/2/20	State[20%]
491	**1.3.1.2.2.11**	**DED: Review Cycle (2)**		**5 days**	**Wed 6/3/20**	**Tue 6/9/20**	
492	1.3.1.2.2.11	Update DED with feedback	490	1 day	Wed 6/3/20	Wed 6/3/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
493	1.3.1.2.2.11	QA review and update	492	0.5 days	Thu 6/4/20	Thu 6/4/20	Doc Mngr[40%],Impl Mngr[25%]
494	1.3.1.2.2.11	Resubmit for State Review	493	0.5 days	Thu 6/4/20	Thu 6/4/20	PM[10%]
495	1.3.1.2.2.11	State reviews	494	2 days	Fri 6/5/20	Mon 6/8/20	State[20%]
496	1.3.1.2.2.11	State approves DED	495	1 day	Tue 6/9/20	Tue 6/9/20	State[20%]
497	**1.3.1.2.2.11**	**Develop Deliverable**		**13 days**	**Wed 6/10/20**	**Fri 6/26/20**	
498	1.3.1.2.2.11	Create baseline from approved DED	496	5 days	Wed 6/10/20	Tue 6/16/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
499	1.3.1.2.2.11	Update deliverable	498	5 days	Wed 6/17/20	Tue 6/23/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
500	1.3.1.2.2.11	Conduct Internal Review	499	2 days	Wed 6/24/20	Thu 6/25/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
501	1.3.1.2.2.11	Final QA Review/Update of Deliverable	500	1 day	Fri 6/26/20	Fri 6/26/20	Doc Mngr[40%],Impl Mngr[25%]
502	1.3.1.2.2.11	Submit Deliverable for State Review	501	1 day	Mon 6/29/20	Mon 6/29/20	PM[10%]
503	1.3.1.2.2.11	State reviews document and provides feedback	502	10 days	Tue 6/30/20	Tue 7/14/20	State[20%]
504	**1.3.1.2.2.11**	**Deliverable: Review Cycle (1)**		**10 days**	**Wed 7/15/20**	**Tue 7/28/20**	
505	1.3.1.2.2.11	Update deliverable with feedback	503	3 days	Wed 7/15/20	Fri 7/17/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
506	1.3.1.2.2.11	QA review and update	505	1.5 days	Mon 7/20/20	Tue 7/21/20	Doc Mngr[40%],Impl Mngr[25%]
507	1.3.1.2.2.11	Submit for State approval	506	0.5 days	Tue 7/21/20	Tue 7/21/20	PM[10%]
508	1.3.1.2.2.11	State reviews	507	5 days	Wed 7/22/20	Tue 7/28/20	State[20%]
509	**1.3.1.2.2.11**	**Deliverable: Review Cycle (2)**		**10 days**	**Wed 7/29/20**	**Tue 8/11/20**	
510	1.3.1.2.2.11	Update deliverable with feedback	508	3 days	Wed 7/29/20	Fri 7/31/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
511	1.3.1.2.2.11	QA review and update	510	1.5 days	Mon 8/3/20	Tue 8/4/20	Doc Mngr[40%],Impl Mngr[25%]
512	1.3.1.2.2.11	Submit for State approval	511	0.5 days	Tue 8/4/20	Tue 8/4/20	PM[10%]
513	1.3.1.2.2.11	State reviews	512	5 days	Wed 8/5/20	Tue 8/11/20	State[20%]
514	1.3.1.2.2.11	State Provides Final Approval	513	1 day	Wed 8/12/20	Wed 8/12/20	State[20%]
515	1.3.1.2.2.11	Milestone: Scope Management Plan Approved	514	0 days	Wed 8/12/20	Wed 8/12/20	
516	**1.3.1.2.2.12**	**D013 Stakeholder Management Plan and Stakeholder Analysis**		**71 days**	**Mon 5/4/20**	**Wed 8/12/20**	
517	**1.3.1.2.2.12**	**Develop DED**		**7 days**	**Mon 5/4/20**	**Tue 5/12/20**	
518	1.3.1.2.2.12	Review deliverable requirements	2	2 days	Mon 5/4/20	Tue 5/5/20	PM[10%],Doc Mngr[50%]
519	1.3.1.2.2.12	Draft DED	518	3 days	Wed 5/6/20	Fri 5/8/20	PM[10%],Doc Mngr[50%],Impl Mngr[10%]
520	1.3.1.2.2.12	Review DED	519	1 day	Mon 5/11/20	Mon 5/11/20	PM[10%],Doc Mngr[50%],Impl Mngr[10%]
521	1.3.1.2.2.12	Finalize DED	520	1 day	Tue 5/12/20	Tue 5/12/20	PM[10%],Doc Mngr[50%],Impl Mngr[10%]
522	**1.3.1.2.2.12**	**Internally Review DED**		**6 days**	**Wed 5/13/20**	**Wed 5/20/20**	
523	1.3.1.2.2.12	Complete Contract Review	521	2 days	Wed 5/13/20	Thu 5/14/20	PM[10%]
524	1.3.1.2.2.12	Complete Peer Review	521	2 days	Wed 5/13/20	Thu 5/14/20	Doc Mngr[10%],Impl Mngr[10%],Acct Mngr[10%]
525	1.3.1.2.2.12	Complete QA Review	523,524	2 days	Fri 5/15/20	Mon 5/18/20	Doc Mngr[25%]
526	1.3.1.2.2.12	Update with feedback	525	2 days	Tue 5/19/20	Wed 5/20/20	Doc Mngr[10%],Impl Mngr[10%],Acct Mngr[10%]
527	1.3.1.2.2.12	Submit for State Review	526	1 day	Thu 5/21/20	Thu 5/21/20	PM[10%]
528	1.3.1.2.2.12	State reviews document and provides feedback	527	3 days	Fri 5/22/20	Wed 5/27/20	State[20%]
529	**1.3.1.2.2.12**	**DED: Review Cycle (1)**		**4 days**	**Thu 5/28/20**	**Tue 6/2/20**	
530	1.3.1.2.2.12	Update DED with feedback	528	1 day	Thu 5/28/20	Thu 5/28/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
531	1.3.1.2.2.12	QA review and update	530	0.5 days	Fri 5/29/20	Fri 5/29/20	Doc Mngr[40%],Impl Mngr[25%]
532	1.3.1.2.2.12	Resubmit for State Review	531	0.5 days	Fri 5/29/20	Fri 5/29/20	PM[10%]
533	1.3.1.2.2.12	State reviews	532	2 days	Mon 6/1/20	Tue 6/2/20	State[20%]
534	**1.3.1.2.2.12**	**DED: Review Cycle (2)**		**5 days**	**Wed 6/3/20**	**Tue 6/9/20**	
535	1.3.1.2.2.12	Update DED with feedback	533	1 day	Wed 6/3/20	Wed 6/3/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]

ID	WBS	Task Name	Predecessors	Duration	Start	Finish	Resource Names
536	1.3.1.2.2.12	QA review and update	535	0.5 days	Thu 6/4/20	Thu 6/4/20	Doc Mngr[40%],Impl Mngr[25%]
537	1.3.1.2.2.12	Resubmit for State Review	536	0.5 days	Thu 6/4/20	Thu 6/4/20	PM[10%]
538	1.3.1.2.2.12	State reviews	537	2 days	Fri 6/5/20	Mon 6/8/20	State[20%]
539	1.3.1.2.2.12	State approves DED	538	1 day	Tue 6/9/20	Tue 6/9/20	State[20%]
540	**1.3.1.2.2.12**	**Develop Deliverable**		**13 days**	**Wed 6/10/20**	**Fri 6/26/20**	
541	1.3.1.2.2.12	Create baseline from approved DED	539	5 days	Wed 6/10/20	Tue 6/16/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
542	1.3.1.2.2.12	Update deliverable	541	5 days	Wed 6/17/20	Tue 6/23/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
543	1.3.1.2.2.12	Conduct Internal Review	542	2 days	Wed 6/24/20	Thu 6/25/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
544	1.3.1.2.2.12	Final QA Review/Update of Deliverable	543	1 day	Fri 6/26/20	Fri 6/26/20	Doc Mngr[40%],Impl Mngr[25%]
545	1.3.1.2.2.12	Submit Deliverable for State Review	544	1 day	Mon 6/29/20	Mon 6/29/20	PM[10%]
546	1.3.1.2.2.12	State reviews document and provides feedback	545	10 days	Tue 6/30/20	Tue 7/14/20	State[20%]
547	**1.3.1.2.2.12**	**Deliverable: Review Cycle (1)**		**10 days**	**Wed 7/15/20**	**Tue 7/28/20**	
548	1.3.1.2.2.12	Update deliverable with feedback	546	3 days	Wed 7/15/20	Fri 7/17/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
549	1.3.1.2.2.12	QA review and update	548	1.5 days	Mon 7/20/20	Tue 7/21/20	Doc Mngr[40%],Impl Mngr[25%]
550	1.3.1.2.2.12	Submit for State approval	549	0.5 days	Tue 7/21/20	Tue 7/21/20	PM[10%]
551	1.3.1.2.2.12	State reviews	550	5 days	Wed 7/22/20	Tue 7/28/20	State[20%]
552	**1.3.1.2.2.12**	**Deliverable: Review Cycle (2)**		**10 days**	**Wed 7/29/20**	**Tue 8/11/20**	
553	1.3.1.2.2.12	Update deliverable with feedback	551	3 days	Wed 7/29/20	Fri 7/31/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
554	1.3.1.2.2.12	QA review and update	553	1.5 days	Mon 8/3/20	Tue 8/4/20	Doc Mngr[40%],Impl Mngr[25%]
555	1.3.1.2.2.12	Submit for State approval	554	0.5 days	Tue 8/4/20	Tue 8/4/20	PM[10%]
556	1.3.1.2.2.12	State reviews	555	5 days	Wed 8/5/20	Tue 8/11/20	State[20%]
557	1.3.1.2.2.12	State Provides Final Approval	556	1 day	Wed 8/12/20	Wed 8/12/20	State[20%]
558	1.3.1.2.2.12	Milestone: Stakeholder Management Plan and Stakeholder Analysis Management Plan A	557	0 days	Wed 8/12/20	Wed 8/12/20	
559	**1.3.1.2.2.13**	**D014 Staffing Management Plan**		**71 days**	**Mon 5/4/20**	**Wed 8/12/20**	
560	**1.3.1.2.2.13**	**Develop DED**		**7 days**	**Mon 5/4/20**	**Tue 5/12/20**	
561	1.3.1.2.2.13	Review deliverable requirements	2	2 days	Mon 5/4/20	Tue 5/5/20	PM[10%],Doc Mngr[50%]
562	1.3.1.2.2.13	Draft DED	561	3 days	Wed 5/6/20	Fri 5/8/20	PM[10%],Doc Mngr[50%],Impl Mngr[10%]
563	1.3.1.2.2.13	Review DED	562	1 day	Mon 5/11/20	Mon 5/11/20	PM[10%],Doc Mngr[50%],Impl Mngr[10%]
564	1.3.1.2.2.13	Finalize DED	563	1 day	Tue 5/12/20	Tue 5/12/20	PM[10%],Doc Mngr[50%],Impl Mngr[10%]
565	**1.3.1.2.2.13**	**Internally Review DED**		**6 days**	**Wed 5/13/20**	**Wed 5/20/20**	
566	1.3.1.2.2.13	Complete Contract Review	564	2 days	Wed 5/13/20	Thu 5/14/20	PM[10%]
567	1.3.1.2.2.13	Complete Peer Review	564	2 days	Wed 5/13/20	Thu 5/14/20	Doc Mngr[10%],Impl Mngr[10%],Acct Mngr[10%]
568	1.3.1.2.2.13	Complete QA Review	566,567	2 days	Fri 5/15/20	Mon 5/18/20	Doc Mngr[25%]
569	1.3.1.2.2.13	Update with feedback	568	2 days	Tue 5/19/20	Wed 5/20/20	Doc Mngr[10%],Impl Mngr[10%],Acct Mngr[10%]
570	1.3.1.2.2.13	Submit for State Review	569	1 day	Thu 5/21/20	Thu 5/21/20	PM[10%]
571	1.3.1.2.2.13	State reviews document and provides feedback	570	3 days	Fri 5/22/20	Wed 5/27/20	State[20%]
572	**1.3.1.2.2.13**	**DED: Review Cycle (1)**		**4 days**	**Thu 5/28/20**	**Tue 6/2/20**	
573	1.3.1.2.2.13	Update DED with feedback	571	1 day	Thu 5/28/20	Thu 5/28/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
574	1.3.1.2.2.13	QA review and update	573	0.5 days	Fri 5/29/20	Fri 5/29/20	Doc Mngr[40%],Impl Mngr[25%]
575	1.3.1.2.2.13	Resubmit for State Review	574	0.5 days	Fri 5/29/20	Fri 5/29/20	PM[10%]
576	1.3.1.2.2.13	State reviews	575	2 days	Mon 6/1/20	Tue 6/2/20	State[20%]
577	**1.3.1.2.2.13**	**DED: Review Cycle (2)**		**5 days**	**Wed 6/3/20**	**Tue 6/9/20**	
578	1.3.1.2.2.13	Update DED with feedback	576	1 day	Wed 6/3/20	Wed 6/3/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
579	1.3.1.2.2.13	QA review and update	578	0.5 days	Thu 6/4/20	Thu 6/4/20	Doc Mngr[40%],Impl Mngr[25%]
580	1.3.1.2.2.13	Resubmit for State Review	579	0.5 days	Thu 6/4/20	Thu 6/4/20	PM[10%]
581	1.3.1.2.2.13	State reviews	580	2 days	Fri 6/5/20	Mon 6/8/20	State[20%]
582	1.3.1.2.2.13	State approves DED	581	1 day	Tue 6/9/20	Tue 6/9/20	State[20%]
583	**1.3.1.2.2.13**	**Develop Deliverable**		**13 days**	**Wed 6/10/20**	**Fri 6/26/20**	
584	1.3.1.2.2.13	Create baseline from approved DED	582	5 days	Wed 6/10/20	Tue 6/16/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
585	1.3.1.2.2.13	Update deliverable	584	5 days	Wed 6/17/20	Tue 6/23/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
586	1.3.1.2.2.13	Conduct Internal Review	585	2 days	Wed 6/24/20	Thu 6/25/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
587	1.3.1.2.2.13	Final QA Review/Update of Deliverable	586	1 day	Fri 6/26/20	Fri 6/26/20	Doc Mngr[40%],Impl Mngr[25%]
588	1.3.1.2.2.13	Submit Deliverable for State Review	587	1 day	Mon 6/29/20	Mon 6/29/20	PM[10%]
589	1.3.1.2.2.13	State reviews document and provides feedback	588	10 days	Tue 6/30/20	Tue 7/14/20	State[20%]
590	**1.3.1.2.2.13**	**Deliverable: Review Cycle (1)**		**10 days**	**Wed 7/15/20**	**Tue 7/28/20**	
591	1.3.1.2.2.13	Update deliverable with feedback	589	3 days	Wed 7/15/20	Fri 7/17/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
592	1.3.1.2.2.13	QA review and update	591	1.5 days	Mon 7/20/20	Tue 7/21/20	Doc Mngr[40%],Impl Mngr[25%]
593	1.3.1.2.2.13	Submit for State approval	592	0.5 days	Tue 7/21/20	Tue 7/21/20	PM[10%]
594	1.3.1.2.2.13	State reviews	593	5 days	Wed 7/22/20	Tue 7/28/20	State[20%]
595	**1.3.1.2.2.13**	**Deliverable: Review Cycle (2)**		**10 days**	**Wed 7/29/20**	**Tue 8/11/20**	
596	1.3.1.2.2.13	Update deliverable with feedback	594	3 days	Wed 7/29/20	Fri 7/31/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
597	1.3.1.2.2.13	QA review and update	596	1.5 days	Mon 8/3/20	Tue 8/4/20	Doc Mngr[40%],Impl Mngr[25%]
598	1.3.1.2.2.13	Submit for State approval	597	0.5 days	Tue 8/4/20	Tue 8/4/20	PM[10%]
599	1.3.1.2.2.13	State reviews	598	5 days	Wed 8/5/20	Tue 8/11/20	State[20%]
600	1.3.1.2.2.13	State Provides Final Approval	599	1 day	Wed 8/12/20	Wed 8/12/20	State[20%]
601	1.3.1.2.2.13	Milestone: Staffing Management Plan Approved	600	0 days	Wed 8/12/20	Wed 8/12/20	
602	1.3.1.2.2.14	Milestone: Project Management Plan Approved	601,558,515,472,	0 days	Thu 8/13/20	Thu 8/13/20	

ID	WBS	Task Name	Predecessors	Duration	Start	Finish	Resource Names
603	**1.3.1.2.3**	**D015 Reconciliation Plan**		**71 days**	**Tue 6/2/20**	**Thu 9/10/20**	
604	**1.3.1.2.3.1**	**Develop DED**		**7 days**	**Tue 6/2/20**	**Wed 6/10/20**	
605	1.3.1.2.3.1.1	Review deliverable requirements	2FS+20 days	2 days	Tue 6/2/20	Wed 6/3/20	PM[10%],Doc Mngr[50%]
606	1.3.1.2.3.1.2	Draft DED	605	3 days	Thu 6/4/20	Mon 6/8/20	PM[10%],Doc Mngr[50%],BA[10%],ETL Engnr[10%]
607	1.3.1.2.3.1.3	Review DED	606	1 day	Tue 6/9/20	Tue 6/9/20	PM[10%],Doc Mngr[50%],BA[10%],ETL Engnr[10%]
608	1.3.1.2.3.1.4	Finalize DED	607	1 day	Wed 6/10/20	Wed 6/10/20	PM[10%],Doc Mngr[50%],BA[10%],ETL Engnr[10%]
609	**1.3.1.2.3.2**	**Internally Review DED**		**6 days**	**Thu 6/11/20**	**Thu 6/18/20**	
610	1.3.1.2.3.2.1	Complete Contract Review	608	2 days	Thu 6/11/20	Fri 6/12/20	PM[10%]
611	1.3.1.2.3.2.2	Complete Peer Review	608	2 days	Thu 6/11/20	Fri 6/12/20	Doc Mngr[10%],Impl Mngr[10%],BA[10%],ETL Engnr[10%]
612	1.3.1.2.3.2.3	Complete QA Review	610,611	2 days	Mon 6/15/20	Tue 6/16/20	Doc Mngr[25%]
613	1.3.1.2.3.2.4	Update with feedback	612	2 days	Wed 6/17/20	Thu 6/18/20	Doc Mngr[10%],Impl Mngr[10%],BA[10%],ETL Engnr[10%]
614	1.3.1.2.3.3	Submit for State Review	613	1 day	Fri 6/19/20	Fri 6/19/20	PM[10%]
615	1.3.1.2.3.4	State reviews document and provides feedback	614	3 days	Mon 6/22/20	Wed 6/24/20	State[20%]
616	**1.3.1.2.3.5**	**DED: Review Cycle (1)**		**4 days**	**Thu 6/25/20**	**Tue 6/30/20**	
617	1.3.1.2.3.5.1	Update DED with feedback	615	1 day	Thu 6/25/20	Thu 6/25/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%],BA[10%],ETL Engnr[10%]
618	1.3.1.2.3.5.2	QA review and update	617	0.5 days	Fri 6/26/20	Fri 6/26/20	Doc Mngr[40%],Impl Mngr[25%]
619	1.3.1.2.3.5.3	Resubmit for State Review	618	0.5 days	Fri 6/26/20	Fri 6/26/20	PM[10%]
620	1.3.1.2.3.5.4	State reviews	619	2 days	Mon 6/29/20	Tue 6/30/20	State[20%]
621	**1.3.1.2.3.6**	**DED: Review Cycle (2)**		**5 days**	**Wed 7/1/20**	**Wed 7/8/20**	
622	1.3.1.2.3.6.1	Update DED with feedback	620	1 day	Wed 7/1/20	Wed 7/1/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%],BA[10%],ETL Engnr[10%]
623	1.3.1.2.3.6.2	QA review and update	622	0.5 days	Thu 7/2/20	Thu 7/2/20	Doc Mngr[40%],Impl Mngr[25%]
624	1.3.1.2.3.6.3	Resubmit for State Review	623	0.5 days	Thu 7/2/20	Thu 7/2/20	PM[10%]
625	1.3.1.2.3.6.4	State reviews	624	2 days	Mon 7/6/20	Tue 7/7/20	State[20%]
626	1.3.1.2.3.6.5	State approves DED	625	1 day	Wed 7/8/20	Wed 7/8/20	State[20%]
627	**1.3.1.2.3.7**	**Develop Deliverable**		**13 days**	**Thu 7/9/20**	**Mon 7/27/20**	
628	1.3.1.2.3.7.1	Create baseline from approved DED	626	5 days	Thu 7/9/20	Wed 7/15/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BA[10%],ETL Engnr[10%]
629	1.3.1.2.3.7.2	Update deliverable	628	5 days	Thu 7/16/20	Wed 7/22/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BA[10%],ETL Engnr[10%]
630	1.3.1.2.3.7.3	Conduct Internal Review	629	2 days	Thu 7/23/20	Fri 7/24/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BA[10%],ETL Engnr[10%]
631	1.3.1.2.3.7.4	Final QA Review/Update of Deliverable	630	1 day	Mon 7/27/20	Mon 7/27/20	Doc Mngr[40%],Impl Mngr[25%]
632	1.3.1.2.3.8	Submit Deliverable for State Review	631	1 day	Tue 7/28/20	Tue 7/28/20	PM[10%]
633	1.3.1.2.3.9	State reviews document and provides feedback	632	10 days	Wed 7/29/20	Tue 8/11/20	State[20%]
634	**1.3.1.2.3.10**	**Deliverable: Review Cycle (1)**		**10 days**	**Wed 8/12/20**	**Tue 8/25/20**	
635	1.3.1.2.3.10	Update deliverable with feedback	633	3 days	Wed 8/12/20	Fri 8/14/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
636	1.3.1.2.3.10	QA review and update	635	1.5 days	Mon 8/17/20	Tue 8/18/20	Doc Mngr[40%],Impl Mngr[25%]
637	1.3.1.2.3.10	Submit for State approval	636	0.5 days	Tue 8/18/20	Tue 8/18/20	PM[10%]
638	1.3.1.2.3.10	State reviews	637	5 days	Wed 8/19/20	Tue 8/25/20	State[20%]
639	**1.3.1.2.3.11**	**Deliverable: Review Cycle (2)**		**10 days**	**Wed 8/26/20**	**Wed 9/9/20**	
640	1.3.1.2.3.11	Update deliverable with feedback	638	3 days	Wed 8/26/20	Fri 8/28/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
641	1.3.1.2.3.11	QA review and update	640	1.5 days	Mon 8/31/20	Tue 9/1/20	Doc Mngr[40%],Impl Mngr[25%]
642	1.3.1.2.3.11	Submit for State approval	641	0.5 days	Tue 9/1/20	Tue 9/1/20	PM[10%]
643	1.3.1.2.3.11	State reviews	642	5 days	Wed 9/2/20	Wed 9/9/20	State[20%]
644	1.3.1.2.3.12	State Provides Final Approval	643	1 day	Thu 9/10/20	Thu 9/10/20	State[20%]
645	1.3.1.2.3.13	Milestone: Reconciliation Plan Approved	644	0 days	Thu 9/10/20	Thu 9/10/20	
646	**1.3.1.2.4**	**D016 Facility Management Plan**		**71 days**	**Mon 5/4/20**	**Wed 8/12/20**	
647	**1.3.1.2.4.1**	**Develop DED**		**7 days**	**Mon 5/4/20**	**Tue 5/12/20**	
648	1.3.1.2.4.1.1	Review deliverable requirements	2	2 days	Mon 5/4/20	Tue 5/5/20	PM[10%],Doc Mngr[50%]
649	1.3.1.2.4.1.2	Draft DED	648	3 days	Wed 5/6/20	Fri 5/8/20	PM[10%],Doc Mngr[50%],Impl Mngr[10%]
650	1.3.1.2.4.1.3	Review DED	649	1 day	Mon 5/11/20	Mon 5/11/20	PM[10%],Doc Mngr[50%],Impl Mngr[10%]
651	1.3.1.2.4.1.4	Finalize DED	650	1 day	Tue 5/12/20	Tue 5/12/20	PM[10%],Doc Mngr[50%],Impl Mngr[10%]
652	**1.3.1.2.4.2**	**Internally Review DED**		**6 days**	**Wed 5/13/20**	**Wed 5/20/20**	
653	1.3.1.2.4.2.1	Complete Contract Review	651	2 days	Wed 5/13/20	Thu 5/14/20	PM[10%]
654	1.3.1.2.4.2.2	Complete Peer Review	651	2 days	Wed 5/13/20	Thu 5/14/20	Doc Mngr[10%],Impl Mngr[10%],Acct Mngr[10%]
655	1.3.1.2.4.2.3	Complete QA Review	653,654	2 days	Fri 5/15/20	Mon 5/18/20	Doc Mngr[25%]
656	1.3.1.2.4.2.4	Update with feedback	655	2 days	Tue 5/19/20	Wed 5/20/20	Doc Mngr[10%],Impl Mngr[10%],Acct Mngr[10%]
657	1.3.1.2.4.3	Submit for State Review	656	1 day	Thu 5/21/20	Thu 5/21/20	PM[10%]
658	1.3.1.2.4.4	State reviews document and provides feedback	657	3 days	Fri 5/22/20	Wed 5/27/20	State[20%]
659	**1.3.1.2.4.5**	**DED: Review Cycle (1)**		**4 days**	**Thu 5/28/20**	**Tue 6/2/20**	
660	1.3.1.2.4.5.1	Update DED with feedback	658	1 day	Thu 5/28/20	Thu 5/28/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
661	1.3.1.2.4.5.2	QA review and update	660	0.5 days	Fri 5/29/20	Fri 5/29/20	Doc Mngr[40%],Impl Mngr[25%]
662	1.3.1.2.4.5.3	Resubmit for State Review	661	0.5 days	Fri 5/29/20	Fri 5/29/20	PM[10%]
663	1.3.1.2.4.5.4	State reviews	662	2 days	Mon 6/1/20	Tue 6/2/20	State[20%]
664	**1.3.1.2.4.6**	**DED: Review Cycle (2)**		**5 days**	**Wed 6/3/20**	**Tue 6/9/20**	
665	1.3.1.2.4.6.1	Update DED with feedback	663	1 day	Wed 6/3/20	Wed 6/3/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
666	1.3.1.2.4.6.2	QA review and update	665	0.5 days	Thu 6/4/20	Thu 6/4/20	Doc Mngr[40%],Impl Mngr[25%]
667	1.3.1.2.4.6.3	Resubmit for State Review	666	0.5 days	Thu 6/4/20	Thu 6/4/20	PM[10%]
668	1.3.1.2.4.6.4	State reviews	667	2 days	Fri 6/5/20	Mon 6/8/20	State[20%]
669	1.3.1.2.4.6.5	State approves DED	668	1 day	Tue 6/9/20	Tue 6/9/20	State[20%]

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ID	WBS	Task Name	Predecessors	Duration	Start	Finish	Resource Names
670	**1.3.1.2.4.7**	**Develop Deliverable**		**13 days**	**Wed 6/10/20**	**Fri 6/26/20**	
671	1.3.1.2.4.7.1	Create baseline from approved DED	669	5 days	Wed 6/10/20	Tue 6/16/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
672	1.3.1.2.4.7.2	Update deliverable	671	5 days	Wed 6/17/20	Tue 6/23/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
673	1.3.1.2.4.7.3	Conduct Internal Review	672	2 days	Wed 6/24/20	Thu 6/25/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
674	1.3.1.2.4.7.4	Final QA Review/Update of Deliverable	673	1 day	Fri 6/26/20	Fri 6/26/20	Doc Mngr[40%],Impl Mngr[25%]
675	1.3.1.2.4.8	Submit Deliverable for State Review	674	1 day	Mon 6/29/20	Mon 6/29/20	PM[10%]
676	1.3.1.2.4.9	State reviews document and provides feedback	675	10 days	Tue 6/30/20	Tue 7/14/20	State[20%]
677	**1.3.1.2.4.10**	**Deliverable: Review Cycle (1)**		**10 days**	**Wed 7/15/20**	**Tue 7/28/20**	
678	1.3.1.2.4.10	Update deliverable with feedback	676	3 days	Wed 7/15/20	Fri 7/17/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
679	1.3.1.2.4.10	QA review and update	678	1.5 days	Mon 7/20/20	Tue 7/21/20	Doc Mngr[40%],Impl Mngr[25%]
680	1.3.1.2.4.10	Submit for State approval	679	0.5 days	Tue 7/21/20	Tue 7/21/20	PM[10%]
681	1.3.1.2.4.10	State reviews	680	5 days	Wed 7/22/20	Tue 7/28/20	State[20%]
682	**1.3.1.2.4.11**	**Deliverable: Review Cycle (2)**		**10 days**	**Wed 7/29/20**	**Tue 8/11/20**	
683	1.3.1.2.4.11	Update deliverable with feedback	681	3 days	Wed 7/29/20	Fri 7/31/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
684	1.3.1.2.4.11	QA review and update	683	1.5 days	Mon 8/3/20	Tue 8/4/20	Doc Mngr[40%],Impl Mngr[25%]
685	1.3.1.2.4.11	Submit for State approval	684	0.5 days	Tue 8/4/20	Tue 8/4/20	PM[10%]
686	1.3.1.2.4.11	State reviews	685	5 days	Wed 8/5/20	Tue 8/11/20	State[20%]
687	1.3.1.2.4.12	State Provides Final Approval	686	1 day	Wed 8/12/20	Wed 8/12/20	State[20%]
688	1.3.1.2.4.13	Milestone: Facility Management Plan Approved	687	0 days	Wed 8/12/20	Wed 8/12/20	
689	**1.3.1.2.5**	**Case Management Solution Creation Process (SCP) Workflow**		**71 days**	**Wed 6/17/20**	**Fri 9/25/20**	
690	**1.3.1.2.5.1**	**Develop DED**		**7 days**	**Wed 6/17/20**	**Thu 6/25/20**	
691	1.3.1.2.5.1.1	Review deliverable requirements	1154	2 days	Wed 6/17/20	Thu 6/18/20	PM[10%],Doc Mngr[50%]
692	1.3.1.2.5.1.2	Draft DED	691	3 days	Fri 6/19/20	Tue 6/23/20	PM[10%],Doc Mngr[50%],BA[10%]
693	1.3.1.2.5.1.3	Review DED	692	1 day	Wed 6/24/20	Wed 6/24/20	PM[10%],Doc Mngr[50%],BA[10%]
694	1.3.1.2.5.1.4	Finalize DED	693	1 day	Thu 6/25/20	Thu 6/25/20	PM[10%],Doc Mngr[50%],BA[10%]
695	**1.3.1.2.5.2**	**Internally Review DED**		**6 days**	**Fri 6/26/20**	**Mon 7/6/20**	
696	1.3.1.2.5.2.1	Complete Contract Review	694	2 days	Fri 6/26/20	Mon 6/29/20	PM[10%]
697	1.3.1.2.5.2.2	Complete Peer Review	694	2 days	Fri 6/26/20	Mon 6/29/20	Doc Mngr[10%],Impl Mngr[10%],BA[10%]
698	1.3.1.2.5.2.3	Complete QA Review	696,697	2 days	Tue 6/30/20	Wed 7/1/20	Doc Mngr[25%]
699	1.3.1.2.5.2.4	Update with feedback	698	2 days	Thu 7/2/20	Mon 7/6/20	Doc Mngr[10%],Impl Mngr[10%],BA[10%]
700	1.3.1.2.5.3	Submit for State Review	699	1 day	Tue 7/7/20	Tue 7/7/20	PM[10%]
701	1.3.1.2.5.4	State reviews document and provides feedback	700	3 days	Wed 7/8/20	Fri 7/10/20	State[20%]
702	**1.3.1.2.5.5**	**DED: Review Cycle (1)**		**4 days**	**Mon 7/13/20**	**Thu 7/16/20**	
703	1.3.1.2.5.5.1	Update DED with feedback	701	1 day	Mon 7/13/20	Mon 7/13/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%],BA[10%]
704	1.3.1.2.5.5.2	QA review and update	703	0.5 days	Tue 7/14/20	Tue 7/14/20	Doc Mngr[40%],Impl Mngr[25%]
705	1.3.1.2.5.5.3	Resubmit for State Review	704	0.5 days	Tue 7/14/20	Tue 7/14/20	PM[10%]
706	1.3.1.2.5.5.4	State reviews	705	2 days	Wed 7/15/20	Thu 7/16/20	State[20%]
707	**1.3.1.2.5.6**	**DED: Review Cycle (2)**		**5 days**	**Fri 7/17/20**	**Thu 7/23/20**	
708	1.3.1.2.5.6.1	Update DED with feedback	706	1 day	Fri 7/17/20	Fri 7/17/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%],BA[10%]
709	1.3.1.2.5.6.2	QA review and update	708	0.5 days	Mon 7/20/20	Mon 7/20/20	Doc Mngr[40%],Impl Mngr[25%]
710	1.3.1.2.5.6.3	Resubmit for State Review	709	0.5 days	Mon 7/20/20	Mon 7/20/20	PM[10%]
711	1.3.1.2.5.6.4	State reviews	710	2 days	Tue 7/21/20	Wed 7/22/20	State[20%]
712	1.3.1.2.5.6.5	State approves DED	711	1 day	Thu 7/23/20	Thu 7/23/20	State[20%]
713	**1.3.1.2.5.7**	**Develop Deliverable**		**13 days**	**Fri 7/24/20**	**Tue 8/11/20**	
714	1.3.1.2.5.7.1	Create baseline from approved DED	712	5 days	Fri 7/24/20	Thu 7/30/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BA[10%]
715	1.3.1.2.5.7.2	Update deliverable	714	5 days	Fri 7/31/20	Thu 8/6/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BA[10%]
716	1.3.1.2.5.7.3	Conduct Internal Review	715	2 days	Fri 8/7/20	Mon 8/10/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BA[10%]
717	1.3.1.2.5.7.4	Final QA Review/Update of Deliverable	716	1 day	Tue 8/11/20	Tue 8/11/20	Doc Mngr[40%],Impl Mngr[25%]
718	1.3.1.2.5.8	Submit Deliverable for State Review	717	1 day	Wed 8/12/20	Wed 8/12/20	PM[10%]
719	1.3.1.2.5.9	State reviews document and provides feedback	718	10 days	Thu 8/13/20	Wed 8/26/20	State[20%]
720	**1.3.1.2.5.10**	**Deliverable: Review Cycle (1)**		**10 days**	**Thu 8/27/20**	**Thu 9/10/20**	
721	1.3.1.2.5.10	Update deliverable with feedback	719	3 days	Thu 8/27/20	Mon 8/31/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
722	1.3.1.2.5.10	QA review and update	721	1.5 days	Tue 9/1/20	Wed 9/2/20	Doc Mngr[40%],Impl Mngr[25%]
723	1.3.1.2.5.10	Submit for State approval	722	0.5 days	Wed 9/2/20	Wed 9/2/20	PM[10%]
724	1.3.1.2.5.10	State reviews	723	5 days	Thu 9/3/20	Thu 9/10/20	State[20%]
725	**1.3.1.2.5.11**	**Deliverable: Review Cycle (2)**		**10 days**	**Fri 9/11/20**	**Thu 9/24/20**	
726	1.3.1.2.5.11	Update deliverable with feedback	724	3 days	Fri 9/11/20	Tue 9/15/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
727	1.3.1.2.5.11	QA review and update	726	1.5 days	Wed 9/16/20	Thu 9/17/20	Doc Mngr[40%],Impl Mngr[25%]
728	1.3.1.2.5.11	Submit for State approval	727	0.5 days	Thu 9/17/20	Thu 9/17/20	PM[10%]
729	1.3.1.2.5.11	State reviews	728	5 days	Fri 9/18/20	Thu 9/24/20	State[20%]
730	1.3.1.2.5.12	State Provides Final Approval	729	1 day	Fri 9/25/20	Fri 9/25/20	State[20%]
731	1.3.1.2.5.13	Milestone: Complete SCP Document Approval	730	0 days	Fri 9/25/20	Fri 9/25/20	
732	**1.3.2**	**Solution Planning**		**273 days**	**Mon 5/4/20**	**Tue 6/1/21**	
733	**1.3.2.1**	**Project 1: EDS Platform and Data Mining Tools Configuration**		**230 days**	**Mon 5/4/20**	**Wed 3/31/21**	
734	**1.3.2.1.1**	**EDS Platform and Data Mining Tools**		**16 days**	**Mon 5/4/20**	**Tue 5/26/20**	
735	1.3.2.1.1.1	Review the System and Security Architecture from the Technical Proposal	2	7 days	Mon 5/4/20	Tue 5/12/20	Sys Mngr[10%]
736	**1.3.2.1.1.2**	**EDS Platform Requirements**		**9 days**	**Wed 5/13/20**	**Tue 5/26/20**	

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ID	WBS	Task Name	Predecessors	Duration	Start	Finish	Resource Names
737	1.3.2.1.1.2.1	Prepare for RAS Sessions	735	3 days	Wed 5/13/20	Fri 5/15/20	Acct Mngr[20%],Impl Mngr[20%],PM[20%]
738	1.3.2.1.1.2.2	Conduct RAS Sessions	737	2 days	Mon 5/18/20	Tue 5/19/20	Acct Mngr[50%],Impl Mngr[50%],PM[50%],State[50%]
739	1.3.2.1.1.2.3	Answer Questions from RAS and Create Requirements Analysis Document	738	2 days	Wed 5/20/20	Thu 5/21/20	Acct Mngr[20%],Impl Mngr[20%],PM[20%]
740	1.3.2.1.1.2.4	Client Review Business Requirements	739	2 days	Fri 5/22/20	Tue 5/26/20	State[50%]
741	1.3.2.1.1.2.5	Milestone: EDS Platform RAS Session Complete	740	0 days	Tue 5/26/20	Tue 5/26/20	
742	**1.3.2.1.2**	**EDS Server & Environments Setup**		**210 days**	**Mon 5/4/20**	**Wed 3/3/21**	
743	**1.3.2.1.2.1**	**Sterling Environment DEV**		**70 days**	**Mon 5/4/20**	**Tue 8/11/20**	
744	**1.3.2.1.2.1.1**	**Environment Standup Activities DEV**		**10 days**	**Mon 5/4/20**	**Fri 5/15/20**	
745	1.3.2.1.2.1.1	Configure Firewall and Router Rules DEV	3	4 days	Mon 5/4/20	Thu 5/7/20	Sys Mngr[50%],Shared Svcs Network Admin[50%]
746	1.3.2.1.2.1.1	Verify Access to Servers DEV	745	6 days	Fri 5/8/20	Fri 5/15/20	Sys Mngr[25%],Shared Svcs Platform Admin[25%]
747	**1.3.2.1.2.1.2**	**Server Configuration Process DEV**		**60 days**	**Mon 5/18/20**	**Tue 8/11/20**	
748	**1.3.2.1.2.1.2**	**Linux Server Provisioning DEV**		**26 days**	**Mon 5/18/20**	**Tue 6/23/20**	
749	1.3.2.1.2.1.2	Configure Servers for Cognos Installation DEV	746	10 days	Mon 5/18/20	Mon 6/1/20	Shared Svcs Linux Admin[20%],Shared Svcs App Admin[20%]
750	1.3.2.1.2.1.2	Configure Servers for InfoSphere Installation DEV	746	20 days	Mon 5/18/20	Mon 6/15/20	Shared Svcs Linux Admin[20%],Shared Svcs App Admin[20%]
751	1.3.2.1.2.1.2	Configure Servers for IBM ITX Installation DEV	746	10 days	Mon 5/18/20	Mon 6/1/20	Shared Svcs Linux Admin[20%],Shared Svcs App Admin[20%]
752	1.3.2.1.2.1.2	Configure Servers for IBM ICP4D Installation DEV	746	10 days	Mon 5/18/20	Mon 6/1/20	Shared Svcs Linux Admin[20%],Shared Svcs App Admin[20%]
753	1.3.2.1.2.1.2	Configure Servers for IBM ODM Installation DEV	746	25 days	Mon 5/18/20	Mon 6/22/20	Shared Svcs Linux Admin[20%],Shared Svcs App Admin[20%]
754	1.3.2.1.2.1.2	Configure Servers for Flexible Analytics Installation DEV	746	25 days	Mon 5/18/20	Mon 6/22/20	Shared Svcs Linux Admin[20%],Shared Svcs App Admin[20%]
755	1.3.2.1.2.1.2	Request Flex Analytics Software Package for DEV	754	1 day	Tue 6/23/20	Tue 6/23/20	Platform Eng - Linux[10%]
756	1.3.2.1.2.1.2	Configure Servers for Cloud Identity Installation DEV	746	10 days	Mon 5/18/20	Mon 6/1/20	Shared Svcs Linux Admin[20%],Shared Svcs App Admin[20%]
757	1.3.2.1.2.1.2	Configure Servers for Watson Studio Installation DEV	746	10 days	Mon 5/18/20	Mon 6/1/20	Shared Svcs Linux Admin[20%],Shared Svcs App Admin[20%]
758	1.3.2.1.2.1.2	Configure Servers for Optim Test Data Installation DEV	746	10 days	Mon 5/18/20	Mon 6/1/20	Shared Svcs Linux Admin[20%],Shared Svcs App Admin[20%]
759	**1.3.2.1.2.1.2**	**Windows Server Provisioning DEV**		**10 days**	**Mon 5/18/20**	**Mon 6/1/20**	
760	1.3.2.1.2.1.2	Configure Servers for MOVEit Installation DEV	746	10 days	Mon 5/18/20	Mon 6/1/20	Shared Svcs App Admin[20%],Shared Svcs Windows Admin[20%]
761	**1.3.2.1.2.1.3**	**Install Application Software DEV**		**30 days**	**Tue 6/2/20**	**Tue 7/14/20**	
762	1.3.2.1.2.1.3	Install Cognos DEV	749	10 days	Tue 6/2/20	Mon 6/15/20	Shared Svcs Windows Admin[20%],Shared Svcs App Admin[20%]
763	1.3.2.1.2.1.3	Install InfoSphere DEV	750	20 days	Tue 6/16/20	Tue 7/14/20	Shared Svcs App Admin[20%],Shared Svcs Linux Admin[20%]
764	1.3.2.1.2.1.3	Install MOVEit Transfer Automation DEV	749,760	10 days	Tue 6/2/20	Mon 6/15/20	Shared Svcs Windows Admin[20%],Shared Svcs App Admin[20%]
765	1.3.2.1.2.1.3	Install IBM ITX DEV	751	10 days	Tue 6/2/20	Mon 6/15/20	Shared Svcs App Admin[20%],Shared Svcs Linux Admin[20%]
766	1.3.2.1.2.1.3	Install IBM ICP4D DEV	752	10 days	Tue 6/2/20	Mon 6/15/20	Shared Svcs Windows Admin[20%],Shared Svcs App Admin[20%]
767	1.3.2.1.2.1.3	Install IBM ODM DEV	753	10 days	Tue 6/23/20	Tue 7/7/20	Shared Svcs Windows Admin[20%],Shared Svcs App Admin[20%]
768	1.3.2.1.2.1.3	Install Flexible Analytics DEV	755,749	10 days	Wed 6/24/20	Wed 7/8/20	Shared Svcs Windows Admin[20%],Shared Svcs App Admin[20%]
769	1.3.2.1.2.1.3	Install Cloud Identify DEV	756	10 days	Tue 6/2/20	Mon 6/15/20	Shared Svcs Windows Admin[20%],Shared Svcs App Admin[20%]
770	1.3.2.1.2.1.3	Install Optim Test Data DEV	758	10 days	Tue 6/2/20	Mon 6/15/20	Shared Svcs Linux Admin[20%],Shared Svcs App Admin[20%]
771	**1.3.2.1.2.1.4**	**Config/Develop Application Software DEV**		**40 days**	**Tue 6/2/20**	**Tue 7/28/20**	
772	1.3.2.1.2.1.4	Config/Develop Cognos DEV	762	5 days	Tue 6/16/20	Mon 6/22/20	Shared Svcs Linux Admin[20%],Shared Svcs App Admin[20%]
773	1.3.2.1.2.1.4	Config/Develop InfoSphere DEV	763	10 days	Wed 7/15/20	Tue 7/28/20	Shared Svcs Linux Admin[20%],Shared Svcs App Admin[20%]
774	1.3.2.1.2.1.4	Config/Develop MOVEit Transfer Automation DEV	764	5 days	Tue 6/16/20	Mon 6/22/20	Shared Svcs Linux Admin[20%],Shared Svcs App Admin[20%]
775	1.3.2.1.2.1.4	Config/Develop IBM ITX DEV	765	5 days	Tue 6/16/20	Mon 6/22/20	Shared Svcs Linux Admin[20%],Shared Svcs App Admin[20%]
776	1.3.2.1.2.1.4	Config/Develop IBM ICP4D DEV	766	5 days	Tue 6/16/20	Mon 6/22/20	Shared Svcs Linux Admin[20%],Shared Svcs App Admin[20%]
777	1.3.2.1.2.1.4	Config/Develop IBM ODM DEV	767	5 days	Wed 7/8/20	Tue 7/14/20	Shared Svcs Linux Admin[20%],Shared Svcs App Admin[20%]
778	1.3.2.1.2.1.4	Config/Develop Flexible Analytics DEV	768	5 days	Thu 7/9/20	Wed 7/15/20	Shared Svcs Linux Admin[20%],Shared Svcs App Admin[20%]
779	1.3.2.1.2.1.4	Config/Develop Cloud Identify DEV	769	5 days	Tue 6/16/20	Mon 6/22/20	Shared Svcs Linux Admin[20%],Shared Svcs App Admin[20%]
780	1.3.2.1.2.1.4	Config/Develop Watson Studio DEV	757	5 days	Tue 6/2/20	Mon 6/8/20	Shared Svcs Linux Admin[20%],Shared Svcs App Admin[20%]
781	1.3.2.1.2.1.4	Config/Develop Optim Test Data DEV	770	5 days	Tue 6/16/20	Mon 6/22/20	Shared Svcs Linux Admin[20%],Shared Svcs App Admin[20%]
782	1.3.2.1.2.1.4	Environment Testing (Smoke Test) DEV	762,772,773,774,	10 days	Wed 7/29/20	Tue 8/11/20	Shared Svcs Linux Admin[20%],Shared Svcs App Admin[20%]
783	1.3.2.1.2.2	Milestone: Sterling Environment DEV Complete	782	0 days	Tue 8/11/20	Tue 8/11/20	
784	**1.3.2.1.2.3**	**Sterling Environment UAT**		**70 days**	**Wed 8/12/20**	**Wed 11/18/20**	
785	**1.3.2.1.2.3.1**	**Environment Standup Activities UAT**		**10 days**	**Wed 8/12/20**	**Tue 8/25/20**	
786	1.3.2.1.2.3.1	Configure Firewall and Router Rules UAT	782	4 days	Wed 8/12/20	Mon 8/17/20	Sys Mngr[50%],Shared Svcs Network Admin[50%]
787	1.3.2.1.2.3.1	Verify Access to Servers UAT	786	6 days	Tue 8/18/20	Tue 8/25/20	Sys Mngr[25%],Shared Svcs Platform Admin[25%]
788	**1.3.2.1.2.3.2**	**Server Configuration Process UAT**		**60 days**	**Wed 8/26/20**	**Wed 11/18/20**	
789	**1.3.2.1.2.3.2**	**Linux Server Provisioning UAT**		**26 days**	**Wed 8/26/20**	**Thu 10/1/20**	
790	1.3.2.1.2.3.2	Configure Servers for Cognos Installation UAT	787	10 days	Wed 8/26/20	Wed 9/9/20	Shared Svcs Linux Admin[20%],Shared Svcs App Admin[20%]
791	1.3.2.1.2.3.2	Configure Servers for InfoSphere Installation UAT	787	20 days	Wed 8/26/20	Wed 9/23/20	Shared Svcs Linux Admin[20%],Shared Svcs App Admin[20%]
792	1.3.2.1.2.3.2	Configure Servers for IBM ITX Installation UAT	787	10 days	Wed 8/26/20	Wed 9/9/20	Shared Svcs Linux Admin[20%],Shared Svcs App Admin[20%]
793	1.3.2.1.2.3.2	Configure Servers for IBM ICP4D Installation UAT	787	10 days	Wed 8/26/20	Wed 9/9/20	Shared Svcs Linux Admin[20%],Shared Svcs App Admin[20%]
794	1.3.2.1.2.3.2	Configure Servers for IBM ODM Installation UAT	787	25 days	Wed 8/26/20	Wed 9/30/20	Shared Svcs Linux Admin[20%],Shared Svcs App Admin[20%]
795	1.3.2.1.2.3.2	Configure Servers for Flexible Analytics Installation UAT	787	25 days	Wed 8/26/20	Wed 9/30/20	Shared Svcs Linux Admin[20%],Shared Svcs App Admin[20%]
796	1.3.2.1.2.3.2	Request Flex Analytics Software Package for UAT	795	1 day	Thu 10/1/20	Thu 10/1/20	Shared Svcs Linux Admin[20%],Shared Svcs App Admin[20%]
797	1.3.2.1.2.3.2	Configure Servers for Cloud Identity Installation UAT	787	10 days	Wed 8/26/20	Wed 9/9/20	Shared Svcs Linux Admin[20%],Shared Svcs App Admin[20%]
798	1.3.2.1.2.3.2	Configure Servers for Watson Studio Installation UAT	787	10 days	Wed 8/26/20	Wed 9/9/20	Shared Svcs Linux Admin[20%],Shared Svcs App Admin[20%]
799	**1.3.2.1.2.3.2**	**Windows Server Provisioning UAT**		**10 days**	**Wed 8/26/20**	**Wed 9/9/20**	
800	1.3.2.1.2.3.2	Configure Servers for MOVEit Installation UAT	787	10 days	Wed 8/26/20	Wed 9/9/20	Shared Svcs App Admin[20%],Shared Svcs Windows Admin[20%]
801	**1.3.2.1.2.3.3**	**Install Application Software UAT**		**30 days**	**Thu 9/10/20**	**Wed 10/21/20**	
802	1.3.2.1.2.3.2	Install Cognos UAT	790	10 days	Thu 9/10/20	Wed 9/23/20	Shared Svcs Windows Admin[20%],Shared Svcs App Admin[20%]
803	1.3.2.1.2.3.2	Install InfoSphere UAT	791	20 days	Thu 9/24/20	Wed 10/21/20	Shared Svcs App Admin[20%],Shared Svcs Linux Admin[20%]

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ID	WBS	Task Name	Predecessors	Duration	Start	Finish	Resource Names
804	1.3.2.1.2.3.2	Install MOVEit Transfer Automation UAT	790,800	10 days	Thu 9/10/20	Wed 9/23/20	Shared Svcs Windows Admin[20%],Shared Svcs App Admin[20%]
805	1.3.2.1.2.3.2	Install IBM ITX UAT	792	10 days	Thu 9/10/20	Wed 9/23/20	Shared Svcs App Admin[20%],Shared Svcs Linux Admin[20%]
806	1.3.2.1.2.3.2	Install IBM ICP4D UAT	793	10 days	Thu 9/10/20	Wed 9/23/20	Shared Svcs Windows Admin[20%],Shared Svcs App Admin[20%]
807	1.3.2.1.2.3.2	Install IBM ODM UAT	794,802	10 days	Thu 10/1/20	Wed 10/14/20	Shared Svcs Windows Admin[20%],Shared Svcs App Admin[20%]
808	1.3.2.1.2.3.2	Install Flexible Analytics UAT	790,796	10 days	Fri 10/2/20	Thu 10/15/20	Shared Svcs Windows Admin[20%],Shared Svcs App Admin[20%]
809	1.3.2.1.2.3.2	Install Cloud Identify UAT	802,797	10 days	Thu 9/24/20	Wed 10/7/20	Shared Svcs Windows Admin[20%],Shared Svcs App Admin[20%]
810	**1.3.2.1.2.3.2**	**Config/Develop Application Software UAT**		**40 days**	**Thu 9/10/20**	**Wed 11/4/20**	
811	1.3.2.1.2.3.2	Config/Develop Cognos UAT	802	5 days	Thu 9/24/20	Wed 9/30/20	Shared Svcs Windows Admin[20%],Shared Svcs App Admin[20%]
812	1.3.2.1.2.3.2	Config/Develop InfoSphere UAT	803	10 days	Thu 10/22/20	Wed 11/4/20	Shared Svcs App Admin[20%],Shared Svcs Linux Admin[20%]
813	1.3.2.1.2.3.2	Config/Develop MOVEit Transfer Automation UAT	804	5 days	Thu 9/24/20	Wed 9/30/20	Shared Svcs Windows Admin[20%],Shared Svcs App Admin[20%]
814	1.3.2.1.2.3.2	Config/Develop IBM ITX UAT	805	5 days	Thu 9/24/20	Wed 9/30/20	Shared Svcs App Admin[20%],Shared Svcs Linux Admin[20%]
815	1.3.2.1.2.3.2	Config/Develop IBM ICP4D UAT	806	5 days	Thu 9/24/20	Wed 9/30/20	Shared Svcs Windows Admin[20%],Shared Svcs App Admin[20%]
816	1.3.2.1.2.3.2	Config/Develop IBM ODM UAT	807	5 days	Thu 10/15/20	Wed 10/21/20	Shared Svcs Windows Admin[20%],Shared Svcs App Admin[20%]
817	1.3.2.1.2.3.2	Config/Develop Flexible Analytics UAT	808	5 days	Fri 10/16/20	Thu 10/22/20	Shared Svcs Windows Admin[20%],Shared Svcs App Admin[20%]
818	1.3.2.1.2.3.2	Config/Develop Cloud Identify UAT	809	5 days	Thu 10/8/20	Wed 10/14/20	Shared Svcs Windows Admin[20%],Shared Svcs App Admin[20%]
819	1.3.2.1.2.3.2	Config/Develop Watson Studio UAT	798	5 days	Thu 9/10/20	Wed 9/16/20	Shared Svcs Linux Admin[20%],Shared Svcs App Admin[20%]
820	1.3.2.1.2.3.2	Environment Testing (Smoke Test) UAT	811,812,813,814,	10 days	Thu 11/5/20	Wed 11/18/20	Sys Mngr[10%],Val Killinen[10%],Pratima Nallagatla[10%],Jennifer Maise[1
821	1.3.2.1.2.4	Milestone: Sterling Environment UAT Complete	820	0 days	Wed 11/18/20	Wed 11/18/20	
822	**1.3.2.1.2.5**	**Dallas Environment PROD**		**70 days**	**Thu 11/19/20**	**Wed 3/3/21**	
823	**1.3.2.1.2.5.1**	**Environment Standup Activities PROD**		**10 days**	**Thu 11/19/20**	**Fri 12/4/20**	
824	1.3.2.1.2.5.1	Configure Firewall and Router Rules PROD	821	4 days	Thu 11/19/20	Tue 11/24/20	Sys Mngr[50%],Shared Svcs Network Admin[50%]
825	1.3.2.1.2.5.1	Verify Access to Servers PROD	824	6 days	Wed 11/25/20	Fri 12/4/20	Sys Mngr[25%],Shared Svcs Platform Admin[25%]
826	**1.3.2.1.2.5.2**	**Server Configuration Process PROD**		**60 days**	**Mon 12/7/20**	**Wed 3/3/21**	
827	**1.3.2.1.2.5.2**	**Linux Server Provisioning PROD**		**25 days**	**Mon 12/7/20**	**Wed 1/13/21**	
828	1.3.2.1.2.5.2	Configure Servers for Cognos Installation PROD	825	10 days	Mon 12/7/20	Fri 12/18/20	Shared Svcs Linux Admin[20%],Shared Svcs App Admin[20%]
829	1.3.2.1.2.5.2	Configure Servers for InfoSphere Installation PROD	825	20 days	Mon 12/7/20	Wed 1/6/21	Shared Svcs Linux Admin[20%],Shared Svcs App Admin[20%]
830	1.3.2.1.2.5.2	Configure Servers for IBM ITX Installation PROD	825	10 days	Mon 12/7/20	Fri 12/18/20	Shared Svcs Linux Admin[20%],Shared Svcs App Admin[20%]
831	1.3.2.1.2.5.2	Configure Servers for IBM ICP4D Installation PROD	825	10 days	Mon 12/7/20	Fri 12/18/20	Shared Svcs Linux Admin[20%],Shared Svcs App Admin[20%]
832	1.3.2.1.2.5.2	Configure Servers for IBM ODM Installation PROD	825	25 days	Mon 12/7/20	Wed 1/13/21	Shared Svcs Linux Admin[20%],Shared Svcs App Admin[20%]
833	1.3.2.1.2.5.2	Configure Servers for Flexible Analytics Installation PROD	825	25 days	Mon 12/7/20	Wed 1/13/21	Shared Svcs Linux Admin[20%],Shared Svcs App Admin[20%]
834	1.3.2.1.2.5.2	Configure Servers for Cloud Identity Installation PROD	825	10 days	Mon 12/7/20	Fri 12/18/20	Shared Svcs Linux Admin[20%],Shared Svcs App Admin[20%]
835	1.3.2.1.2.5.2	Configure Servers for Watson Studio Installation PROD	825	10 days	Mon 12/7/20	Fri 12/18/20	Shared Svcs Linux Admin[20%],Shared Svcs App Admin[20%]
836	**1.3.2.1.2.5.2**	**Windows Server Provisioning PROD**		**10 days**	**Mon 12/7/20**	**Fri 12/18/20**	
837	1.3.2.1.2.5.2	Configure Servers for MOVEit Installation PROD	825	10 days	Mon 12/7/20	Fri 12/18/20	Shared Svcs App Admin[20%],Shared Svcs Windows Admin[20%]
838	**1.3.2.1.2.5.2**	**Install Application Software PROD**		**30 days**	**Mon 12/21/20**	**Wed 2/3/21**	
839	1.3.2.1.2.5.2	Install Cognos PROD	828	10 days	Mon 12/21/20	Wed 1/6/21	Shared Svcs Windows Admin[20%],Shared Svcs App Admin[20%]
840	1.3.2.1.2.5.2	Install InfoSphere PROD	829	20 days	Thu 1/7/21	Wed 2/3/21	Shared Svcs App Admin[20%],Shared Svcs Linux Admin[20%]
841	1.3.2.1.2.5.2	Install MOVEit Transfer Automation PROD	828,837	10 days	Mon 12/21/20	Wed 1/6/21	Shared Svcs Windows Admin[20%],Shared Svcs App Admin[20%]
842	1.3.2.1.2.5.2	Install IBM ITX PROD	830	10 days	Mon 12/21/20	Wed 1/6/21	Shared Svcs App Admin[20%],Shared Svcs Linux Admin[20%]
843	1.3.2.1.2.5.2	Install IBM ICP4D PROD	831	10 days	Mon 12/21/20	Wed 1/6/21	Shared Svcs Windows Admin[20%],Shared Svcs App Admin[20%]
844	1.3.2.1.2.5.2	Install IBM ODM PROD	832,839	10 days	Thu 1/14/21	Wed 1/27/21	Shared Svcs Windows Admin[20%],Shared Svcs App Admin[20%]
845	1.3.2.1.2.5.2	Install Flexible Analytics PROD	828,833	10 days	Thu 1/14/21	Wed 1/27/21	Shared Svcs Windows Admin[20%],Shared Svcs App Admin[20%]
846	1.3.2.1.2.5.2	Install Cloud Identify PROD	839,834	10 days	Thu 1/7/21	Wed 1/20/21	Shared Svcs Windows Admin[20%],Shared Svcs App Admin[20%]
847	**1.3.2.1.2.5.2**	**Config/Develop Application Software PROD**		**40 days**	**Mon 12/21/20**	**Wed 2/17/21**	
848	1.3.2.1.2.5.2	Config/Develop Cognos PROD	839	5 days	Thu 1/7/21	Wed 1/13/21	Shared Svcs Windows Admin[20%],Shared Svcs App Admin[20%]
849	1.3.2.1.2.5.2	Config/Develop InfoSphere PROD	840	10 days	Thu 2/4/21	Wed 2/17/21	Shared Svcs App Admin[20%],Shared Svcs Linux Admin[20%]
850	1.3.2.1.2.5.2	Config/Develop MOVEit Transfer Automation PROD	841	5 days	Thu 1/7/21	Wed 1/13/21	Shared Svcs Windows Admin[20%],Shared Svcs App Admin[20%]
851	1.3.2.1.2.5.2	Config/Develop IBM ITX PROD	842	5 days	Thu 1/7/21	Wed 1/13/21	Shared Svcs App Admin[20%],Shared Svcs Linux Admin[20%]
852	1.3.2.1.2.5.2	Config/Develop IBM ICP4D PROD	843	5 days	Thu 1/7/21	Wed 1/13/21	Shared Svcs Windows Admin[20%],Shared Svcs App Admin[20%]
853	1.3.2.1.2.5.2	Config/Develop IBM ODM PROD	844	5 days	Thu 1/28/21	Wed 2/3/21	Shared Svcs Windows Admin[20%],Shared Svcs App Admin[20%]
854	1.3.2.1.2.5.2	Config/Develop Flexible Analytics PROD	845	5 days	Thu 1/28/21	Wed 2/3/21	Shared Svcs Windows Admin[20%],Shared Svcs App Admin[20%]
855	1.3.2.1.2.5.2	Config/Develop Cloud Identify PROD	846	5 days	Thu 1/21/21	Wed 1/27/21	Shared Svcs Windows Admin[20%],Shared Svcs App Admin[20%]
856	1.3.2.1.2.5.2	Config/Develop Watson Studio PROD	835	5 days	Mon 12/21/20	Tue 12/29/20	Shared Svcs Linux Admin[20%],Shared Svcs App Admin[20%]
857	1.3.2.1.2.5.2	Environment Testing (Smoke Test) PROD	848,849,850,851,	10 days	Thu 2/18/21	Wed 3/3/21	Sys Mngr[10%],Val Killinen[10%],Pratima Nallagatla[10%],Jennifer Maise[1
858	1.3.2.1.2.6	Milestone: Dallas Environment PROD Complete	857	0 days	Wed 3/3/21	Wed 3/3/21	
859	**1.3.2.1.2.7**	**Virtual SIT Environment**		**40 days**	**Tue 6/16/20**	**Tue 8/11/20**	
860	1.3.2.1.2.7.1	Config/Develop Cognos SIT	762	5 days	Tue 6/16/20	Mon 6/22/20	Shared Svcs Windows Admin[20%],Shared Svcs App Admin[20%]
861	1.3.2.1.2.7.2	Config/Develop InfoSphere SIT	763	10 days	Wed 7/15/20	Tue 7/28/20	Shared Svcs App Admin[20%],Shared Svcs Linux Admin[20%]
862	1.3.2.1.2.7.3	Config/Develop MOVEit Transfer Automation SIT	764	5 days	Tue 6/16/20	Mon 6/22/20	Shared Svcs Windows Admin[20%],Shared Svcs App Admin[20%]
863	1.3.2.1.2.7.4	Config/Develop IBM ITX SIT	765	5 days	Tue 6/16/20	Mon 6/22/20	Shared Svcs App Admin[20%],Shared Svcs Linux Admin[20%]
864	1.3.2.1.2.7.5	Config/Develop IBM ICP4D SIT	766	5 days	Tue 6/16/20	Mon 6/22/20	Shared Svcs Windows Admin[20%],Shared Svcs App Admin[20%]
865	1.3.2.1.2.7.6	Config/Develop IBM ODM SIT	767	5 days	Wed 7/8/20	Tue 7/14/20	Shared Svcs Windows Admin[20%],Shared Svcs App Admin[20%]
866	1.3.2.1.2.7.7	Config/Develop Flexible Analytics SIT	768	5 days	Thu 7/9/20	Wed 7/15/20	Shared Svcs Windows Admin[20%],Shared Svcs App Admin[20%]
867	1.3.2.1.2.7.8	Config/Develop Cloud Identify SIT	769	5 days	Tue 6/16/20	Mon 6/22/20	Shared Svcs Windows Admin[20%],Shared Svcs App Admin[20%]
868	1.3.2.1.2.7.9	Config/Develop Watson Studio SIT	867	5 days	Tue 6/23/20	Mon 6/29/20	Shared Svcs Linux Admin[20%],Shared Svcs App Admin[20%]
869	1.3.2.1.2.7.1	Environment Testing (Smoke Test) SIT	860,861,862,863,	10 days	Wed 7/29/20	Tue 8/11/20	Sys Mngr[10%],Val Killinen[10%],Pratima Nallagatla[10%],Jennifer Maise[1
870	1.3.2.1.2.8	Milestone: Virtual SIT Environment Complete	869	0 days	Tue 8/11/20	Tue 8/11/20	

ID	WBS	Task Name	Predecessors	Duration	Start	Finish	Resource Names
871	**1.3.2.1.2.9**	**Virtual Training Environment**		**40 days**	**Thu 9/24/20**	**Wed 11/18/20**	
872	1.3.2.1.2.9.1	Config/Develop Cognos Training	802	5 days	Thu 9/24/20	Wed 9/30/20	Shared Svcs Windows Admin[20%],Shared Svcs App Admin[20%]
873	1.3.2.1.2.9.2	Config/Develop InfoSphere Training	803	10 days	Thu 10/22/20	Wed 11/4/20	Shared Svcs App Admin[20%],Shared Svcs Linux Admin[20%]
874	1.3.2.1.2.9.3	Config/Develop MOVEit Transfer Automation Training	804	5 days	Thu 9/24/20	Wed 9/30/20	Shared Svcs Windows Admin[20%],Shared Svcs App Admin[20%]
875	1.3.2.1.2.9.4	Config/Develop IBM ITX Training	805	5 days	Thu 9/24/20	Wed 9/30/20	Shared Svcs App Admin[20%],Shared Svcs Linux Admin[20%]
876	1.3.2.1.2.9.5	Config/Develop IBM ICP4D Training	806	5 days	Thu 9/24/20	Wed 9/30/20	Shared Svcs Windows Admin[20%],Shared Svcs App Admin[20%]
877	1.3.2.1.2.9.6	Config/Develop IBM ODM Training	807	5 days	Thu 10/15/20	Wed 10/21/20	Shared Svcs Windows Admin[20%],Shared Svcs App Admin[20%]
878	1.3.2.1.2.9.7	Config/Develop Flexible Analytics Training	808	5 days	Fri 10/16/20	Thu 10/22/20	Shared Svcs Windows Admin[20%],Shared Svcs App Admin[20%]
879	1.3.2.1.2.9.8	Config/Develop Cloud Identify Training	809	5 days	Thu 10/8/20	Wed 10/14/20	Shared Svcs Windows Admin[20%],Shared Svcs App Admin[20%]
880	1.3.2.1.2.9.9	Config/Develop Watson Studio Training	879	5 days	Thu 10/15/20	Wed 10/21/20	Shared Svcs Linux Admin[20%],Shared Svcs App Admin[20%]
881	1.3.2.1.2.9.1	Environment Testing (Smoke Test) Training	872,873,874,875,	10 days	Thu 11/5/20	Wed 11/18/20	Sys Mngr[10%],Val Killinen[10%],Pratima Nallagatla[10%],Jennifer Maise[1
882	1.3.2.1.2.10	Milestone: Virtual Training Environment	881	0 days	Wed 11/18/20	Wed 11/18/20	
883	**1.3.2.1.2.11**	**Client Access and Connectivity**		**66 days**	**Mon 5/4/20**	**Wed 8/5/20**	
884	**1.3.2.1.2.11**	**Develop Access Design**		**26 days**	**Mon 5/4/20**	**Tue 6/9/20**	
885	1.3.2.1.2.11	Collaborate State & Define Requirements	3	20 days	Mon 5/4/20	Mon 6/1/20	Sys Mngr,Security (IBM WH)
886	1.3.2.1.2.11	Revise Cloud Identity Solution	885	1 day	Tue 6/2/20	Tue 6/2/20	Sys Mngr,Security (IBM WH)
887	1.3.2.1.2.11	Finalize Cloud Identity Solution	886	5 days	Wed 6/3/20	Tue 6/9/20	Sys Mngr,Security (IBM WH)
888	**1.3.2.1.2.11**	**Identify application access details**		**10 days**	**Wed 6/10/20**	**Tue 6/23/20**	
889	1.3.2.1.2.11	Configure WV Web Portal	887	10 days	Wed 6/10/20	Tue 6/23/20	Sys Mngr,Security (IBM WH),App Admin
890	1.3.2.1.2.11	Configure Cognos for SSO	887	10 days	Wed 6/10/20	Tue 6/23/20	Sys Mngr,Security (IBM WH),App Admin
891	1.3.2.1.2.11	Configure CloudPak for SSO	887	10 days	Wed 6/10/20	Tue 6/23/20	Sys Mngr,Security (IBM WH),App Admin
892	**1.3.2.1.2.11**	**Security and RBAC design**		**40 days**	**Wed 6/10/20**	**Wed 8/5/20**	
893	1.3.2.1.2.11	Identify Data Source Structures	887	20 days	Wed 6/10/20	Wed 7/8/20	Sys Mngr,Security (IBM WH),App Admin
894	1.3.2.1.2.11	Identify User Groups	893	10 days	Thu 7/9/20	Wed 7/22/20	Sys Mngr,Security (IBM WH),App Admin
895	1.3.2.1.2.11	Create Required User Groups per Tool	894	10 days	Thu 7/23/20	Wed 8/5/20	Sys Mngr,Security (IBM WH),App Admin
896	**1.3.2.1.2.11**	**Cloud Identity Installation**		**25 days**	**Wed 6/10/20**	**Wed 7/15/20**	
897	1.3.2.1.2.11	Verify CI solution with Shared Services	887	5 days	Wed 6/10/20	Tue 6/16/20	Sys Mngr,Security (IBM WH),App Admin
898	1.3.2.1.2.11	Build ADFS profiles	897	5 days	Wed 6/17/20	Tue 6/23/20	Sys Mngr,Security (IBM WH),App Admin
899	1.3.2.1.2.11	CI Server setup	898	5 days	Wed 6/24/20	Tue 6/30/20	Sys Mngr,Security (IBM WH),App Admin
900	1.3.2.1.2.11	CI Portal Setup	899	5 days	Wed 7/1/20	Wed 7/8/20	Sys Mngr,Security (IBM WH),App Admin
901	1.3.2.1.2.11	Application servers	900	5 days	Thu 7/9/20	Wed 7/15/20	Sys Mngr,Security (IBM WH),App Admin
902	**1.3.2.1.2.11**	**VPN Installation**		**50 days**	**Mon 5/4/20**	**Tue 7/14/20**	
903	1.3.2.1.2.11	Identify target hosts for VPN access	3	10 days	Mon 5/4/20	Fri 5/15/20	Sys Mngr[10%]
904	1.3.2.1.2.11	Identify target hosts for VPN access	3	10 days	Mon 5/4/20	Fri 5/15/20	Sys Mngr[10%]
905	1.3.2.1.2.11	Identify target hosts for VPN access	3	10 days	Mon 5/4/20	Fri 5/15/20	Sys Mngr[10%]
906	1.3.2.1.2.11	Identify target hosts for VPN access	3	10 days	Mon 5/4/20	Fri 5/15/20	Sys Mngr[10%]
907	1.3.2.1.2.11	Develop NAT IP and Port requirements for target hosts	903,904,905,906	10 days	Mon 5/18/20	Mon 6/1/20	Sys Mngr[10%]
908	1.3.2.1.2.11	Configure VPN on IBM network	907	10 days	Tue 6/2/20	Mon 6/15/20	Sys Mngr[10%]
909	1.3.2.1.2.11	Configure VPN on state network	908	10 days	Tue 6/16/20	Mon 6/29/20	Sys Mngr[10%]
910	1.3.2.1.2.11	Test and verify connectivity	909	10 days	Tue 6/30/20	Tue 7/14/20	Sys Mngr[10%]
911	**1.3.2.1.2.11**	**Test Access**		**10 days**	**Wed 7/15/20**	**Tue 7/28/20**	
912	1.3.2.1.2.11	Verify Portal access	910	10 days	Wed 7/15/20	Tue 7/28/20	Sys Mngr[10%]
913	1.3.2.1.2.11	Verify Web apps via portal	910	10 days	Wed 7/15/20	Tue 7/28/20	Sys Mngr[10%]
914	1.3.2.1.2.11	Verify PC tools over VPN	910	10 days	Wed 7/15/20	Tue 7/28/20	Sys Mngr[10%]
915	1.3.2.1.2.12	Milestone: Client Access and Connectivity Complete	887,889,890,891	0 days	Wed 8/5/20	Wed 8/5/20	
916	**1.3.2.1.3**	**Project Tool Setup and Integration**		**30 days**	**Mon 5/4/20**	**Mon 6/15/20**	
917	**1.3.2.1.3.1**	**Software Setup and Configuration**		**10 days**	**Mon 5/4/20**	**Fri 5/15/20**	
918	1.3.2.1.3.1.1	Jama Installation and Configuration	2	10 days	Mon 5/4/20	Fri 5/15/20	Shared Svcs App Admin[10%]
919	1.3.2.1.3.1.2	Jama Installation and Configuration	2	10 days	Mon 5/4/20	Fri 5/15/20	Shared Svcs App Admin[10%]
920	1.3.2.1.3.1.3	Jama Installation and Configuration	2	10 days	Mon 5/4/20	Fri 5/15/20	Shared Svcs App Admin[10%]
921	1.3.2.1.3.1.4	Milestone: Project Tools Installed and Configured	918,919,920	0 days	Fri 5/15/20	Fri 5/15/20	
922	1.3.2.1.3.2	Implement Project Tool Integration	921	20 days	Mon 5/18/20	Mon 6/15/20	Shared Svcs App Admin[10%],Acct Mngr[10%],Impl Mngr[10%],PM[10%]
923	**1.3.2.1.4**	**i-Sight Server & Environment Setup**		**90 days**	**Mon 5/4/20**	**Wed 9/9/20**	
924	**1.3.2.1.4.1**	**Hardware Deployment**		**80 days**	**Mon 5/4/20**	**Tue 8/25/20**	
925	1.3.2.1.4.1.1	Rack and Stack Servers - UAT	2	5 days	Mon 5/4/20	Fri 5/8/20	Sys Mngr[25%],Shared Svcs Platform Admin[25%]
926	1.3.2.1.4.1.2	Install Network Cabling - UAT	925	5 days	Mon 5/11/20	Fri 5/15/20	Shared Svcs Network Admin[25%],Sys Mngr[25%]
927	1.3.2.1.4.1.3	Install O/S Build - UAT	926	5 days	Mon 5/18/20	Fri 5/22/20	Shared Svcs App Admin[25%],Sys Mngr[25%]
928	1.3.2.1.4.1.4	San Allocation - UAT	927	5 days	Tue 5/26/20	Mon 6/1/20	Sys Mngr[25%]
929	1.3.2.1.4.1.5	O/S Build AV Patching - UAT	928	5 days	Tue 6/2/20	Mon 6/8/20	Shared Svcs App Admin[25%],Sys Mngr[25%]
930	1.3.2.1.4.1.6	Add to Orion (Monitoring) - UAT	929	5 days	Tue 6/9/20	Mon 6/15/20	Shared Svcs App Admin[25%],Sys Mngr[25%]
931	1.3.2.1.4.1.7	Execute Server Check - UAT	930	5 days	Tue 6/16/20	Mon 6/22/20	Shared Svcs App Admin[25%],Sys Mngr[25%],Shared Svcs Network Admin[
932	1.3.2.1.4.1.8	Setup UAT User Access for Customer Expressions Personnel	931	5 days	Tue 6/23/20	Mon 6/29/20	Impl Mngr[5%],Shared Svcs App Admin[25%],Shared Svcs Network Admin[
933	1.3.2.1.4.1.9	Rack and Stack Servers - Prod	932	5 days	Tue 6/30/20	Tue 7/7/20	Sys Mngr[25%],Shared Svcs Platform Admin[25%]
934	1.3.2.1.4.1.1	Install Network Cabling - Prod	933	5 days	Wed 7/8/20	Tue 7/14/20	Shared Svcs Network Admin[25%],Sys Mngr[25%]
935	1.3.2.1.4.1.1	Install O/S Build - Prod	934	5 days	Wed 7/15/20	Tue 7/21/20	Shared Svcs App Admin[25%],Sys Mngr[25%]
936	1.3.2.1.4.1.1	San Allocation - Prod	935	5 days	Wed 7/22/20	Tue 7/28/20	Sys Mngr[25%]
937	1.3.2.1.4.1.1	O/S Build AV Patching - Prod	936	5 days	Wed 7/29/20	Tue 8/4/20	Shared Svcs App Admin[25%],Sys Mngr[25%]

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ID	WBS	Task Name	Predecessors	Duration	Start	Finish	Resource Names
938	1.3.2.1.4.1.1	Add to Orion (Monitoring) - Prod	937	5 days	Wed 8/5/20	Tue 8/11/20	Shared Svcs App Admin[25%],Sys Mngr[25%]
939	1.3.2.1.4.1.1	Execute Server Check - Prod	938	5 days	Wed 8/12/20	Tue 8/18/20	Shared Svcs App Admin[25%],Sys Mngr[25%],Shared Svcs Network Admin[
940	1.3.2.1.4.1.1	Setup Production User Access for Customer Expressions Personnel	939	5 days	Wed 8/19/20	Tue 8/25/20	Impl Mngr[5%],Shared Svcs App Admin[25%],Shared Svcs Network Admin[
941	1.3.2.1.4.1.1	Milestone: Hardware Deployment Complete	932,931,930,929,	0 days	Tue 8/25/20	Tue 8/25/20	
942	**1.3.2.1.4.2**	**Software Installation**		**10 days**	**Wed 8/26/20**	**Wed 9/9/20**	
943	1.3.2.1.4.2.1	Install i-Sight Software	941	2 days	Wed 8/26/20	Thu 8/27/20	Shared Svcs App Admin[50%]
944	1.3.2.1.4.2.2	Configure i-Sight	943	2 days	Fri 8/28/20	Mon 8/31/20	Shared Svcs App Admin[50%]
945	1.3.2.1.4.2.3	Install and Configure TSM Backup	944	2 days	Tue 9/1/20	Wed 9/2/20	Shared Svcs App Admin[50%]
946	1.3.2.1.4.2.4	Perform Security Review	945	3 days	Thu 9/3/20	Tue 9/8/20	Shared Svcs App Admin[50%],Info Sec Arch[25%]
947	1.3.2.1.4.2.5	Release Assets	946	1 day	Wed 9/9/20	Wed 9/9/20	Impl Mngr[25%]
948	1.3.2.1.4.2.6	Milestone: Software Installation Complete	947	0 days	Wed 9/9/20	Wed 9/9/20	
949	1.3.2.1.5	Milestone: Project 1 Complete	922,915,735,948,	20 days	Thu 3/4/21	Wed 3/31/21	
950	**1.3.2.2**	**Project 2: EDS Implementation**		**110 days**	**Mon 5/4/20**	**Wed 10/7/20**	
951	**1.3.2.2.1**	**SDLC Gate Reviews**		**81 days**	**Mon 5/18/20**	**Fri 9/11/20**	
952	**1.3.2.2.1.1**	**Requirements (iterate, as needed)**		**81 days**	**Mon 5/18/20**	**Fri 9/11/20**	
953	1.3.2.2.1.1.1	Milestone: Entrance Criteria Met for Requirements Phase	970	0 days	Mon 5/18/20	Mon 5/18/20	
954	1.3.2.2.1.1.2	Milestone: Exit Criteria Met for Requirements Phase	1022,953	0 days	Fri 9/11/20	Fri 9/11/20	
955	**1.3.2.2.2**	**Data Integration Planning**		**18 days**	**Mon 5/4/20**	**Thu 5/28/20**	
956	**1.3.2.2.2.1**	**Data Acquisition**		**18 days**	**Mon 5/4/20**	**Thu 5/28/20**	
957	**1.3.2.2.2.1.1**	**Data Submission**		**0 days**	**Mon 5/4/20**	**Mon 5/4/20**	
958	1.3.2.2.2.1.1	Monthly Submissions from DXC	2	0 days	Mon 5/4/20	Mon 5/4/20	
959	1.3.2.2.2.1.1	Monthly Submissions from HSC	2	0 days	Mon 5/4/20	Mon 5/4/20	
960	1.3.2.2.2.1.1	Monthly Submissions from PEIA	2	0 days	Mon 5/4/20	Mon 5/4/20	
961	**1.3.2.2.2.1.2**	**Data Interface Detail Sessions**		**8 days**	**Mon 5/18/20**	**Thu 5/28/20**	
962	1.3.2.2.2.1.2	Data Detail Sessions: MMIS	3FS+10 days	2 days	Mon 5/18/20	Tue 5/19/20	AC[15%],BI Architect[15%],BA[15%],Impl Mngr[10%],PM[5%]
963	1.3.2.2.2.1.2	Data Detail Sessions: Health Statistics/PEIA	962	2 days	Wed 5/20/20	Thu 5/21/20	AC[15%],BI Architect[15%],BA[15%],Impl Mngr[10%],PM[5%]
964	1.3.2.2.2.1.2	Data Detail Sessions: Provider	963	2 days	Fri 5/22/20	Tue 5/26/20	AC[15%],BI Architect[15%],BA[15%],Impl Mngr[10%],PM[5%]
965	1.3.2.2.2.1.2	Data Detail Sessions: Eligibility	964	2 days	Wed 5/27/20	Thu 5/28/20	AC[15%],BI Architect[15%],BA[15%],Impl Mngr[10%],PM[5%]
966	1.3.2.2.2.1.2	Milestone: Data Interface Detail Sessions Complete	962,963,964,965	0 days	Thu 5/28/20	Thu 5/28/20	
967	1.3.2.2.2.1.3	Milestone: Data Acquisition Complete	958,959,960,966	0 days	Thu 5/28/20	Thu 5/28/20	
968	**1.3.2.2.3**	**Data Warehouse**		**104 days**	**Tue 5/12/20**	**Wed 10/7/20**	
969	**1.3.2.2.3.1**	**Data Warehouse Requirements**		**104 days**	**Tue 5/12/20**	**Wed 10/7/20**	
970	1.3.2.2.3.1.1	Milestone: Data Warehouse Requirement Begin	973	0 days	Mon 5/18/20	Mon 5/18/20	
971	**1.3.2.2.3.1.2**	**Provider Requirements**		**18 days**	**Tue 5/12/20**	**Fri 6/5/20**	
972	**1.3.2.2.3.1.2**	**Provider Requirements**		**18 days**	**Tue 5/12/20**	**Fri 6/5/20**	
973	1.3.2.2.3.1.2	Prepare for RAS Sessions	17	5 days	Tue 5/12/20	Mon 5/18/20	BI Architect[5%],BI Dev[5%],BA[5%],Impl Mngr[5%],Tech Lead[5%]
974	1.3.2.2.3.1.2	Conduct RAS Sessions (to include Integration, Reporting, BI)	973	5 days	Tue 5/19/20	Tue 5/26/20	BI Architect[50%],BI Dev[50%],BA[50%],Impl Mngr[25%],State[50%],Tech L
975	1.3.2.2.3.1.2	Answer Questions from RAS and Create Requirements Analysis Document	974	3 days	Wed 5/27/20	Fri 5/29/20	BI Architect[50%],BI Dev[50%],BA[50%],Impl Mngr[25%],State[50%],Tech L
976	1.3.2.2.3.1.2	Client Review Business Requirements	975	5 days	Mon 6/1/20	Fri 6/5/20	State
977	1.3.2.2.3.1.2	Milestone: Provider RAS Session Complete	976	0 days	Fri 6/5/20	Fri 6/5/20	
978	**1.3.2.2.3.1.3**	**Claims Requirements**		**18 days**	**Mon 6/8/20**	**Wed 7/1/20**	
979	**1.3.2.2.3.1.3**	**Prior Authorization Requirements**		**18 days**	**Mon 6/8/20**	**Wed 7/1/20**	
980	1.3.2.2.3.1.3	Prepare for RAS Sessions	977	5 days	Mon 6/8/20	Fri 6/12/20	BI Architect[5%],BI Dev[5%],BA[5%],Impl Mngr[5%],Tech Lead[5%]
981	1.3.2.2.3.1.3	Conduct RAS Sessions (to include Integration, Reporting, BI)	980	5 days	Mon 6/15/20	Fri 6/19/20	BI Architect[50%],BI Dev[50%],BA[50%],Impl Mngr[25%],State[50%],Tech L
982	1.3.2.2.3.1.3	Answer Questions from RAS and Create Requirements Analysis Document	981	3 days	Mon 6/22/20	Wed 6/24/20	BI Architect[50%],BI Dev[50%],BA[50%],Impl Mngr[25%],State[50%],Tech L
983	1.3.2.2.3.1.3	Client Review Business Requirements	982	5 days	Thu 6/25/20	Wed 7/1/20	State
984	1.3.2.2.3.1.3	Milestone: Prior Authorization RAS Session Complete	983	0 days	Wed 7/1/20	Wed 7/1/20	
985	**1.3.2.2.3.1.3**	**Drug Claim Requirements**		**18 days**	**Mon 6/8/20**	**Wed 7/1/20**	
986	1.3.2.2.3.1.3	Prepare for RAS Sessions	977	5 days	Mon 6/8/20	Fri 6/12/20	BI Architect[5%],BI Dev[5%],BA[5%],Impl Mngr[5%],Tech Lead[5%]
987	1.3.2.2.3.1.3	Conduct RAS Sessions (to include Integration, Reporting, BI)	986	5 days	Mon 6/15/20	Fri 6/19/20	BI Architect[50%],BI Dev[50%],BA[50%],Impl Mngr[25%],State[50%],Tech L
988	1.3.2.2.3.1.3	Answer Questions from RAS and Create Requirements Analysis Document	987	3 days	Mon 6/22/20	Wed 6/24/20	BI Architect[50%],BI Dev[50%],BA[50%],Impl Mngr[25%],State[50%],Tech L
989	1.3.2.2.3.1.3	Client Review Business Requirements	988	5 days	Thu 6/25/20	Wed 7/1/20	State
990	1.3.2.2.3.1.3	Milestone: Drug Claims RAS Session Complete	989	0 days	Wed 7/1/20	Wed 7/1/20	
991	**1.3.2.2.3.1.3**	**Institutional, Dental, and Professional Claims Requirements**		**18 days**	**Mon 6/8/20**	**Wed 7/1/20**	
992	1.3.2.2.3.1.3	Prepare for RAS Sessions	977	5 days	Mon 6/8/20	Fri 6/12/20	BI Architect[5%],BI Dev[5%],BA[5%],Impl Mngr[5%],Tech Lead[5%]
993	1.3.2.2.3.1.3	Conduct RAS Sessions (to include Integration, Reporting, BI)	992	5 days	Mon 6/15/20	Fri 6/19/20	BI Architect[50%],BI Dev[50%],BA[50%],Impl Mngr[25%],State[50%],Tech L
994	1.3.2.2.3.1.3	Answer Questions from RAS and Create Requirements Analysis Document	993	3 days	Mon 6/22/20	Wed 6/24/20	BI Architect[50%],BI Dev[50%],BA[50%],Impl Mngr[25%],State[50%],Tech L
995	1.3.2.2.3.1.3	Client Review Business Requirements	994	5 days	Thu 6/25/20	Wed 7/1/20	State
996	1.3.2.2.3.1.3	Milestone: Institutional, Dental, and Professional Claims RAS Session Complete	995	0 days	Wed 7/1/20	Wed 7/1/20	
997	**1.3.2.2.3.1.4**	**Financial Requirements**		**18 days**	**Thu 7/2/20**	**Tue 7/28/20**	
998	1.3.2.2.3.1.4	Prepare for RAS Sessions	995	5 days	Thu 7/2/20	Thu 7/9/20	BI Architect[5%],BI Dev[5%],BA[5%],Impl Mngr[5%],Tech Lead[5%]
999	1.3.2.2.3.1.4	Conduct RAS Sessions (to include Integration, Reporting, BI)	998	5 days	Fri 7/10/20	Thu 7/16/20	BI Architect[50%],BI Dev[50%],BA[50%],Impl Mngr[25%],State[50%],Tech L
1000	1.3.2.2.3.1.4	Answer Questions from RAS and Create Requirements Analysis Document	999	3 days	Fri 7/17/20	Tue 7/21/20	BI Architect[50%],BI Dev[50%],BA[50%],Impl Mngr[25%],State[50%],Tech L
1001	1.3.2.2.3.1.4	Client Review Business Requirements	1000	5 days	Wed 7/22/20	Tue 7/28/20	State
1002	1.3.2.2.3.1.4	Milestone: Financial RAS Session Complete	1001	0 days	Tue 7/28/20	Tue 7/28/20	
1003	**1.3.2.2.3.1.5**	**Reference Requirements**		**14 days**	**Wed 7/29/20**	**Mon 8/17/20**	
1004	1.3.2.2.3.1.5	Prepare for RAS Sessions	1002	3 days	Wed 7/29/20	Fri 7/31/20	BI Architect[5%],BI Dev[5%],BA[5%],Impl Mngr[5%],Tech Lead[5%]

ID	WBS	Task Name	Predecessors	Duration	Start	Finish	Resource Names
1005	1.3.2.2.3.1.5	Conduct RAS Sessions (to include Integration, Reporting, BI)	1004	3 days	Mon 8/3/20	Wed 8/5/20	BI Architect[50%],BI Dev[50%],BA[50%],Impl Mngr[25%],State[50%],Tech L
1006	1.3.2.2.3.1.5	Answer Questions from RAS and Create Requirements Analysis Document	1005	3 days	Thu 8/6/20	Mon 8/10/20	BI Architect[50%],BI Dev[50%],BA[50%],Impl Mngr[25%],State[50%],Tech L
1007	1.3.2.2.3.1.5	Client Review Business Requirements	1006	5 days	Tue 8/11/20	Mon 8/17/20	State
1008	1.3.2.2.3.1.5	Milestone: Reference RAS Session Complete	1007	0 days	Mon 8/17/20	Mon 8/17/20	
1009	**1.3.2.2.3.1.6**	**Eligibility Requirements**		**18 days**	**Tue 8/18/20**	**Fri 9/11/20**	
1010	1.3.2.2.3.1.6	Prepare for RAS Sessions	1008	5 days	Tue 8/18/20	Mon 8/24/20	BI Architect[5%],BI Dev[5%],BA[5%],Impl Mngr[5%],Tech Lead[5%]
1011	1.3.2.2.3.1.6	Conduct RAS Sessions (to include Integration, Reporting, BI)	1010	5 days	Tue 8/25/20	Mon 8/31/20	BI Architect[50%],BI Dev[50%],BA[50%],Impl Mngr[25%],State[50%],Tech L
1012	1.3.2.2.3.1.6	Answer Questions from RAS and Create Requirements Analysis Document	1011	3 days	Tue 9/1/20	Thu 9/3/20	BI Architect[50%],BI Dev[50%],BA[50%],Impl Mngr[25%],State[50%],Tech L
1013	1.3.2.2.3.1.6	Client Review Business Requirements	1012	5 days	Fri 9/4/20	Fri 9/11/20	State
1014	1.3.2.2.3.1.6	Milestone: Eligibility RAS Session Complete	1013	0 days	Fri 9/11/20	Fri 9/11/20	
1015	**1.3.2.2.3.1.7**	**Client Interfaces**		**18 days**	**Mon 9/14/20**	**Wed 10/7/20**	
1016	**1.3.2.2.3.1.7**	**Client Requirements**		**18 days**	**Mon 9/14/20**	**Wed 10/7/20**	
1017	1.3.2.2.3.1.7	Prepare for RAS Sessions	1013	5 days	Mon 9/14/20	Fri 9/18/20	BI Architect[5%],BI Dev[5%],BA[5%],Impl Mngr[5%],Tech Lead[5%]
1018	1.3.2.2.3.1.7	Conduct RAS Sessions (to include Integration, Reporting, BI)	1017	5 days	Mon 9/21/20	Fri 9/25/20	BI Architect[50%],BI Dev[50%],BA[50%],Impl Mngr[25%],State[50%],Tech L
1019	1.3.2.2.3.1.7	Answer Questions from RAS and Create Requirements Analysis Document	1018	3 days	Mon 9/28/20	Wed 9/30/20	BI Architect[50%],BI Dev[50%],BA[50%],Impl Mngr[25%],State[50%],Tech L
1020	1.3.2.2.3.1.7	Client Review Business Requirements	1019	5 days	Thu 10/1/20	Wed 10/7/20	State
1021	1.3.2.2.3.1.7	Milestone: Client RAS Session Complete	1020	0 days	Wed 10/7/20	Wed 10/7/20	
1022	1.3.2.2.3.1.8	Milestone: Data Warehouse Requirements Complete	1014,1008,1002,1	0 days	Fri 9/11/20	Fri 9/11/20	
1023	1.3.2.2.4	Milestone: Project 2 Planning Complete	954,1022	0 days	Fri 9/11/20	Fri 9/11/20	
1024	**1.3.2.3**	**Project 3: Analytics, BI, and Reporting Implementation**		**138 days**	**Mon 5/4/20**	**Mon 11/16/20**	
1025	**1.3.2.3.1**	**SDLC Gate Reviews**		**23 days**	**Wed 9/16/20**	**Mon 10/19/20**	
1026	**1.3.2.3.1.1**	**Requirements (Iterate, as needed)**		**23 days**	**Wed 9/16/20**	**Mon 10/19/20**	
1027	1.3.2.3.1.1.1	Milestone: Entrance Criteria Met for Requirements Phase	1061,1032	0 days	Wed 9/16/20	Wed 9/16/20	
1028	1.3.2.3.1.1.2	Milestone: Exit Criteria Met for Requirements Phase	1143,1054,1048,1	0 days	Mon 10/19/20	Mon 10/19/20	
1029	**1.3.2.3.2**	**Analytics & BI**		**73 days**	**Mon 5/4/20**	**Fri 8/14/20**	
1030	**1.3.2.3.2.1**	**Analytics & BI Requirements**		**73 days**	**Mon 5/4/20**	**Fri 8/14/20**	
1031	**1.3.2.3.2.1.1**	**BI/Analytics Requirements Discovery**		**22 days**	**Mon 5/4/20**	**Wed 6/3/20**	
1032	1.3.2.3.2.1.1	Prepare for BI/Analytics Requirements Discovery Sessions	2FF	5 days	Mon 5/4/20	Fri 5/8/20	BI Architect[5%],BI Dev[5%],BA[5%],Impl Mngr[5%],Reporting and Analytic
1033	1.3.2.3.2.1.1	Conduct BI/Analytics Requirements Discovery Sessions	1032	5 days	Mon 5/11/20	Fri 5/15/20	BI Architect[50%],BI Dev[50%],BA[50%],Impl Mngr[25%],Reporting and An
1034	1.3.2.3.2.1.1	Document High Level BI/Analytics Requirements	1033	9 days	Mon 5/18/20	Fri 5/29/20	BA[15%],Impl Mngr[5%],Reporting and Analytics Manager[15%]
1035	1.3.2.3.2.1.1	Determine BI/Analytics sets	1034	3 days	Mon 6/1/20	Wed 6/3/20	BA[20%],Reporting and Analytics Manager[20%]
1036	1.3.2.3.2.1.1	Milestone: Complete BI/Analytics Requirement Discovery Session	1035	0 days	Wed 6/3/20	Wed 6/3/20	
1037	**1.3.2.3.2.1.2**	**BI/Analytics Set 1 Detail Requirements**		**17 days**	**Thu 6/4/20**	**Fri 6/26/20**	
1038	1.3.2.3.2.1.2	Prepare for RAS Sessions	1036	5 days	Thu 6/4/20	Wed 6/10/20	BI Architect[5%],BI Dev[5%],BA[5%],Impl Mngr[5%],Reporting and Analytic
1039	1.3.2.3.2.1.2	Conduct RAS Sessions	1038	2 days	Thu 6/11/20	Fri 6/12/20	BI Architect[50%],BI Dev[50%],BA[50%],Impl Mngr[25%],Reporting and An
1040	1.3.2.3.2.1.2	Document Requirements Analysis document and Business requirements	1039	5 days	Mon 6/15/20	Fri 6/19/20	BA[15%],Impl Mngr[5%],Reporting and Analytics Manager[15%]
1041	1.3.2.3.2.1.2	Client Review Business Requirements	1040	5 days	Mon 6/22/20	Fri 6/26/20	State
1042	1.3.2.3.2.1.2	Milestone: Complete BI/Analytics Set 1 Detail Requirements	1041	0 days	Fri 6/26/20	Fri 6/26/20	
1043	**1.3.2.3.2.1.3**	**BI/Analytics Set 2 Detail Requirements**		**17 days**	**Mon 6/29/20**	**Wed 7/22/20**	
1044	1.3.2.3.2.1.3	Prepare for RAS Sessions	1042	5 days	Mon 6/29/20	Mon 7/6/20	BI Architect[5%],BI Dev[5%],BA[5%],Impl Mngr[5%],Reporting and Analytic
1045	1.3.2.3.2.1.3	Conduct RAS Sessions	1044	2 days	Tue 7/7/20	Wed 7/8/20	BI Architect[50%],BI Dev[50%],BA[50%],Impl Mngr[25%],Reporting and An
1046	1.3.2.3.2.1.3	Document Requirements Analysis document and Business requirements document	1045	5 days	Thu 7/9/20	Wed 7/15/20	BA[15%],Impl Mngr[5%],Reporting and Analytics Manager[15%]
1047	1.3.2.3.2.1.3	Client Review Business Requirements	1046	5 days	Thu 7/16/20	Wed 7/22/20	State
1048	1.3.2.3.2.1.3	Milestone: Complete BI/Analytics Set 2 Detail Requirements	1047	0 days	Wed 7/22/20	Wed 7/22/20	
1049	**1.3.2.3.2.1.4**	**BI/Analytics Set 3 Detail Requirements**		**17 days**	**Thu 7/23/20**	**Fri 8/14/20**	
1050	1.3.2.3.2.1.4	Prepare for RAS Sessions	1048	5 days	Thu 7/23/20	Wed 7/29/20	BI Architect[5%],BI Dev[5%],BA[5%],Impl Mngr[5%],Reporting and Analytic
1051	1.3.2.3.2.1.4	Conduct RAS Sessions	1050	2 days	Thu 7/30/20	Fri 7/31/20	BI Architect[50%],BI Dev[50%],BA[50%],Impl Mngr[25%],Reporting and An
1052	1.3.2.3.2.1.4	Document Requirements Analysis document and Business requirements	1051	5 days	Mon 8/3/20	Fri 8/7/20	BA[15%],Impl Mngr[5%],Reporting and Analytics Manager[15%]
1053	1.3.2.3.2.1.4	Client Review Business Requirements	1052	5 days	Mon 8/10/20	Fri 8/14/20	State
1054	1.3.2.3.2.1.4	Milestone: Complete BI/Analytics Set 3 Detail Requirements	1053	0 days	Fri 8/14/20	Fri 8/14/20	
1055	**1.3.2.3.3**	**Reporting**		**65 days**	**Mon 8/17/20**	**Mon 11/16/20**	
1056	**1.3.2.3.3.1**	**Reporting Requirements**		**65 days**	**Mon 8/17/20**	**Mon 11/16/20**	
1057	**1.3.2.3.3.1.1**	**Reporting Requirements Preparation**		**22 days**	**Mon 8/17/20**	**Wed 9/16/20**	
1058	1.3.2.3.3.1.1	Detailed report review and prioritization	1054	5 days	Mon 8/17/20	Fri 8/21/20	Impl Mngr[15%],Reporting and Analytics Manager[15%]
1059	1.3.2.3.3.1.1	Establish Reports Sets	1058	12 days	Mon 8/24/20	Wed 9/9/20	Impl Mngr[15%],Reporting and Analytics Manager[15%]
1060	1.3.2.3.3.1.1	Begin Report Requirements Validation Document	1059	5 days	Thu 9/10/20	Wed 9/16/20	Doc Mngr[20%]
1061	1.3.2.3.3.1.2	Milestone: Reporting Requirements Begin	1064SS,1060	0 days	Wed 9/16/20	Wed 9/16/20	
1062	**1.3.2.3.3.1.3**	**Care Management Report Requirements**		**60 days**	**Mon 8/24/20**	**Mon 11/16/20**	
1063	**1.3.2.3.3.1.3**	**Report Set 1**		**20 days**	**Mon 8/24/20**	**Mon 5/21/20**	
1064	1.3.2.3.3.1.3	Create Reports Specs	1059SS	10 days	Mon 8/24/20	Fri 9/4/20	BI Dev[75%],BA[50%],Data Architect[10%],Tech Lead[10%]
1065	1.3.2.3.3.1.3	Conduct Peer Review	1064	2 days	Tue 9/8/20	Wed 9/9/20	BI Dev[50%],Tech Lead[10%]
1066	1.3.2.3.3.1.3	Update Report Specs	1065	2 days	Thu 9/10/20	Fri 9/11/20	BI Dev[50%],Tech Lead[10%]
1067	1.3.2.3.3.1.3	Client Review Report	1066	5 days	Mon 9/14/20	Fri 9/18/20	State[20%]
1068	1.3.2.3.3.1.3	Update Report Specs from Client Feedback	1067	1 day	Mon 9/21/20	Mon 9/21/20	BI Dev[50%],Tech Lead[10%]
1069	1.3.2.3.3.1.3	Milestone: Report Set 1 Report Spec Design Complete	1068	0 days	Mon 9/21/20	Mon 9/21/20	
1070	**1.3.2.3.3.1.4**	**Report Set 2**		**20 days**	**Tue 9/22/20**	**Mon 10/19/20**	
1071	1.3.2.3.3.1.4	Create Reports Specs	1069	10 days	Tue 9/22/20	Mon 10/5/20	BI Dev[75%],BA[50%],Data Architect[10%],Tech Lead[10%]

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ID	WBS	Task Name	Predecessors	Duration	Start	Finish	Resource Names
1072	1.3.2.3.3.1.3	Conduct Peer Review	1071	2 days	Tue 10/6/20	Wed 10/7/20	BI Dev[50%],Tech Lead[10%]
1073	1.3.2.3.3.1.3	Update Report Specs	1072	2 days	Thu 10/8/20	Fri 10/9/20	BI Dev[50%],Tech Lead[10%]
1074	1.3.2.3.3.1.3	Client Review Report	1073	5 days	Mon 10/12/20	Fri 10/16/20	State[20%]
1075	1.3.2.3.3.1.3	Update Report Specs from Client Feedback	1074	1 day	Mon 10/19/20	Mon 10/19/20	BI Dev[50%],Tech Lead[10%]
1076	1.3.2.3.3.1.3	Milestone: Report Set 2 Report Spec Design Complete	1075	0 days	Mon 10/19/20	Mon 10/19/20	
1077	**1.3.2.3.3.1.3**	**Report Set 3**		**20 days**	**Tue 10/20/20**	**Mon 11/16/20**	
1078	1.3.2.3.3.1.3	Create Reports Specs	1076	10 days	Tue 10/20/20	Mon 11/2/20	BI Dev[75%],BA[50%],Data Architect[10%],Tech Lead[10%]
1079	1.3.2.3.3.1.3	Conduct Peer Review	1078	2 days	Tue 11/3/20	Wed 11/4/20	BI Dev[50%],Tech Lead[10%]
1080	1.3.2.3.3.1.3	Update Report Specs	1079	2 days	Thu 11/5/20	Fri 11/6/20	BI Dev[50%],Tech Lead[10%]
1081	1.3.2.3.3.1.3	Client Review Report	1080	5 days	Mon 11/9/20	Fri 11/13/20	State[20%]
1082	1.3.2.3.3.1.3	Update Report Specs from Client Feedback	1081	1 day	Mon 11/16/20	Mon 11/16/20	BI Dev[50%],Tech Lead[10%]
1083	1.3.2.3.3.1.3	Milestone: Report Set 3 Report Spec Design Complete	1082	0 days	Mon 11/16/20	Mon 11/16/20	
1084	**1.3.2.3.3.1.4**	**Financial Management Report Requirements**		**60 days**	**Mon 8/24/20**	**Mon 11/16/20**	
1085	**1.3.2.3.3.1.4**	**Report Set 1**		**20 days**	**Mon 8/24/20**	**Mon 9/21/20**	
1086	1.3.2.3.3.1.4	Create Reports Specs	1059SS	10 days	Mon 8/24/20	Fri 9/4/20	BI Dev[75%],BA[50%],Data Architect[10%],Tech Lead[10%]
1087	1.3.2.3.3.1.4	Conduct Peer Review	1086	2 days	Tue 9/8/20	Wed 9/9/20	BI Dev[50%],Tech Lead[10%]
1088	1.3.2.3.3.1.4	Update Report Specs	1087	2 days	Thu 9/10/20	Fri 9/11/20	BI Dev[50%],Tech Lead[10%]
1089	1.3.2.3.3.1.4	Client Review Report	1088	5 days	Mon 9/14/20	Fri 9/18/20	State[20%]
1090	1.3.2.3.3.1.4	Update Report Specs from Client Feedback	1089	1 day	Mon 9/21/20	Mon 9/21/20	BI Dev[50%],Tech Lead[10%]
1091	1.3.2.3.3.1.4	Milestone: Report Set 1 Report Spec Design Complete	1090	0 days	Mon 9/21/20	Mon 9/21/20	
1092	**1.3.2.3.3.1.4**	**Report Set 2**		**20 days**	**Tue 9/22/20**	**Mon 10/19/20**	
1093	1.3.2.3.3.1.4	Create Reports Specs	1091	10 days	Tue 9/22/20	Mon 10/5/20	BI Dev[75%],BA[50%],Data Architect[10%],Tech Lead[10%]
1094	1.3.2.3.3.1.4	Conduct Peer Review	1093	2 days	Tue 10/6/20	Wed 10/7/20	BI Dev[50%],Tech Lead[10%]
1095	1.3.2.3.3.1.4	Update Report Specs	1094	2 days	Thu 10/8/20	Fri 10/9/20	BI Dev[50%],Tech Lead[10%]
1096	1.3.2.3.3.1.4	Client Review Report	1095	5 days	Mon 10/12/20	Fri 10/16/20	State[20%]
1097	1.3.2.3.3.1.4	Update Report Specs from Client Feedback	1096	1 day	Mon 10/19/20	Mon 10/19/20	BI Dev[50%],Tech Lead[10%]
1098	1.3.2.3.3.1.4	Milestone: Report Set 2 Report Spec Design Complete	1097	0 days	Mon 10/19/20	Mon 10/19/20	
1099	**1.3.2.3.3.1.4**	**Report Set 3**		**20 days**	**Tue 10/20/20**	**Mon 11/16/20**	
1100	1.3.2.3.3.1.4	Create Reports Specs	1098	10 days	Tue 10/20/20	Mon 11/2/20	BI Dev[75%],BA[50%],Data Architect[10%],Tech Lead[10%]
1101	1.3.2.3.3.1.4	Conduct Peer Review	1100	2 days	Tue 11/3/20	Wed 11/4/20	BI Dev[50%],Tech Lead[10%]
1102	1.3.2.3.3.1.4	Update Report Specs	1101	2 days	Thu 11/5/20	Fri 11/6/20	BI Dev[50%],Tech Lead[10%]
1103	1.3.2.3.3.1.4	Client Review Report	1102	5 days	Mon 11/9/20	Fri 11/13/20	State[20%]
1104	1.3.2.3.3.1.4	Update Report Specs from Client Feedback	1103	1 day	Mon 11/16/20	Mon 11/16/20	BI Dev[50%],Tech Lead[10%]
1105	1.3.2.3.3.1.4	Milestone: Report Set 3 Report Spec Design Complete	1104	0 days	Mon 11/16/20	Mon 11/16/20	
1106	**1.3.2.3.3.1.5**	**Program Management Report Requirements**		**60 days**	**Mon 8/24/20**	**Mon 11/16/20**	
1107	**1.3.2.3.3.1.5**	**Report Set 1**		**20 days**	**Mon 8/24/20**	**Mon 9/21/20**	
1108	1.3.2.3.3.1.5	Create Reports Specs	1059SS	10 days	Mon 8/24/20	Fri 9/4/20	BI Dev[75%],BA[50%],Data Architect[10%],Tech Lead[10%]
1109	1.3.2.3.3.1.5	Conduct Peer Review	1108	2 days	Tue 9/8/20	Wed 9/9/20	BI Dev[50%],Tech Lead[10%]
1110	1.3.2.3.3.1.5	Update Report Specs	1109	2 days	Thu 9/10/20	Fri 9/11/20	BI Dev[50%],Tech Lead[10%]
1111	1.3.2.3.3.1.5	Client Review Report	1110	5 days	Mon 9/14/20	Fri 9/18/20	State[20%]
1112	1.3.2.3.3.1.5	Update Report Specs from Client Feedback	1111	1 day	Mon 9/21/20	Mon 9/21/20	BI Dev[50%],Tech Lead[10%]
1113	1.3.2.3.3.1.5	Milestone: Report Set 1 Report Spec Design Complete	1112	0 days	Mon 9/21/20	Mon 9/21/20	
1114	**1.3.2.3.3.1.5**	**Report Set 2**		**20 days**	**Tue 9/22/20**	**Mon 10/19/20**	
1115	1.3.2.3.3.1.5	Create Reports Specs	1113	10 days	Tue 9/22/20	Mon 10/5/20	BI Dev[75%],BA[50%],Data Architect[10%],Tech Lead[10%]
1116	1.3.2.3.3.1.5	Conduct Peer Review	1115	2 days	Tue 10/6/20	Wed 10/7/20	BI Dev[50%],Tech Lead[10%]
1117	1.3.2.3.3.1.5	Update Report Specs	1116	2 days	Thu 10/8/20	Fri 10/9/20	BI Dev[50%],Tech Lead[10%]
1118	1.3.2.3.3.1.5	Client Review Report	1117	5 days	Mon 10/12/20	Fri 10/16/20	State[20%]
1119	1.3.2.3.3.1.5	Update Report Specs from Client Feedback	1118	1 day	Mon 10/19/20	Mon 10/19/20	BI Dev[50%],Tech Lead[10%]
1120	1.3.2.3.3.1.5	Milestone: Report Set 2 Report Spec Design Complete	1119	0 days	Mon 10/19/20	Mon 10/19/20	
1121	**1.3.2.3.3.1.5**	**Report Set 3**		**20 days**	**Tue 10/20/20**	**Mon 11/16/20**	
1122	1.3.2.3.3.1.5	Create Reports Specs	1120	10 days	Tue 10/20/20	Mon 11/2/20	BI Dev[75%],BA[50%],Data Architect[10%],Tech Lead[10%]
1123	1.3.2.3.3.1.5	Conduct Peer Review	1122	2 days	Tue 11/3/20	Wed 11/4/20	BI Dev[50%],Tech Lead[10%]
1124	1.3.2.3.3.1.5	Update Report Specs	1123	2 days	Thu 11/5/20	Fri 11/6/20	BI Dev[50%],Tech Lead[10%]
1125	1.3.2.3.3.1.5	Client Review Report	1124	5 days	Mon 11/9/20	Fri 11/13/20	State[20%]
1126	1.3.2.3.3.1.5	Update Report Specs from Client Feedback	1125	1 day	Mon 11/16/20	Mon 11/16/20	BI Dev[50%],Tech Lead[10%]
1127	1.3.2.3.3.1.5	Milestone: Report Set 3 Report Spec Design Complete	1126	0 days	Mon 11/16/20	Mon 11/16/20	
1128	**1.3.2.3.3.1.6**	**Additional Operational Report Requirements**		**40 days**	**Mon 8/24/20**	**Mon 10/19/20**	
1129	**1.3.2.3.3.1.6**	**Report Set 1**		**20 days**	**Mon 8/24/20**	**Mon 9/21/20**	
1130	1.3.2.3.3.1.6	Create Reports Specs	1059SS	10 days	Mon 8/24/20	Fri 9/4/20	BI Dev[75%],BA[50%],Data Architect[10%],Tech Lead[10%]
1131	1.3.2.3.3.1.6	Conduct Peer Review	1130	2 days	Tue 9/8/20	Wed 9/9/20	BI Dev[50%],Tech Lead[10%]
1132	1.3.2.3.3.1.6	Update Report Specs	1131	2 days	Thu 9/10/20	Fri 9/11/20	BI Dev[50%],Tech Lead[10%]
1133	1.3.2.3.3.1.6	Client Review Report	1132	5 days	Mon 9/14/20	Fri 9/18/20	State[20%]
1134	1.3.2.3.3.1.6	Update Report Specs from Client Feedback	1133	1 day	Mon 9/21/20	Mon 9/21/20	BI Dev[50%],Tech Lead[10%]
1135	1.3.2.3.3.1.6	Milestone: Report Set 1 Report Spec Design Complete	1134	0 days	Mon 9/21/20	Mon 9/21/20	
1136	**1.3.2.3.3.1.6**	**Report Set 2**		**20 days**	**Tue 9/22/20**	**Mon 10/19/20**	
1137	1.3.2.3.3.1.6	Create Reports Specs	1135	10 days	Tue 9/22/20	Mon 10/5/20	BI Dev[75%],BA[50%],Data Architect[10%],Tech Lead[10%]
1138	1.3.2.3.3.1.6	Conduct Peer Review	1137	2 days	Tue 10/6/20	Wed 10/7/20	BI Dev[50%],Tech Lead[10%]

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ID	WBS	Task Name	Predecessors	Duration	Start	Finish	Resource Names
1139	1.3.2.3.3.1.6	Update Report Specs	1138	2 days	Thu 10/8/20	Fri 10/9/20	BI Dev[50%],Tech Lead[10%]
1140	1.3.2.3.3.1.6	Client Review Report	1139	5 days	Mon 10/12/20	Fri 10/16/20	State[20%]
1141	1.3.2.3.3.1.6	Update Report Specs from Client Feedback	1140	1 day	Mon 10/19/20	Mon 10/19/20	BI Dev[50%],Tech Lead[10%]
1142	1.3.2.3.3.1.6	Milestone: Report Set 2 Report Spec Design Complete	1141	0 days	Mon 10/19/20	Mon 10/19/20	
1143	1.3.2.3.3.1.7	Milestone: Report Requirements Complete	1142	0 days	Mon 10/19/20	Mon 10/19/20	
1144	1.3.2.3.4	Milestone: Project 3: Analytics, BI, and Reporting Implementation Complete	1143,1028	0 days	Mon 10/19/20	Mon 10/19/20	
1145	**1.3.2.4**	**Project 4: i-Sight Upgrade**		**25 days**	**Tue 5/12/20**	**Tue 6/16/20**	
1146	**1.3.2.4.1**	**SDLC Gate Reviews for *i*-Sight**		**20 days**	**Mon 5/18/20**	**Tue 6/16/20**	
1147	**1.3.2.4.1.1**	**Requirements (iterate, as needed)**		**20 days**	**Mon 5/18/20**	**Tue 6/16/20**	
1148	1.3.2.4.1.1.1	Milestone: Entrance Criteria Met for Requirements Phase	1151	0 days	Mon 5/18/20	Mon 5/18/20	
1149	1.3.2.4.1.1.2	Milestone: Exit Criteria Met for Requirements Phase	1155,1148	0 days	Tue 6/16/20	Tue 6/16/20	
1150	**1.3.2.4.2**	**I-Sight Requirements**		**25 days**	**Tue 5/12/20**	**Tue 6/16/20**	
1151	1.3.2.4.2.1	Milestone: i-Sight Requirements Begin	1152	0 days	Mon 5/18/20	Mon 5/18/20	
1152	1.3.2.4.2.2	Create Process Mapping Documentation	17	5 days	Tue 5/12/20	Mon 5/18/20	AC[25%],BA[25%],Impl Mngr[25%],Doc Mngr[25%]
1153	1.3.2.4.2.3	Process Review and Acceptance	1152	10 days	Tue 5/19/20	Tue 6/2/20	AC[25%],BA[25%],Impl Mngr[25%],Doc Mngr[25%],State[25%]
1154	1.3.2.4.2.4	Develop Business Requirements Document	1153	10 days	Wed 6/3/20	Tue 6/16/20	AC[25%],BA[25%],Impl Mngr[25%],Doc Mngr[25%]
1155	1.3.2.4.2.5	Milestone: I-Sight Requirements Complete	1154	0 days	Tue 6/16/20	Tue 6/16/20	
1156	1.3.2.4.3	Milestone: Project 4: i-Sight Upgrade	1155	0 days	Tue 6/16/20	Tue 6/16/20	
1157	**1.3.2.5**	**Project 5: J-SURS Implementation**		**35 days**	**Mon 5/4/20**	**Mon 6/22/20**	
1158	**1.3.2.5.1**	**SDLC Gate Reviews for J-SURS**		**30 days**	**Fri 5/8/20**	**Mon 6/22/20**	
1159	**1.3.2.5.1.1**	**Requirements (iterate, as needed)**		**30 days**	**Fri 5/8/20**	**Mon 6/22/20**	
1160	1.3.2.5.1.1.1	Milestone: Entrance Criteria Met for Requirements Phase	1163	0 days	Fri 5/8/20	Fri 5/8/20	
1161	1.3.2.5.1.1.2	Milestone: Exit Criteria Met for Requirements Phase	1168,1160	0 days	Mon 6/22/20	Mon 6/22/20	
1162	**1.3.2.5.2**	**J-SURS Requirements**		**35 days**	**Mon 5/4/20**	**Mon 6/22/20**	
1163	1.3.2.5.2.1	Milestone: J-SURS Requirements Begin	1164	0 days	Fri 5/8/20	Fri 5/8/20	
1164	1.3.2.5.2.2	Prepare for RAS Sessions	3	5 days	Mon 5/4/20	Fri 5/8/20	AC[25%],Impl Mngr[5%],Data Manager[25%]
1165	1.3.2.5.2.3	Conduct RAS Sessions	1164	10 days	Mon 5/11/20	Fri 5/22/20	Data Manager[25%],AC[25%],Impl Mngr[5%]
1166	1.3.2.5.2.4	Document Requirements Analysis document and Business requirements document	1165	10 days	Tue 5/26/20	Mon 6/8/20	Data Manager[25%],AC[25%]
1167	1.3.2.5.2.5	Client Review Business Requirements	1166	10 days	Tue 6/9/20	Mon 6/22/20	State[20%]
1168	1.3.2.5.2.6	Milestone: J-SURS Requirements Complete	1167,1173	0 days	Mon 6/22/20	Mon 6/22/20	
1169	**1.3.2.5.3**	**Finalize State Customizations**		**5 days**	**Tue 5/26/20**	**Mon 6/1/20**	
1170	1.3.2.5.3.1	Confirm Standard Run Types	1165	5 days	Tue 5/26/20	Mon 6/1/20	AC[10%],Data Manager[10%],State[10%]
1171	1.3.2.5.3.2	Receive confirmed Custom Fields	1165	5 days	Tue 5/26/20	Mon 6/1/20	State[10%],AC[10%],Data Manager[10%]
1172	1.3.2.5.3.3	Receive confirmed Custom Run Types	1165	5 days	Tue 5/26/20	Mon 6/1/20	State[10%],AC[10%],Data Manager[10%]
1173	1.3.2.5.3.4	Milestone: State Customizations Received	1170,1171,1172	0 days	Mon 6/1/20	Mon 6/1/20	
1174	1.3.2.5.4	Milestone: Project 5: J-SURS Implementation Complete	1173,1161,1168	0 days	Mon 6/22/20	Mon 6/22/20	
1175	**1.3.2.6**	**Deliverables**		**273 days**	**Mon 5/4/20**	**Tue 6/1/21**	
1176	**1.3.2.6.1**	**D017 Data Management Plan (including Governance and Quality)**		**71 days**	**Mon 5/18/20**	**Wed 8/26/20**	
1177	**1.3.2.6.1.1**	**Develop DED**		**7 days**	**Mon 5/18/20**	**Wed 5/27/20**	
1178	1.3.2.6.1.1.1	Review deliverable requirements	2FS+10 days	2 days	Mon 5/18/20	Tue 5/19/20	PM[10%],Doc Mngr[50%]
1179	1.3.2.6.1.1.2	Draft DED	1178	3 days	Wed 5/20/20	Fri 5/22/20	PM[10%],Doc Mngr[50%],BA[5%],ETL Engnr[5%],Tech Lead[5%],QA Mngr[5
1180	1.3.2.6.1.1.3	Review DED	1179	1 day	Tue 5/26/20	Tue 5/26/20	PM[10%],Doc Mngr[50%],BA[5%],ETL Engnr[5%],Tech Lead[5%],QA Mngr[5
1181	1.3.2.6.1.1.4	Finalize DED	1180	1 day	Wed 5/27/20	Wed 5/27/20	PM[10%],Doc Mngr[50%],BA[5%],ETL Engnr[5%],Tech Lead[5%],QA Mngr[5
1182	**1.3.2.6.1.2**	**Internally Review DED**		**6 days**	**Thu 5/28/20**	**Thu 6/4/20**	
1183	1.3.2.6.1.2.1	Complete Contract Review	1181	2 days	Thu 5/28/20	Fri 5/29/20	PM[10%]
1184	1.3.2.6.1.2.2	Complete Peer Review	1181	2 days	Thu 5/28/20	Fri 5/29/20	Doc Mngr[10%],Impl Mngr[10%],BA[5%],ETL Engnr[5%],QA Mngr[5%],Tech
1185	1.3.2.6.1.2.3	Complete QA Review	1183,1184	2 days	Mon 6/1/20	Tue 6/2/20	Doc Mngr[25%]
1186	1.3.2.6.1.2.4	Update with feedback	1185	2 days	Wed 6/3/20	Thu 6/4/20	Doc Mngr[10%],Impl Mngr[10%],BA[5%],ETL Engnr[5%],QA Mngr[5%],Tech
1187	1.3.2.6.1.3	Submit for State Review	1186	1 day	Fri 6/5/20	Fri 6/5/20	PM[10%]
1188	1.3.2.6.1.4	State reviews document and provides feedback	1187	3 days	Mon 6/8/20	Wed 6/10/20	State[20%]
1189	**1.3.2.6.1.5**	**DED: Review Cycle (1)**		**4 days**	**Thu 6/11/20**	**Tue 6/16/20**	
1190	1.3.2.6.1.5.1	Update DED with feedback	1188	1 day	Thu 6/11/20	Thu 6/11/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BA[5%],ETL Engnr[5%],Tech Lead[
1191	1.3.2.6.1.5.2	QA review and update	1190	0.5 days	Fri 6/12/20	Fri 6/12/20	Doc Mngr[40%],Impl Mngr[25%],Tech Lead[10%]
1192	1.3.2.6.1.5.3	Resubmit for State Review	1191	0.5 days	Fri 6/12/20	Fri 6/12/20	PM[10%]
1193	1.3.2.6.1.5.4	State reviews	1192	2 days	Mon 6/15/20	Tue 6/16/20	State[20%]
1194	**1.3.2.6.1.6**	**DED: Review Cycle (2)**		**5 days**	**Wed 6/17/20**	**Tue 6/23/20**	
1195	1.3.2.6.1.6.1	Update DED with feedback	1193	1 day	Wed 6/17/20	Wed 6/17/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BA[5%],ETL Engnr[5%],Tech Lead[
1196	1.3.2.6.1.6.2	QA review and update	1195	0.5 days	Thu 6/18/20	Thu 6/18/20	Doc Mngr[40%],Impl Mngr[25%],Tech Lead[10%]
1197	1.3.2.6.1.6.3	Resubmit for State Review	1196	0.5 days	Thu 6/18/20	Thu 6/18/20	PM[10%]
1198	1.3.2.6.1.6.4	State reviews	1197	2 days	Fri 6/19/20	Mon 6/22/20	State[20%]
1199	1.3.2.6.1.6.5	State approves DED	1198	1 day	Tue 6/23/20	Tue 6/23/20	State[20%]
1200	**1.3.2.6.1.7**	**Develop Deliverable**		**13 days**	**Wed 6/24/20**	**Mon 7/13/20**	
1201	1.3.2.6.1.7.1	Create baseline from approved DED	1199	5 days	Wed 6/24/20	Tue 6/30/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BA[5%],ETL Engnr[5%],Tech Lead[
1202	1.3.2.6.1.7.2	Update deliverable	1201	5 days	Wed 7/1/20	Wed 7/8/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BA[5%],ETL Engnr[5%],Tech Lead[
1203	1.3.2.6.1.7.3	Conduct Internal Review	1202	2 days	Thu 7/9/20	Fri 7/10/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BA[5%],ETL Engnr[5%],Tech Lead[
1204	1.3.2.6.1.7.4	Final QA Review/Update of Deliverable	1203	1 day	Mon 7/13/20	Mon 7/13/20	Doc Mngr[40%],Impl Mngr[10%],QA Mngr[10%]
1205	1.3.2.6.1.8	Submit Deliverable for State Review	1204	1 day	Tue 7/14/20	Tue 7/14/20	PM[10%]

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ID	WBS	Task Name	Predecessors	Duration	Start	Finish	Resource Names
1206	1.3.2.6.1.9	State reviews document and provides feedback	1205	10 days	Wed 7/15/20	Tue 7/28/20	State[20%]
1207	**1.3.2.6.1.10**	**Deliverable: Review Cycle (1)**		**10 days**	**Wed 7/29/20**	**Tue 8/11/20**	
1208	1.3.2.6.1.10	Update deliverable with feedback	1206	3 days	Wed 7/29/20	Fri 7/31/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BA[5%],ETL Engnr[5%],Tech Lead[
1209	1.3.2.6.1.10	QA review and update	1208	1.5 days	Mon 8/3/20	Tue 8/4/20	Doc Mngr[40%],Impl Mngr[10%],QA Mngr[10%]
1210	1.3.2.6.1.10	Submit for State approval	1209	0.5 days	Tue 8/4/20	Tue 8/4/20	PM[10%]
1211	1.3.2.6.1.10	State reviews	1210	5 days	Wed 8/5/20	Tue 8/11/20	State[20%]
1212	**1.3.2.6.1.11**	**Deliverable: Review Cycle (2)**		**10 days**	**Wed 8/12/20**	**Tue 8/25/20**	
1213	1.3.2.6.1.11	Update deliverable with feedback	1211	3 days	Wed 8/12/20	Fri 8/14/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BA[5%],ETL Engnr[5%],Tech Lead[
1214	1.3.2.6.1.11	QA review and update	1213	1.5 days	Mon 8/17/20	Tue 8/18/20	Doc Mngr[40%],Impl Mngr[10%],QA Mngr[10%]
1215	1.3.2.6.1.11	Submit for State approval	1214	0.5 days	Tue 8/18/20	Tue 8/18/20	PM[10%]
1216	1.3.2.6.1.11	State reviews	1215	5 days	Wed 8/19/20	Tue 8/25/20	State[20%]
1217	1.3.2.6.1.12	State Provides Final Approval	1216	1 day	Wed 8/26/20	Wed 8/26/20	State[20%]
1218	1.3.2.6.1.13	Milestone: Data Management Plan Approved	1217	0 days	Wed 8/26/20	Wed 8/26/20	
1219	**1.3.2.6.2**	**D018 Incident Management Plan**		**71 days**	**Mon 5/18/20**	**Wed 8/26/20**	
1220	**1.3.2.6.2.1**	**Develop DED**		**7 days**	**Mon 5/18/20**	**Wed 5/27/20**	
1221	1.3.2.6.2.1.1	Review deliverable requirements	2FS+10 days	2 days	Mon 5/18/20	Tue 5/19/20	PM[10%],Doc Mngr[50%]
1222	1.3.2.6.2.1.2	Draft DED for Plan & Incident Register Template	1221	3 days	Wed 5/20/20	Fri 5/22/20	PM[10%],Doc Mngr[50%],Impl Mngr[10%]
1223	1.3.2.6.2.1.3	Review DED	1222	1 day	Tue 5/26/20	Tue 5/26/20	PM[10%],Doc Mngr[50%],Impl Mngr[10%]
1224	1.3.2.6.2.1.4	Finalize DED	1223	1 day	Wed 5/27/20	Wed 5/27/20	PM[10%],Doc Mngr[50%],Impl Mngr[10%]
1225	**1.3.2.6.2.2**	**Internally Review DED**		**6 days**	**Thu 5/28/20**	**Thu 6/4/20**	
1226	1.3.2.6.2.2.1	Complete Contract Review	1224	2 days	Thu 5/28/20	Fri 5/29/20	PM[10%]
1227	1.3.2.6.2.2.2	Complete Peer Review	1224	2 days	Thu 5/28/20	Fri 5/29/20	Doc Mngr[10%],Impl Mngr[10%],Acct Mngr[10%]
1228	1.3.2.6.2.2.3	Complete QA Review	1226,1227	2 days	Mon 6/1/20	Tue 6/2/20	Doc Mngr[25%]
1229	1.3.2.6.2.2.4	Update with feedback	1228	2 days	Wed 6/3/20	Thu 6/4/20	Doc Mngr[10%],Impl Mngr[10%],Acct Mngr[10%]
1230	1.3.2.6.2.3	Submit for State Review	1229	1 day	Fri 6/5/20	Fri 6/5/20	PM[10%]
1231	1.3.2.6.2.4	State reviews document and provides feedback	1230	3 days	Mon 6/8/20	Wed 6/10/20	State[20%]
1232	**1.3.2.6.2.5**	**DED: Review Cycle (1)**		**4 days**	**Thu 6/11/20**	**Tue 6/16/20**	
1233	1.3.2.6.2.5.1	Update DED with feedback	1231	1 day	Thu 6/11/20	Thu 6/11/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
1234	1.3.2.6.2.5.2	QA review and update	1233	0.5 days	Fri 6/12/20	Fri 6/12/20	Doc Mngr[40%],Impl Mngr[25%]
1235	1.3.2.6.2.5.3	Resubmit for State Review	1234	0.5 days	Fri 6/12/20	Fri 6/12/20	PM[10%]
1236	1.3.2.6.2.5.4	State reviews	1235	2 days	Mon 6/15/20	Tue 6/16/20	State[20%]
1237	**1.3.2.6.2.6**	**DED: Review Cycle (2)**		**5 days**	**Wed 6/17/20**	**Tue 6/23/20**	
1238	1.3.2.6.2.6.1	Update DED with feedback	1236	1 day	Wed 6/17/20	Wed 6/17/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
1239	1.3.2.6.2.6.2	QA review and update	1238	0.5 days	Thu 6/18/20	Thu 6/18/20	Doc Mngr[40%],Impl Mngr[25%]
1240	1.3.2.6.2.6.3	Resubmit for State Review	1239	0.5 days	Thu 6/18/20	Thu 6/18/20	PM[10%]
1241	1.3.2.6.2.6.4	State reviews	1240	2 days	Fri 6/19/20	Mon 6/22/20	State[20%]
1242	1.3.2.6.2.6.5	State approves DED	1241	1 day	Tue 6/23/20	Tue 6/23/20	State[20%]
1243	**1.3.2.6.2.7**	**Develop Deliverable**		**13 days**	**Wed 6/24/20**	**Mon 7/13/20**	
1244	1.3.2.6.2.7.1	Create baseline from approved DED	1242	5 days	Wed 6/24/20	Tue 6/30/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
1245	1.3.2.6.2.7.2	Update deliverable	1244	5 days	Wed 7/1/20	Wed 7/8/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
1246	1.3.2.6.2.7.3	Conduct Internal Review	1245	2 days	Thu 7/9/20	Fri 7/10/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
1247	1.3.2.6.2.7.4	Final QA Review/Update of Deliverable	1246	1 day	Mon 7/13/20	Mon 7/13/20	Doc Mngr[40%],Impl Mngr[25%]
1248	1.3.2.6.2.8	Submit Deliverable for State Review	1247	1 day	Tue 7/14/20	Tue 7/14/20	PM[10%]
1249	1.3.2.6.2.9	State reviews document and provides feedback	1248	10 days	Wed 7/15/20	Tue 7/28/20	State[20%]
1250	**1.3.2.6.2.10**	**Deliverable: Review Cycle (1)**		**10 days**	**Wed 7/29/20**	**Tue 8/11/20**	
1251	1.3.2.6.2.10	Update deliverable with feedback	1249	3 days	Wed 7/29/20	Fri 7/31/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
1252	1.3.2.6.2.10	QA review and update	1251	1.5 days	Mon 8/3/20	Tue 8/4/20	Doc Mngr[40%],Impl Mngr[25%]
1253	1.3.2.6.2.10	Submit for State approval	1252	0.5 days	Tue 8/4/20	Tue 8/4/20	PM[10%]
1254	1.3.2.6.2.10	State reviews	1253	5 days	Wed 8/5/20	Tue 8/11/20	State[20%]
1255	**1.3.2.6.2.11**	**Deliverable: Review Cycle (2)**		**10 days**	**Wed 8/12/20**	**Tue 8/25/20**	
1256	1.3.2.6.2.11	Update deliverable with feedback	1254	3 days	Wed 8/12/20	Fri 8/14/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
1257	1.3.2.6.2.11	QA review and update	1256	1.5 days	Mon 8/17/20	Tue 8/18/20	Doc Mngr[40%],Impl Mngr[25%]
1258	1.3.2.6.2.11	Submit for State approval	1257	0.5 days	Tue 8/18/20	Tue 8/18/20	PM[10%]
1259	1.3.2.6.2.11	State reviews	1258	5 days	Wed 8/19/20	Tue 8/25/20	State[20%]
1260	1.3.2.6.2.12	State Provides Final Approval	1259	1 day	Wed 8/26/20	Wed 8/26/20	State[20%]
1261	1.3.2.6.2.13	Milestone: Incident Management Plan Approved	1260	0 days	Wed 8/26/20	Wed 8/26/20	
1262	**1.3.2.6.3**	**D019 Master Test Plan (Testing Management Plan)**		**257.5 days**	**Mon 5/4/20**	**Mon 5/10/21**	
1263	**1.3.2.6.3.1**	**Develop DED**		**7 days**	**Mon 5/4/20**	**Tue 5/12/20**	
1264	1.3.2.6.3.1.1	Review deliverable requirements	2	2 days	Mon 5/4/20	Tue 5/5/20	PM[10%],Doc Mngr[50%]
1265	1.3.2.6.3.1.2	Draft DED	1264	3 days	Wed 5/6/20	Fri 5/8/20	PM[10%],Doc Mngr[50%],BA[5%],ETL Engnr[5%],Tech Lead[5%],QA Mngr[
1266	1.3.2.6.3.1.3	Review DED	1265	1 day	Mon 5/11/20	Mon 5/11/20	PM[10%],Doc Mngr[50%],BA[5%],ETL Engnr[5%],Tech Lead[5%],QA Mngr[
1267	1.3.2.6.3.1.4	Finalize DED	1266	1 day	Tue 5/12/20	Tue 5/12/20	PM[10%],Doc Mngr[50%],BA[5%],ETL Engnr[5%],Tech Lead[5%],QA Mngr[
1268	**1.3.2.6.3.2**	**Internally Review DED**		**6 days**	**Wed 5/13/20**	**Wed 5/20/20**	
1269	1.3.2.6.3.2.1	Complete Contract Review	1267	2 days	Wed 5/13/20	Thu 5/14/20	PM[10%]
1270	1.3.2.6.3.2.2	Complete Peer Review	1267	2 days	Wed 5/13/20	Thu 5/14/20	Doc Mngr[10%],Impl Mngr[10%],BA[5%],ETL Engnr[5%],QA Mngr[5%],Tech
1271	1.3.2.6.3.2.3	Complete QA Review	1269,1270	2 days	Fri 5/15/20	Mon 5/18/20	Doc Mngr[25%]
1272	1.3.2.6.3.2.4	Update with feedback	1271	2 days	Tue 5/19/20	Wed 5/20/20	Doc Mngr[10%],Impl Mngr[10%],BA[5%],ETL Engnr[5%],QA Mngr[5%],Tech

ID	WBS	Task Name	Predecessors	Duration	Start	Finish	Resource Names
1273	1.3.2.6.3.3	Submit for State Review	1272	1 day	Thu 5/21/20	Thu 5/21/20	PM[10%]
1274	1.3.2.6.3.4	State reviews document and provides feedback	1273	3 days	Fri 5/22/20	Wed 5/27/20	State[20%]
1275	**1.3.2.6.3.5**	**DED: Review Cycle (1)**		**4 days**	**Thu 5/28/20**	**Tue 6/2/20**	
1276	1.3.2.6.3.5.1	Update DED with feedback	1274	1 day	Thu 5/28/20	Thu 5/28/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BA[5%],ETL Engnr[5%],Tech Lead[
1277	1.3.2.6.3.5.2	QA review and update	1276	0.5 days	Fri 5/29/20	Fri 5/29/20	Doc Mngr[40%],Impl Mngr[25%],Tech Lead[10%]
1278	1.3.2.6.3.5.3	Resubmit for State Review	1277	0.5 days	Fri 5/29/20	Fri 5/29/20	PM[10%]
1279	1.3.2.6.3.5.4	State reviews	1278	2 days	Mon 6/1/20	Tue 6/2/20	State[20%]
1280	**1.3.2.6.3.6**	**DED: Review Cycle (2)**		**5 days**	**Wed 6/3/20**	**Tue 6/9/20**	
1281	1.3.2.6.3.6.1	Update DED with feedback	1279	1 day	Wed 6/3/20	Wed 6/3/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BA[5%],ETL Engnr[5%],Tech Lead[
1282	1.3.2.6.3.6.2	QA review and update	1281	0.5 days	Thu 6/4/20	Thu 6/4/20	Doc Mngr[40%],Impl Mngr[25%],Tech Lead[10%]
1283	1.3.2.6.3.6.3	Resubmit for State Review	1282	0.5 days	Thu 6/4/20	Thu 6/4/20	PM[10%]
1284	1.3.2.6.3.6.4	State reviews	1283	2 days	Fri 6/5/20	Mon 6/8/20	State[20%]
1285	1.3.2.6.3.6.5	State approves DED	1284	1 day	Tue 6/9/20	Tue 6/9/20	State[20%]
1286	**1.3.2.6.3.7**	**Create Preliminary Version: Test Plan**		**45 days**	**Wed 6/10/20**	**Wed 8/12/20**	
1287	**1.3.2.6.3.7.1**	**Create Deliverable**		**13 days**	**Wed 6/10/20**	**Fri 6/26/20**	
1288	1.3.2.6.3.7.1.1	Create baseline from approved DED	1285	5 days	Wed 6/10/20	Tue 6/16/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BA[5%],ETL Engnr[5%],Tech Lead[
1289	1.3.2.6.3.7.1.2	Update deliverable	1288	5 days	Wed 6/17/20	Tue 6/23/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BA[5%],ETL Engnr[5%],Tech Lead[
1290	1.3.2.6.3.7.1.3	Conduct Internal Review	1289	2 days	Wed 6/24/20	Thu 6/25/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BA[5%],ETL Engnr[5%],Tech Lead[
1291	1.3.2.6.3.7.1.4	Final QA Review/Update of Deliverable	1290	1 day	Fri 6/26/20	Fri 6/26/20	Doc Mngr[40%],Impl Mngr[10%],QA Mngr[10%]
1292	1.3.2.6.3.7.2	Submit Deliverable for State Review	1291	1 day	Mon 6/29/20	Mon 6/29/20	PM[10%]
1293	1.3.2.6.3.7.3	State reviews document and provides feedback	1292	10 days	Tue 6/30/20	Tue 7/14/20	State[20%]
1294	**1.3.2.6.3.7.4**	**Deliverable: Review Cycle (1)**		**10 days**	**Wed 7/15/20**	**Tue 7/28/20**	
1295	1.3.2.6.3.7.4.1	Update deliverable with feedback	1293	3 days	Wed 7/15/20	Fri 7/17/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BA[5%],ETL Engnr[5%],Tech Lead[
1296	1.3.2.6.3.7.4.2	QA review and update	1295	1.5 days	Mon 7/20/20	Tue 7/21/20	Doc Mngr[40%],Impl Mngr[10%],QA Mngr[10%]
1297	1.3.2.6.3.7.4.3	Submit for State approval	1296	0.5 days	Tue 7/21/20	Tue 7/21/20	PM[10%]
1298	1.3.2.6.3.7.4.4	State reviews	1297	5 days	Wed 7/22/20	Tue 7/28/20	State[20%]
1299	**1.3.2.6.3.7.5**	**Deliverable: Review Cycle (2)**		**10 days**	**Wed 7/29/20**	**Tue 8/11/20**	
1300	1.3.2.6.3.7.5.1	Update deliverable with feedback	1298	3 days	Wed 7/29/20	Fri 7/31/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BA[5%],ETL Engnr[5%],Tech Lead[
1301	1.3.2.6.3.7.5.2	QA review and update	1300	1.5 days	Mon 8/3/20	Tue 8/4/20	Doc Mngr[40%],Impl Mngr[10%],QA Mngr[10%]
1302	1.3.2.6.3.7.5.3	Submit for State approval	1301	0.5 days	Tue 8/4/20	Tue 8/4/20	PM[10%]
1303	1.3.2.6.3.7.5.4	State reviews	1302	5 days	Wed 8/5/20	Tue 8/11/20	State[20%]
1304	1.3.2.6.3.7.6	State Provides Final Approval	1303	1 day	Wed 8/12/20	Wed 8/12/20	State[20%]
1305	1.3.2.6.3.7.7	Milestone: Test Plan Approved	1304	0 days	Wed 8/12/20	Wed 8/12/20	
1306	**1.3.2.6.3.8**	**Update: Test Plan**		**39.5 days**	**Tue 11/3/20**	**Mon 1/4/21**	
1307	**1.3.2.6.3.8.1**	**Update Deliverable**		**8 days**	**Tue 11/3/20**	**Thu 11/12/20**	
1308	1.3.2.6.3.8.1.1	Update Test Plan	2865,1305	5 days	Tue 11/3/20	Mon 11/9/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BA[5%],ETL Engnr[5%],Tech Lead[
1309	1.3.2.6.3.8.1.2	Conduct Internal Review	1308	2 days	Tue 11/10/20	Wed 11/11/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BA[5%],ETL Engnr[5%],Tech Lead[
1310	1.3.2.6.3.8.1.3	Final QA Review/Update of Deliverable	1309	1 day	Thu 11/12/20	Thu 11/12/20	Doc Mngr[40%],Impl Mngr[10%],QA Mngr[10%]
1311	1.3.2.6.3.8.2	Submit Deliverable for State Review	1310	0.5 days	Fri 11/13/20	Fri 11/13/20	PM[10%]
1312	1.3.2.6.3.8.3	State reviews document and provides feedback	1311	10 days	Fri 11/13/20	Tue 12/1/20	State[20%]
1313	**1.3.2.6.3.8.4**	**Deliverable: Review Cycle (1)**		**10 days**	**Tue 12/1/20**	**Tue 12/15/20**	
1314	1.3.2.6.3.8.4.1	Update deliverable with feedback	1312	3 days	Tue 12/1/20	Fri 12/4/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BA[5%],ETL Engnr[5%],Tech Lead[
1315	1.3.2.6.3.8.4.2	QA review and update	1314	1.5 days	Fri 12/4/20	Mon 12/7/20	Doc Mngr[40%],Impl Mngr[10%],QA Mngr[10%]
1316	1.3.2.6.3.8.4.3	Submit for State approval	1315	0.5 days	Tue 12/8/20	Tue 12/8/20	PM[10%]
1317	1.3.2.6.3.8.4.4	State reviews	1316	5 days	Tue 12/8/20	Tue 12/15/20	State[20%]
1318	**1.3.2.6.3.8.5**	**Deliverable: Review Cycle (2)**		**10 days**	**Tue 12/15/20**	**Thu 12/31/20**	
1319	1.3.2.6.3.8.5.1	Update deliverable with feedback	1317	3 days	Tue 12/15/20	Fri 12/18/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BA[5%],ETL Engnr[5%],Tech Lead[
1320	1.3.2.6.3.8.5.2	QA review and update	1319	1.5 days	Fri 12/18/20	Mon 12/21/20	Doc Mngr[40%],Impl Mngr[10%],QA Mngr[10%]
1321	1.3.2.6.3.8.5.3	Submit for State approval	1320	0.5 days	Tue 12/22/20	Tue 12/22/20	PM[10%]
1322	1.3.2.6.3.8.5.4	State reviews	1321	5 days	Tue 12/22/20	Thu 12/31/20	State[20%]
1323	1.3.2.6.3.8.6	State Provides Final Approval	1322	1 day	Thu 12/31/20	Mon 1/4/21	PM[10%]
1324	1.3.2.6.3.8.7	Milestone: Test Plan Approved	1323	0 days	Mon 1/4/21	Mon 1/4/21	State[20%]
1325	**1.3.2.6.3.9**	**Finalize: Test Plan**		**39.5 days**	**Tue 3/16/21**	**Mon 5/10/21**	
1326	**1.3.2.6.3.9.1**	**Finalize Deliverable**		**8 days**	**Tue 3/16/21**	**Thu 3/25/21**	
1327	1.3.2.6.3.9.1.1	Update Test Plan	4083FF-15 days,1	5 days	Tue 3/16/21	Mon 3/22/21	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BA[5%],ETL Engnr[5%],Tech Lead[
1328	1.3.2.6.3.9.1.2	Conduct Internal Review	1327	2 days	Tue 3/23/21	Wed 3/24/21	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BA[5%],ETL Engnr[5%],Tech Lead[
1329	1.3.2.6.3.9.1.3	Final QA Review/Update of Deliverable	1328	1 day	Thu 3/25/21	Thu 3/25/21	Doc Mngr[40%],Impl Mngr[10%],QA Mngr[10%]
1330	1.3.2.6.3.9.2	Submit Deliverable for State Review	1329	0.5 days	Fri 3/26/21	Fri 3/26/21	PM[10%]
1331	1.3.2.6.3.9.3	State reviews document and provides feedback	1330	10 days	Fri 3/26/21	Fri 4/9/21	State[20%]
1332	**1.3.2.6.3.9.4**	**Deliverable: Review Cycle (1)**		**10 days**	**Fri 4/9/21**	**Fri 4/23/21**	
1333	1.3.2.6.3.9.4.1	Update deliverable with feedback	1331	3 days	Fri 4/9/21	Wed 4/14/21	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BA[5%],ETL Engnr[5%],Tech Lead[
1334	1.3.2.6.3.9.4.2	QA review and update	1333	1.5 days	Wed 4/14/21	Thu 4/15/21	Doc Mngr[40%],Impl Mngr[10%],QA Mngr[10%]
1335	1.3.2.6.3.9.4.3	Submit for State approval	1334	0.5 days	Fri 4/16/21	Fri 4/16/21	PM[10%]
1336	1.3.2.6.3.9.4.4	State reviews	1335	5 days	Fri 4/16/21	Fri 4/23/21	State[20%]
1337	**1.3.2.6.3.9.5**	**Deliverable: Review Cycle (2)**		**10 days**	**Fri 4/23/21**	**Fri 5/7/21**	
1338	1.3.2.6.3.9.5.1	Update deliverable with feedback	1336	3 days	Fri 4/23/21	Wed 4/28/21	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BA[5%],ETL Engnr[5%],Tech Lead[
1339	1.3.2.6.3.9.5.2	QA review and update	1338	1.5 days	Wed 4/28/21	Thu 4/29/21	Doc Mngr[40%],Impl Mngr[10%],QA Mngr[10%]

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ID	WBS	Task Name	Predecessors	Duration	Start	Finish	Resource Names
1340	1.3.2.6.3.9.5	Submit for State approval	1339	0.5 days	Fri 4/30/21	Fri 4/30/21	PM[10%]
1341	1.3.2.6.3.9.5	State reviews	1340	5 days	Fri 4/30/21	Fri 5/7/21	State[20%]
1342	1.3.2.6.3.9.6	State Provides Final Approval	1341	1 day	Fri 5/7/21	Mon 5/10/21	PM[10%]
1343	1.3.2.6.3.10	Milestone: Finalized Test Plan Approved	1342	0 days	Mon 5/10/21	Mon 5/10/21	State[20%]
1344	**1.3.2.6.4**	**D020 Privacy Impact Analysis**		**71 days**	**Mon 5/4/20**	**Wed 8/12/20**	
1345	**1.3.2.6.4.1**	**Develop DED**		**7 days**	**Mon 5/4/20**	**Tue 5/12/20**	
1346	1.3.2.6.4.1.1	Review deliverable requirements	2	2 days	Mon 5/4/20	Tue 5/5/20	PM[10%],Doc Mngr[50%]
1347	1.3.2.6.4.1.2	Draft DED	1346	3 days	Wed 5/6/20	Fri 5/8/20	PM[10%],Doc Mngr[50%],Impl Mngr[5%],Info Sec Arch[5%]
1348	1.3.2.6.4.1.3	Review DED	1347	1 day	Mon 5/11/20	Mon 5/11/20	PM[10%],Doc Mngr[50%],Impl Mngr[5%],Info Sec Arch[5%]
1349	1.3.2.6.4.1.4	Finalize DED	1348	1 day	Tue 5/12/20	Tue 5/12/20	PM[10%],Doc Mngr[50%],Impl Mngr[5%],Info Sec Arch[5%]
1350	**1.3.2.6.4.2**	**Internally Review DED**		**6 days**	**Wed 5/13/20**	**Wed 5/20/20**	
1351	1.3.2.6.4.2.1	Complete Contract Review	1349	2 days	Wed 5/13/20	Thu 5/14/20	PM[10%]
1352	1.3.2.6.4.2.2	Complete Peer Review	1349	2 days	Wed 5/13/20	Thu 5/14/20	Doc Mngr[10%],Impl Mngr[5%],Acct Mngr[5%],Info Sec Arch[5%]
1353	1.3.2.6.4.2.3	Complete QA Review	1351,1352	2 days	Fri 5/15/20	Mon 5/18/20	Doc Mngr[25%]
1354	1.3.2.6.4.2.4	Update with feedback	1353	2 days	Tue 5/19/20	Wed 5/20/20	Doc Mngr[10%],Impl Mngr[5%],Acct Mngr[5%],Info Sec Arch[5%]
1355	1.3.2.6.4.3	Submit for State Review	1354	1 day	Thu 5/21/20	Thu 5/21/20	PM[10%]
1356	1.3.2.6.4.4	State reviews document and provides feedback	1355	3 days	Fri 5/22/20	Wed 5/27/20	State[20%]
1357	**1.3.2.6.4.5**	**DED: Review Cycle (1)**		**4 days**	**Thu 5/28/20**	**Tue 6/2/20**	
1358	1.3.2.6.4.5.1	Update DED with feedback	1356	1 day	Thu 5/28/20	Thu 5/28/20	PM[5%],Doc Mngr[10%],Info Sec Arch[10%]
1359	1.3.2.6.4.5.2	QA review and update	1358	0.5 days	Fri 5/29/20	Fri 5/29/20	Doc Mngr[40%],Impl Mngr[10%],Info Sec Arch[10%]
1360	1.3.2.6.4.5.3	Resubmit for State Review	1359	0.5 days	Fri 5/29/20	Fri 5/29/20	PM[10%]
1361	1.3.2.6.4.5.4	State reviews	1360	2 days	Mon 6/1/20	Tue 6/2/20	State[20%]
1362	**1.3.2.6.4.6**	**DED: Review Cycle (2)**		**5 days**	**Wed 6/3/20**	**Tue 6/9/20**	
1363	1.3.2.6.4.6.1	Update DED with feedback	1361	1 day	Wed 6/3/20	Wed 6/3/20	PM[5%],Doc Mngr[10%],Info Sec Arch[10%]
1364	1.3.2.6.4.6.2	QA review and update	1363	0.5 days	Thu 6/4/20	Thu 6/4/20	Doc Mngr[40%],Impl Mngr[10%],Info Sec Arch[10%]
1365	1.3.2.6.4.6.3	Resubmit for State Review	1364	0.5 days	Thu 6/4/20	Thu 6/4/20	PM[10%]
1366	1.3.2.6.4.6.4	State reviews	1365	2 days	Fri 6/5/20	Mon 6/8/20	State[20%]
1367	1.3.2.6.4.6.5	State approves DED	1366	1 day	Tue 6/9/20	Tue 6/9/20	State[20%]
1368	**1.3.2.6.4.7**	**Develop Deliverable**		**13 days**	**Wed 6/10/20**	**Fri 6/26/20**	
1369	1.3.2.6.4.7.1	Create baseline from approved DED	1367	5 days	Wed 6/10/20	Tue 6/16/20	PM[5%],Doc Mngr[10%],Info Sec Arch[10%]
1370	1.3.2.6.4.7.2	Update deliverable	1369	5 days	Wed 6/17/20	Tue 6/23/20	PM[5%],Doc Mngr[10%],Info Sec Arch[10%]
1371	1.3.2.6.4.7.3	Conduct Internal Review	1370	2 days	Wed 6/24/20	Thu 6/25/20	PM[5%],Doc Mngr[10%],Info Sec Arch[10%]
1372	1.3.2.6.4.7.4	Final QA Review/Update of Deliverable	1371	1 day	Fri 6/26/20	Fri 6/26/20	Doc Mngr[40%],Impl Mngr[10%],Info Sec Arch[10%]
1373	1.3.2.6.4.8	Submit Deliverable for State Review	1372	1 day	Mon 6/29/20	Mon 6/29/20	PM[10%]
1374	1.3.2.6.4.9	State reviews document and provides feedback	1373	10 days	Tue 6/30/20	Tue 7/14/20	State[20%]
1375	**1.3.2.6.4.10**	**Deliverable: Review Cycle (1)**		**10 days**	**Wed 7/15/20**	**Tue 7/28/20**	
1376	1.3.2.6.4.10.	Update deliverable with feedback	1374	3 days	Wed 7/15/20	Fri 7/17/20	PM[5%],Doc Mngr[10%],Info Sec Arch[10%]
1377	1.3.2.6.4.10.	QA review and update	1376	1.5 days	Mon 7/20/20	Tue 7/21/20	Doc Mngr[40%],Impl Mngr[10%],Info Sec Arch[10%]
1378	1.3.2.6.4.10.	Submit for State approval	1377	0.5 days	Tue 7/21/20	Tue 7/21/20	PM[10%]
1379	1.3.2.6.4.10.	State reviews	1378	5 days	Wed 7/22/20	Tue 7/28/20	State[20%]
1380	**1.3.2.6.4.11**	**Deliverable: Review Cycle (2)**		**10 days**	**Wed 7/29/20**	**Tue 8/11/20**	
1381	1.3.2.6.4.11	Update deliverable with feedback	1379	3 days	Wed 7/29/20	Fri 7/31/20	PM[5%],Doc Mngr[10%],Info Sec Arch[10%]
1382	1.3.2.6.4.11.	QA review and update	1381	1.5 days	Mon 8/3/20	Tue 8/4/20	Doc Mngr[40%],Impl Mngr[10%],Info Sec Arch[10%]
1383	1.3.2.6.4.11.	Submit for State approval	1382	0.5 days	Tue 8/4/20	Tue 8/4/20	PM[10%]
1384	1.3.2.6.4.11.	State reviews	1383	5 days	Wed 8/5/20	Tue 8/11/20	State[20%]
1385	1.3.2.6.4.12	State Provides Final Approval	1384	1 day	Wed 8/12/20	Wed 8/12/20	State[20%]
1386	1.3.2.6.4.13	Milestone: Privacy Impact Analysis Approved	1385	0 days	Wed 8/12/20	Wed 8/12/20	
1387	**1.3.2.6.5**	**D021 Requirements Gap Analysis Document**		**71 days**	**Mon 5/4/20**	**Wed 8/12/20**	
1388	**1.3.2.6.5.1**	**Develop DED**		**7 days**	**Mon 5/4/20**	**Tue 5/12/20**	
1389	1.3.2.6.5.1.1	Review deliverable requirements	2	2 days	Mon 5/4/20	Tue 5/5/20	PM[10%],Doc Mngr[50%]
1390	1.3.2.6.5.1.2	Draft DED	1389	3 days	Wed 5/6/20	Fri 5/8/20	PM[10%],Doc Mngr[50%],Impl Mngr[5%],BA[5%],Acct Mngr[5%]
1391	1.3.2.6.5.1.3	Review DED	1390	1 day	Mon 5/11/20	Mon 5/11/20	PM[10%],Doc Mngr[50%],Impl Mngr[5%],BA[5%],Acct Mngr[5%]
1392	1.3.2.6.5.1.4	Finalize DED	1391	1 day	Tue 5/12/20	Tue 5/12/20	PM[10%],Doc Mngr[50%],Impl Mngr[5%],BA[5%],Acct Mngr[5%]
1393	**1.3.2.6.5.2**	**Internally Review DED**		**6 days**	**Wed 5/13/20**	**Wed 5/20/20**	
1394	1.3.2.6.5.2.1	Complete Contract Review	1392	2 days	Wed 5/13/20	Thu 5/14/20	PM[10%]
1395	1.3.2.6.5.2.2	Complete Peer Review	1392	2 days	Wed 5/13/20	Thu 5/14/20	Doc Mngr[10%],Impl Mngr[5%],Acct Mngr[5%],BA[5%]
1396	1.3.2.6.5.2.3	Complete QA Review	1394,1395	2 days	Fri 5/15/20	Mon 5/18/20	Doc Mngr[25%]
1397	1.3.2.6.5.2.4	Update with feedback	1396	2 days	Tue 5/19/20	Wed 5/20/20	Doc Mngr[10%],Impl Mngr[5%],Acct Mngr[5%],BA[5%]
1398	1.3.2.6.5.3	Submit for State Review	1397	1 day	Thu 5/21/20	Thu 5/21/20	PM[10%]
1399	1.3.2.6.5.4	State reviews document and provides feedback	1398	3 days	Fri 5/22/20	Wed 5/27/20	State[20%]
1400	**1.3.2.6.5.5**	**DED: Review Cycle (1)**		**4 days**	**Thu 5/28/20**	**Tue 6/2/20**	
1401	1.3.2.6.5.5.1	Update DED with feedback	1399	1 day	Thu 5/28/20	Thu 5/28/20	PM[5%],Doc Mngr[10%],Acct Mngr[10%],Impl Mngr[10%]
1402	1.3.2.6.5.5.2	QA review and update	1401	0.5 days	Fri 5/29/20	Fri 5/29/20	Doc Mngr[40%],Impl Mngr[10%],BA[10%],Acct Mngr[10%]
1403	1.3.2.6.5.5.3	Resubmit for State Review	1402	0.5 days	Fri 5/29/20	Fri 5/29/20	PM[10%]
1404	1.3.2.6.5.5.4	State reviews	1403	2 days	Mon 6/1/20	Tue 6/2/20	State[20%]
1405	**1.3.2.6.5.6**	**DED: Review Cycle (2)**		**5 days**	**Wed 6/3/20**	**Tue 6/9/20**	
1406	1.3.2.6.5.6.1	Update DED with feedback	1404	1 day	Wed 6/3/20	Wed 6/3/20	PM[5%],Doc Mngr[10%],Acct Mngr[10%],Impl Mngr[10%]

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ID	WBS	Task Name	Predecessors	Duration	Start	Finish	Resource Names
1407	1.3.2.6.5.6.2	QA review and update	1406	0.5 days	Thu 6/4/20	Thu 6/4/20	Doc Mngr[40%],Impl Mngr[10%],BA[10%],Acct Mngr[10%]
1408	1.3.2.6.5.6.3	Resubmit for State Review	1407	0.5 days	Thu 6/4/20	Thu 6/4/20	PM[10%]
1409	1.3.2.6.5.6.4	State reviews	1408	2 days	Fri 6/5/20	Mon 6/8/20	State[20%]
1410	1.3.2.6.5.6.5	State approves DED	1409	1 day	Tue 6/9/20	Tue 6/9/20	State[20%]
1411	**1.3.2.6.5.7**	**Develop Deliverable**		**13 days**	**Wed 6/10/20**	**Fri 6/26/20**	
1412	1.3.2.6.5.7.1	Create baseline from approved DED	1410	5 days	Wed 6/10/20	Tue 6/16/20	PM[5%],Doc Mngr[10%],Acct Mngr[10%],Impl Mngr[10%]
1413	1.3.2.6.5.7.2	Update deliverable	1412	5 days	Wed 6/17/20	Tue 6/23/20	PM[5%],Doc Mngr[10%],Acct Mngr[10%],Impl Mngr[10%]
1414	1.3.2.6.5.7.3	Conduct Internal Review	1413	2 days	Wed 6/24/20	Thu 6/25/20	PM[5%],Doc Mngr[10%],Acct Mngr[10%],Impl Mngr[10%]
1415	1.3.2.6.5.7.4	Final QA Review/Update of Deliverable	1414	1 day	Fri 6/26/20	Fri 6/26/20	Doc Mngr[40%],Impl Mngr[10%],BA[10%],Acct Mngr[10%]
1416	1.3.2.6.5.8	Submit Deliverable for State Review	1415	1 day	Mon 6/29/20	Mon 6/29/20	PM[10%]
1417	1.3.2.6.5.9	State reviews document and provides feedback	1416	10 days	Tue 6/30/20	Tue 7/14/20	State[20%]
1418	**1.3.2.6.5.10**	**Deliverable: Review Cycle (1)**		**10 days**	**Wed 7/15/20**	**Tue 7/28/20**	
1419	1.3.2.6.5.10	Update deliverable with feedback	1417	3 days	Wed 7/15/20	Fri 7/17/20	PM[5%],Doc Mngr[10%],Acct Mngr[10%],Impl Mngr[10%]
1420	1.3.2.6.5.10	QA review and update	1419	1.5 days	Mon 7/20/20	Tue 7/21/20	Doc Mngr[40%],Impl Mngr[10%],BA[10%],Acct Mngr[10%]
1421	1.3.2.6.5.10	Submit for State approval	1420	0.5 days	Tue 7/21/20	Tue 7/21/20	PM[10%]
1422	1.3.2.6.5.10	State reviews	1421	5 days	Wed 7/22/20	Tue 7/28/20	State[20%]
1423	**1.3.2.6.5.11**	**Deliverable: Review Cycle (2)**		**10 days**	**Wed 7/29/20**	**Tue 8/11/20**	
1424	1.3.2.6.5.11	Update deliverable with feedback	1422	3 days	Wed 7/29/20	Fri 7/31/20	PM[5%],Doc Mngr[10%],Acct Mngr[10%],Impl Mngr[10%]
1425	1.3.2.6.5.11	QA review and update	1424	1.5 days	Mon 8/3/20	Tue 8/4/20	Doc Mngr[40%],Impl Mngr[10%],BA[10%],Acct Mngr[10%]
1426	1.3.2.6.5.11	Submit for State approval	1425	0.5 days	Tue 8/4/20	Tue 8/4/20	PM[10%]
1427	1.3.2.6.5.11	State reviews	1426	5 days	Wed 8/5/20	Tue 8/11/20	State[20%]
1428	1.3.2.6.5.12	State Provides Final Approval	1422,1427	1 day	Wed 8/12/20	Wed 8/12/20	State[20%]
1429	1.3.2.6.5.13	Milestone: Requirements Gap Analysis Document Approved	1428	0 days	Wed 8/12/20	Wed 8/12/20	
1430	**1.3.2.6.6**	**D022 Requirements Management Plan**		**83 days**	**Mon 5/4/20**	**Fri 8/28/20**	
1431	**1.3.2.6.6.1**	**Develop DED**		**7 days**	**Mon 5/4/20**	**Tue 5/12/20**	
1432	1.3.2.6.6.1.1	Review deliverable requirements	2	2 days	Mon 5/4/20	Tue 5/5/20	PM[10%],Doc Mngr[50%]
1433	1.3.2.6.6.1.2	Draft DED	1432	3 days	Wed 5/6/20	Fri 5/8/20	PM[10%],Doc Mngr[50%],BA[10%]
1434	1.3.2.6.6.1.3	Review DED	1433	1 day	Mon 5/11/20	Mon 5/11/20	PM[10%],Doc Mngr[50%],BA[10%]
1435	1.3.2.6.6.1.4	Finalize DED	1434	1 day	Tue 5/12/20	Tue 5/12/20	PM[10%],Doc Mngr[50%],BA[10%]
1436	**1.3.2.6.6.2**	**Internally Review DED**		**6 days**	**Wed 5/13/20**	**Wed 5/20/20**	
1437	1.3.2.6.6.2.1	Complete Contract Review	1435	2 days	Wed 5/13/20	Thu 5/14/20	PM[10%]
1438	1.3.2.6.6.2.2	Complete Peer Review	1435	2 days	Wed 5/13/20	Thu 5/14/20	Doc Mngr[10%],Impl Mngr[5%],Acct Mngr[5%],BA[5%]
1439	1.3.2.6.6.2.3	Complete QA Review	1437,1438	2 days	Fri 5/15/20	Mon 5/18/20	Doc Mngr[25%]
1440	1.3.2.6.6.2.4	Update with feedback	1439	2 days	Tue 5/19/20	Wed 5/20/20	Doc Mngr[50%],BA[10%],PM[10%]
1441	1.3.2.6.6.3	Submit for State Review	1440	1 day	Thu 5/21/20	Thu 5/21/20	PM[10%]
1442	1.3.2.6.6.4	State reviews document and provides feedback	1441	3 days	Fri 5/22/20	Wed 5/27/20	State[20%]
1443	**1.3.2.6.6.5**	**DED: Review Cycle (1)**		**4 days**	**Mon 6/15/20**	**Thu 6/18/20**	
1444	1.3.2.6.6.5.1	Update DED with feedback	1442	1 day	Mon 6/15/20	Mon 6/15/20	PM[5%],Doc Mngr[10%],BA[10%]
1445	1.3.2.6.6.5.2	QA review and update	1444	0.5 days	Tue 6/16/20	Tue 6/16/20	Doc Mngr[40%],Impl Mngr[10%],BA[10%]
1446	1.3.2.6.6.5.3	Resubmit for State Review	1445	0.5 days	Tue 6/16/20	Tue 6/16/20	PM[10%]
1447	1.3.2.6.6.5.4	State reviews	1446	2 days	Wed 6/17/20	Thu 6/18/20	State[20%]
1448	**1.3.2.6.6.6**	**DED: Review Cycle (2)**		**5 days**	**Fri 6/19/20**	**Thu 6/25/20**	
1449	1.3.2.6.6.6.1	Update DED with feedback	1447	1 day	Fri 6/19/20	Fri 6/19/20	PM[5%],Doc Mngr[10%],BA[10%]
1450	1.3.2.6.6.6.2	QA review and update	1449	0.5 days	Mon 6/22/20	Mon 6/22/20	Doc Mngr[40%],Impl Mngr[10%],BA[10%]
1451	1.3.2.6.6.6.3	Resubmit for State Review	1450	0.5 days	Mon 6/22/20	Mon 6/22/20	PM[10%]
1452	1.3.2.6.6.6.4	State reviews	1451	2 days	Tue 6/23/20	Wed 6/24/20	State[20%]
1453	1.3.2.6.6.6.5	State approves DED	1452	1 day	Thu 6/25/20	Thu 6/25/20	State[20%]
1454	**1.3.2.6.6.7**	**Develop Deliverable**		**13 days**	**Fri 6/26/20**	**Wed 7/15/20**	
1455	1.3.2.6.6.7.1	Create baseline from approved DED	1453	5 days	Fri 6/26/20	Thu 7/2/20	PM[5%],Doc Mngr[10%],BA[10%]
1456	1.3.2.6.6.7.2	Update deliverable	1455	5 days	Mon 7/6/20	Fri 7/10/20	PM[5%],Doc Mngr[10%],BA[10%]
1457	1.3.2.6.6.7.3	Conduct Internal Review	1456	2 days	Mon 7/13/20	Tue 7/14/20	PM[5%],Doc Mngr[10%],BA[10%]
1458	1.3.2.6.6.7.4	Final QA Review/Update of Deliverable	1457	1 day	Wed 7/15/20	Wed 7/15/20	Doc Mngr[40%],Impl Mngr[10%],BA[10%]
1459	1.3.2.6.6.8	Submit Deliverable for State Review	1458	1 day	Thu 7/16/20	Thu 7/16/20	PM[10%]
1460	1.3.2.6.6.9	State reviews document and provides feedback	1459	10 days	Fri 7/17/20	Thu 7/30/20	State[20%]
1461	**1.3.2.6.6.10**	**Deliverable: Review Cycle (1)**		**10 days**	**Fri 7/31/20**	**Thu 8/13/20**	
1462	1.3.2.6.6.10	Update deliverable with feedback	1460	3 days	Fri 7/31/20	Tue 8/4/20	PM[5%],Doc Mngr[10%],BA[10%]
1463	1.3.2.6.6.10	QA review and update	1462	1.5 days	Wed 8/5/20	Thu 8/6/20	Doc Mngr[40%],Impl Mngr[10%],BA[10%]
1464	1.3.2.6.6.10	Submit for State approval	1463	0.5 days	Thu 8/6/20	Thu 8/6/20	PM[10%]
1465	1.3.2.6.6.10	State reviews	1464	5 days	Fri 8/7/20	Thu 8/13/20	State[20%]
1466	**1.3.2.6.6.11**	**Deliverable: Review Cycle (2)**		**10 days**	**Fri 8/14/20**	**Thu 8/27/20**	
1467	1.3.2.6.6.11	Update deliverable with feedback	1465	3 days	Fri 8/14/20	Tue 8/18/20	PM[5%],Doc Mngr[10%],BA[10%]
1468	1.3.2.6.6.11	QA review and update	1467	1.5 days	Wed 8/19/20	Thu 8/20/20	Doc Mngr[40%],Impl Mngr[10%],BA[10%]
1469	1.3.2.6.6.11	Submit for State approval	1468	0.5 days	Thu 8/20/20	Thu 8/20/20	PM[10%]
1470	1.3.2.6.6.11	State reviews	1469	5 days	Fri 8/21/20	Thu 8/27/20	State[20%]
1471	1.3.2.6.6.12	State Provides Final Approval	1470	1 day	Fri 8/28/20	Fri 8/28/20	State[20%]
1472	1.3.2.6.6.13	Milestone: Requirements Management Plan Approved	1471	0 days	Fri 8/28/20	Fri 8/28/20	
1473	**1.3.2.6.7**	**D023 Requirements Specification Document (RSD)**		**223 days**	**Mon 5/4/20**	**Mon 3/22/21**	

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ID	WBS	Task Name	Predecessors	Duration	Start	Finish	Resource Names
1474	**1.3.2.6.7.1**	**Develop DED**		**7 days**	**Mon 5/4/20**	**Tue 5/12/20**	
1475	1.3.2.6.7.1.1	Review deliverable requirements	2	2 days	Mon 5/4/20	Tue 5/5/20	PM[10%],Doc Mngr[50%]
1476	1.3.2.6.7.1.2	Draft DED	1475	3 days	Wed 5/6/20	Fri 5/8/20	PM[10%],Doc Mngr[50%],BA[10%]
1477	1.3.2.6.7.1.3	Review DED	1476	1 day	Mon 5/11/20	Mon 5/11/20	PM[10%],Doc Mngr[50%],BA[10%]
1478	1.3.2.6.7.1.4	Finalize DED	1477	1 day	Tue 5/12/20	Tue 5/12/20	PM[10%],Doc Mngr[50%],BA[10%]
1479	**1.3.2.6.7.2**	**Internally Review DED**		**6 days**	**Wed 5/13/20**	**Wed 5/20/20**	
1480	1.3.2.6.7.2.1	Complete Contract Review	1478	2 days	Wed 5/13/20	Thu 5/14/20	PM[10%]
1481	1.3.2.6.7.2.2	Complete Peer Review	1478	2 days	Wed 5/13/20	Thu 5/14/20	Doc Mngr[10%],Impl Mngr[5%],Acct Mngr[5%],BA[5%]
1482	1.3.2.6.7.2.3	Complete QA Review	1480,1481	2 days	Fri 5/15/20	Mon 5/18/20	Doc Mngr[25%]
1483	1.3.2.6.7.2.4	Update with feedback	1482	2 days	Tue 5/19/20	Wed 5/20/20	Doc Mngr[50%],BA[10%],PM[10%]
1484	1.3.2.6.7.3	Submit for State Review	1483	1 day	Thu 5/21/20	Thu 5/21/20	PM[10%]
1485	1.3.2.6.7.4	State reviews document and provides feedback	1484	3 days	Fri 5/22/20	Wed 5/27/20	State[20%]
1486	**1.3.2.6.7.5**	**DED: Review Cycle (1)**		**4 days**	**Mon 6/15/20**	**Thu 6/18/20**	
1487	1.3.2.6.7.5.1	Update DED with feedback	1485	1 day	Mon 6/15/20	Mon 6/15/20	PM[5%],Doc Mngr[10%],BA[10%]
1488	1.3.2.6.7.5.2	QA review and update	1487	0.5 days	Tue 6/16/20	Tue 6/16/20	Doc Mngr[40%],Impl Mngr[10%],BA[10%]
1489	1.3.2.6.7.5.3	Resubmit for State Review	1488	0.5 days	Tue 6/16/20	Tue 6/16/20	PM[10%]
1490	1.3.2.6.7.5.4	State reviews	1489	2 days	Wed 6/17/20	Thu 6/18/20	State[20%]
1491	**1.3.2.6.7.6**	**DED: Review Cycle (2)**		**5 days**	**Fri 6/19/20**	**Thu 6/25/20**	
1492	1.3.2.6.7.6.1	Update DED with feedback	1490	1 day	Fri 6/19/20	Fri 6/19/20	PM[5%],Doc Mngr[10%],BA[10%]
1493	1.3.2.6.7.6.2	QA review and update	1492	0.5 days	Mon 6/22/20	Mon 6/22/20	Doc Mngr[40%],Impl Mngr[10%],BA[10%]
1494	1.3.2.6.7.6.3	Resubmit for State Review	1493	0.5 days	Mon 6/22/20	Mon 6/22/20	PM[10%]
1495	1.3.2.6.7.6.4	State reviews	1494	2 days	Tue 6/23/20	Wed 6/24/20	State[20%]
1496	1.3.2.6.7.6.5	State approves DED	1495	1 day	Thu 6/25/20	Thu 6/25/20	State[20%]
1497	**1.3.2.6.7.7**	**Create Preliminary Version**		**45 days**	**Fri 6/26/20**	**Fri 8/28/20**	
1498	**1.3.2.6.7.7.1**	**Create Deliverable**		**13 days**	**Fri 6/26/20**	**Wed 7/15/20**	
1499	1.3.2.6.7.7.1.1	Create baseline from approved DED	1496	5 days	Fri 6/26/20	Thu 7/2/20	PM[5%],Doc Mngr[10%],BA[10%]
1500	1.3.2.6.7.7.1.2	Update deliverable	1499	5 days	Mon 7/6/20	Fri 7/10/20	PM[5%],Doc Mngr[10%],BA[10%]
1501	1.3.2.6.7.7.1.3	Conduct Internal Review	1500	2 days	Mon 7/13/20	Tue 7/14/20	PM[5%],Doc Mngr[10%],BA[10%]
1502	1.3.2.6.7.7.1.4	Final QA Review/Update of Deliverable	1501	1 day	Wed 7/15/20	Wed 7/15/20	Doc Mngr[40%],Impl Mngr[10%],BA[10%]
1503	1.3.2.6.7.7.2	Submit Deliverable for State Review	1502	1 day	Thu 7/16/20	Thu 7/16/20	PM[10%]
1504	1.3.2.6.7.7.3	State reviews document and provides feedback	1503	10 days	Fri 7/17/20	Thu 7/30/20	State[20%]
1505	**1.3.2.6.7.7.4**	**Deliverable: Review Cycle (1)**		**10 days**	**Fri 7/31/20**	**Thu 8/13/20**	
1506	1.3.2.6.7.7.4.1	Update deliverable with feedback	1504	3 days	Fri 7/31/20	Tue 8/4/20	PM[5%],Doc Mngr[10%],BA[10%]
1507	1.3.2.6.7.7.4.2	QA review and update	1506	1.5 days	Wed 8/5/20	Thu 8/6/20	Doc Mngr[40%],Impl Mngr[10%],BA[10%]
1508	1.3.2.6.7.7.4.3	Submit for State approval	1507	0.5 days	Thu 8/6/20	Thu 8/6/20	PM[10%]
1509	1.3.2.6.7.7.4.4	State reviews	1508	5 days	Fri 8/7/20	Thu 8/13/20	State[20%]
1510	**1.3.2.6.7.7.5**	**Deliverable: Review Cycle (2)**		**10 days**	**Fri 8/14/20**	**Thu 8/27/20**	
1511	1.3.2.6.7.7.5.1	Update deliverable with feedback	1509	3 days	Fri 8/14/20	Tue 8/18/20	PM[5%],Doc Mngr[10%],BA[10%]
1512	1.3.2.6.7.7.5.2	QA review and update	1511	1.5 days	Wed 8/19/20	Thu 8/20/20	Doc Mngr[40%],Impl Mngr[10%],BA[10%]
1513	1.3.2.6.7.7.5.3	Submit for State approval	1512	0.5 days	Thu 8/20/20	Thu 8/20/20	PM[10%]
1514	1.3.2.6.7.7.5.4	State reviews	1513	5 days	Fri 8/21/20	Thu 8/27/20	State[20%]
1515	1.3.2.6.7.7.6	State Provides Final Approval	1514	1 day	Fri 8/28/20	Fri 8/28/20	State[20%]
1516	1.3.2.6.7.7.7	Milestone: Requirements Document Approved	1515	0 days	Fri 8/28/20	Fri 8/28/20	
1517	**1.3.2.6.7.8**	**Update: Requirements Document**		**45 days**	**Mon 8/31/20**	**Mon 11/2/20**	
1518	**1.3.2.6.7.8.1**	**Update Deliverable**		**13 days**	**Mon 8/31/20**	**Thu 9/17/20**	
1519	1.3.2.6.7.8.1.1	Update Requirements Document	1168,1516	10 days	Mon 8/31/20	Mon 9/14/20	PM[5%],Doc Mngr[10%],BA[10%]
1520	1.3.2.6.7.8.1.2	Conduct Internal Review	1519	2 days	Tue 9/15/20	Wed 9/16/20	PM[5%],Doc Mngr[10%],BA[10%]
1521	1.3.2.6.7.8.1.3	Final QA Review/Update of Deliverable	1520	1 day	Thu 9/17/20	Thu 9/17/20	Doc Mngr[40%],Impl Mngr[10%],BA[10%]
1522	1.3.2.6.7.8.2	Submit Deliverable for State Review	1521	1 day	Fri 9/18/20	Fri 9/18/20	PM[10%]
1523	1.3.2.6.7.8.3	State reviews document and provides feedback	1522	10 days	Mon 9/21/20	Fri 10/2/20	State[20%]
1524	**1.3.2.6.7.8.4**	**Deliverable: Review Cycle (1)**		**10 days**	**Mon 10/5/20**	**Fri 10/16/20**	
1525	1.3.2.6.7.8.4.1	Update deliverable with feedback	1523	3 days	Mon 10/5/20	Wed 10/7/20	PM[5%],Doc Mngr[10%],BA[10%]
1526	1.3.2.6.7.8.4.2	QA review and update	1525	1.5 days	Thu 10/8/20	Fri 10/9/20	Doc Mngr[40%],Impl Mngr[10%],BA[10%]
1527	1.3.2.6.7.8.4.3	Submit for State approval	1526	0.5 days	Fri 10/9/20	Fri 10/9/20	PM[10%]
1528	1.3.2.6.7.8.4.4	State reviews	1527	5 days	Mon 10/12/20	Fri 10/16/20	State[20%]
1529	**1.3.2.6.7.8.5**	**Deliverable: Review Cycle (2)**		**10 days**	**Mon 10/19/20**	**Fri 10/30/20**	
1530	1.3.2.6.7.8.5.1	Update deliverable with feedback	1528	3 days	Mon 10/19/20	Wed 10/21/20	PM[5%],Doc Mngr[10%],BA[10%]
1531	1.3.2.6.7.8.5.2	QA review and update	1530	1.5 days	Thu 10/22/20	Fri 10/23/20	Doc Mngr[40%],Impl Mngr[10%],BA[10%]
1532	1.3.2.6.7.8.5.3	Submit for State approval	1531	0.5 days	Fri 10/23/20	Fri 10/23/20	PM[10%]
1533	1.3.2.6.7.8.5.4	State reviews	1532	5 days	Mon 10/26/20	Fri 10/30/20	State[20%]
1534	1.3.2.6.7.8.6	State Provides Final Approval	1533	1 day	Mon 11/2/20	Mon 11/2/20	State[20%]
1535	1.3.2.6.7.8.7	Milestone: Requirements Document Approved	1534	0 days	Mon 11/2/20	Mon 11/2/20	
1536	**1.3.2.6.7.9**	**Finalize: Requirements Document**		**45 days**	**Tue 1/19/21**	**Mon 3/22/21**	
1537	**1.3.2.6.7.9.1**	**Finalize Deliverable**		**13 days**	**Tue 1/19/21**	**Thu 2/4/21**	
1538	1.3.2.6.7.9.1.1	Update Requirements Document	4083SS-60 days	10 days	Tue 1/19/21	Mon 2/1/21	PM[5%],Doc Mngr[10%],BA[10%]
1539	1.3.2.6.7.9.1.2	Conduct Internal Review	1538	2 days	Tue 2/2/21	Wed 2/3/21	PM[5%],Doc Mngr[10%],BA[10%]
1540	1.3.2.6.7.9.1.3	Final QA Review/Update of Deliverable	1539	1 day	Thu 2/4/21	Thu 2/4/21	Doc Mngr[40%],Impl Mngr[10%],BA[10%]

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ID	WBS	Task Name	Predecessors	Duration	Start	Finish	Resource Names
1541	1.3.2.6.7.9.2	Submit Deliverable for State Review	1540	1 day	Fri 2/5/21	Fri 2/5/21	PM[10%]
1542	1.3.2.6.7.9.3	State reviews document and provides feedback	1541	10 days	Mon 2/8/21	Fri 2/19/21	State[20%]
1543	**1.3.2.6.7.9.4**	**Deliverable: Review Cycle (1)**		**10 days**	**Mon 2/22/21**	**Fri 3/5/21**	
1544	1.3.2.6.7.9.4	Update deliverable with feedback	1542	3 days	Mon 2/22/21	Wed 2/24/21	PM[5%],Doc Mngr[10%],BA[10%]
1545	1.3.2.6.7.9.4	QA review and update	1544	1.5 days	Thu 2/25/21	Fri 2/26/21	Doc Mngr[40%],Impl Mngr[10%],BA[10%]
1546	1.3.2.6.7.9.4	Submit for State approval	1545	0.5 days	Fri 2/26/21	Fri 2/26/21	PM[10%]
1547	1.3.2.6.7.9.4	State reviews	1546	5 days	Mon 3/1/21	Fri 3/5/21	State[20%]
1548	**1.3.2.6.7.9.5**	**Deliverable: Review Cycle (2)**		**11 days**	**Mon 3/8/21**	**Mon 3/22/21**	
1549	1.3.2.6.7.9.5	Update deliverable with feedback	1547	3 days	Mon 3/8/21	Wed 3/10/21	PM[5%],Doc Mngr[10%],BA[10%]
1550	1.3.2.6.7.9.5	QA review and update	1549	1.5 days	Thu 3/11/21	Fri 3/12/21	Doc Mngr[40%],Impl Mngr[10%],BA[10%]
1551	1.3.2.6.7.9.5	Submit for State approval	1550	0.5 days	Fri 3/12/21	Fri 3/12/21	PM[10%]
1552	1.3.2.6.7.9.5	State reviews	1551	5 days	Mon 3/15/21	Fri 3/19/21	State[20%]
1553	1.3.2.6.7.9.5	State Provides Final Approval	1552	1 day	Mon 3/22/21	Mon 3/22/21	State[20%]
1554	1.3.2.6.7.9.6	Milestone: Final Requirements Specification Document Approved	1553	0 days	Mon 3/22/21	Mon 3/22/21	
1555	**1.3.2.6.8**	**D024 Requirements Traceability Matrix (RTM)**		**83 days**	**Mon 6/8/20**	**Fri 10/2/20**	
1556	**1.3.2.6.8.1**	**Develop DED**		**7 days**	**Mon 6/8/20**	**Tue 6/16/20**	
1557	1.3.2.6.8.1.1	Review deliverable requirements	977	2 days	Mon 6/8/20	Tue 6/9/20	PM[10%],Doc Mngr[50%]
1558	1.3.2.6.8.1.2	Draft DED	1557	3 days	Wed 6/10/20	Fri 6/12/20	PM[10%],Doc Mngr[50%],BA[25%]
1559	1.3.2.6.8.1.3	Review DED	1558	1 day	Mon 6/15/20	Mon 6/15/20	PM[10%],Doc Mngr[50%],BA[25%]
1560	1.3.2.6.8.1.4	Finalize DED	1559	1 day	Tue 6/16/20	Tue 6/16/20	PM[10%],Doc Mngr[50%],BA[25%]
1561	**1.3.2.6.8.2**	**Internally Review DED**		**6 days**	**Wed 6/17/20**	**Wed 6/24/20**	
1562	1.3.2.6.8.2.1	Complete Contract Review	1560	2 days	Wed 6/17/20	Thu 6/18/20	PM[10%]
1563	1.3.2.6.8.2.2	Complete Peer Review	1560	2 days	Wed 6/17/20	Thu 6/18/20	Doc Mngr[10%],Impl Mngr[5%],Acct Mngr[5%],BA[20%]
1564	1.3.2.6.8.2.3	Complete QA Review	1562,1563	2 days	Fri 6/19/20	Mon 6/22/20	Doc Mngr[25%]
1565	1.3.2.6.8.2.4	Update with feedback	1564	2 days	Tue 6/23/20	Wed 6/24/20	Doc Mngr[50%],BA[25%],PM[5%]
1566	1.3.2.6.8.3	Submit for State Review	1565	1 day	Thu 6/25/20	Thu 6/25/20	PM[10%]
1567	1.3.2.6.8.4	State reviews document and provides feedback	1566	3 days	Fri 6/26/20	Tue 6/30/20	State[20%]
1568	**1.3.2.6.8.5**	**DED: Review Cycle (1)**		**4 days**	**Mon 7/20/20**	**Thu 7/23/20**	
1569	1.3.2.6.8.5.1	Update DED with feedback	1567	1 day	Mon 7/20/20	Mon 7/20/20	PM[5%],Doc Mngr[10%],BA[25%]
1570	1.3.2.6.8.5.2	QA review and update	1569	0.5 days	Tue 7/21/20	Tue 7/21/20	Doc Mngr[40%],Impl Mngr[5%],BA[25%]
1571	1.3.2.6.8.5.3	Resubmit for State Review	1570	0.5 days	Tue 7/21/20	Tue 7/21/20	PM[10%]
1572	1.3.2.6.8.5.4	State reviews	1571	2 days	Wed 7/22/20	Thu 7/23/20	State[20%]
1573	**1.3.2.6.8.6**	**DED: Review Cycle (2)**		**5 days**	**Fri 7/24/20**	**Thu 7/30/20**	
1574	1.3.2.6.8.6.1	Update DED with feedback	1572	1 day	Fri 7/24/20	Fri 7/24/20	PM[5%],Doc Mngr[10%],BA[25%]
1575	1.3.2.6.8.6.2	QA review and update	1574	0.5 days	Mon 7/27/20	Mon 7/27/20	Doc Mngr[40%],Impl Mngr[5%],BA[25%]
1576	1.3.2.6.8.6.3	Resubmit for State Review	1575	0.5 days	Mon 7/27/20	Mon 7/27/20	PM[10%]
1577	1.3.2.6.8.6.4	State reviews	1576	2 days	Tue 7/28/20	Wed 7/29/20	State[20%]
1578	1.3.2.6.8.6.5	State approves DED	1577	1 day	Thu 7/30/20	Thu 7/30/20	State[20%]
1579	**1.3.2.6.8.7**	**Develop Deliverable**		**13 days**	**Fri 7/31/20**	**Tue 8/18/20**	
1580	1.3.2.6.8.7.1	Create baseline from approved DED	1578	5 days	Fri 7/31/20	Thu 8/6/20	PM[5%],Doc Mngr[10%],BA[25%]
1581	1.3.2.6.8.7.2	Update deliverable	1580	5 days	Fri 8/7/20	Thu 8/13/20	PM[5%],Doc Mngr[10%],BA[25%]
1582	1.3.2.6.8.7.3	Conduct Internal Review	1581	2 days	Fri 8/14/20	Mon 8/17/20	PM[5%],Doc Mngr[10%],BA[25%]
1583	1.3.2.6.8.7.4	Final QA Review/Update of Deliverable	1582	1 day	Tue 8/18/20	Tue 8/18/20	Doc Mngr[40%],Impl Mngr[5%],BA[25%]
1584	1.3.2.6.8.8	Submit Deliverable for State Review	1583	1 day	Wed 8/19/20	Wed 8/19/20	PM[10%]
1585	1.3.2.6.8.9	State reviews document and provides feedback	1584	10 days	Thu 8/20/20	Wed 9/2/20	State[20%]
1586	**1.3.2.6.8.10**	**Deliverable: Review Cycle (1)**		**10 days**	**Thu 9/3/20**	**Thu 9/17/20**	
1587	1.3.2.6.8.10	Update deliverable with feedback	1585	3 days	Thu 9/3/20	Tue 9/8/20	PM[5%],Doc Mngr[10%],BA[25%]
1588	1.3.2.6.8.10	QA review and update	1587	1.5 days	Wed 9/9/20	Thu 9/10/20	Doc Mngr[40%],Impl Mngr[5%],BA[25%]
1589	1.3.2.6.8.10	Submit for State approval	1588	0.5 days	Thu 9/10/20	Thu 9/10/20	PM[10%]
1590	1.3.2.6.8.10	State reviews	1589	5 days	Fri 9/11/20	Thu 9/17/20	State[20%]
1591	**1.3.2.6.8.11**	**Deliverable: Review Cycle (2)**		**10 days**	**Fri 9/18/20**	**Thu 10/1/20**	
1592	1.3.2.6.8.11	Update deliverable with feedback	1590	3 days	Fri 9/18/20	Tue 9/22/20	PM[5%],Doc Mngr[10%],BA[25%]
1593	1.3.2.6.8.11	QA review and update	1592	1.5 days	Wed 9/23/20	Thu 9/24/20	Doc Mngr[40%],Impl Mngr[5%],BA[25%]
1594	1.3.2.6.8.11	Submit for State approval	1593	0.5 days	Thu 9/24/20	Thu 9/24/20	PM[10%]
1595	1.3.2.6.8.11	State reviews	1594	5 days	Fri 9/25/20	Thu 10/1/20	State[20%]
1596	1.3.2.6.8.12	State Provides Final Approval	1595	1 day	Fri 10/2/20	Fri 10/2/20	State[20%]
1597	1.3.2.6.8.13	Milestone: Requirements Traceability Matrix Approved	1596	0 days	Fri 10/2/20	Fri 10/2/20	
1598	**1.3.2.6.9**	**D025 Safeguard Procedures Report (SPR)**		**83 days**	**Mon 5/4/20**	**Fri 8/28/20**	
1599	**1.3.2.6.9.1**	**Develop DED**		**7 days**	**Mon 5/4/20**	**Tue 5/12/20**	
1600	1.3.2.6.9.1.1	Review deliverable requirements	2	2 days	Mon 5/4/20	Tue 5/5/20	PM[10%],Doc Mngr[50%]
1601	1.3.2.6.9.1.2	Draft DED	1600	3 days	Wed 5/6/20	Fri 5/8/20	PM[10%],Doc Mngr[50%],Impl Mngr[5%],Info Sec Arch[5%]
1602	1.3.2.6.9.1.3	Review DED	1601	1 day	Mon 5/11/20	Mon 5/11/20	PM[10%],Doc Mngr[50%],Impl Mngr[5%],Info Sec Arch[5%]
1603	1.3.2.6.9.1.4	Finalize DED	1602	1 day	Tue 5/12/20	Tue 5/12/20	PM[10%],Doc Mngr[50%],Impl Mngr[5%],Info Sec Arch[5%]
1604	**1.3.2.6.9.2**	**Internally Review DED**		**6 days**	**Wed 5/13/20**	**Wed 5/20/20**	
1605	1.3.2.6.9.2.1	Complete Contract Review	1603	2 days	Wed 5/13/20	Thu 5/14/20	PM[10%]
1606	1.3.2.6.9.2.2	Complete Peer Review	1603	2 days	Wed 5/13/20	Thu 5/14/20	Doc Mngr[10%],Impl Mngr[5%],Acct Mngr[5%],Info Sec Arch[5%]
1607	1.3.2.6.9.2.3	Complete QA Review	1605,1606	2 days	Fri 5/15/20	Mon 5/18/20	Doc Mngr[25%]

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ID	WBS	Task Name	Predecessors	Duration	Start	Finish	Resource Names
1608	1.3.2.6.9.2.4	Update with feedback	1607	2 days	Tue 5/19/20	Wed 5/20/20	Doc Mngr[10%],Impl Mngr[5%],Acct Mngr[5%],Info Sec Arch[5%]
1609	1.3.2.6.9.3	Submit for State Review	1608	1 day	Thu 5/21/20	Thu 5/21/20	PM[10%]
1610	1.3.2.6.9.4	State reviews document and provides feedback	1609	3 days	Fri 5/22/20	Wed 5/27/20	State[20%]
1611	**1.3.2.6.9.5**	**DED: Review Cycle (1)**		**4 days**	**Mon 6/15/20**	**Thu 6/18/20**	
1612	1.3.2.6.9.5.1	Update DED with feedback	1610	1 day	Mon 6/15/20	Mon 6/15/20	PM[5%],Doc Mngr[10%],Info Sec Arch[10%]
1613	1.3.2.6.9.5.2	QA review and update	1612	0.5 days	Tue 6/16/20	Tue 6/16/20	Doc Mngr[40%],Impl Mngr[10%],Info Sec Arch[10%]
1614	1.3.2.6.9.5.3	Resubmit for State Review	1613	0.5 days	Tue 6/16/20	Tue 6/16/20	PM[10%]
1615	1.3.2.6.9.5.4	State reviews	1614	2 days	Wed 6/17/20	Thu 6/18/20	State[20%]
1616	**1.3.2.6.9.6**	**DED: Review Cycle (2)**		**5 days**	**Fri 6/19/20**	**Thu 6/25/20**	
1617	1.3.2.6.9.6.1	Update DED with feedback	1615	1 day	Fri 6/19/20	Fri 6/19/20	PM[5%],Doc Mngr[10%],Info Sec Arch[10%]
1618	1.3.2.6.9.6.2	QA review and update	1617	0.5 days	Mon 6/22/20	Mon 6/22/20	Doc Mngr[40%],Impl Mngr[10%],Info Sec Arch[10%]
1619	1.3.2.6.9.6.3	Resubmit for State Review	1618	0.5 days	Mon 6/22/20	Mon 6/22/20	PM[10%]
1620	1.3.2.6.9.6.4	State reviews	1619	2 days	Tue 6/23/20	Wed 6/24/20	State[20%]
1621	1.3.2.6.9.6.5	State approves DED	1620	1 day	Thu 6/25/20	Thu 6/25/20	State[20%]
1622	**1.3.2.6.9.7**	**Develop Deliverable**		**13 days**	**Fri 6/26/20**	**Wed 7/15/20**	
1623	1.3.2.6.9.7.1	Create baseline from approved DED	1621	5 days	Fri 6/26/20	Thu 7/2/20	PM[5%],Doc Mngr[10%],Info Sec Arch[10%]
1624	1.3.2.6.9.7.2	Update deliverable	1623	5 days	Mon 7/6/20	Fri 7/10/20	PM[5%],Doc Mngr[10%],Info Sec Arch[10%]
1625	1.3.2.6.9.7.3	Conduct Internal Review	1624	2 days	Mon 7/13/20	Tue 7/14/20	PM[5%],Doc Mngr[10%],Info Sec Arch[10%]
1626	1.3.2.6.9.7.4	Final QA Review/Update of Deliverable	1625	1 day	Wed 7/15/20	Wed 7/15/20	Doc Mngr[40%],Impl Mngr[10%],Info Sec Arch[10%]
1627	1.3.2.6.9.8	Submit Deliverable for State Review	1626	1 day	Thu 7/16/20	Thu 7/16/20	PM[10%]
1628	1.3.2.6.9.9	State reviews document and provides feedback	1627	10 days	Fri 7/17/20	Thu 7/30/20	State[20%]
1629	**1.3.2.6.9.10**	**Deliverable: Review Cycle (1)**		**10 days**	**Fri 7/31/20**	**Thu 8/13/20**	
1630	1.3.2.6.9.10.	Update deliverable with feedback	1628	3 days	Fri 7/31/20	Tue 8/4/20	PM[5%],Doc Mngr[10%],Info Sec Arch[10%]
1631	1.3.2.6.9.10.	QA review and update	1630	1.5 days	Wed 8/5/20	Thu 8/6/20	Doc Mngr[40%],Impl Mngr[10%],Info Sec Arch[10%]
1632	1.3.2.6.9.10.	Submit for State approval	1631	0.5 days	Thu 8/6/20	Thu 8/6/20	PM[10%]
1633	1.3.2.6.9.10.	State reviews	1632	5 days	Fri 8/7/20	Thu 8/13/20	State[20%]
1634	**1.3.2.6.9.11**	**Deliverable: Review Cycle (2)**		**10 days**	**Fri 8/14/20**	**Thu 8/27/20**	
1635	1.3.2.6.9.11.	Update deliverable with feedback	1633	3 days	Fri 8/14/20	Tue 8/18/20	PM[5%],Doc Mngr[10%],Info Sec Arch[10%]
1636	1.3.2.6.9.11.	QA review and update	1635	1.5 days	Wed 8/19/20	Thu 8/20/20	Doc Mngr[40%],Impl Mngr[10%],Info Sec Arch[10%]
1637	1.3.2.6.9.11.	Submit for State approval	1636	0.5 days	Thu 8/20/20	Thu 8/20/20	PM[10%]
1638	1.3.2.6.9.11.	State reviews	1637	5 days	Fri 8/21/20	Thu 8/27/20	State[20%]
1639	1.3.2.6.9.12	State Provides Final Approval	1638	1 day	Fri 8/28/20	Fri 8/28/20	State[20%]
1640	1.3.2.6.9.13	Milestone: Safeguard Procedures Report Approved	1639	0 days	Fri 8/28/20	Fri 8/28/20	
1641	**1.3.2.6.10**	**D026 Security Plan**		**83 days**	**Mon 5/4/20**	**Fri 8/28/20**	
1642	**1.3.2.6.10.1**	**Develop DED**		**7 days**	**Mon 5/4/20**	**Tue 5/12/20**	
1643	1.3.2.6.10.1.	Review deliverable requirements	2	2 days	Mon 5/4/20	Tue 5/5/20	PM[10%],Doc Mngr[50%]
1644	1.3.2.6.10.1.	Draft DED	1643	3 days	Wed 5/6/20	Fri 5/8/20	PM[10%],Doc Mngr[50%],Impl Mngr[5%],Info Sec Arch[5%]
1645	1.3.2.6.10.1.	Review DED	1644	1 day	Mon 5/11/20	Mon 5/11/20	PM[10%],Doc Mngr[50%],Impl Mngr[5%],Info Sec Arch[5%]
1646	1.3.2.6.10.1.	Finalize DED	1645	1 day	Tue 5/12/20	Tue 5/12/20	PM[10%],Doc Mngr[50%],Impl Mngr[5%],Info Sec Arch[5%]
1647	**1.3.2.6.10.2**	**Internally Review DED**		**6 days**	**Wed 5/13/20**	**Wed 5/20/20**	
1648	1.3.2.6.10.2.	Complete Contract Review	1646	2 days	Wed 5/13/20	Thu 5/14/20	PM[10%]
1649	1.3.2.6.10.2.	Complete Peer Review	1646	2 days	Wed 5/13/20	Thu 5/14/20	Doc Mngr[10%],Impl Mngr[5%],Acct Mngr[5%],Info Sec Arch[5%]
1650	1.3.2.6.10.2.	Complete QA Review	1648,1649	2 days	Fri 5/15/20	Mon 5/18/20	Doc Mngr[25%]
1651	1.3.2.6.10.2.	Update with feedback	1650	2 days	Tue 5/19/20	Wed 5/20/20	Doc Mngr[10%],Impl Mngr[5%],Acct Mngr[5%],Info Sec Arch[5%]
1652	1.3.2.6.10.3	Submit for State Review	1651	1 day	Thu 5/21/20	Thu 5/21/20	PM[10%]
1653	1.3.2.6.10.4	State reviews document and provides feedback	1652	3 days	Fri 5/22/20	Wed 5/27/20	State[20%]
1654	**1.3.2.6.10.5**	**DED: Review Cycle (1)**		**4 days**	**Mon 6/15/20**	**Thu 6/18/20**	
1655	1.3.2.6.10.5.	Update DED with feedback	1653	1 day	Mon 6/15/20	Mon 6/15/20	PM[5%],Doc Mngr[10%],Info Sec Arch[10%]
1656	1.3.2.6.10.5.	QA review and update	1655	0.5 days	Tue 6/16/20	Tue 6/16/20	Doc Mngr[40%],Impl Mngr[10%],Info Sec Arch[10%]
1657	1.3.2.6.10.5.	Resubmit for State Review	1656	0.5 days	Tue 6/16/20	Tue 6/16/20	PM[10%]
1658	1.3.2.6.10.5.	State reviews	1657	2 days	Wed 6/17/20	Thu 6/18/20	State[20%]
1659	**1.3.2.6.10.6**	**DED: Review Cycle (2)**		**5 days**	**Fri 6/19/20**	**Thu 6/25/20**	
1660	1.3.2.6.10.6.	Update DED with feedback	1658	1 day	Fri 6/19/20	Fri 6/19/20	PM[5%],Doc Mngr[10%],Info Sec Arch[10%]
1661	1.3.2.6.10.6.	QA review and update	1660	0.5 days	Mon 6/22/20	Mon 6/22/20	Doc Mngr[40%],Impl Mngr[10%],Info Sec Arch[10%]
1662	1.3.2.6.10.6	Resubmit for State Review	1661	0.5 days	Mon 6/22/20	Mon 6/22/20	PM[10%]
1663	1.3.2.6.10.6.	State reviews	1662	2 days	Tue 6/23/20	Wed 6/24/20	State[20%]
1664	1.3.2.6.10.6	State approves DED	1663	1 day	Thu 6/25/20	Thu 6/25/20	State[20%]
1665	**1.3.2.6.10.7**	**Develop Deliverable**		**13 days**	**Fri 6/26/20**	**Wed 7/15/20**	
1666	1.3.2.6.10.7.	Create baseline from approved DED	1664	5 days	Fri 6/26/20	Thu 7/2/20	PM[5%],Doc Mngr[10%],Info Sec Arch[10%]
1667	1.3.2.6.10.7	Update deliverable	1666	5 days	Mon 7/6/20	Fri 7/10/20	PM[5%],Doc Mngr[10%],Info Sec Arch[10%]
1668	1.3.2.6.10.7.	Conduct Internal Review	1667	2 days	Mon 7/13/20	Tue 7/14/20	PM[5%],Doc Mngr[10%],Info Sec Arch[10%]
1669	1.3.2.6.10.7.	Final QA Review/Update of Deliverable	1668	1 day	Wed 7/15/20	Wed 7/15/20	Doc Mngr[40%],Impl Mngr[10%],Info Sec Arch[10%]
1670	1.3.2.6.10.8	Submit Deliverable for State Review	1669	1 day	Thu 7/16/20	Thu 7/16/20	PM[10%]
1671	1.3.2.6.10.9	State reviews document and provides feedback	1670	10 days	Fri 7/17/20	Thu 7/30/20	State[20%]
1672	**1.3.2.6.10.1**	**Deliverable: Review Cycle (1)**		**10 days**	**Fri 7/31/20**	**Thu 8/13/20**	
1673	1.3.2.6.10.1	Update deliverable with feedback	1671	3 days	Fri 7/31/20	Tue 8/4/20	PM[5%],Doc Mngr[10%],Info Sec Arch[10%]
1674	1.3.2.6.10.1	QA review and update	1673	1.5 days	Wed 8/5/20	Thu 8/6/20	Doc Mngr[40%],Impl Mngr[10%],Info Sec Arch[10%]

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ID	WBS	Task Name	Predecessors	Duration	Start	Finish	Resource Names
1675	1.3.2.6.10.1	Submit for State approval	1674	0.5 days	Thu 8/6/20	Thu 8/6/20	PM[10%]
1676	1.3.2.6.10.1	State reviews	1675	5 days	Fri 8/7/20	Thu 8/13/20	State[20%]
1677	**1.3.2.6.10.1**	**Deliverable: Review Cycle (2)**		**10 days**	**Fri 8/14/20**	**Thu 8/27/20**	
1678	1.3.2.6.10.1	Update deliverable with feedback	1676	3 days	Fri 8/14/20	Tue 8/18/20	PM[5%],Doc Mngr[10%],Info Sec Arch[10%]
1679	1.3.2.6.10.1	QA review and update	1678	1.5 days	Wed 8/19/20	Thu 8/20/20	Doc Mngr[40%],Impl Mngr[10%],Info Sec Arch[10%]
1680	1.3.2.6.10.1	Submit for State approval	1679	0.5 days	Thu 8/20/20	Thu 8/20/20	PM[10%]
1681	1.3.2.6.10.1	State reviews	1680	5 days	Fri 8/21/20	Thu 8/27/20	State[20%]
1682	1.3.2.6.10.1	State Provides Final Approval	1676,1681	1 day	Fri 8/28/20	Fri 8/28/20	State[20%]
1683	1.3.2.6.10.1	Milestone: Security Plan Approved	1682	0 days	Fri 8/28/20	Fri 8/28/20	
1684	**1.3.2.6.11**	**D027 Security, Privacy, and Confidentiality Plan**		**263 days**	**Mon 5/18/20**	**Tue 6/1/21**	
1685	**1.3.2.6.11.1**	**Develop DED**		**7 days**	**Mon 5/18/20**	**Wed 5/27/20**	
1686	1.3.2.6.11.1	Review deliverable requirements	2FS+10 days	2 days	Mon 5/18/20	Tue 5/19/20	PM[10%],Doc Mngr[50%]
1687	1.3.2.6.11.1	Draft DED	1686	3 days	Wed 5/20/20	Fri 5/22/20	PM[10%],Doc Mngr[50%],Impl Mngr[5%],Info Sec Arch[5%]
1688	1.3.2.6.11.1	Review DED	1687	1 day	Tue 5/26/20	Tue 5/26/20	PM[10%],Doc Mngr[50%],Impl Mngr[5%],Info Sec Arch[5%]
1689	1.3.2.6.11.1	Finalize DED	1688	1 day	Wed 5/27/20	Wed 5/27/20	PM[10%],Doc Mngr[50%],Impl Mngr[5%],Info Sec Arch[5%]
1690	**1.3.2.6.11.2**	**Internally Review DED**		**6 days**	**Thu 5/28/20**	**Thu 6/4/20**	
1691	1.3.2.6.11.2	Complete Contract Review	1689	2 days	Thu 5/28/20	Fri 5/29/20	PM[10%]
1692	1.3.2.6.11.2	Complete Peer Review	1689	2 days	Thu 5/28/20	Fri 5/29/20	Doc Mngr[10%],Impl Mngr[5%],Acct Mngr[5%],Info Sec Arch[5%]
1693	1.3.2.6.11.2	Complete QA Review	1691,1692	2 days	Mon 6/1/20	Tue 6/2/20	Doc Mngr[25%]
1694	1.3.2.6.11.2	Update with feedback	1693	2 days	Wed 6/3/20	Thu 6/4/20	Doc Mngr[10%],Impl Mngr[5%],Acct Mngr[5%],Info Sec Arch[5%]
1695	1.3.2.6.11.3	Submit for State Review	1694	1 day	Fri 6/5/20	Fri 6/5/20	PM[10%]
1696	1.3.2.6.11.4	State reviews document and provides feedback	1695	3 days	Mon 6/8/20	Wed 6/10/20	State[20%]
1697	**1.3.2.6.11.5**	**DED: Review Cycle (1)**		**4 days**	**Mon 6/29/20**	**Thu 7/2/20**	
1698	1.3.2.6.11.5	Update DED with feedback	1696	1 day	Mon 6/29/20	Mon 6/29/20	PM[5%],Doc Mngr[10%],Info Sec Arch[10%]
1699	1.3.2.6.11.5	QA review and update	1698	0.5 days	Tue 6/30/20	Tue 6/30/20	Doc Mngr[40%],Impl Mngr[10%],Info Sec Arch[10%]
1700	1.3.2.6.11.5	Resubmit for State Review	1699	0.5 days	Tue 6/30/20	Tue 6/30/20	PM[10%]
1701	1.3.2.6.11.5	State reviews	1700	2 days	Wed 7/1/20	Thu 7/2/20	State[20%]
1702	**1.3.2.6.11.6**	**DED: Review Cycle (2)**		**5 days**	**Mon 7/6/20**	**Fri 7/10/20**	
1703	1.3.2.6.11.6	Update DED with feedback	1701	1 day	Mon 7/6/20	Mon 7/6/20	PM[5%],Doc Mngr[10%],Info Sec Arch[10%]
1704	1.3.2.6.11.6	QA review and update	1703	0.5 days	Tue 7/7/20	Tue 7/7/20	Doc Mngr[40%],Impl Mngr[10%],Info Sec Arch[10%]
1705	1.3.2.6.11.6	Resubmit for State Review	1704	0.5 days	Tue 7/7/20	Tue 7/7/20	PM[10%]
1706	1.3.2.6.11.6	State reviews	1705	2 days	Wed 7/8/20	Thu 7/9/20	State[20%]
1707	1.3.2.6.11.6	State approves DED	1706	1 day	Fri 7/10/20	Fri 7/10/20	State[20%]
1708	**1.3.2.6.11.7**	**Create Preliminary Version**		**45 days**	**Mon 7/13/20**	**Mon 9/14/20**	
1709	**1.3.2.6.11.7**	**Develop Deliverable**		**13 days**	**Mon 7/13/20**	**Wed 7/29/20**	
1710	1.3.2.6.11.7	Create baseline from approved DED	1707	5 days	Mon 7/13/20	Fri 7/17/20	PM[5%],Doc Mngr[10%],Info Sec Arch[10%]
1711	1.3.2.6.11.7	Update deliverable	1710	5 days	Mon 7/20/20	Fri 7/24/20	PM[5%],Doc Mngr[10%],Info Sec Arch[10%]
1712	1.3.2.6.11.7	Conduct Internal Review	1711	2 days	Mon 7/27/20	Tue 7/28/20	PM[5%],Doc Mngr[10%],Info Sec Arch[10%]
1713	1.3.2.6.11.7	Final QA Review/Update of Deliverable	1712	1 day	Wed 7/29/20	Wed 7/29/20	Doc Mngr[40%],Impl Mngr[10%],Info Sec Arch[10%]
1714	1.3.2.6.11.7	Submit Deliverable for State Review	1713	1 day	Thu 7/30/20	Thu 7/30/20	PM[10%]
1715	1.3.2.6.11.7	State reviews document and provides feedback	1714	10 days	Fri 7/31/20	Thu 8/13/20	State[20%]
1716	**1.3.2.6.11.7**	**Deliverable: Review Cycle (1)**		**10 days**	**Fri 8/14/20**	**Thu 8/27/20**	
1717	1.3.2.6.11.7	Update deliverable with feedback	1715	3 days	Fri 8/14/20	Tue 8/18/20	PM[5%],Doc Mngr[10%],Info Sec Arch[10%]
1718	1.3.2.6.11.7	QA review and update	1717	1.5 days	Wed 8/19/20	Thu 8/20/20	Doc Mngr[40%],Impl Mngr[10%],Info Sec Arch[10%]
1719	1.3.2.6.11.7	Submit for State approval	1718	0.5 days	Thu 8/20/20	Thu 8/20/20	PM[10%]
1720	1.3.2.6.11.7	State reviews	1719	5 days	Fri 8/21/20	Thu 8/27/20	State[20%]
1721	**1.3.2.6.11.7**	**Deliverable: Review Cycle (2)**		**10 days**	**Fri 8/28/20**	**Fri 9/11/20**	
1722	1.3.2.6.11.7	Update deliverable with feedback	1720	3 days	Fri 8/28/20	Tue 9/1/20	PM[5%],Doc Mngr[10%],Info Sec Arch[10%]
1723	1.3.2.6.11.7	QA review and update	1722	1.5 days	Wed 9/2/20	Thu 9/3/20	Doc Mngr[40%],Impl Mngr[10%],Info Sec Arch[10%]
1724	1.3.2.6.11.7	Submit for State approval	1723	0.5 days	Thu 9/3/20	Thu 9/3/20	PM[10%]
1725	1.3.2.6.11.7	State reviews	1724	5 days	Fri 9/4/20	Fri 9/11/20	State[20%]
1726	1.3.2.6.11.7	State Provides Final Approval	1720,1725	1 day	Mon 9/14/20	Mon 9/14/20	State[20%]
1727	1.3.2.6.11.7	Milestone: Security, Privacy, and Confidentiality Plan Approved	1726	0 days	Mon 9/14/20	Mon 9/14/20	
1728	**1.3.2.6.11.8**	**Update Deliverable**		**66 days**	**Fri 2/26/21**	**Fri 5/28/21**	
1729	1.3.2.6.11.8	Update Plan prior to Go-Live	4105FS-90 days,1	10 days	Fri 2/26/21	Thu 3/11/21	PM[5%],Doc Mngr[10%],Info Sec Arch[10%]
1730	1.3.2.6.11.8	Conduct Internal Review	1729	5 days	Fri 3/12/21	Thu 3/18/21	PM[5%],Doc Mngr[10%],Info Sec Arch[10%]
1731	1.3.2.6.11.8	Final QA Review/Update of Deliverable	1730	2 days	Fri 3/19/21	Mon 3/22/21	Doc Mngr[40%],Impl Mngr[10%],Info Sec Arch[10%]
1732	1.3.2.6.11.8	Submit Deliverable for State Review	1731	1 day	Tue 3/23/21	Tue 3/23/21	PM[10%]
1733	1.3.2.6.11.8	State reviews document and provides feedback	1732	10 days	Wed 3/24/21	Tue 4/6/21	State[20%]
1734	**1.3.2.6.11.8**	**Deliverable: Review Cycle (1)**		**18.5 days**	**Wed 4/7/21**	**Mon 5/3/21**	
1735	1.3.2.6.11.8	Update deliverable with feedback	1733	**9 days**	Wed 4/7/21	Mon 4/19/21	PM[5%],Doc Mngr[10%],Info Sec Arch[10%]
1736	1.3.2.6.11.8	QA review and update	1735	3 days	Tue 4/20/21	Thu 4/22/21	Doc Mngr[40%],Impl Mngr[10%],Info Sec Arch[10%]
1737	1.3.2.6.11.8	Submit for State approval	1736	1.5 days	Fri 4/23/21	Mon 4/26/21	PM[10%]
1738	1.3.2.6.11.8	State reviews	1737	5 days	Mon 4/26/21	Mon 5/3/21	State[20%]
1739	**1.3.2.6.11.8**	**Deliverable: Review Cycle (2)**		**18.5 days**	**Mon 5/3/21**	**Thu 5/27/21**	
1740	1.3.2.6.11.8	Update deliverable with feedback	1738	**9 days**	Mon 5/3/21	Fri 5/14/21	PM[5%],Doc Mngr[10%],Info Sec Arch[10%]
1741	1.3.2.6.11.8	QA review and update	1740	3 days	Fri 5/14/21	Wed 5/19/21	Doc Mngr[40%],Impl Mngr[10%],Info Sec Arch[10%]

ID	WBS	Task Name	Predecessors	Duration	Start	Finish	Resource Names
1742	1.3.2.6.11.8	Submit for State approval	1741	1.5 days	Wed 5/19/21	Thu 5/20/21	PM[10%]
1743	1.3.2.6.11.8	State reviews	1742	5 days	Fri 5/21/21	Thu 5/27/21	State[20%]
1744	1.3.2.6.11.8	State Provides Final Approval	1738,1743	1 day	Fri 5/28/21	Fri 5/28/21	State[20%]
1745	1.3.2.6.11.9	Milestone: Security, Privacy, and Confidentiality Plan Finalized	1744	1 day	Tue 6/1/21	Tue 6/1/21	
1746	**1.3.2.6.12**	**D028 System Backup and Record Retention Plan**		**71 days**	**Mon 5/18/20**	**Wed 8/26/20**	
1747	**1.3.2.6.12.1**	**Develop DED**		**7 days**	**Mon 5/18/20**	**Wed 5/27/20**	
1748	1.3.2.6.12.1	Review deliverable requirements	2FS+10 days	2 days	Mon 5/18/20	Tue 5/19/20	PM[10%],Doc Mngr[50%]
1749	1.3.2.6.12.1	Draft DED	1748	3 days	Wed 5/20/20	Fri 5/22/20	PM[10%],Doc Mngr[50%],Impl Mngr[5%],Info Sec Arch[5%]
1750	1.3.2.6.12.1	Review DED	1749	1 day	Tue 5/26/20	Tue 5/26/20	PM[10%],Doc Mngr[50%],Impl Mngr[5%],Info Sec Arch[5%]
1751	1.3.2.6.12.1	Finalize DED	1750	1 day	Wed 5/27/20	Wed 5/27/20	PM[10%],Doc Mngr[50%],Impl Mngr[5%],Info Sec Arch[5%]
1752	**1.3.2.6.12.2**	**Internally Review DED**		**6 days**	**Thu 5/28/20**	**Thu 6/4/20**	
1753	1.3.2.6.12.2	Complete Contract Review	1751	2 days	Thu 5/28/20	Fri 5/29/20	PM[10%]
1754	1.3.2.6.12.2	Complete Peer Review	1751	2 days	Thu 5/28/20	Fri 5/29/20	Doc Mngr[10%],Impl Mngr[5%],Acct Mngr[5%],Info Sec Arch[5%]
1755	1.3.2.6.12.2	Complete QA Review	1753,1754	2 days	Mon 6/1/20	Tue 6/2/20	Doc Mngr[25%]
1756	1.3.2.6.12.2	Update with feedback	1755	2 days	Wed 6/3/20	Thu 6/4/20	Doc Mngr[10%],Impl Mngr[5%],Acct Mngr[5%],Info Sec Arch[5%]
1757	1.3.2.6.12.3	Submit for State Review	1756	1 day	Fri 6/5/20	Fri 6/5/20	PM[10%]
1758	1.3.2.6.12.4	State reviews document and provides feedback	1757	3 days	Mon 6/8/20	Wed 6/10/20	State[20%]
1759	**1.3.2.6.12.5**	**DED: Review Cycle (1)**		**4 days**	**Thu 6/11/20**	**Tue 6/16/20**	
1760	1.3.2.6.12.5	Update DED with feedback	1758	1 day	Thu 6/11/20	Thu 6/11/20	PM[5%],Doc Mngr[10%],Info Sec Arch[10%]
1761	1.3.2.6.12.5	QA review and update	1760	0.5 days	Fri 6/12/20	Fri 6/12/20	Doc Mngr[40%],Impl Mngr[10%],Info Sec Arch[10%]
1762	1.3.2.6.12.5	Resubmit for State Review	1761	0.5 days	Fri 6/12/20	Fri 6/12/20	PM[10%]
1763	1.3.2.6.12.5	State reviews	1762	2 days	Mon 6/15/20	Tue 6/16/20	State[20%]
1764	**1.3.2.6.12.6**	**DED: Review Cycle (2)**		**5 days**	**Wed 6/17/20**	**Tue 6/23/20**	
1765	1.3.2.6.12.6	Update DED with feedback	1763	1 day	Wed 6/17/20	Wed 6/17/20	PM[5%],Doc Mngr[10%],Info Sec Arch[10%]
1766	1.3.2.6.12.6	QA review and update	1765	0.5 days	Thu 6/18/20	Thu 6/18/20	Doc Mngr[40%],Impl Mngr[10%],Info Sec Arch[10%]
1767	1.3.2.6.12.6	Resubmit for State Review	1766	0.5 days	Thu 6/18/20	Thu 6/18/20	PM[10%]
1768	1.3.2.6.12.6	State reviews	1767	2 days	Fri 6/19/20	Mon 6/22/20	State[20%]
1769	1.3.2.6.12.6	State approves DED	1768	1 day	Tue 6/23/20	Tue 6/23/20	State[20%]
1770	**1.3.2.6.12.7**	**Develop Deliverable**		**13 days**	**Wed 6/24/20**	**Mon 7/13/20**	
1771	1.3.2.6.12.7	Create baseline from approved DED	1769	5 days	Wed 6/24/20	Tue 6/30/20	PM[5%],Doc Mngr[10%],Info Sec Arch[10%]
1772	1.3.2.6.12.7	Update deliverable	1771	5 days	Wed 7/1/20	Wed 7/8/20	PM[5%],Doc Mngr[10%],Info Sec Arch[10%]
1773	1.3.2.6.12.7	Conduct Internal Review	1772	2 days	Thu 7/9/20	Fri 7/10/20	PM[5%],Doc Mngr[10%],Info Sec Arch[10%]
1774	1.3.2.6.12.7	Final QA Review/Update of Deliverable	1773	1 day	Mon 7/13/20	Mon 7/13/20	Doc Mngr[40%],Impl Mngr[10%],Info Sec Arch[10%]
1775	1.3.2.6.12.8	Submit Deliverable for State Review	1774	1 day	Tue 7/14/20	Tue 7/14/20	PM[10%]
1776	1.3.2.6.12.9	State reviews document and provides feedback	1775	10 days	Wed 7/15/20	Tue 7/28/20	State[20%]
1777	**1.3.2.6.12.1**	**Deliverable: Review Cycle (1)**		**10 days**	**Wed 7/29/20**	**Tue 8/11/20**	
1778	1.3.2.6.12.1	Update deliverable with feedback	1776	3 days	Wed 7/29/20	Fri 7/31/20	PM[5%],Doc Mngr[10%],Info Sec Arch[10%]
1779	1.3.2.6.12.1	QA review and update	1778	1.5 days	Mon 8/3/20	Tue 8/4/20	Doc Mngr[40%],Impl Mngr[10%],Info Sec Arch[10%]
1780	1.3.2.6.12.1	Submit for State approval	1779	0.5 days	Tue 8/4/20	Tue 8/4/20	PM[10%]
1781	1.3.2.6.12.1	State reviews	1780	5 days	Wed 8/5/20	Tue 8/11/20	State[20%]
1782	**1.3.2.6.12.1**	**Deliverable: Review Cycle (2)**		**10 days**	**Wed 8/12/20**	**Tue 8/25/20**	
1783	1.3.2.6.12.1	Update deliverable with feedback	1781	3 days	Wed 8/12/20	Fri 8/14/20	PM[5%],Doc Mngr[10%],Info Sec Arch[10%]
1784	1.3.2.6.12.1	QA review and update	1783	1.5 days	Mon 8/17/20	Tue 8/18/20	Doc Mngr[40%],Impl Mngr[10%],Info Sec Arch[10%]
1785	1.3.2.6.12.1	Submit for State approval	1784	0.5 days	Tue 8/18/20	Tue 8/18/20	PM[10%]
1786	1.3.2.6.12.1	State reviews	1785	5 days	Wed 8/19/20	Tue 8/25/20	State[20%]
1787	1.3.2.6.12.1	State Provides Final Approval	1786	1 day	Wed 8/26/20	Wed 8/26/20	State[20%]
1788	1.3.2.6.12.1	Milestone: System Backup and Record Retention Plan Approved	1787	0 days	Wed 8/26/20	Wed 8/26/20	
1789	**1.3.2.6.13**	**D029 System Requirement Document/Backlog of User Stories or Use Cases**		**71 days**	**Mon 5/18/20**	**Wed 8/26/20**	
1790	**1.3.2.6.13.1**	**Develop DED**		**7 days**	**Mon 5/18/20**	**Wed 5/27/20**	
1791	1.3.2.6.13.1	Review deliverable requirements	2FS+10 days	2 days	Mon 5/18/20	Tue 5/19/20	PM[10%],Doc Mngr[50%]
1792	1.3.2.6.13.1	Draft DED	1791	3 days	Wed 5/20/20	Fri 5/22/20	PM[10%],Doc Mngr[50%],BA[10%]
1793	1.3.2.6.13.1	Review DED	1792	1 day	Tue 5/26/20	Tue 5/26/20	PM[10%],Doc Mngr[50%],BA[10%]
1794	1.3.2.6.13.1	Finalize DED	1793	1 day	Wed 5/27/20	Wed 5/27/20	PM[10%],Doc Mngr[50%],BA[10%]
1795	**1.3.2.6.13.2**	**Internally Review DED**		**6 days**	**Thu 5/28/20**	**Thu 6/4/20**	
1796	1.3.2.6.13.2	Complete Contract Review	1794	2 days	Thu 5/28/20	Fri 5/29/20	PM[10%]
1797	1.3.2.6.13.2	Complete Peer Review	1794	2 days	Thu 5/28/20	Fri 5/29/20	Doc Mngr[10%],Impl Mngr[5%],Acct Mngr[5%],BA[5%]
1798	1.3.2.6.13.2	Complete QA Review	1796,1797	2 days	Mon 6/1/20	Tue 6/2/20	Doc Mngr[25%]
1799	1.3.2.6.13.2	Update with feedback	1798	2 days	Wed 6/3/20	Thu 6/4/20	Doc Mngr[50%],BA[10%],PM[10%]
1800	1.3.2.6.13.3	Submit for State Review	1799	1 day	Fri 6/5/20	Fri 6/5/20	PM[10%]
1801	1.3.2.6.13.4	State reviews document and provides feedback	1800	3 days	Mon 6/8/20	Wed 6/10/20	State[20%]
1802	**1.3.2.6.13.5**	**DED: Review Cycle (1)**		**4 days**	**Thu 6/11/20**	**Tue 6/16/20**	
1803	1.3.2.6.13.5	Update DED with feedback	1801	1 day	Thu 6/11/20	Thu 6/11/20	PM[5%],Doc Mngr[10%],BA[10%]
1804	1.3.2.6.13.5	QA review and update	1803	0.5 days	Fri 6/12/20	Fri 6/12/20	Doc Mngr[40%],Impl Mngr[10%],BA[10%]
1805	1.3.2.6.13.5	Resubmit for State Review	1804	0.5 days	Fri 6/12/20	Fri 6/12/20	PM[10%]
1806	1.3.2.6.13.5	State reviews	1805	2 days	Mon 6/15/20	Tue 6/16/20	State[20%]
1807	**1.3.2.6.13.6**	**DED: Review Cycle (2)**		**5 days**	**Wed 6/17/20**	**Tue 6/23/20**	
1808	1.3.2.6.13.6	Update DED with feedback	1806	1 day	Wed 6/17/20	Wed 6/17/20	PM[5%],Doc Mngr[10%],BA[10%]

ID	WBS	Task Name	Predecessors	Duration	Start	Finish	Resource Names
1809	1.3.2.6.13.6	QA review and update	1808	0.5 days	Thu 6/18/20	Thu 6/18/20	Doc Mngr[40%],Impl Mngr[10%],BA[10%]
1810	1.3.2.6.13.6	Resubmit for State Review	1809	0.5 days	Thu 6/18/20	Thu 6/18/20	PM[10%]
1811	1.3.2.6.13.6	State reviews	1810	2 days	Fri 6/19/20	Mon 6/22/20	State[20%]
1812	1.3.2.6.13.6	State approves DED	1811	1 day	Tue 6/23/20	Tue 6/23/20	State[20%]
1813	**1.3.2.6.13.7**	**Develop Deliverable**		**13 days**	**Wed 6/24/20**	**Mon 7/13/20**	
1814	1.3.2.6.13.7	Create baseline from approved DED	1812	5 days	Wed 6/24/20	Tue 6/30/20	PM[5%],Doc Mngr[10%],BA[10%]
1815	1.3.2.6.13.7	Update deliverable	1814	5 days	Wed 7/1/20	Wed 7/8/20	PM[5%],Doc Mngr[10%],BA[10%]
1816	1.3.2.6.13.7	Conduct Internal Review	1815	2 days	Thu 7/9/20	Fri 7/10/20	PM[5%],Doc Mngr[10%],BA[10%]
1817	1.3.2.6.13.7	Final QA Review/Update of Deliverable	1816	1 day	Mon 7/13/20	Mon 7/13/20	Doc Mngr[40%],Impl Mngr[10%],BA[10%]
1818	1.3.2.6.13.8	Submit Deliverable for State Review	1817	1 day	Tue 7/14/20	Tue 7/14/20	PM[10%]
1819	1.3.2.6.13.9	State reviews document and provides feedback	1818	10 days	Wed 7/15/20	Tue 7/28/20	State[20%]
1820	**1.3.2.6.13.1**	**Deliverable: Review Cycle (1)**		**10 days**	**Wed 7/29/20**	**Tue 8/11/20**	
1821	1.3.2.6.13.1	Update deliverable with feedback	1819	3 days	Wed 7/29/20	Fri 7/31/20	PM[5%],Doc Mngr[10%],BA[10%]
1822	1.3.2.6.13.1	QA review and update	1821	1.5 days	Mon 8/3/20	Tue 8/4/20	Doc Mngr[40%],Impl Mngr[10%],BA[10%]
1823	1.3.2.6.13.1	Submit for State approval	1822	0.5 days	Tue 8/4/20	Tue 8/4/20	PM[10%]
1824	1.3.2.6.13.1	State reviews	1823	5 days	Wed 8/5/20	Tue 8/11/20	State[20%]
1825	**1.3.2.6.13.1**	**Deliverable: Review Cycle (2)**		**10 days**	**Wed 8/12/20**	**Tue 8/25/20**	
1826	1.3.2.6.13.1	Update deliverable with feedback	1824	3 days	Wed 8/12/20	Fri 8/14/20	PM[5%],Doc Mngr[10%],BA[10%]
1827	1.3.2.6.13.1	QA review and update	1826	1.5 days	Mon 8/17/20	Tue 8/18/20	Doc Mngr[40%],Impl Mngr[10%],BA[10%]
1828	1.3.2.6.13.1	Submit for State approval	1827	0.5 days	Tue 8/18/20	Tue 8/18/20	PM[10%]
1829	1.3.2.6.13.1	State reviews	1828	5 days	Wed 8/19/20	Tue 8/25/20	State[20%]
1830	1.3.2.6.13.1	State Provides Final Approval	1829	1 day	Wed 8/26/20	Wed 8/26/20	State[20%]
1831	1.3.2.6.13.1	Milestone: System Requirement Document/Backlog of User Stories or Use Cases Approved	1830	0 days	Wed 8/26/20	Wed 8/26/20	
1832	**1.3.3**	**Solution Design, Testing, and Operations**		**339 days**	**Mon 5/4/20**	**Thu 9/2/21**	
1833	**1.3.3.1**	**Project 1: EDS Platform and Data Mining Tools Configuration**		**302 days**	**Mon 5/4/20**	**Tue 7/13/21**	
1834	**1.3.3.1.1**	**Provision Users to Environments & Tools**		**40 days**	**Mon 5/4/20**	**Mon 6/29/20**	
1835	1.3.3.1.1.1	Create User Access Request form		10 days	Mon 5/4/20	Fri 5/15/20	Sys Mngr[10%],Shared Svcs Windows Admin[20%]
1836	1.3.3.1.1.2	Develop Procedures for User Access Request	1835	10 days	Mon 5/18/20	Mon 6/1/20	Sys Mngr[10%],Shared Svcs Windows Admin[20%]
1837	1.3.3.1.1.3	Train Managers on User Access Request form	1836	10 days	Tue 6/2/20	Mon 6/15/20	Sys Mngr[10%],Shared Svcs Windows Admin[20%]
1838	1.3.3.1.1.4	Provision User to Environments & Tools	1837	10 days	Tue 6/16/20	Mon 6/29/20	Sys Mngr[10%],Shared Svcs Windows Admin[20%]
1839	1.3.3.1.1.5	Milestone: Provision Users to Environments & Tools Complete	1838	0 days	Mon 6/29/20	Mon 6/29/20	
1840	**1.3.3.1.2**	**Training**		**292 days**	**Fri 5/15/20**	**Tue 7/13/21**	
1841	**1.3.3.1.2.1**	**Develop Training Schedule**		**20 days**	**Tue 6/2/20**	**Mon 6/29/20**	
1842	1.3.3.1.2.1.1	Create initial training schedule	2FS+20 days	5 days	Tue 6/2/20	Mon 6/8/20	Trainer[20%]
1843	1.3.3.1.2.1.2	Gather potential attendees	1842	10 days	Tue 6/9/20	Mon 6/22/20	Impl Mngr[5%],State[5%],Trainer[5%]
1844	1.3.3.1.2.1.3	Review with State and make updates	1843	5 days	Tue 6/23/20	Mon 6/29/20	Impl Mngr[5%],State[5%],Trainer[5%]
1845	1.3.3.1.2.1.4	Milestone: Complete Initial Training schedule	1844	0 days	Mon 6/29/20	Mon 6/29/20	
1846	**1.3.3.1.2.2**	**Develop and Deliver UAT Training**		**199 days**	**Fri 8/28/20**	**Mon 6/14/21**	
1847	1.3.3.1.2.2.1	DEPENDENCY: UAT Environment Stood Up and Populated with Data	821,1845	0 days	Wed 11/18/20	Wed 11/18/20	
1848	1.3.3.1.2.2.2	Dependency: Training Plan Approved	3892	0 days	Fri 8/28/20	Fri 8/28/20	
1849	1.3.3.1.2.2.3	Develop Training Curriculum outline	1848	15 days	Mon 8/31/20	Mon 9/21/20	Trainer[20%]
1850	1.3.3.1.2.2.4	Develop materials based on curriculum	1847,4623,1849	10 days	Mon 5/24/21	Mon 6/7/21	Trainer[20%]
1851	1.3.3.1.2.2.5	Execute UAT Training: Data Warehouse	2465SS-7 days,18	5 days	Tue 6/8/21	Mon 6/14/21	Trainer[50%]
1852	1.3.3.1.2.2.6	Execute UAT Training: Reporting	2775SS-9 days	5 days	Mon 11/23/20	Tue 12/1/20	Trainer[50%]
1853	1.3.3.1.2.2.7	Execute UAT Training: Analytics & BI	2574SS-8 days	5 days	Wed 12/2/20	Tue 12/8/20	Trainer[50%]
1854	1.3.3.1.2.2.8	Execute UAT Training (Data Mart)	2882FF-8 days	5 days	Thu 3/4/21	Wed 3/10/21	Trainer[50%]
1855	1.3.3.1.2.2.9	Execute UAT Training (Workflows)	2883FF-8 days	5 days	Thu 1/21/21	Wed 1/27/21	Trainer[50%]
1856	1.3.3.1.2.2.1	Milestone: Develop and Deliver UAT Training Complete	1851,1852,1853,	0 days	Mon 6/14/21	Mon 6/14/21	
1857	**1.3.3.1.2.3**	**Develop and Deliver Project Management Tool Training (Jama, Jira, Project)**		**108 days**	**Fri 5/15/20**	**Mon 10/19/20**	
1858	1.3.3.1.2.3.1	Dependency: Project Management Tools Available	921	0 days	Fri 5/15/20	Fri 5/15/20	
1859	1.3.3.1.2.3.2	Dependency: Training Plan Approved	3892	0 days	Fri 8/28/20	Fri 8/28/20	
1860	1.3.3.1.2.3.3	Develop Training Curriculum outline	1858,1859	15 days	Mon 8/31/20	Mon 9/21/20	Trainer[20%]
1861	1.3.3.1.2.3.4	Develop materials based on curriculum	1860	10 days	Tue 9/22/20	Mon 10/5/20	Trainer[50%]
1862	1.3.3.1.2.3.5	Execute Project Management Tools Training	1861	10 days	Tue 10/6/20	Mon 10/19/20	Trainer[50%]
1863	1.3.3.1.2.3.6	Milestone: Project Management Tools Training Complete	1862	0 days	Mon 10/19/20	Mon 10/19/20	
1864	**1.3.3.1.2.4**	**Develop and Deliver Environment Training for EDS Platform and Data Mining Tools**		**20 days**	**Mon 6/14/21**	**Tue 7/13/21**	
1865	1.3.3.1.2.4.1	Dependency: Training Plan Approved	3892,1863,1856	0 days	Mon 6/14/21	Mon 6/14/21	
1866	1.3.3.1.2.4.2	Develop Training Curriculum outline	1865	5 days	Tue 6/15/21	Mon 6/21/21	Trainer[20%]
1867	1.3.3.1.2.4.3	Develop materials based on curriculum	1865FS+5 days	10 days	Tue 6/22/21	Tue 7/6/21	Trainer[20%]
1868	1.3.3.1.2.4.4	Execute EDS Platform and Data Mining Tools Training	1867,1866	5 days	Wed 7/7/21	Tue 7/13/21	Trainer[50%]
1869	1.3.3.1.2.4.5	Milestone: Training for EDS Platform and Data Mining Tools Complete	1868	0 days	Tue 7/13/21	Tue 7/13/21	
1870	**1.3.3.1.2.5**	**Develop and Deliver I-Sight Training**		**81 days**	**Fri 8/28/20**	**Mon 12/28/20**	
1871	1.3.3.1.2.5.1	Dependency: Training Plan Approved	3892	0 days	Fri 8/28/20	Fri 8/28/20	
1872	1.3.3.1.2.5.2	Perform i-Sight Training	1871,2849	3 days	Fri 12/18/20	Tue 12/22/20	Trainer[20%]
1873	1.3.3.1.2.5.3	Perform Yellow Fin Reporting System Training	1872	2 days	Wed 12/23/20	Mon 12/28/20	Trainer[20%]
1874	1.3.3.1.2.5.4	Milestone: i-Sight Training Complete	1873	0 days	Mon 12/28/20	Mon 12/28/20	
1875	**1.3.3.2**	**Project 2: EDS Implementation**		**184 days**	**Mon 5/4/20**	**Tue 1/26/21**	

WV EDW

ID	WBS	Task Name	Predecessors	Duration	Start	Finish	Resource Names
1876	**1.3.3.2.1**	**SDLC Gate Reviews**		**127 days**	**Mon 6/8/20**	**Tue 12/8/20**	
1877	**1.3.3.2.1.1**	**Design and Develop (iterate, as needed)**		**107 days**	**Mon 6/8/20**	**Fri 11/6/20**	
1878	1.3.3.2.1.1.1	Milestone: Entrance Criteria Met for Design Phase	2299	0 days	Mon 6/8/20	Mon 6/8/20	
1879	1.3.3.2.1.1.2	Milestone: Exit Criteria Met for Design Phase	2462,1878	0 days	Fri 11/6/20	Fri 11/6/20	
1880	**1.3.3.2.1.2**	**Testing (iterate, as needed)**		**20 days**	**Fri 11/6/20**	**Tue 12/8/20**	
1881	1.3.3.2.1.2.1	Milestone: Entrance Criteria Met for Testing Phase	2465	0 days	Fri 11/6/20	Fri 11/6/20	
1882	1.3.3.2.1.2.2	Milestone: Exit Criteria Met for Testing Phase	2509,1881	0 days	Tue 12/8/20	Tue 12/8/20	
1883	**1.3.3.2.2**	**Data Integration Implementation**		**184 days**	**Mon 5/4/20**	**Tue 1/26/21**	
1884	**1.3.3.2.2.1**	**Data Acquisition**		**84 days**	**Mon 5/4/20**	**Mon 8/31/20**	
1885	**1.3.3.2.2.1.1**	**Acquisition - Provider**		**5 days**	**Fri 5/29/20**	**Thu 6/4/20**	
1886	1.3.3.2.2.1.1	Load Data in staging Tables	967	5 days	Fri 5/29/20	Thu 6/4/20	DBA[5%],Tech Lead[50%],ETL Engnr
1887	1.3.3.2.2.1.1	Milestone: Complete Data Acquisition - Provider	1886	0 days	Thu 6/4/20	Thu 6/4/20	
1888	**1.3.3.2.2.1.2**	**Acquisition - Claim**		**25 days**	**Fri 6/5/20**	**Fri 7/10/20**	
1889	**1.3.3.2.2.1.3**	**Acquisition - Prior Authorization**		**5 days**	**Fri 6/5/20**	**Thu 6/11/20**	
1890	1.3.3.2.2.1.3	Load Data in staging Tables	1887,967	5 days	Fri 6/5/20	Thu 6/11/20	DBA[5%],Tech Lead[50%],ETL Engnr
1891	1.3.3.2.2.1.3	Milestone: Complete Data Acquisition - Prior Authorization	1890	0 days	Thu 6/11/20	Thu 6/11/20	
1892	**1.3.3.2.2.1.4**	**Acquisition - Drug Claim**		**5 days**	**Fri 6/12/20**	**Thu 6/18/20**	
1893	1.3.3.2.2.1.4	Load Data in staging Tables	1891,967	5 days	Fri 6/12/20	Thu 6/18/20	DBA[5%],Tech Lead[50%],ETL Engnr
1894	1.3.3.2.2.1.4	Milestone: Complete Data Acquisition - Drug Claim	1893	0 days	Thu 6/18/20	Thu 6/18/20	
1895	**1.3.3.2.2.1.5**	**Acquisition - Institutional Claims**		**5 days**	**Fri 6/19/20**	**Thu 6/25/20**	
1896	1.3.3.2.2.1.5	Load Data in staging Tables	1893,967	5 days	Fri 6/19/20	Thu 6/25/20	DBA[5%],Tech Lead[50%],ETL Engnr
1897	1.3.3.2.2.1.5	Milestone: Complete Data Acquisition - Institutional Claims	1896	0 days	Thu 6/25/20	Thu 6/25/20	
1898	**1.3.3.2.2.1.6**	**Acquisition - Dental Claims**		**5 days**	**Fri 6/26/20**	**Thu 7/2/20**	
1899	1.3.3.2.2.1.6	Load Data in staging Tables	1897,967	5 days	Fri 6/26/20	Thu 7/2/20	DBA[5%],Tech Lead[50%],ETL Engnr
1900	1.3.3.2.2.1.6	Milestone: Complete Data Acquisition - Dental Claims	1899	0 days	Thu 7/2/20	Thu 7/2/20	
1901	**1.3.3.2.2.1.7**	**Acquisition - Professional Claims**		**5 days**	**Mon 7/6/20**	**Fri 7/10/20**	
1902	1.3.3.2.2.1.7	Load Data in staging Tables	1900,967	5 days	Mon 7/6/20	Fri 7/10/20	DBA[5%],Tech Lead[50%],ETL Engnr
1903	1.3.3.2.2.1.7	Milestone: Complete Data Acquisition - Professional Claims	1902	0 days	Fri 7/10/20	Fri 7/10/20	
1904	**1.3.3.2.2.1.8**	**Acquisition - Financial**		**5 days**	**Mon 7/13/20**	**Fri 7/17/20**	
1905	1.3.3.2.2.1.8	Load Data in staging Tables	1903,967	5 days	Mon 7/13/20	Fri 7/17/20	DBA[5%],Tech Lead[50%],ETL Engnr
1906	1.3.3.2.2.1.8	Milestone: Complete Data Acquisition - Financial Analytic Data	1905	0 days	Fri 7/17/20	Fri 7/17/20	
1907	**1.3.3.2.2.1.9**	**Acquisition - Client**		**67 days**	**Mon 5/4/20**	**Thu 8/6/20**	
1908	**1.3.3.2.2.1.9**	**Acquisition - Client Data**		**60 days**	**Mon 5/4/20**	**Tue 7/28/20**	
1909	1.3.3.2.2.1.9	Dependency: Client Data Layout Received	1	0 days	Mon 5/4/20	Mon 5/4/20	
1910	1.3.3.2.2.1.9	Dependency: Client Data File Received	1909	0 days	Mon 5/4/20	Mon 5/4/20	
1911	1.3.3.2.2.1.9	Setup folders	1910,1906	2 days	Mon 7/20/20	Tue 7/21/20	DBA[5%],Tech Lead[50%],ETL Engnr
1912	1.3.3.2.2.1.9	Move Data	1911	1 day	Wed 7/22/20	Wed 7/22/20	DBA[5%],Tech Lead[50%],ETL Engnr
1913	1.3.3.2.2.1.9	Review controls	1912	1 day	Thu 7/23/20	Thu 7/23/20	DBA[5%],Tech Lead[50%],ETL Engnr
1914	1.3.3.2.2.1.9	Load Data in staging Tables	1913,967	3 days	Fri 7/24/20	Tue 7/28/20	DBA[5%],Tech Lead[50%],ETL Engnr
1915	1.3.3.2.2.1.9	Milestone: Complete Data Acquisition - Client	1914	0 days	Tue 7/28/20	Tue 7/28/20	
1916	**1.3.3.2.2.1.10**	**Acquisition - Client Analytic Data**		**67 days**	**Mon 5/4/20**	**Thu 8/6/20**	
1917	1.3.3.2.2.1.10	Dependency: Client Analytic Data Layout Received	3	0 days	Mon 5/4/20	Mon 5/4/20	
1918	1.3.3.2.2.1.10	Dependency: Client Analytic Data File Received	1917	0 days	Mon 5/4/20	Mon 5/4/20	
1919	1.3.3.2.2.1.10	Setup folders	1918,1915	2 days	Wed 7/29/20	Thu 7/30/20	DBA[5%],Tech Lead[50%],ETL Engnr
1920	1.3.3.2.2.1.10	Move Data	1919	1 day	Fri 7/31/20	Fri 7/31/20	DBA[5%],Tech Lead[50%],ETL Engnr
1921	1.3.3.2.2.1.10	Review controls	1920	1 day	Mon 8/3/20	Mon 8/3/20	DBA[5%],Tech Lead[50%],ETL Engnr
1922	1.3.3.2.2.1.10	Load Data in staging Tables	1921,967	3 days	Tue 8/4/20	Thu 8/6/20	DBA[5%],Tech Lead[50%],ETL Engnr
1923	1.3.3.2.2.1.10	Milestone: Complete Data Acquisition - Client Analytic Data	1922	0 days	Thu 8/6/20	Thu 8/6/20	
1924	**1.3.3.2.2.1.11**	**Acquisition - Eligibility**		**3 days**	**Fri 8/7/20**	**Tue 8/11/20**	
1925	1.3.3.2.2.1.11	Load Data in staging Tables	1922,967	3 days	Fri 8/7/20	Tue 8/11/20	DBA[5%],Tech Lead[50%],ETL Engnr
1926	1.3.3.2.2.1.11	Milestone: Complete Data Acquisition - Eligibility	1925	0 days	Tue 8/11/20	Tue 8/11/20	
1927	**1.3.3.2.2.1.12**	**Acquisition - Reference**		**79 days**	**Mon 5/4/20**	**Mon 8/24/20**	
1928	1.3.3.2.2.1.12	Dependency: Reference Data Layout Received	3	0 days	Mon 5/4/20	Mon 5/4/20	
1929	1.3.3.2.2.1.12	Dependency: Reference Data File Received	1928	0 days	Mon 5/4/20	Mon 5/4/20	
1930	1.3.3.2.2.1.12	Setup folders	1929,1926	2 days	Wed 8/12/20	Thu 8/13/20	DBA[5%],Tech Lead[50%],ETL Engnr
1931	1.3.3.2.2.1.12	Move Data	1930	1 day	Fri 8/14/20	Fri 8/14/20	DBA[5%],Tech Lead[50%],ETL Engnr
1932	1.3.3.2.2.1.12	Review controls	1931	1 day	Mon 8/17/20	Mon 8/17/20	DBA[5%],Tech Lead[50%],ETL Engnr
1933	1.3.3.2.2.1.12	Load Data in staging Tables	1932	5 days	Tue 8/18/20	Mon 8/24/20	DBA[5%],Tech Lead[50%],ETL Engnr
1934	1.3.3.2.2.1.12	Milestone: Complete Data Acquisition - Financial Management	1933	0 days	Mon 8/24/20	Mon 8/24/20	
1935	**1.3.3.2.2.1.13**	**Acquisition - Other Feeds**		**66 days**	**Fri 5/29/20**	**Mon 8/31/20**	
1936	**1.3.3.2.2.1.14**	**Health Statistics Center Data**		**5 days**	**Tue 8/25/20**	**Mon 8/31/20**	
1937	1.3.3.2.2.1.14	Load Data in staging Tables	1933,967	5 days	Tue 8/25/20	Mon 8/31/20	DBA[5%],Tech Lead[50%],ETL Engnr
1938	1.3.3.2.2.1.14	Milestone: Complete Data Acquisition - Health Statistics Center Data	1937	0 days	Mon 8/31/20	Mon 8/31/20	
1939	**1.3.3.2.2.1.15**	**PEIA Data**		**5 days**	**Fri 5/29/20**	**Thu 6/4/20**	
1940	1.3.3.2.2.1.15	Load Data in staging Tables	967	5 days	Fri 5/29/20	Thu 6/4/20	DBA[5%],Tech Lead[50%],ETL Engnr
1941	1.3.3.2.2.1.15	Milestone: Complete Data Acquisition - PEIA Data	1940	0 days	Thu 6/4/20	Thu 6/4/20	
1942	1.3.3.2.2.1.15	Milestone: Complete Data Acquisition - Other Inbound Feeds	1938,1941	0 days	Mon 8/31/20	Mon 8/31/20	

ID	WBS	Task Name	Predecessors	Duration	Start	Finish	Resource Names
1943	1.3.3.2.2.2	**Data Conversion Testing**		**89 days**	**Fri 6/5/20**	**Fri 10/9/20**	
1944	1.3.3.2.2.2.1	**Data Assessment - Provider**		**28 days**	**Fri 6/5/20**	**Wed 7/15/20**	
1945	1.3.3.2.2.2.1	DQ: Provider - Create Data Quality Report	1887	10 days	Fri 6/5/20	Thu 6/18/20	QA Mngr[25%],BA[25%]
1946	1.3.3.2.2.2.1	DQ: Provider - Internal Analysis	1945	10 days	Fri 6/19/20	Thu 7/2/20	QA Mngr[25%],BA[25%]
1947	1.3.3.2.2.2.1	DQ: Provider - Develop Recommendation Document	1946	5 days	Mon 7/6/20	Fri 7/10/20	QA Mngr[25%],BA[25%]
1948	1.3.3.2.2.2.1	DQ: Provider - Review Recommendations with Client	1947	3 days	Mon 7/13/20	Wed 7/15/20	QA Mngr[25%],BA[25%],State[25%]
1949	1.3.3.2.2.2.1	Milestone: Data Quality: Provider - Complete	1948	0 days	Wed 7/15/20	Wed 7/15/20	
1950	1.3.3.2.2.2.2	**Data Assessment - Claims**		**53 days**	**Fri 6/12/20**	**Wed 8/26/20**	
1951	1.3.3.2.2.2.2	**Data Quality - Prior Authorization**		**28 days**	**Fri 6/12/20**	**Wed 7/22/20**	
1952	1.3.3.2.2.2.2	DQ: Prior Authorization - Create Data Quality Report	1891	10 days	Fri 6/12/20	Thu 6/25/20	QA Mngr[25%],BA[25%]
1953	1.3.3.2.2.2.2	DQ: Prior Authorization - Internal Analysis	1952	10 days	Fri 6/26/20	Fri 7/10/20	QA Mngr[25%],BA[25%]
1954	1.3.3.2.2.2.2	DQ: Prior Authorization - Develop Recommendation Document	1953	5 days	Mon 7/13/20	Fri 7/17/20	QA Mngr[25%],BA[25%]
1955	1.3.3.2.2.2.2	DQ: Prior Authorization Review Recommendations with Client	1954	3 days	Mon 7/20/20	Wed 7/22/20	QA Mngr[25%],BA[25%],State[25%]
1956	1.3.3.2.2.2.2	Milestone: Data Quality: Prior Authorization - Complete	1955	0 days	Wed 7/22/20	Wed 7/22/20	
1957	1.3.3.2.2.2.3	**Data Quality - Drug Claim**		**28 days**	**Fri 6/19/20**	**Wed 7/29/20**	
1958	1.3.3.2.2.2.3	DQ: Drug Claim - Create Data Quality Report	1894	10 days	Fri 6/19/20	Thu 7/2/20	QA Mngr[25%],BA[25%]
1959	1.3.3.2.2.2.3	DQ: Drug Claim - Internal Analysis	1958	10 days	Mon 7/6/20	Fri 7/17/20	QA Mngr[25%],BA[25%]
1960	1.3.3.2.2.2.3	DQ: Drug Claim - Develop Recommendation Document	1959	5 days	Mon 7/20/20	Fri 7/24/20	QA Mngr[25%],BA[25%]
1961	1.3.3.2.2.2.3	DQ: Drug Claim Review Recommendations with Client	1960	3 days	Mon 7/27/20	Wed 7/29/20	QA Mngr[25%],BA[25%],State[25%]
1962	1.3.3.2.2.2.3	Milestone: Data Quality: Drug Claim - Complete	1961	0 days	Wed 7/29/20	Wed 7/29/20	
1963	1.3.3.2.2.2.4	**Data Quality - Institutional Claims**		**28 days**	**Fri 6/26/20**	**Wed 8/5/20**	
1964	1.3.3.2.2.2.4	DQ: Institutional Claims - Create Data Quality Report	1897	10 days	Fri 6/26/20	Fri 7/10/20	QA Mngr[25%],BA[25%]
1965	1.3.3.2.2.2.4	DQ: Institutional Claims - Internal Analysis	1964	10 days	Mon 7/13/20	Fri 7/24/20	QA Mngr[25%],BA[25%]
1966	1.3.3.2.2.2.4	DQ: Institutional Claims - Develop Recommendation Document	1965	5 days	Mon 7/27/20	Fri 7/31/20	QA Mngr[25%],BA[25%]
1967	1.3.3.2.2.2.4	DQ: Institutional Claims Review Recommendations with Client	1966	3 days	Mon 8/3/20	Wed 8/5/20	QA Mngr[25%],BA[25%],State[25%]
1968	1.3.3.2.2.2.4	Milestone: Data Quality: Institutional Claims - Complete	1967	0 days	Wed 8/5/20	Wed 8/5/20	
1969	1.3.3.2.2.2.5	**Data Quality - Dental Claims**		**28 days**	**Mon 7/6/20**	**Wed 8/12/20**	
1970	1.3.3.2.2.2.5	DQ: Dental Claims - Create Data Quality Report	1900	10 days	Mon 7/6/20	Fri 7/17/20	QA Mngr[25%],BA[25%]
1971	1.3.3.2.2.2.5	DQ: Dental Claims - Internal Analysis	1970	10 days	Mon 7/20/20	Fri 7/31/20	QA Mngr[25%],BA[25%]
1972	1.3.3.2.2.2.5	DQ: Dental Claims - Develop Recommendation Document	1971	5 days	Mon 8/3/20	Fri 8/7/20	QA Mngr[25%],BA[25%]
1973	1.3.3.2.2.2.5	DQ: Dental Claims Review Recommendations with Client	1972	3 days	Mon 8/10/20	Wed 8/12/20	QA Mngr[25%],BA[25%],State[25%]
1974	1.3.3.2.2.2.5	Milestone: Data Quality: Dental Claims - Complete	1973	0 days	Wed 8/12/20	Wed 8/12/20	
1975	1.3.3.2.2.2.6	**Data Quality - Professional Claims**		**28 days**	**Mon 7/20/20**	**Wed 8/26/20**	
1976	1.3.3.2.2.2.6	DQ: Professional Claims - Create Data Quality Report	1903,1906,1887	10 days	Mon 7/20/20	Fri 7/31/20	QA Mngr[25%],BA[25%]
1977	1.3.3.2.2.2.6	DQ: Professional Claims - Internal Analysis	1976	10 days	Mon 8/3/20	Fri 8/14/20	QA Mngr[25%],BA[25%]
1978	1.3.3.2.2.2.6	DQ: Professional Claims - Develop Recommendation Document	1977	5 days	Mon 8/17/20	Fri 8/21/20	QA Mngr[25%],BA[25%]
1979	1.3.3.2.2.2.6	DQ: Professional Claims Review Recommendations with Client	1978	3 days	Mon 8/24/20	Wed 8/26/20	QA Mngr[25%],BA[25%],State[25%]
1980	1.3.3.2.2.2.6	Milestone: Data Quality: Professional Claims - Complete	1979	0 days	Wed 8/26/20	Wed 8/26/20	
1981	1.3.3.2.2.2.7	**Data Assessment - Financial**		**28 days**	**Mon 7/20/20**	**Wed 8/26/20**	
1982	1.3.3.2.2.2.7	DQ: Financial Analytic Data - Create Data Quality Report	1906	10 days	Mon 7/20/20	Fri 7/31/20	QA Mngr[25%],BA[25%]
1983	1.3.3.2.2.2.7	DQ: Financial Analytic Data - Internal Analysis	1982	10 days	Mon 8/3/20	Fri 8/14/20	QA Mngr[25%],BA[25%]
1984	1.3.3.2.2.2.7	DQ: Financial Analytic Data - Develop Recommendation Document	1983	5 days	Mon 8/17/20	Fri 8/21/20	QA Mngr[25%],BA[25%]
1985	1.3.3.2.2.2.7	DQ: Financial Analytic Data - Review Recommendations with Client	1984	3 days	Mon 8/24/20	Wed 8/26/20	QA Mngr[25%],BA[25%],State[25%]
1986	1.3.3.2.2.2.7	Milestone: Data Quality: Financial Analytic Data - Complete	1985	0 days	Wed 8/26/20	Wed 8/26/20	
1987	1.3.3.2.2.2.8	**Data Assessment - Client Interfaces**		**28 days**	**Fri 8/7/20**	**Wed 9/16/20**	
1988	1.3.3.2.2.2.8	**Data Quality - Client**		**28 days**	**Fri 8/7/20**	**Wed 9/16/20**	
1989	1.3.3.2.2.2.8	DS: Client - Create Data Quality Report	1923	10 days	Fri 8/7/20	Thu 8/20/20	QA Mngr[25%],BA[25%]
1990	1.3.3.2.2.2.8	DS: Client - Internal Analysis	1989	10 days	Fri 8/21/20	Thu 9/3/20	QA Mngr[25%],BA[25%]
1991	1.3.3.2.2.2.8	DQ: Client - Develop Recommendation Document	1990	5 days	Fri 9/4/20	Fri 9/11/20	QA Mngr[25%],BA[25%]
1992	1.3.3.2.2.2.8	DQ: Client - Review Recommendations with Client	1991	3 days	Mon 9/14/20	Wed 9/16/20	QA Mngr[25%],BA[25%],State[25%]
1993	1.3.3.2.2.2.8	Milestone: Data Quality: Client Complete	1992	0 days	Wed 9/16/20	Wed 9/16/20	
1994	1.3.3.2.2.2.9	**Data Quality - Client Analytic Data**		**28 days**	**Fri 8/7/20**	**Wed 9/16/20**	
1995	1.3.3.2.2.2.9	DQ: Client Analytic Data - Create Data Quality Report	1923	10 days	Fri 8/7/20	Thu 8/20/20	QA Mngr[25%],BA[25%]
1996	1.3.3.2.2.2.9	DQ: Client Analytic Data - Internal Analysis	1995	10 days	Fri 8/21/20	Thu 9/3/20	QA Mngr[25%],BA[25%]
1997	1.3.3.2.2.2.9	DQ: Client Analytic Data- Develop Recommendation Document	1996	5 days	Fri 9/4/20	Fri 9/11/20	QA Mngr[25%],BA[25%]
1998	1.3.3.2.2.2.9	DQ: Client Analytic Data- Review Recommendations with Client	1997	3 days	Mon 9/14/20	Wed 9/16/20	QA Mngr[25%],BA[25%],State[25%]
1999	1.3.3.2.2.2.9	Milestone: Data Quality: Client Analytic Data - Complete	1998	0 days	Wed 9/16/20	Wed 9/16/20	
2000	1.3.3.2.2.2.10	**Data Assessment - Eligibility**		**28 days**	**Wed 8/12/20**	**Mon 9/21/20**	
2001	1.3.3.2.2.2.10	DQ: Eligibility - Create Data Quality Report	1926	10 days	Wed 8/12/20	Tue 8/25/20	QA Mngr[25%],BA[25%]
2002	1.3.3.2.2.2.10	DQ: Eligibility - Internal Analysis	2001	10 days	Wed 8/26/20	Wed 9/9/20	QA Mngr[25%],BA[25%]
2003	1.3.3.2.2.2.10	DQ: Eligibility - Develop Recommendation Document	2002	5 days	Thu 9/10/20	Wed 9/16/20	QA Mngr[25%],BA[25%]
2004	1.3.3.2.2.2.10	DQ: Eligibility - Review Recommendations with Client	2003	3 days	Thu 9/17/20	Mon 9/21/20	QA Mngr[25%],BA[25%],State[25%]
2005	1.3.3.2.2.2.10	Milestone: Data Quality: Eligibility - Complete	2004	0 days	Mon 9/21/20	Mon 9/21/20	
2006	1.3.3.2.2.2.6	**Data Assessment - Reference**		**28 days**	**Tue 8/25/20**	**Fri 10/2/20**	
2007	1.3.3.2.2.2.6	DQ: Reference - Create Data Quality Report	1934	10 days	Tue 8/25/20	Tue 9/8/20	QA Mngr[25%],BA[25%]
2008	1.3.3.2.2.2.6	DQ: Reference - Internal Analysis	2007	10 days	Wed 9/9/20	Tue 9/22/20	QA Mngr[25%],BA[25%]
2009	1.3.3.2.2.2.6	DQ: Reference - Develop Recommendation Document	2008	5 days	Wed 9/23/20	Tue 9/29/20	QA Mngr[25%],BA[25%]

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ID	WBS	Task Name	Predecessors	Duration	Start	Finish	Resource Names
2010	1.3.3.2.2.6	DQ: Reference Review Recommendations with Client	2009	3 days	Wed 9/30/20	Fri 10/2/20	QA Mngr[25%],BA[25%],State[25%]
2011	1.3.3.2.2.6	Milestone: Data Quality: Reference - Complete	2010	0 days	Fri 10/2/20	Fri 10/2/20	
2012	**1.3.3.2.2.7**	**Data Quality Other feeds**		**89 days**	**Fri 6/5/20**	**Fri 10/9/20**	
2013	**1.3.3.2.2.7**	**Health Statistics Center Data**		**28 days**	**Tue 9/1/20**	**Fri 10/9/20**	
2014	1.3.3.2.2.7	DQ: Health Statistics Center Data - Create Data Quality Report	1942	10 days	Tue 9/1/20	Tue 9/15/20	QA Mngr[25%],BA[25%]
2015	1.3.3.2.2.7	DQ: Health Statistics Center Data - Internal Analysis	2014	10 days	Wed 9/16/20	Tue 9/29/20	QA Mngr[25%],BA[25%]
2016	1.3.3.2.2.7	DQ: Health Statistics Center Data - Develop Recommendation Document	2015	5 days	Wed 9/30/20	Tue 10/6/20	QA Mngr[25%],BA[25%]
2017	1.3.3.2.2.7	DQ: Health Statistics Center Data Review Recommendations with Client	2016	3 days	Wed 10/7/20	Fri 10/9/20	QA Mngr[25%],BA[25%],State[25%]
2018	1.3.3.2.2.7	Milestone: Data Quality: Health Statistics Center Data - Complete	2017	0 days	Fri 10/9/20	Fri 10/9/20	
2019	**1.3.3.2.2.7**	**PEIA Data**		**28 days**	**Fri 6/5/20**	**Wed 7/15/20**	
2020	1.3.3.2.2.7	DQ: PEIA Data - Create Data Quality Report	1941	10 days	Fri 6/5/20	Thu 6/18/20	QA Mngr[25%],BA[25%]
2021	1.3.3.2.2.7	DQ: PEIA Data - Internal Analysis	2020	10 days	Fri 6/19/20	Thu 7/2/20	QA Mngr[25%],BA[25%]
2022	1.3.3.2.2.7	DQ: PEIA Data - Develop Recommendation Document	2021	5 days	Mon 7/6/20	Fri 7/10/20	QA Mngr[25%],BA[25%]
2023	1.3.3.2.2.7	DQ: PEIA Data Review Recommendations with Client	2022	3 days	Mon 7/13/20	Wed 7/15/20	QA Mngr[25%],BA[25%],State[25%]
2024	1.3.3.2.2.7	Milestone: Data Quality: PEIA Data - Complete	2023	0 days	Wed 7/15/20	Wed 7/15/20	
2025	1.3.3.2.2.7	Milestone: Complete Inbound Data Assessment	2024,2018	0 days	Fri 10/9/20	Fri 10/9/20	
2026	**1.3.3.2.3**	**Data Storage - Integration Layer**		**111 days**	**Fri 6/5/20**	**Tue 11/10/20**	
2027	**1.3.3.2.3.1**	**Design Data Integration Layer**		**87 days**	**Fri 6/5/20**	**Wed 10/7/20**	
2028	**1.3.3.2.3.1**	**Design Data Integration - Provider**		**34 days**	**Fri 6/5/20**	**Thu 7/23/20**	
2029	1.3.3.2.3.1	Create Source to Target Mapping	1887	15 days	Fri 6/5/20	Thu 6/25/20	BI Dev[50%],BA,Data Architect
2030	1.3.3.2.3.1	Review Source to target Mapping internal Peer review	2029	5 days	Fri 6/26/20	Thu 7/2/20	BI Dev[50%],BA[25%],Data Architect[25%],BI Lead Arch (Cognos)[50%]
2031	1.3.3.2.3.1	Update Source to Target Mapping from Internal Peer review	2030	2 days	Mon 7/6/20	Tue 7/7/20	BI Dev[50%],BA,Data Architect
2032	1.3.3.2.3.1	Send to Client for review	2031	10 days	Wed 7/8/20	Tue 7/21/20	BA[5%],State[10%]
2033	1.3.3.2.3.1	Update Source to Target Mapping from review	2032	2 days	Wed 7/22/20	Thu 7/23/20	BI Dev[50%],BA,Data Architect
2034	1.3.3.2.3.1	Milestone: Complete Source To Target Mapping Provider	2033	0 days	Thu 7/23/20	Thu 7/23/20	
2035	**1.3.3.2.3.1**	**Design Data Integration - Claim and Finance**		**59 days**	**Fri 6/12/20**	**Thu 9/3/20**	
2036	**1.3.3.2.3.1**	**Data Integration Design - Financial Analytic Data**		**34 days**	**Mon 7/20/20**	**Thu 9/3/20**	
2037	1.3.3.2.3.1	Create Source to Target Mapping	1906	15 days	Mon 7/20/20	Fri 8/7/20	BI Dev[50%],BA,Data Architect
2038	1.3.3.2.3.1	Review Source to target Mapping internal Peer review	2037	5 days	Mon 8/10/20	Fri 8/14/20	BI Dev[50%],BA[25%],Data Architect[25%],BI Lead Arch (Cognos)[50%]
2039	1.3.3.2.3.1	Update Source to Target Mapping from Internal Peer review	2038	2 days	Mon 8/17/20	Tue 8/18/20	BI Dev[50%],BA,Data Architect
2040	1.3.3.2.3.1	Send to Client for review	2039	10 days	Wed 8/19/20	Tue 9/1/20	BA[5%],State[10%]
2041	1.3.3.2.3.1	Update Source to Target Mapping from review	2040	2 days	Wed 9/2/20	Thu 9/3/20	BI Dev[50%],BA,Data Architect
2042	1.3.3.2.3.1	Milestone: Complete Source To Target Mapping Financial Analytic Data	2041	0 days	Thu 9/3/20	Thu 9/3/20	
2043	**1.3.3.2.3.1**	**Data Integration Design - Prior Authorization**		**34 days**	**Fri 6/12/20**	**Thu 7/30/20**	
2044	1.3.3.2.3.1	Create Source to Target Mapping	1891	15 days	Fri 6/12/20	Thu 7/2/20	BI Dev[50%],BA,Data Architect
2045	1.3.3.2.3.1	Review Source to target Mapping internal Peer review	2044	5 days	Mon 7/6/20	Fri 7/10/20	BI Dev[50%],BA[25%],Data Architect[25%],BI Lead Arch (Cognos)[50%]
2046	1.3.3.2.3.1	Update Source to Target Mapping from Internal Peer review	2045	2 days	Mon 7/13/20	Tue 7/14/20	BI Dev[50%],BA,Data Architect
2047	1.3.3.2.3.1	Send to Client for review	2046	10 days	Wed 7/15/20	Tue 7/28/20	BA[5%],State[10%]
2048	1.3.3.2.3.1	Update Source to Target Mapping from review	2047	2 days	Wed 7/29/20	Thu 7/30/20	BI Dev[50%],BA,Data Architect
2049	1.3.3.2.3.1	Milestone: Complete Source To Target Mapping Prior Authorization	2048	0 days	Thu 7/30/20	Thu 7/30/20	
2050	**1.3.3.2.3.1**	**Data Integration Design - Drug Claim**		**34 days**	**Fri 6/19/20**	**Thu 8/6/20**	
2051	1.3.3.2.3.1	Create Source to Target Mapping	1894	15 days	Fri 6/19/20	Fri 7/10/20	BI Dev[50%],BA,Data Architect
2052	1.3.3.2.3.1	Review Source to target Mapping internal Peer review	2051	5 days	Mon 7/13/20	Fri 7/17/20	BI Dev[50%],BA[25%],Data Architect[25%],BI Lead Arch (Cognos)[50%]
2053	1.3.3.2.3.1	Update Source to Target Mapping from Internal Peer review	2052	2 days	Mon 7/20/20	Tue 7/21/20	BI Dev[50%],BA,Data Architect
2054	1.3.3.2.3.1	Send to Client for review	2053	10 days	Wed 7/22/20	Tue 8/4/20	BA[5%],State[10%]
2055	1.3.3.2.3.1	Update Source to Target Mapping from review	2054	2 days	Wed 8/5/20	Thu 8/6/20	BI Dev[50%],BA,Data Architect
2056	1.3.3.2.3.1	Milestone: Complete Source To Target Mapping Drug Claim	2055	0 days	Thu 8/6/20	Thu 8/6/20	
2057	**1.3.3.2.3.1**	**Data Integration Design - Institutional Claims**		**34 days**	**Fri 6/26/20**	**Thu 8/13/20**	
2058	1.3.3.2.3.1	Create Source to Target Mapping	1897	15 days	Fri 6/26/20	Fri 7/17/20	BI Dev[50%],BA,Data Architect
2059	1.3.3.2.3.1	Review Source to target Mapping internal Peer review	2058	5 days	Mon 7/20/20	Fri 7/24/20	BI Dev[50%],BA[25%],Data Architect[25%],BI Lead Arch (Cognos)[50%]
2060	1.3.3.2.3.1	Update Source to Target Mapping from Internal Peer review	2059	2 days	Mon 7/27/20	Tue 7/28/20	BI Dev[50%],BA,Data Architect
2061	1.3.3.2.3.1	Send to Client for review	2060	10 days	Wed 7/29/20	Tue 8/11/20	BA[5%],State[10%]
2062	1.3.3.2.3.1	Update Source to Target Mapping from review	2061	2 days	Wed 8/12/20	Thu 8/13/20	BI Dev[50%],BA,Data Architect
2063	1.3.3.2.3.1	Milestone: Complete Source To Target Mapping Institutional Claims	2062	0 days	Thu 8/13/20	Thu 8/13/20	
2064	**1.3.3.2.3.1**	**Data Integration Design - Design - Dental**		**34 days**	**Mon 7/6/20**	**Thu 8/20/20**	
2065	1.3.3.2.3.1	Create Source to Target Mapping	1900	15 days	Mon 7/6/20	Fri 7/24/20	BI Dev[50%],BA,Data Architect
2066	1.3.3.2.3.1	Review Source to target Mapping internal Peer review	2065	5 days	Mon 7/27/20	Fri 7/31/20	BI Dev[50%],BA[25%],Data Architect[25%],BI Lead Arch (Cognos)[50%]
2067	1.3.3.2.3.1	Update Source to Target Mapping from Internal Peer review	2066	2 days	Mon 8/3/20	Tue 8/4/20	BI Dev[50%],BA,Data Architect
2068	1.3.3.2.3.1	Send to Client for review	2067	10 days	Wed 8/5/20	Tue 8/18/20	BA[5%],State[10%]
2069	1.3.3.2.3.1	Update Source to Target Mapping from review	2068	2 days	Wed 8/19/20	Thu 8/20/20	BI Dev[50%],BA,Data Architect
2070	1.3.3.2.3.1	Milestone: Complete Source To Target Mapping Dental Claims	2069	0 days	Thu 8/20/20	Thu 8/20/20	
2071	**1.3.3.2.3.1**	**Data Integration Design - Design - Professional Claims**		**34 days**	**Mon 7/13/20**	**Thu 8/27/20**	
2072	1.3.3.2.3.1	Create Source to Target Mapping	1903	15 days	Mon 7/13/20	Fri 7/31/20	BI Dev[50%],BA,Data Architect
2073	1.3.3.2.3.1	Review Source to target Mapping internal Peer review	2072	5 days	Mon 8/3/20	Fri 8/7/20	BI Dev[50%],BA[25%],Data Architect[25%],BI Lead Arch (Cognos)[50%]
2074	1.3.3.2.3.1	Update Source to Target Mapping from Internal Peer review	2073	2 days	Mon 8/10/20	Tue 8/11/20	BI Dev[50%],BA,Data Architect
2075	1.3.3.2.3.1	Send to Client for review	2074	10 days	Wed 8/12/20	Tue 8/25/20	BA[5%],State[10%]
2076	1.3.3.2.3.1	Update Source to Target Mapping from review	2075	2 days	Wed 8/26/20	Thu 8/27/20	BI Dev[50%],BA,Data Architect

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ID	WBS	Task Name	Predecessors	Duration	Start	Finish	Resource Names
2077	1.3.3.2.2.3.1	Milestone: Complete Source To Target Mapping Professional Claims	2076	0 days	Thu 8/27/20	Thu 8/27/20	
2078	**1.3.3.2.2.3.1**	**Design Data Integration - Client Interfaces**		**32 days**	**Wed 7/29/20**	**Fri 9/11/20**	
2079	**1.3.3.2.2.3.1**	**Data Integration Design - Client**		**25 days**	**Wed 7/29/20**	**Tue 9/1/20**	
2080	1.3.3.2.2.3.1	Create Source to Target Mapping	1915	10 days	Wed 7/29/20	Tue 8/11/20	BI Dev[50%],BA,Data Architect
2081	1.3.3.2.2.3.1	Review Source to target Mapping internal Peer review	2080	2 days	Wed 8/12/20	Thu 8/13/20	BI Dev[50%],BA[25%],Data Architect[25%],BI Lead Arch (Cognos)[50%]
2082	1.3.3.2.2.3.1	Update Source to Target Mapping from Internal Peer review	2081	1 day	Fri 8/14/20	Fri 8/14/20	BI Dev[50%],BA,Data Architect
2083	1.3.3.2.2.3.1	Send to Client for review	2082	10 days	Mon 8/17/20	Fri 8/28/20	BA[5%],State[10%]
2084	1.3.3.2.2.3.1	Update Source to Target Mapping from review	2083	2 days	Mon 8/31/20	Tue 9/1/20	BI Dev[50%],BA,Data Architect
2085	1.3.3.2.2.3.1	Milestone: Complete Source To Target Mapping Client	2084	0 days	Tue 9/1/20	Tue 9/1/20	
2086	**1.3.3.2.2.3.1**	**Data Integration Design - Client Analytic Data**		**25 days**	**Fri 8/7/20**	**Fri 9/11/20**	
2087	1.3.3.2.2.3.1	Create Source to Target Mapping	1923	10 days	Fri 8/7/20	Thu 8/20/20	BI Dev[50%],BA,Data Architect
2088	1.3.3.2.2.3.1	Review Source to target Mapping internal Peer review	2087	2 days	Fri 8/21/20	Mon 8/24/20	BI Dev[50%],BA[25%],Data Architect[25%],BI Lead Arch (Cognos)[50%]
2089	1.3.3.2.2.3.1	Update Source to Target Mapping from Internal Peer review	2088	1 day	Tue 8/25/20	Tue 8/25/20	BI Dev[50%],BA,Data Architect
2090	1.3.3.2.2.3.1	Send to Client for review	2089	10 days	Wed 8/26/20	Wed 9/9/20	BA[5%],State[10%]
2091	1.3.3.2.2.3.1	Update Source to Target Mapping from review	2090	2 days	Thu 9/10/20	Fri 9/11/20	BI Dev[50%],BA,Data Architect
2092	1.3.3.2.2.3.1	Milestone: Complete Source To Target Mapping Client Analytic Data	2091	0 days	Fri 9/11/20	Fri 9/11/20	
2093	**1.3.3.2.2.3.1**	**Design Data Integration - Eligibility**		**26 days**	**Wed 8/12/20**	**Thu 9/17/20**	
2094	1.3.3.2.2.3.1	Create Source to Target Mapping	1926	10 days	Wed 8/12/20	Tue 8/25/20	BI Dev[50%],BA,Data Architect
2095	1.3.3.2.2.3.1	Review Source to target Mapping internal Peer review	2094	3 days	Wed 8/26/20	Fri 8/28/20	BI Dev[50%],BA[25%],Data Architect[25%],BI Lead Arch (Cognos)[50%]
2096	1.3.3.2.2.3.1	Update Source to Target Mapping from Internal Peer review	2095	1 day	Mon 8/31/20	Mon 8/31/20	BI Dev[50%],BA,Data Architect
2097	1.3.3.2.2.3.1	Send to Client for review	2096	10 days	Tue 9/1/20	Tue 9/15/20	BA[5%],State[10%]
2098	1.3.3.2.2.3.1	Update Source to Target Mapping from review	2097	2 days	Wed 9/16/20	Thu 9/17/20	BI Dev[50%],BA,Data Architect
2099	1.3.3.2.2.3.1	Milestone: Complete Source To Target Mapping Eligibility	2098	0 days	Thu 9/17/20	Thu 9/17/20	
2100	**1.3.3.2.2.3.1**	**Design Data Integration - Reference**		**26 days**	**Tue 8/25/20**	**Wed 9/30/20**	
2101	1.3.3.2.2.3.1	Create Source to Target Mapping	1934	10 days	Tue 8/25/20	Tue 9/8/20	BI Dev[50%],BA,Data Architect
2102	1.3.3.2.2.3.1	Review Source to target Mapping internal Peer review	2101	3 days	Wed 9/9/20	Fri 9/11/20	BI Dev[50%],BA[25%],Data Architect[25%],BI Lead Arch (Cognos)[50%]
2103	1.3.3.2.2.3.1	Update Source to Target Mapping from Internal Peer review	2102	1 day	Mon 9/14/20	Mon 9/14/20	BI Dev[50%],BA,Data Architect
2104	1.3.3.2.2.3.1	Send to Client for review	2103	10 days	Tue 9/15/20	Mon 9/28/20	BA[5%],State[10%]
2105	1.3.3.2.2.3.1	Update Source to Target Mapping from review	2104	2 days	Tue 9/29/20	Wed 9/30/20	BI Dev[50%],BA,Data Architect
2106	1.3.3.2.2.3.1	Milestone: Complete Source To Target Mapping Reference	2105	0 days	Wed 9/30/20	Wed 9/30/20	
2107	**1.3.3.2.2.3.1**	**Design Data Integration - Other Feeds**		**87 days**	**Fri 6/5/20**	**Wed 10/7/20**	
2108	**1.3.3.2.2.3.1**	**Data Integration Design - Health Statistics Center Data**		**26 days**	**Tue 9/1/20**	**Wed 10/7/20**	
2109	1.3.3.2.2.3.1	Create Source to Target Mapping	1942	10 days	Tue 9/1/20	Tue 9/15/20	BI Dev[50%],BA,Data Architect
2110	1.3.3.2.2.3.1	Review Source to target Mapping internal Peer review	2109	3 days	Wed 9/16/20	Fri 9/18/20	BI Dev[50%],BA[25%],Data Architect[25%],BI Lead Arch (Cognos)[50%]
2111	1.3.3.2.2.3.1	Update Source to Target Mapping from Internal Peer review	2110	1 day	Mon 9/21/20	Mon 9/21/20	BI Dev[50%],BA,Data Architect
2112	1.3.3.2.2.3.1	Send to Client for review	2111	10 days	Tue 9/22/20	Mon 10/5/20	BA[5%],State[10%]
2113	1.3.3.2.2.3.1	Update Source to Target Mapping from review	2112	2 days	Tue 10/6/20	Wed 10/7/20	BI Dev[50%],BA,Data Architect
2114	1.3.3.2.2.3.1	Milestone: Complete Source To Target Mapping HSC Data	2113	0 days	Wed 10/7/20	Wed 10/7/20	
2115	**1.3.3.2.2.3.1**	**Data Integration Design - PEIA Data**		**26 days**	**Fri 6/5/20**	**Mon 7/13/20**	
2116	1.3.3.2.2.3.1	Create Source to Target Mapping	1941	10 days	Fri 6/5/20	Thu 6/18/20	BI Dev[50%],BA,Data Architect
2117	1.3.3.2.2.3.1	Review Source to target Mapping internal Peer review	2116	3 days	Fri 6/19/20	Tue 6/23/20	BI Dev[50%],BA[25%],Data Architect[25%],BI Lead Arch (Cognos)[50%]
2118	1.3.3.2.2.3.1	Update Source to Target Mapping from Internal Peer review	2117	1 day	Wed 6/24/20	Wed 6/24/20	BI Dev[50%],BA,Data Architect
2119	1.3.3.2.2.3.1	Send to Client for review	2118	10 days	Thu 6/25/20	Thu 7/9/20	BA[5%],State[10%]
2120	1.3.3.2.2.3.1	Update Source to Target Mapping from review	2119	2 days	Fri 7/10/20	Mon 7/13/20	BI Dev[50%],BA,Data Architect
2121	1.3.3.2.2.3.1	Milestone: Complete Source To Target Mapping PEIA Data	2120	0 days	Mon 7/13/20	Mon 7/13/20	
2122	**1.3.3.2.2.3.1**	**Develop Data Integration**		**85 days**	**Tue 7/14/20**	**Tue 11/10/20**	
2123	**1.3.3.2.2.3.1**	**Develop Data Integration - Provider**		**22 days**	**Fri 7/24/20**	**Mon 8/24/20**	
2124	1.3.3.2.2.3.1	ETL Development - Provider	2034,1949	20 days	Fri 7/24/20	Thu 8/20/20	BI Dev,Data Architect[50%],DBA[50%],ETL Engnr[50%]
2125	1.3.3.2.2.3.1	ETL Unit Testing - Provider	2124SS+2 days	20 days	Tue 7/28/20	Mon 8/24/20	BI Dev,Data Architect[50%],DBA[50%],ETL Engnr[50%]
2126	1.3.3.2.2.3.1	Milestone: Complete ETL Provider	2125	0 days	Mon 8/24/20	Mon 8/24/20	
2127	**1.3.3.2.2.3.1**	**Develop Data Integration - Claim and Finance**		**47 days**	**Fri 7/31/20**	**Tue 10/6/20**	
2128	**1.3.3.2.2.3.1**	**Development - Financial Analytic Data**		**22 days**	**Fri 9/4/20**	**Tue 10/6/20**	
2129	1.3.3.2.2.3.1	ETL Development - Financial Analytic Data	2042,1986	20 days	Fri 9/4/20	Fri 10/2/20	ETL Engnr[50%],BI Dev[50%]
2130	1.3.3.2.2.3.1	ETL Unit Testing - Financial Analytic Data	2129SS+2 days	20 days	Wed 9/9/20	Tue 10/6/20	BI Dev,Data Architect[50%],DBA[50%],ETL Engnr[50%]
2131	1.3.3.2.2.3.1	Milestone: Complete ETL Financial Analytic Data	2130	0 days	Tue 10/6/20	Tue 10/6/20	
2132	**1.3.3.2.2.3.1**	**Development - Prior Authorization**		**22 days**	**Fri 7/31/20**	**Mon 8/31/20**	
2133	1.3.3.2.2.3.1	ETL Development - Prior Authorization	2049,1956	20 days	Fri 7/31/20	Thu 8/27/20	BI Dev[50%],ETL Engnr[50%]
2134	1.3.3.2.2.3.1	ETL Unit Testing - Prior Authorization	2133SS+2 days	20 days	Tue 8/4/20	Mon 8/31/20	BI Dev,Data Architect[50%],DBA[50%],ETL Engnr[50%]
2135	1.3.3.2.2.3.1	Milestone: Complete ETL Prior Authorization	2134	0 days	Mon 8/31/20	Mon 8/31/20	
2136	**1.3.3.2.2.3.1**	**Development - Drug Claim**		**22 days**	**Fri 8/7/20**	**Tue 9/8/20**	
2137	1.3.3.2.2.3.1	ETL Development - Drug Claim	2056,1962	20 days	Fri 8/7/20	Thu 9/3/20	BI Dev[50%],ETL Engnr[50%]
2138	1.3.3.2.2.3.1	ETL Unit Testing - Drug Claim	2137SS+2 days	20 days	Tue 8/11/20	Tue 9/8/20	BI Dev,Data Architect[50%],DBA[50%],ETL Engnr[50%]
2139	1.3.3.2.2.3.1	Milestone: Complete ETL Drug Claim	2138	0 days	Tue 9/8/20	Tue 9/8/20	
2140	**1.3.3.2.2.3.1**	**Development - Institutional Claims**		**22 days**	**Fri 8/14/20**	**Tue 9/15/20**	
2141	1.3.3.2.2.3.1	ETL Development - Institutional Claims	2063,1968	20 days	Fri 8/14/20	Fri 9/11/20	BI Dev[50%],ETL Engnr[50%]
2142	1.3.3.2.2.3.1	ETL Unit Testing - Institutional Claims	2141SS+2 days	20 days	Tue 8/18/20	Tue 9/15/20	BI Dev,Data Architect[50%],DBA[50%],ETL Engnr[50%]
2143	1.3.3.2.2.3.1	Milestone: Complete ETL Institutional Claims	2142	0 days	Tue 9/15/20	Tue 9/15/20	

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ID	WBS	Task Name	Predecessors	Duration	Start	Finish	Resource Names
2144	**1.3.3.2.2.3.**	**Development - Dental Claims**		**22 days**	**Fri 8/21/20**	**Tue 9/22/20**	
2145	1.3.3.2.2.3.	ETL Development - Dental Claims	2070,1974	20 days	Fri 8/21/20	Fri 9/18/20	BI Dev[50%],ETL Engnr[50%]
2146	1.3.3.2.2.3.	ETL Unit Testing - Dental Claims	2145SS+2 days	20 days	Tue 8/25/20	Tue 9/22/20	BI Dev,Data Architect[50%],DBA[50%],ETL Engnr[50%]
2147	1.3.3.2.2.3.	Milestone: Complete ETL Dental Claims	2146	0 days	Tue 9/22/20	Tue 9/22/20	
2148	**1.3.3.2.2.3.**	**Development - Professional Claims**		**22 days**	**Fri 8/28/20**	**Tue 9/29/20**	
2149	1.3.3.2.2.3.	ETL Development - Professional Claims	2077,1980	20 days	Fri 8/28/20	Fri 9/25/20	BI Dev[50%],ETL Engnr[50%]
2150	1.3.3.2.2.3.	ETL Unit Testing - Professional Claims	2149SS+2 days	20 days	Tue 9/1/20	Tue 9/29/20	BI Dev,Data Architect[50%],DBA[50%],ETL Engnr[50%]
2151	1.3.3.2.2.3.	Milestone: Complete ETL Professional Claims	2150	0 days	Tue 9/29/20	Tue 9/29/20	
2152	**1.3.3.2.2.3.**	**Develop Data Integration - Client Interfaces**		**22 days**	**Thu 9/17/20**	**Fri 10/16/20**	
2153	**1.3.3.2.2.3.**	**Development - Client**		**22 days**	**Thu 9/17/20**	**Fri 10/16/20**	
2154	1.3.3.2.2.3.	ETL Development - Client	2085,1993	20 days	Thu 9/17/20	Wed 10/14/20	BI Dev[50%],ETL Engnr[50%]
2155	1.3.3.2.2.3.	ETL Unit Testing - Client	2154SS+2 days	20 days	Mon 9/21/20	Fri 10/16/20	BI Dev,Data Architect[50%],DBA[50%],ETL Engnr[50%]
2156	1.3.3.2.2.3.	Milestone: Complete Client	2155	0 days	Fri 10/16/20	Fri 10/16/20	
2157	**1.3.3.2.2.3.**	**Development - Client Analytic Data**		**22 days**	**Thu 9/17/20**	**Fri 10/16/20**	
2158	1.3.3.2.2.3.	ETL Development - Client Analytic Data	2092,1999	20 days	Thu 9/17/20	Wed 10/14/20	BI Dev[50%],ETL Engnr[50%]
2159	1.3.3.2.2.3.	ETL Unit Testing - Client Analytic Data	2158SS+2 days	20 days	Mon 9/21/20	Fri 10/16/20	BI Dev,Data Architect[50%],DBA[50%],ETL Engnr[50%]
2160	1.3.3.2.2.3.	Milestone: Complete ETL Client Analytic Data	2159	0 days	Fri 10/16/20	Fri 10/16/20	
2161	**1.3.3.2.2.3.**	**Develop Data Integration - Eligibility**		**22 days**	**Tue 9/22/20**	**Wed 10/21/20**	
2162	1.3.3.2.2.3.	ETL Development - Eligibility	2099,2005	20 days	Tue 9/22/20	Mon 10/19/20	BI Dev[50%],ETL Engnr[50%]
2163	1.3.3.2.2.3.	ETL Unit Testing - Eligibility	2162SS+2 days	20 days	Thu 9/24/20	Wed 10/21/20	BI Dev,Data Architect[50%],DBA[50%],ETL Engnr[50%]
2164	1.3.3.2.2.3.	Milestone: Complete ETL Eligibility	2163	0 days	Wed 10/21/20	Wed 10/21/20	
2165	**1.3.3.2.2.3.**	**Develop Data Integration - Reference**		**22 days**	**Mon 10/5/20**	**Tue 11/3/20**	
2166	1.3.3.2.2.3.	ETL Development - Reference	2106,2011	20 days	Mon 10/5/20	Fri 10/30/20	BI Dev[50%],ETL Engnr[50%]
2167	1.3.3.2.2.3.	ETL Unit Testing - Reference	2166SS+2 days	20 days	Wed 10/7/20	Tue 11/3/20	BI Dev,Data Architect[50%],DBA[50%],ETL Engnr[50%]
2168	1.3.3.2.2.3.	Milestone: Complete ETL Reference	2167	0 days	Tue 11/3/20	Tue 11/3/20	
2169	**1.3.3.2.2.3.**	**Develop Data Integration - Other Feeds**		**85 days**	**Tue 7/14/20**	**Tue 11/10/20**	
2170	**1.3.3.2.2.3.**	**Data Integration Development - Health Statistics Center Data**	**2025**	**22 days**	**Mon 10/12/20**	**Tue 11/10/20**	
2171	1.3.3.2.2.3.	ETL Development - Health Statistics Center Data	2114	20 days	Mon 10/12/20	Fri 11/6/20	BI Dev[50%],ETL Engnr[50%]
2172	1.3.3.2.2.3.	ETL Unit Testing - Health Statistics Center Data	2171SS+2 days	20 days	Wed 10/14/20	Tue 11/10/20	BI Dev,Data Architect[50%],DBA[50%],ETL Engnr[50%]
2173	1.3.3.2.2.3.	Milestone: Complete ETL Health Statistics Center Data	2172	0 days	Tue 11/10/20	Tue 11/10/20	
2174	**1.3.3.2.2.3.**	**Data Integration Development - PEIA Data**		**22 days**	**Tue 7/14/20**	**Wed 8/12/20**	
2175	1.3.3.2.2.3.	ETL Development - PEIA Data	2121	20 days	Tue 7/14/20	Mon 8/10/20	BI Dev[50%],ETL Engnr[50%]
2176	1.3.3.2.2.3.	ETL Unit Testing - PEIA Data	2175SS+2 days	20 days	Thu 7/16/20	Wed 8/12/20	BI Dev,Data Architect[50%],DBA[50%],ETL Engnr[50%]
2177	1.3.3.2.2.3.	Milestone: Complete ETL PEIA Data	2176	0 days	Wed 8/12/20	Wed 8/12/20	
2178	1.3.3.2.2.3.	Milestone: Data Integration Development Complete	2168,2173,2177	0 days	Tue 11/10/20	Tue 11/10/20	
2179	**1.3.3.2.2.4**	**System Test Data Integration**		**85 days**	**Thu 8/13/20**	**Mon 12/14/20**	
2180	**1.3.3.2.2.4.1**	**System Test - Provider**		**30 days**	**Tue 8/25/20**	**Tue 10/6/20**	
2181	1.3.3.2.2.4.1	Create System Test cases - Provider	2126	20 days	Tue 8/25/20	Tue 9/22/20	BI Dev[25%],DBA[10%],Tech Lead[10%],QA Mngr[25%]
2182	1.3.3.2.2.4.1	Execute - Provider System Testing	2181SS+10 days,2	20 days	Wed 9/9/20	Tue 10/6/20	BI Dev[25%],DBA[10%],Tech Lead[10%],QA Mngr[25%]
2183	1.3.3.2.2.4.1	Milestone: Complete Provider System Test	2182	0 days	Tue 10/6/20	Tue 10/6/20	
2184	**1.3.3.2.2.4.2**	**System Test - Claim and Finance**		**70 days**	**Tue 9/1/20**	**Thu 12/10/20**	
2185	**1.3.3.2.2.4.2**	**System Test - Financial Analytic Data**		**30 days**	**Wed 10/7/20**	**Tue 11/17/20**	
2186	1.3.3.2.2.4.2	Create System Test cases - Financial Analytic Data	2131	20 days	Wed 10/7/20	Tue 11/3/20	BI Dev[25%],DBA[10%],Tech Lead[10%],QA Mngr[25%]
2187	1.3.3.2.2.4.2	Execute - Financial Analytic Data System Testing	2186SS+10 days	20 days	Wed 10/21/20	Tue 11/17/20	BI Dev[25%],DBA[10%],Tech Lead[10%],QA Mngr[25%]
2188	1.3.3.2.2.4.2	Milestone: Complete Financial Analytic Data System Test	2187	0 days	Tue 11/17/20	Tue 11/17/20	
2189	**1.3.3.2.2.4.3**	**System Test - Prior Authorization**		**50 days**	**Tue 9/1/20**	**Tue 11/10/20**	
2190	1.3.3.2.2.4.2	Create System Test cases - Prior Authorization	2135	35 days	Tue 9/1/20	Tue 10/20/20	BI Dev[25%],DBA[10%],Tech Lead[10%],QA Mngr[25%]
2191	1.3.3.2.2.4.2	Execute - Prior Authorization System Testing	2190SS+15 days	35 days	Wed 9/23/20	Tue 11/10/20	BI Dev[25%],DBA[10%],Tech Lead[10%],QA Mngr[25%]
2192	1.3.3.2.2.4.2	Milestone: Complete Prior Authorization System Test	2191	0 days	Tue 11/10/20	Tue 11/10/20	
2193	**1.3.3.2.2.4.2**	**System Test - Drug Claim**		**50 days**	**Wed 9/9/20**	**Tue 11/17/20**	
2194	1.3.3.2.2.4.2	Create System Test cases - Drug Claim	2139	35 days	Wed 9/9/20	Tue 10/27/20	BI Dev[25%],DBA[10%],Tech Lead[10%],QA Mngr[25%]
2195	1.3.3.2.2.4.2	Execute - Drug Claim System Testing	2194SS+15 days	35 days	Wed 9/30/20	Tue 11/17/20	BI Dev[25%],DBA[10%],Tech Lead[10%],QA Mngr[25%]
2196	1.3.3.2.2.4.2	Milestone: Complete Drug Claim System Test	2195	0 days	Tue 11/17/20	Tue 11/17/20	
2197	**1.3.3.2.2.4.2**	**System Test - Institutional Claims**		**50 days**	**Wed 9/16/20**	**Tue 11/24/20**	
2198	1.3.3.2.2.4.2	Create System Test cases - Institutional Claims	2143	35 days	Wed 9/16/20	Tue 11/3/20	BI Dev[25%],DBA[10%],Tech Lead[10%],QA Mngr[25%]
2199	1.3.3.2.2.4.2	Execute - Institutional Claims System Testing	2198SS+15 days	35 days	Wed 10/7/20	Tue 11/24/20	BI Dev[25%],DBA[10%],Tech Lead[10%],QA Mngr[25%]
2200	1.3.3.2.2.4.2	Milestone: Complete Institutional Claims System Test	2199	0 days	Tue 11/24/20	Tue 11/24/20	
2201	**1.3.3.2.2.4.2**	**System Test - Dental Claims**		**50 days**	**Wed 9/23/20**	**Thu 12/3/20**	
2202	1.3.3.2.2.4.2	Create System Test cases - Dental Claims	2147	35 days	Wed 9/23/20	Tue 11/10/20	BI Dev[25%],DBA[10%],Tech Lead[10%],QA Mngr[25%]
2203	1.3.3.2.2.4.2	Execute - Dental Claims System Testing	2202SS+15 days	35 days	Wed 10/14/20	Thu 12/3/20	BI Dev[25%],DBA[10%],Tech Lead[10%],QA Mngr[25%]
2204	1.3.3.2.2.4.2	Milestone: Complete Dental Claims System Test	2203	0 days	Thu 12/3/20	Thu 12/3/20	
2205	**1.3.3.2.2.4.2**	**System Test - Professional Claims**		**50 days**	**Wed 9/30/20**	**Thu 12/10/20**	
2206	1.3.3.2.2.4.2	Create System Test cases - Professional Claims	2151	35 days	Wed 9/30/20	Tue 11/17/20	BI Dev[25%],DBA[10%],Tech Lead[10%],QA Mngr[25%]
2207	1.3.3.2.2.4.2	Execute - Professional Claims System Testing	2206SS+15 days	35 days	Wed 10/21/20	Thu 12/10/20	BI Dev[25%],DBA[10%],Tech Lead[10%],QA Mngr[25%]
2208	1.3.3.2.2.4.2	Milestone: Complete Professional Claims System Test	2207	0 days	Thu 12/10/20	Thu 12/10/20	
2209	**1.3.3.2.2.4.3**	**System Test - Client Interfaces**		**30 days**	**Mon 10/19/20**	**Tue 12/1/20**	
2210	**1.3.3.2.2.4.3**	**System Test - Client**		**30 days**	**Mon 10/19/20**	**Tue 12/1/20**	

ID	WBS	Task Name	Predecessors	Duration	Start	Finish	Resource Names
2211	1.3.3.2.2.4.5	Create System Test cases - Client	2156	20 days	Mon 10/19/20	Fri 11/13/20	BI Dev[25%],DBA[10%],Tech Lead[10%],QA Mngr[25%]
2212	1.3.3.2.2.4.5	Execute - Client System Testing	2211SS+10 days,2	20 days	Mon 11/2/20	Tue 12/1/20	BI Dev[25%],DBA[10%],Tech Lead[10%],QA Mngr[25%]
2213	1.3.3.2.2.4.5	Milestone: Complete Client System Test	2212	0 days	Tue 12/1/20	Tue 12/1/20	
2214	**1.3.3.2.2.4.5**	**System Test - Client Analytic Data**		**30 days**	**Mon 10/19/20**	**Tue 12/1/20**	
2215	1.3.3.2.2.4.5	Create System Test cases - Client Analytic Data	2160	20 days	Mon 10/19/20	Fri 11/13/20	BI Dev[25%],DBA[10%],Tech Lead[10%],QA Mngr[25%]
2216	1.3.3.2.2.4.5	Execute - Client Analytic Data System Testing	2215SS+10 days	20 days	Mon 11/2/20	Tue 12/1/20	BI Dev[25%],DBA[10%],Tech Lead[10%],QA Mngr[25%]
2217	1.3.3.2.2.4.5	Milestone: Complete Client Analytic Data System Test	2216	0 days	Tue 12/1/20	Tue 12/1/20	
2218	**1.3.3.2.2.4.6**	**System Test - Eligibility**		**35 days**	**Thu 10/22/20**	**Fri 12/11/20**	
2219	1.3.3.2.2.4.6	Create System Test cases - Eligibility	2164	25 days	Thu 10/22/20	Wed 11/25/20	BI Dev[25%],DBA[10%],Tech Lead[10%],QA Mngr[25%]
2220	1.3.3.2.2.4.6	Execute - Eligibility System Testing	2219SS+10 days	25 days	Thu 11/5/20	Fri 12/11/20	BI Dev[25%],DBA[10%],Tech Lead[10%],QA Mngr[25%]
2221	1.3.3.2.2.4.6	Milestone: Complete Eligibility System Test	2220	0 days	Fri 12/11/20	Fri 12/11/20	
2222	**1.3.3.2.2.4.7**	**System Test - Reference**		**25 days**	**Wed 11/4/20**	**Thu 12/10/20**	
2223	1.3.3.2.2.4.7	Create System Test cases Reference	2168	15 days	Wed 11/4/20	Tue 11/24/20	BI Dev[25%],DBA[10%],Tech Lead[10%],QA Mngr[25%]
2224	1.3.3.2.2.4.7	Execute - Reference System Testing	2223SS+10 days	15 days	Wed 11/18/20	Thu 12/10/20	BI Dev[25%],DBA[10%],Tech Lead[10%],QA Mngr[25%]
2225	1.3.3.2.2.4.7	Milestone: Complete Reference System Test	2224	0 days	Thu 12/10/20	Thu 12/10/20	
2226	**1.3.3.2.2.4.8**	**System Test - Other Feeds**		**85 days**	**Thu 8/13/20**	**Mon 12/14/20**	
2227	**1.3.3.2.2.4.8**	**System Test - Health Statistics Center Data**		**22 days**	**Wed 11/11/20**	**Mon 12/14/20**	
2228	1.3.3.2.2.4.8	Create System Test cases Health Statistics Center Data	2173	15 days	Wed 11/11/20	Thu 12/3/20	BI Dev[25%],DBA[10%],Tech Lead[10%],QA Mngr[25%]
2229	1.3.3.2.2.4.8	Execute - Health Statistics Center Data System Testing	2228SS+7 days	15 days	Fri 11/20/20	Mon 12/14/20	BI Dev[25%],DBA[10%],Tech Lead[10%],QA Mngr[25%]
2230	1.3.3.2.2.4.8	Milestone: Complete Health Statistics Center Data System Test	2229	0 days	Mon 12/14/20	Mon 12/14/20	
2231	**1.3.3.2.2.4.9**	**System Test - PEIA Data**		**25 days**	**Thu 8/13/20**	**Thu 9/17/20**	
2232	1.3.3.2.2.4.8	Create System Test cases PEIA Data	2177	15 days	Thu 8/13/20	Wed 9/2/20	BI Dev[25%],DBA[10%],Tech Lead[10%],QA Mngr[25%]
2233	1.3.3.2.2.4.8	Execute - PEIA Data System Testing	2232SS+10 days	15 days	Thu 8/27/20	Thu 9/17/20	BI Dev[25%],DBA[10%],Tech Lead[10%],QA Mngr[25%]
2234	1.3.3.2.2.4.8	Milestone: Complete PEIA Data System Test	2233	0 days	Thu 9/17/20	Thu 9/17/20	
2235	1.3.3.2.2.4.7	Milestone: Complete Data Integration System Testing	2230,2234	0 days	Mon 12/14/20	Mon 12/14/20	
2236	**1.3.3.2.2.5**	**Regression Testing**		**5 days**	**Tue 12/15/20**	**Mon 12/21/20**	
2237	1.3.3.2.2.5.1	Complete testing on any components updated based on SIT results	2230,2234	5 days	Tue 12/15/20	Mon 12/21/20	BI Dev[25%],DBA[10%],Tech Lead[10%],QA Mngr[25%]
2238	1.3.3.2.2.5.2	Milestone: Regression Testing Complete	2237	0 days	Mon 12/21/20	Mon 12/21/20	
2239	**1.3.3.2.2.6**	**Functional Testing**		**98 days**	**Thu 9/3/20**	**Tue 1/26/21**	
2240	**1.3.3.2.2.6.1**	**Functional Testing - Provider**		**25 days**	**Wed 9/23/20**	**Tue 10/27/20**	
2241	1.3.3.2.2.6.1	Create Functional Test cases - Provider	2183FS-10 days	20 days	Wed 9/23/20	Tue 10/20/20	BI Dev[25%],DBA[10%],Tech Lead[10%],QA Mngr[25%]
2242	1.3.3.2.2.6.1	Execute - Provider Functional Testing	2241SS+5 days	20 days	Wed 9/30/20	Tue 10/27/20	BI Dev[25%],DBA[10%],Tech Lead[10%],QA Mngr[25%]
2243	1.3.3.2.2.6.1	Milestone: Complete Provider Functional Test	2242	0 days	Tue 10/27/20	Tue 10/27/20	
2244	**1.3.3.2.2.6.2**	**Functional Testing - Claim and Finance**		**60 days**	**Wed 10/28/20**	**Tue 1/26/21**	
2245	**1.3.3.2.2.6.2**	**Functional Testing - Financial Analytic Data**		**25 days**	**Wed 11/4/20**	**Thu 12/10/20**	
2246	1.3.3.2.2.6.2	Create Functional Test cases - Financial Analytic Data	2188FS-10 days	20 days	Wed 11/4/20	Thu 12/3/20	BI Dev[25%],DBA[10%],Tech Lead[10%],QA Mngr[25%]
2247	1.3.3.2.2.6.2	Execute - Financial Analytic Functional Testing	2246SS+5 days	20 days	Wed 11/11/20	Thu 12/10/20	BI Dev[25%],DBA[10%],Tech Lead[10%],QA Mngr[25%]
2248	1.3.3.2.2.6.2	Milestone: Complete Financial Analytic Functional Test	2247	0 days	Thu 12/10/20	Thu 12/10/20	
2249	**1.3.3.2.2.6.3**	**Functional Testing - Prior Authorization**		**25 days**	**Wed 10/28/20**	**Thu 12/3/20**	
2250	1.3.3.2.2.6.2	Create Functional Test cases - Prior Authorization	2192FS-10 days	20 days	Wed 10/28/20	Tue 11/24/20	BI Dev[25%],DBA[10%],Tech Lead[10%],QA Mngr[25%]
2251	1.3.3.2.2.6.2	Execute - Prior Authorization Functional Testing	2250SS+5 days	20 days	Wed 11/4/20	Thu 12/3/20	BI Dev[25%],DBA[10%],Tech Lead[10%],QA Mngr[25%]
2252	1.3.3.2.2.6.2	Milestone: Complete Prior Authorization Functional testing	2251	0 days	Thu 12/3/20	Thu 12/3/20	
2253	**1.3.3.2.2.6.2**	**Functional Testing - Drug Claim**		**40 days**	**Wed 11/4/20**	**Tue 1/5/21**	
2254	1.3.3.2.2.6.2	Create Functional Test cases - Drug Claim	2196FS-10 days	35 days	Wed 11/4/20	Mon 12/28/20	BI Dev[25%],DBA[10%],Tech Lead[10%],QA Mngr[25%]
2255	1.3.3.2.2.6.2	Execute - Drug Claim Functional Testing	2254SS+5 days	35 days	Wed 11/11/20	Tue 1/5/21	BI Dev[25%],DBA[10%],Tech Lead[10%],QA Mngr[25%]
2256	1.3.3.2.2.6.2	Milestone: Complete Drug Claim Functional testing	2255	0 days	Tue 1/5/21	Tue 1/5/21	
2257	**1.3.3.2.2.6.4**	**Functional Testing - Institutional Claims**		**40 days**	**Wed 11/11/20**	**Tue 1/12/21**	
2258	1.3.3.2.2.6.2	Create Functional Test cases - Institutional Claims	2200FS-10 days	35 days	Wed 11/11/20	Tue 1/5/21	BI Dev[25%],DBA[10%],Tech Lead[10%],QA Mngr[25%]
2259	1.3.3.2.2.6.2	Execute - Institutional Claims Functional Testing	2258SS+5 days	35 days	Wed 11/18/20	Tue 1/12/21	BI Dev[25%],DBA[10%],Tech Lead[10%],QA Mngr[25%]
2260	1.3.3.2.2.6.2	Milestone: Complete Institutional Claims Functional testing	2259	0 days	Tue 1/12/21	Tue 1/12/21	
2261	**1.3.3.2.2.6.5**	**Functional Testing - Dental Claims**		**40 days**	**Wed 11/18/20**	**Tue 1/19/21**	
2262	1.3.3.2.2.6.2	Create Functional Test cases - Dental Claims	2204FS-10 days	35 days	Wed 11/18/20	Tue 1/12/21	BI Dev[25%],DBA[10%],Tech Lead[10%],QA Mngr[25%]
2263	1.3.3.2.2.6.2	Execute - Dental Claims Functional Testing	2262SS+5 days	35 days	Wed 11/25/20	Tue 1/19/21	BI Dev[25%],DBA[10%],Tech Lead[10%],QA Mngr[25%]
2264	1.3.3.2.2.6.2	Milestone: Complete Dental Claims Functional testing	2263	0 days	Tue 1/19/21	Tue 1/19/21	
2265	**1.3.3.2.2.6.6**	**Functional Testing - Professional Claims**		**40 days**	**Wed 11/25/20**	**Tue 1/26/21**	
2266	1.3.3.2.2.6.2	Create Functional Test cases - Professional Claims	2208FS-10 days	35 days	Wed 11/25/20	Tue 1/19/21	BI Dev[25%],DBA[10%],Tech Lead[10%],QA Mngr[25%]
2267	1.3.3.2.2.6.2	Execute - Professional Claims Functional Testing	2266SS+5 days	35 days	Fri 12/4/20	Tue 1/26/21	BI Dev[25%],DBA[10%],Tech Lead[10%],QA Mngr[25%]
2268	1.3.3.2.2.6.2	Milestone: Complete Professional Claims Functional testing	2267	0 days	Tue 1/26/21	Tue 1/26/21	
2269	**1.3.3.2.2.6.7**	**Functional Testing - Client Interfaces**		**25 days**	**Mon 11/16/20**	**Tue 12/22/20**	
2270	**1.3.3.2.2.6.8**	**Functional Testing - Client**		**25 days**	**Mon 11/16/20**	**Tue 12/22/20**	
2271	1.3.3.2.2.6.8	Create Functional Test cases - Client	2213FS-10 days	20 days	Mon 11/16/20	Tue 12/15/20	BI Dev[25%],DBA[10%],Tech Lead[10%],QA Mngr[25%]
2272	1.3.3.2.2.6.8	Execute - Client Functional Testing	2271SS+5 days	20 days	Mon 11/23/20	Tue 12/22/20	BI Dev[25%],DBA[10%],Tech Lead[10%],QA Mngr[25%]
2273	1.3.3.2.2.6.8	Milestone: Complete Client Functional Test	2272	0 days	Tue 12/22/20	Tue 12/22/20	
2274	**1.3.3.2.2.6.9**	**Functional Testing - Client Analytic Data**		**25 days**	**Mon 11/16/20**	**Tue 12/22/20**	
2275	1.3.3.2.2.6.9	Create Functional Test cases - Client Analytic Data	2217FS-10 days	20 days	Mon 11/16/20	Tue 12/15/20	BI Dev[25%],DBA[10%],Tech Lead[10%],QA Mngr[25%]
2276	1.3.3.2.2.6.9	Execute - Client Analytic Data Functional Testing	2275SS+5 days	20 days	Mon 11/23/20	Tue 12/22/20	BI Dev[25%],DBA[10%],Tech Lead[10%],QA Mngr[25%]
2277	1.3.3.2.2.6.9	Milestone: Complete Client Analytic Data Functional Test	2276	0 days	Tue 12/22/20	Tue 12/22/20	

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ID	WBS	Task Name	Predecessors	Duration	Start	Finish	Resource Names
2278	**1.3.3.2.2.6.4**	**Functional Testing - Eligibility**		**25 days**	**Mon 11/30/20**	**Wed 1/6/21**	
2279	1.3.3.2.2.6.4	Create Functional Test cases - Eligibility	2221FS-10 days	20 days	Mon 11/30/20	Tue 12/29/20	BI Dev[25%],DBA[10%],Tech Lead[10%],QA Mngr[25%]
2280	1.3.3.2.2.6.4	Execute - Eligibility Functional Testing	2279SS+5 days	20 days	Mon 12/7/20	Wed 1/6/21	BI Dev[25%],DBA[10%],Tech Lead[10%],QA Mngr[25%]
2281	1.3.3.2.2.6.4	Milestone: Complete Eligibility Functional Test	2280	0 days	Wed 1/6/21	Wed 1/6/21	
2282	**1.3.3.2.2.6.5**	**Functional Testing - Reference**		**20 days**	**Fri 12/4/20**	**Tue 1/5/21**	
2283	1.3.3.2.2.6.5	Create Functional Test cases Reference	2225FS-5 days	15 days	Fri 12/4/20	Mon 12/28/20	BI Dev[25%],DBA[10%],Tech Lead[10%],QA Mngr[25%]
2284	1.3.3.2.2.6.5	Execute - Reference Functional Testing	2283SS+5 days	15 days	Fri 12/11/20	Tue 1/5/21	BI Dev[25%],DBA[10%],Tech Lead[10%],QA Mngr[25%]
2285	1.3.3.2.2.6.5	Milestone: Complete Reference Functional Test	2284	0 days	Tue 1/5/21	Tue 1/5/21	
2286	**1.3.3.2.2.6.6**	**Functional Testing - Other Inbound Feeds**		**80 days**	**Thu 9/3/20**	**Wed 12/30/20**	
2287	**1.3.3.2.2.6.6**	**Health Statistics Center Data**		**20 days**	**Tue 12/1/20**	**Wed 12/30/20**	
2288	1.3.3.2.2.6.6	Create Test Cases Inbound Other Set 1	2230FS-10 days	20 days	Tue 12/1/20	Wed 12/30/20	BI Dev[25%],DBA[10%],Tech Lead[10%],QA Mngr[25%]
2289	1.3.3.2.2.6.6	Execution Functional Test Inbound Other Set 1	2288SS+5 days	10 days	Tue 12/8/20	Mon 12/21/20	BI Dev[25%],DBA[10%],Tech Lead[10%],QA Mngr[25%]
2290	1.3.3.2.2.6.6	Milestone: Complete Functional Test Inbound Other Set 1	2289	0 days	Mon 12/21/20	Mon 12/21/20	
2291	**1.3.3.2.2.6.6**	**PEIA Data**		**25 days**	**Thu 9/3/20**	**Thu 10/8/20**	
2292	1.3.3.2.2.6.6	Create Test Cases Inbound Other Set 2	2234FS-10 days	20 days	Thu 9/3/20	Thu 10/1/20	BI Dev[25%],DBA[10%],Tech Lead[10%],QA Mngr[25%]
2293	1.3.3.2.2.6.6	Execution Functional Test Inbound Other Set 2	2292SS+5 days	20 days	Fri 9/11/20	Thu 10/8/20	BI Dev[25%],DBA[10%],Tech Lead[10%],QA Mngr[25%]
2294	1.3.3.2.2.6.6	Milestone: Complete Functional Test Inbound Other Set 2	2293	0 days	Thu 10/8/20	Thu 10/8/20	
2295	1.3.3.2.2.6.7	Milestone: Complete Functional Testing - Data Integration	2290,2294	0 days	Mon 12/21/20	Mon 12/21/20	
2296	1.3.3.2.2.7	Milestone: Data Integration Complete	2235,2295,1882,.	0 days	Tue 1/26/21	Tue 1/26/21	
2297	**1.3.3.2.3**	**Data Warehouse Implementation**		**146 days**	**Mon 6/8/20**	**Wed 1/6/21**	
2298	**1.3.3.2.3.1**	**Data Warehouse Design and Development**		**126 days**	**Mon 6/8/20**	**Fri 12/4/20**	
2299	1.3.3.2.3.1.1	Milestone: Data Warehouse Design and Development Begin	2303	0 days	Mon 6/8/20	Mon 6/8/20	
2300	**1.3.3.2.3.1.2**	**Build Provider Analytic Data Stores**		**105 days**	**Mon 6/8/20**	**Tue 11/3/20**	
2301	**1.3.3.2.3.1.2**	**Build Provider Analytic Data Store and Ingest Data**		**105 days**	**Mon 6/8/20**	**Tue 11/3/20**	
2302	**1.3.3.2.3.1.2**	**Provider - Set 1**		**65 days**	**Mon 6/8/20**	**Tue 9/8/20**	
2303	1.3.3.2.3.1.2	Define Requirements/Scope	977,1887	1 day	Mon 6/8/20	Mon 6/8/20	BI Architect[20%],BI Dev[20%],BA[20%],ETL Engnr[20%]
2304	1.3.3.2.3.1.2	Stage and Profile Data	2303,783	5 days	Wed 8/12/20	Tue 8/18/20	BI Dev[10%],ETL Engnr[10%]
2305	1.3.3.2.3.1.2	Extend Dimensional Model	2304	5 days	Wed 8/19/20	Tue 8/25/20	BI Dev[10%],ETL Engnr[10%]
2306	1.3.3.2.3.1.2	Load Data Vault	2304	5 days	Wed 8/19/20	Tue 8/25/20	BI Dev[10%],ETL Engnr[10%]
2307	1.3.3.2.3.1.2	Testing	2306,2305	8 days	Wed 8/26/20	Fri 9/4/20	BI Dev[10%],ETL Engnr[10%],BA[10%],QA Mngr[10%]
2308	1.3.3.2.3.1.2	Transform to Dimensional Model	230755	5 days	Wed 8/26/20	Tue 9/1/20	BI Dev[10%],ETL Engnr[10%]
2309	1.3.3.2.3.1.2	Build Semantic Layer	2308	3 days	Wed 9/2/20	Fri 9/4/20	BI Dev[10%],ETL Engnr[10%]
2310	1.3.3.2.3.1.2	Deploy to UAT	2309	1 day	Tue 9/8/20	Tue 9/8/20	BI Dev[10%],ETL Engnr[10%]
2311	1.3.3.2.3.1.2	Milestone: Provider - Set 1 Complete	2310	0 days	Tue 9/8/20	Tue 9/8/20	
2312	**1.3.3.2.3.1.2**	**Provider - Set 2**		**20 days**	**Wed 9/9/20**	**Tue 10/6/20**	
2313	1.3.3.2.3.1.2	Define Requirements/Scope	2311	1 day	Wed 9/9/20	Wed 9/9/20	BI Architect[20%],BI Dev[20%],BA[20%],ETL Engnr[20%]
2314	1.3.3.2.3.1.2	Stage and Profile Data	2313	5 days	Thu 9/10/20	Wed 9/16/20	BI Dev[10%],ETL Engnr[10%]
2315	1.3.3.2.3.1.2	Extend Dimensional Model	2314	5 days	Thu 9/17/20	Wed 9/23/20	BI Dev[10%],ETL Engnr[10%]
2316	1.3.3.2.3.1.2	Load Data Vault	2314	5 days	Thu 9/17/20	Wed 9/23/20	BI Dev[10%],ETL Engnr[10%]
2317	1.3.3.2.3.1.2	Testing	2316,2315	8 days	Thu 9/24/20	Mon 10/5/20	BI Dev[10%],ETL Engnr[10%],BA[10%],QA Mngr[10%]
2318	1.3.3.2.3.1.2	Transform to Dimensional Model	231755	5 days	Thu 9/24/20	Wed 9/30/20	BI Dev[10%],ETL Engnr[10%]
2319	1.3.3.2.3.1.2	Build Semantic Layer	2318	3 days	Thu 10/1/20	Mon 10/5/20	BI Dev[10%],ETL Engnr[10%]
2320	1.3.3.2.3.1.2	Deploy to UAT	2319	1 day	Tue 10/6/20	Tue 10/6/20	BI Dev[10%],ETL Engnr[10%]
2321	1.3.3.2.3.1.2	Milestone: Provider - Set 2 Complete	2320	0 days	Tue 10/6/20	Tue 10/6/20	
2322	**1.3.3.2.3.1.2**	**Provider - Set 3**		**20 days**	**Wed 10/7/20**	**Tue 11/3/20**	
2323	1.3.3.2.3.1.2	Define Requirements/Scope	2321	1 day	Wed 10/7/20	Wed 10/7/20	BI Architect[20%],BI Dev[20%],BA[20%],ETL Engnr[20%]
2324	1.3.3.2.3.1.2	Stage and Profile Data	2323	5 days	Thu 10/8/20	Wed 10/14/20	BI Dev[10%],ETL Engnr[10%]
2325	1.3.3.2.3.1.2	Extend Dimensional Model	2324	5 days	Thu 10/15/20	Wed 10/21/20	BI Dev[10%],ETL Engnr[10%]
2326	1.3.3.2.3.1.2	Load Data Vault	2324	5 days	Thu 10/15/20	Wed 10/21/20	BI Dev[10%],ETL Engnr[10%]
2327	1.3.3.2.3.1.2	Testing	2326,2325	8 days	Thu 10/22/20	Mon 11/2/20	BI Dev[10%],ETL Engnr[10%],BA[10%],QA Mngr[10%]
2328	1.3.3.2.3.1.2	Transform to Dimensional Model	232755	5 days	Thu 10/22/20	Wed 10/28/20	BI Dev[10%],ETL Engnr[10%]
2329	1.3.3.2.3.1.2	Build Semantic Layer	2328	3 days	Thu 10/29/20	Mon 11/2/20	BI Dev[10%],ETL Engnr[10%]
2330	1.3.3.2.3.1.2	Deploy to UAT	2329	1 day	Tue 11/3/20	Tue 11/3/20	BI Dev[10%],ETL Engnr[10%]
2331	1.3.3.2.3.1.2	Milestone: Provider - Set 3 Complete	2330	0 days	Tue 11/3/20	Tue 11/3/20	
2332	1.3.3.2.3.1.2	Milestone: Provider Complete and Ready for UAT	2331	0 days	Tue 11/3/20	Tue 11/3/20	
2333	**1.3.3.2.3.1.3**	**Build Claim Analytic Data Store and Ingest Data**		**34 days**	**Thu 7/2/20**	**Wed 8/19/20**	
2334	**1.3.3.2.3.1.3**	**Develop Prior Authorization**		**28 days**	**Thu 7/2/20**	**Tue 8/11/20**	
2335	1.3.3.2.3.1.3	Define Requirements/Scope	1881,984	1 day	Thu 7/2/20	Thu 7/2/20	BI Architect[20%],BI Dev[20%],BA[20%],ETL Engnr[20%]
2336	1.3.3.2.3.1.3	Stage and Profile Data	2335	5 days	Mon 7/6/20	Fri 7/10/20	BI Dev[10%],ETL Engnr[10%]
2337	1.3.3.2.3.1.3	Extend Dimensional Model	2336	5 days	Mon 7/13/20	Fri 7/17/20	BI Dev[10%],ETL Engnr[10%]
2338	1.3.3.2.3.1.3	Load Data Vault	2336	5 days	Mon 7/13/20	Fri 7/17/20	BI Dev[10%],ETL Engnr[10%]
2339	1.3.3.2.3.1.3	Testing	2338,2337	8 days	Mon 7/20/20	Wed 7/29/20	BI Dev[10%],ETL Engnr[10%],BA[10%],QA Mngr[10%]
2340	1.3.3.2.3.1.3	Transform to Dimensional Model	2339	5 days	Thu 7/30/20	Wed 8/5/20	BI Dev[10%],ETL Engnr[10%]
2341	1.3.3.2.3.1.3	Build Semantic Layer	2340	3 days	Thu 8/6/20	Mon 8/10/20	BI Dev[10%],ETL Engnr[10%]
2342	1.3.3.2.3.1.3	Deploy to UAT	2341	1 day	Tue 8/11/20	Tue 8/11/20	BI Dev[10%],ETL Engnr[10%]
2343	1.3.3.2.3.1.3	Milestone: Develop Prior Authorization Complete and Ready for UAT	2342	0 days	Tue 8/11/20	Tue 8/11/20	
2344	**1.3.3.2.3.1.3**	**Develop Drug Claim**		**28 days**	**Thu 7/2/20**	**Tue 8/11/20**	

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ID	WBS	Task Name	Predecessors	Duration	Start	Finish	Resource Names
2345	1.3.3.2.3.1.3	Define Requirements/Scope	990,1894	1 day	Thu 7/2/20	Thu 7/2/20	BI Architect[20%],BI Dev[20%],BA[20%],ETL Engnr[20%]
2346	1.3.3.2.3.1.3	Stage and Profile Data	2345	5 days	Mon 7/6/20	Fri 7/10/20	BI Dev[10%],ETL Engnr[10%]
2347	1.3.3.2.3.1.3	Extend Dimensional Model	2346	5 days	Mon 7/13/20	Fri 7/17/20	BI Dev[10%],ETL Engnr[10%]
2348	1.3.3.2.3.1.3	Load Data Vault	2346	5 days	Mon 7/13/20	Fri 7/17/20	BI Dev[10%],ETL Engnr[10%]
2349	1.3.3.2.3.1.3	Testing	2348,2347	8 days	Mon 7/20/20	Wed 7/29/20	BI Dev[10%],ETL Engnr[10%],BA[10%],QA Mngr[10%]
2350	1.3.3.2.3.1.3	Transform to Dimensional Model	2349	5 days	Thu 7/30/20	Wed 8/5/20	BI Dev[10%],ETL Engnr[10%]
2351	1.3.3.2.3.1.3	Build Semantic Layer	2350	3 days	Thu 8/6/20	Mon 8/10/20	BI Dev[10%],ETL Engnr[10%]
2352	1.3.3.2.3.1.3	Deploy to UAT	2351	1 day	Tue 8/11/20	Tue 8/11/20	BI Dev[10%],ETL Engnr[10%]
2353	1.3.3.2.3.1.3	Milestone: Develop Drug Claim Complete and Ready for UAT	2352	0 days	Tue 8/11/20	Tue 8/11/20	
2354	**1.3.3.2.3.1.3**	**Develop Institutional Claims**		**28 days**	**Thu 7/2/20**	**Tue 8/11/20**	
2355	1.3.3.2.3.1.3	Define Requirements/Scope	1897,996	1 day	Thu 7/2/20	Thu 7/2/20	BI Architect[20%],BI Dev[20%],BA[20%],ETL Engnr[20%]
2356	1.3.3.2.3.1.3	Stage and Profile Data	2355	5 days	Mon 7/6/20	Fri 7/10/20	BI Dev[10%],ETL Engnr[10%]
2357	1.3.3.2.3.1.3	Extend Dimensional Model	2356	5 days	Mon 7/13/20	Fri 7/17/20	BI Dev[10%],ETL Engnr[10%]
2358	1.3.3.2.3.1.3	Load Data Vault	2356	5 days	Mon 7/13/20	Fri 7/17/20	BI Dev[10%],ETL Engnr[10%]
2359	1.3.3.2.3.1.3	Testing	2358,2357	8 days	Mon 7/20/20	Wed 7/29/20	BI Dev[10%],ETL Engnr[10%],BA[10%],QA Mngr[10%]
2360	1.3.3.2.3.1.3	Transform to Dimensional Model	2359	5 days	Thu 7/30/20	Wed 8/5/20	BI Dev[10%],ETL Engnr[10%]
2361	1.3.3.2.3.1.3	Build Semantic Layer	2360	3 days	Thu 8/6/20	Mon 8/10/20	BI Dev[10%],ETL Engnr[10%]
2362	1.3.3.2.3.1.3	Deploy to UAT	2361	1 day	Tue 8/11/20	Tue 8/11/20	BI Dev[10%],ETL Engnr[10%]
2363	1.3.3.2.3.1.3	Milestone: Develop Institutional Claim Complete	2362	0 days	Tue 8/11/20	Tue 8/11/20	
2364	**1.3.3.2.3.1.3**	**Develop Dental Claims**		**28 days**	**Mon 7/6/20**	**Wed 8/12/20**	
2365	1.3.3.2.3.1.3	Define Requirements/Scope	1900,996	1 day	Mon 7/6/20	Mon 7/6/20	BI Architect[20%],BI Dev[20%],BA[20%],ETL Engnr[20%]
2366	1.3.3.2.3.1.3	Stage and Profile Data	2365	5 days	Tue 7/7/20	Mon 7/13/20	BI Dev[10%],ETL Engnr[10%]
2367	1.3.3.2.3.1.3	Extend Dimensional Model	2366	5 days	Tue 7/14/20	Mon 7/20/20	BI Dev[10%],ETL Engnr[10%]
2368	1.3.3.2.3.1.3	Load Data Vault	2366	5 days	Tue 7/14/20	Mon 7/20/20	BI Dev[10%],ETL Engnr[10%]
2369	1.3.3.2.3.1.3	Testing	2368,2367	8 days	Tue 7/21/20	Thu 7/30/20	BI Dev[10%],ETL Engnr[10%],BA[10%],QA Mngr[10%]
2370	1.3.3.2.3.1.3	Transform to Dimensional Model	2369	5 days	Fri 7/31/20	Thu 8/6/20	BI Dev[10%],ETL Engnr[10%]
2371	1.3.3.2.3.1.3	Build Semantic Layer	2370	3 days	Fri 8/7/20	Tue 8/11/20	BI Dev[10%],ETL Engnr[10%]
2372	1.3.3.2.3.1.3	Deploy to UAT	2371	1 day	Wed 8/12/20	Wed 8/12/20	BI Dev[10%],ETL Engnr[10%]
2373	1.3.3.2.3.1.3	Milestone: Develop Dental Complete and Ready for UAT	2372	0 days	Wed 8/12/20	Wed 8/12/20	
2374	**1.3.3.2.3.1.3**	**Develop Professional Claims**		**28 days**	**Mon 7/13/20**	**Wed 8/19/20**	
2375	1.3.3.2.3.1.3	Define Requirements/Scope	1903,996	1 day	Mon 7/13/20	Mon 7/13/20	BI Architect[20%],BI Dev[20%],BA[20%],ETL Engnr[20%]
2376	1.3.3.2.3.1.3	Stage and Profile Data	2375	5 days	Tue 7/14/20	Mon 7/20/20	BI Dev[10%],ETL Engnr[10%]
2377	1.3.3.2.3.1.3	Extend Dimensional Model	2376	5 days	Tue 7/21/20	Mon 7/27/20	BI Dev[10%],ETL Engnr[10%]
2378	1.3.3.2.3.1.3	Load Data Vault	2376	5 days	Tue 7/21/20	Mon 7/27/20	BI Dev[10%],ETL Engnr[10%]
2379	1.3.3.2.3.1.3	Testing	2378,2377	8 days	Tue 7/28/20	Thu 8/6/20	BI Dev[10%],ETL Engnr[10%],BA[10%],QA Mngr[10%]
2380	1.3.3.2.3.1.3	Transform to Dimensional Model	2379	5 days	Fri 8/7/20	Thu 8/13/20	BI Dev[10%],ETL Engnr[10%]
2381	1.3.3.2.3.1.3	Build Semantic Layer	2380	3 days	Fri 8/14/20	Tue 8/18/20	BI Dev[10%],ETL Engnr[10%]
2382	1.3.3.2.3.1.3	Deploy to UAT	2381	1 day	Wed 8/19/20	Wed 8/19/20	BI Dev[10%],ETL Engnr[10%]
2383	1.3.3.2.3.1.3	Milestone: Develop Professional Claims Complete and Ready for UAT	2382	0 days	Wed 8/19/20	Wed 8/19/20	
2384	1.3.3.2.3.1.3	Milestone: Claims Analytic Data Store Complete	2383	0 days	Wed 8/19/20	Wed 8/19/20	
2385	**1.3.3.2.3.1.4**	**Build Financial Analytic Data Store and Ingest Data**		**20 days**	**Wed 7/29/20**	**Tue 8/25/20**	
2386	1.3.3.2.3.1.4	Define Requirements/Scope	1906,1002	1 day	Wed 7/29/20	Wed 7/29/20	BI Architect[20%],BI Dev[20%],BA[20%],ETL Engnr[20%]
2387	1.3.3.2.3.1.4	Stage and Profile Data	2386	5 days	Thu 7/30/20	Wed 8/5/20	BI Dev[10%],ETL Engnr[10%]
2388	1.3.3.2.3.1.4	Extend Dimensional Model	2387	5 days	Thu 8/6/20	Wed 8/12/20	BI Dev[10%],ETL Engnr[10%]
2389	1.3.3.2.3.1.4	Load Data Vault	2387	5 days	Thu 8/6/20	Wed 8/12/20	BI Dev[10%],ETL Engnr[10%]
2390	1.3.3.2.3.1.4	Testing	2389,2388	8 days	Thu 8/13/20	Mon 8/24/20	BI Dev[10%],ETL Engnr[10%],BA[10%],QA Mngr[10%]
2391	1.3.3.2.3.1.4	Transform to Dimensional Model	2390SS	5 days	Thu 8/13/20	Wed 8/19/20	BI Dev[10%],ETL Engnr[10%]
2392	1.3.3.2.3.1.4	Build Semantic Layer	2391	3 days	Thu 8/20/20	Mon 8/24/20	BI Dev[10%],ETL Engnr[10%]
2393	1.3.3.2.3.1.4	Deploy to UAT	2392	1 day	Tue 8/25/20	Tue 8/25/20	BI Dev[10%],ETL Engnr[10%]
2394	1.3.3.2.3.1.4	Milestone: Financial Complete and Ready for UAT	2393	0 days	Tue 8/25/20	Tue 8/25/20	
2395	**1.3.3.2.3.1.5**	**Build Reference Analytic Data Store and Ingest Data**		**40 days**	**Tue 8/25/20**	**Tue 10/20/20**	
2396	**1.3.3.2.3.1.5**	**Reference - Set 1**		**20 days**	**Tue 8/25/20**	**Tue 9/22/20**	
2397	1.3.3.2.3.1.5	Define Requirements/Scope	1934,1008	1 day	Tue 8/25/20	Tue 8/25/20	BI Architect[20%],BI Dev[20%],BA[20%],ETL Engnr[20%]
2398	1.3.3.2.3.1.5	Stage and Profile Data	2397	5 days	Wed 8/26/20	Tue 9/1/20	BI Dev[10%],ETL Engnr[10%]
2399	1.3.3.2.3.1.5	Extend Dimensional Model	2398	5 days	Wed 9/2/20	Wed 9/9/20	BI Dev[10%],ETL Engnr[10%]
2400	1.3.3.2.3.1.5	Load Data Vault	2398	5 days	Wed 9/2/20	Wed 9/9/20	BI Dev[10%],ETL Engnr[10%]
2401	1.3.3.2.3.1.5	Testing	2400,2399	8 days	Thu 9/10/20	Mon 9/21/20	BI Dev[10%],ETL Engnr[10%],BA[10%],QA Mngr[10%]
2402	1.3.3.2.3.1.5	Transform to Dimensional Model	2401SS	5 days	Thu 9/10/20	Wed 9/16/20	BI Dev[10%],ETL Engnr[10%]
2403	1.3.3.2.3.1.5	Build Semantic Layer	2402	3 days	Thu 9/17/20	Mon 9/21/20	BI Dev[10%],ETL Engnr[10%]
2404	1.3.3.2.3.1.5	Deploy to UAT	2403	1 day	Tue 9/22/20	Tue 9/22/20	BI Dev[10%],ETL Engnr[10%]
2405	1.3.3.2.3.1.5	Milestone: Reference - Set 1 Complete	2404	0 days	Tue 9/22/20	Tue 9/22/20	
2406	**1.3.3.2.3.1.5**	**Reference - Set 2**		**20 days**	**Wed 9/23/20**	**Tue 10/20/20**	
2407	1.3.3.2.3.1.5	Define Requirements/Scope	2405	1 day	Wed 9/23/20	Wed 9/23/20	BI Architect[20%],BI Dev[20%],BA[20%],ETL Engnr[20%]
2408	1.3.3.2.3.1.5	Stage and Profile Data	2407	5 days	Thu 9/24/20	Wed 9/30/20	BI Dev[10%],ETL Engnr[10%]
2409	1.3.3.2.3.1.5	Extend Dimensional Model	2408	5 days	Thu 10/1/20	Wed 10/7/20	BI Dev[10%],ETL Engnr[10%]
2410	1.3.3.2.3.1.5	Load Data Vault	2408	5 days	Thu 10/1/20	Wed 10/7/20	BI Dev[10%],ETL Engnr[10%]
2411	1.3.3.2.3.1.5	Testing	2410,2409	8 days	Thu 10/8/20	Mon 10/19/20	BI Dev[10%],ETL Engnr[10%],BA[10%],QA Mngr[10%]

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ID	WBS	Task Name	Predecessors	Duration	Start	Finish	Resource Names
2412	1.3.3.2.3.1.5	Transform to Dimensional Model	2411SS	5 days	Thu 10/8/20	Wed 10/14/20	BI Dev[10%],ETL Engnr[10%]
2413	1.3.3.2.3.1.5	Build Semantic Layer	2412	3 days	Thu 10/15/20	Mon 10/19/20	BI Dev[10%],ETL Engnr[10%]
2414	1.3.3.2.3.1.5	Deploy to UAT	2413	1 day	Tue 10/20/20	Tue 10/20/20	BI Dev[10%],ETL Engnr[10%]
2415	1.3.3.2.3.1.5	Milestone: Reference - Set 2 Complete	2414	0 days	Tue 10/20/20	Tue 10/20/20	
2416	1.3.3.2.3.1.5	Milestone: Reference Complete and Ready for UAT	2415	0 days	Tue 10/20/20	Tue 10/20/20	
2417	**1.3.3.2.3.1.6**	**Build Eligibility Analytic Data Store and Ingest Data**		**40 days**	**Mon 9/14/20**	**Fri 11/6/20**	
2418	**1.3.3.2.3.1.6**	**Eligibility - Set 1**		**20 days**	**Mon 9/14/20**	**Fri 10/9/20**	
2419	1.3.3.2.3.1.6	Define Requirements/Scope	1926,1014	1 day	Mon 9/14/20	Mon 9/14/20	BI Architect[20%],BI Dev[20%],BA[20%],ETL Engnr[20%]
2420	1.3.3.2.3.1.6	Stage and Profile Data	2419	5 days	Tue 9/15/20	Mon 9/21/20	BI Dev[10%],ETL Engnr[10%]
2421	1.3.3.2.3.1.6	Extend Dimensional Model	2420	5 days	Tue 9/22/20	Mon 9/28/20	BI Dev[10%],ETL Engnr[10%]
2422	1.3.3.2.3.1.6	Load Data Vault	2420	5 days	Tue 9/22/20	Mon 9/28/20	BI Dev[10%],ETL Engnr[10%]
2423	1.3.3.2.3.1.6	Testing	2422,2421	8 days	Tue 9/29/20	Thu 10/8/20	BI Dev[10%],ETL Engnr[10%],BA[10%],QA Mngr[10%]
2424	1.3.3.2.3.1.6	Transform to Dimensional Model	2423SS	5 days	Tue 9/29/20	Mon 10/5/20	BI Dev[10%],ETL Engnr[10%]
2425	1.3.3.2.3.1.6	Build Semantic Layer	2424	3 days	Tue 10/6/20	Thu 10/8/20	BI Dev[10%],ETL Engnr[10%]
2426	1.3.3.2.3.1.6	Deploy to UAT	2425	1 day	Fri 10/9/20	Fri 10/9/20	BI Dev[10%],ETL Engnr[10%]
2427	1.3.3.2.3.1.6	Milestone: Eligibility - Set 1 Complete	2426	0 days	Fri 10/9/20	Fri 10/9/20	
2428	**1.3.3.2.3.1.6**	**Eligibility - Set 2**		**20 days**	**Mon 10/12/20**	**Fri 11/6/20**	
2429	1.3.3.2.3.1.6	Define Requirements/Scope	2427	1 day	Mon 10/12/20	Mon 10/12/20	BI Architect[20%],BI Dev[20%],BA[20%],ETL Engnr[20%]
2430	1.3.3.2.3.1.6	Stage and Profile Data	2429	5 days	Tue 10/13/20	Mon 10/19/20	BI Dev[10%],ETL Engnr[10%]
2431	1.3.3.2.3.1.6	Extend Dimensional Model	2430	5 days	Tue 10/20/20	Mon 10/26/20	BI Dev[10%],ETL Engnr[10%]
2432	1.3.3.2.3.1.6	Load Data Vault	2430	5 days	Tue 10/20/20	Mon 10/26/20	BI Dev[10%],ETL Engnr[10%]
2433	1.3.3.2.3.1.6	Testing	2432,2431	8 days	Tue 10/27/20	Thu 11/5/20	BI Dev[10%],ETL Engnr[10%],BA[10%],QA Mngr[10%]
2434	1.3.3.2.3.1.6	Transform to Dimensional Model	2433SS	5 days	Tue 10/27/20	Mon 11/2/20	BI Dev[10%],ETL Engnr[10%]
2435	1.3.3.2.3.1.6	Build Semantic Layer	2434	3 days	Tue 11/3/20	Thu 11/5/20	BI Dev[10%],ETL Engnr[10%]
2436	1.3.3.2.3.1.6	Deploy to UAT	2435	1 day	Fri 11/6/20	Fri 11/6/20	BI Dev[10%],ETL Engnr[10%]
2437	1.3.3.2.3.1.6	Milestone: Eligibility - Set 2 Complete	2436	0 days	Fri 11/6/20	Fri 11/6/20	
2438	1.3.3.2.3.1.6	Milestone: Eligibility Complete and Ready for UAT	2437	0 days	Fri 11/6/20	Fri 11/6/20	
2439	**1.3.3.2.3.1.7**	**Client Interfaces**		**40 days**	**Thu 10/8/20**	**Fri 12/4/20**	
2440	**1.3.3.2.3.1.7**	**Integrate Client Analytic Data**		**40 days**	**Thu 10/8/20**	**Fri 12/4/20**	
2441	**1.3.3.2.3.1.7**	**Health Statistics Center Data**		**20 days**	**Thu 10/8/20**	**Wed 11/4/20**	
2442	1.3.3.2.3.1.7	Define Requirements/Scope	1915,1021,1923	1 day	Thu 10/8/20	Thu 10/8/20	BI Architect[20%],BI Dev[20%],BA[20%],ETL Engnr[20%]
2443	1.3.3.2.3.1.7	Stage and Profile Data	2442	5 days	Fri 10/9/20	Thu 10/15/20	BI Dev[10%],ETL Engnr[10%]
2444	1.3.3.2.3.1.7	Extend Dimensional Model	2443	5 days	Fri 10/16/20	Thu 10/22/20	BI Dev[10%],ETL Engnr[10%]
2445	1.3.3.2.3.1.7	Load Data Vault	2443	5 days	Fri 10/16/20	Thu 10/22/20	BI Dev[10%],ETL Engnr[10%]
2446	1.3.3.2.3.1.7	Testing	2445,2444	8 days	Fri 10/23/20	Tue 11/3/20	BI Dev[10%],ETL Engnr[10%],BA[10%],QA Mngr[10%]
2447	1.3.3.2.3.1.7	Transform to Dimensional Model	2446SS	5 days	Fri 10/23/20	Thu 10/29/20	BI Dev[10%],ETL Engnr[10%]
2448	1.3.3.2.3.1.7	Build Semantic Layer	2447	3 days	Fri 10/30/20	Tue 11/3/20	BI Dev[10%],ETL Engnr[10%]
2449	1.3.3.2.3.1.7	Deploy to UAT	2448	1 day	Wed 11/4/20	Wed 11/4/20	BI Dev[10%],ETL Engnr[10%]
2450	1.3.3.2.3.1.7	Milestone: Client - Set 1 Complete	2449	0 days	Wed 11/4/20	Wed 11/4/20	
2451	**1.3.3.2.3.1.7**	**PEIA Data**		**20 days**	**Thu 11/5/20**	**Fri 12/4/20**	
2452	1.3.3.2.3.1.7	Define Requirements/Scope	2450	1 day	Thu 11/5/20	Thu 11/5/20	BI Architect[20%],BI Dev[20%],BA[20%],ETL Engnr[20%]
2453	1.3.3.2.3.1.7	Stage and Profile Data	2452	5 days	Fri 11/6/20	Thu 11/12/20	BI Dev[10%],ETL Engnr[10%]
2454	1.3.3.2.3.1.7	Extend Dimensional Model	2453	5 days	Fri 11/13/20	Thu 11/19/20	BI Dev[10%],ETL Engnr[10%]
2455	1.3.3.2.3.1.7	Load Data Vault	2453	5 days	Fri 11/13/20	Thu 11/19/20	BI Dev[10%],ETL Engnr[10%]
2456	1.3.3.2.3.1.7	Testing	2455,2454	8 days	Fri 11/20/20	Thu 12/3/20	BI Dev[10%],ETL Engnr[10%],BA[10%],QA Mngr[10%]
2457	1.3.3.2.3.1.7	Transform to Dimensional Model	2456SS	5 days	Fri 11/20/20	Mon 11/30/20	BI Dev[10%],ETL Engnr[10%]
2458	1.3.3.2.3.1.7	Build Semantic Layer	2457	3 days	Tue 12/1/20	Thu 12/3/20	BI Dev[10%],ETL Engnr[10%]
2459	1.3.3.2.3.1.7	Deploy to UAT	2458	1 day	Fri 12/4/20	Fri 12/4/20	BI Dev[10%],ETL Engnr[10%]
2460	1.3.3.2.3.1.7	Milestone: Client - Set 2 Complete	2459	0 days	Fri 12/4/20	Fri 12/4/20	
2461	1.3.3.2.3.1.7	Milestone: Client Complete and Ready for UAT	2450,2460	0 days	Fri 12/4/20	Fri 12/4/20	
2462	1.3.3.2.3.1.8	Milestone: Data Warehouse Design and Development Complete	2438,2416,2394,:	0 days	Fri 11/6/20	Fri 11/6/20	
2463	**1.3.3.2.3.2**	**EDS Implementation - User Acceptance Testing**		**140 days**	**Tue 6/16/20**	**Wed 1/6/21**	
2464	1.3.3.2.3.2.1	Milestone: UAT Begins	2469SS,815,1879	0 days	Fri 11/6/20	Fri 11/6/20	
2465	1.3.3.2.3.2.2	Milestone: UAT for Data Warehouse Begins	2464	0 days	Fri 11/6/20	Fri 11/6/20	
2466	**1.3.3.2.3.3**	**User Acceptance Testing - Provider**		**45 days**	**Wed 9/30/20**	**Thu 12/3/20**	
2467	**1.3.3.2.3.3**	**User Acceptance Testing - Provider**		**45 days**	**Wed 9/30/20**	**Thu 12/3/20**	
2468	1.3.3.2.3.3	Create User Acceptance Test cases - Provider	2332FF-5 days	20 days	Wed 9/30/20	Tue 10/27/20	BI Dev[5%],BA[10%]
2469	1.3.3.2.3.3	Execute - Provider User Acceptance Testing	2468,2332	20 days	Wed 11/4/20	Thu 12/3/20	State[10%],BI Dev[1%],BA[5%]
2470	1.3.3.2.3.3	Milestone: Complete Provider User Acceptance Test	2469	0 days	Thu 12/3/20	Thu 12/3/20	
2471	**1.3.3.2.3.4**	**User Acceptance Testing - Claim and Finance**		**81 days**	**Tue 6/16/20**	**Thu 10/8/20**	
2472	**1.3.3.2.3.4**	**User Acceptance Testing - Financial Analytic Data**		**45 days**	**Wed 7/22/20**	**Wed 9/23/20**	
2473	1.3.3.2.3.4	Create User Acceptance Test cases - Financial Analytic Data	2394FF-5 days	20 days	Wed 7/22/20	Tue 8/18/20	BI Dev[5%],BA[10%]
2474	1.3.3.2.3.4	Execute - Financial Analytic User Acceptance Testing	2473,2394	20 days	Wed 8/26/20	Wed 9/23/20	State[10%],BI Dev[1%],BA[5%]
2475	1.3.3.2.3.4	Milestone: Complete Financial Analytic User Acceptance Test	2474	0 days	Wed 9/23/20	Wed 9/23/20	
2476	**1.3.3.2.3.4**	**User Acceptance Testing - Prior Authorization**		**75 days**	**Tue 6/16/20**	**Wed 9/30/20**	
2477	1.3.3.2.3.4	Create User Acceptance Test cases - Prior Authorization	2343FF-5 days	35 days	Tue 6/16/20	Tue 8/4/20	BI Dev[5%],BA[10%]
2478	1.3.3.2.3.4	Execute - Prior Authorization User Acceptance Testing	2477,2343	35 days	Wed 8/12/20	Wed 9/30/20	State[10%],BI Dev[1%],BA[5%

ID	WBS	Task Name	Predecessors	Duration	Start	Finish	Resource Names
2479	1.3.3.2.3.2.4	Milestone: Complete Prior Authorization User Acceptance testing	2478	0 days	Wed 9/30/20	Wed 9/30/20	
2480	**1.3.3.2.3.2.4**	**User Acceptance Testing - Drug Claim**		**75 days**	**Tue 6/16/20**	**Wed 9/30/20**	
2481	1.3.3.2.3.2.4	Create User Acceptance Test cases - Drug Claim	2353FF-5 days	35 days	Tue 6/16/20	Tue 8/4/20	BI Dev[5%],BA[10%]
2482	1.3.3.2.3.2.4	Execute - Drug Claim User Acceptance Testing	2481,2353	35 days	Wed 8/12/20	Wed 9/30/20	State[10%],BI Dev[1%],BA[5%]
2483	1.3.3.2.3.2.4	Milestone: Complete Drug Claim User Acceptance testing	2482	0 days	Wed 9/30/20	Wed 9/30/20	
2484	**1.3.3.2.3.2.4**	**User Acceptance Testing - Institutional Claims**		**70 days**	**Tue 6/16/20**	**Wed 9/23/20**	
2485	1.3.3.2.3.2.4	Create User Acceptance Test cases - Institutional Claims	2363FF-5 days	35 days	Tue 6/16/20	Tue 8/4/20	BI Dev[5%],BA[10%]
2486	1.3.3.2.3.2.4	Execute - Institutional Claims User Acceptance Testing	2485	35 days	Wed 8/5/20	Wed 9/23/20	State[10%],BI Dev[1%],BA[5%]
2487	1.3.3.2.3.2.4	Milestone: Complete Institutional Claims User Acceptance testing	2486	0 days	Wed 9/23/20	Wed 9/23/20	
2488	**1.3.3.2.3.2.4**	**User Acceptance Testing - Dental Claims**		**75 days**	**Wed 6/17/20**	**Thu 10/1/20**	
2489	1.3.3.2.3.2.4	Create User Acceptance Test cases - Dental Claims	2373FF-5 days	35 days	Wed 6/17/20	Wed 8/5/20	BI Dev[5%],BA[10%]
2490	1.3.3.2.3.2.4	Execute - Dental Claims User Acceptance Testing	2373,2489	35 days	Thu 8/13/20	Thu 10/1/20	State[10%],BI Dev[1%],BA[5%]
2491	1.3.3.2.3.2.4	Milestone: Complete Dental Claims User Acceptance testing	2490	0 days	Thu 10/1/20	Thu 10/1/20	
2492	**1.3.3.2.3.2.4**	**User Acceptance Testing - Professional Claims**		**75 days**	**Wed 6/24/20**	**Thu 10/8/20**	
2493	1.3.3.2.3.2.4	Create User Acceptance Test cases - Professional Claims	2383FF-5 days	35 days	Wed 6/24/20	Wed 8/12/20	BI Dev[5%],BA[10%]
2494	1.3.3.2.3.2.4	Execute - Professional Claims User Acceptance Testing	2383,2493	35 days	Thu 8/20/20	Thu 10/8/20	State[10%],BI Dev[1%],BA[5%]
2495	1.3.3.2.3.2.4	Milestone: Complete Professional Claims User Acceptance testing	2494	0 days	Thu 10/8/20	Thu 10/8/20	
2496	**1.3.3.2.3.2.5**	**User Acceptance Testing - Client Interfaces**		**45 days**	**Thu 10/29/20**	**Wed 1/6/21**	
2497	**1.3.3.2.3.2.5**	**User Acceptance Testing - Client**		**45 days**	**Thu 10/29/20**	**Wed 1/6/21**	
2498	1.3.3.2.3.2.5	Create User Acceptance Test cases - Client	2461FF-5 days	20 days	Thu 10/29/20	Wed 11/25/20	BI Dev[5%],BA[10%]
2499	1.3.3.2.3.2.5	Execute - Client User Acceptance Testing	2498,2461	20 days	Mon 12/7/20	Wed 1/6/21	State[10%],BI Dev[1%],BA[5%]
2500	1.3.3.2.3.2.5	Milestone: Complete Client User Acceptance Test	2499	0 days	Wed 1/6/21	Wed 1/6/21	
2501	**1.3.3.2.3.2.6**	**User Acceptance Testing - Eligibility**		**45 days**	**Mon 10/5/20**	**Tue 12/8/20**	
2502	1.3.3.2.3.2.6	Create User Acceptance Test cases - Eligibility	2438FF-5 days	20 days	Mon 10/5/20	Fri 10/30/20	BI Dev[5%],BA[10%]
2503	1.3.3.2.3.2.6	Execute - Eligibility User Acceptance Testing	2502,2438	20 days	Mon 11/9/20	Tue 12/8/20	State[10%],BI Dev[1%],BA[5%]
2504	1.3.3.2.3.2.6	Milestone: Complete Eligibility User Acceptance Test	2503	0 days	Tue 12/8/20	Tue 12/8/20	
2505	**1.3.3.2.3.2.7**	**User Acceptance Testing - Reference**		**35 days**	**Wed 9/23/20**	**Tue 11/10/20**	
2506	1.3.3.2.3.2.7	Create User Acceptance Test cases Reference	2416FF-5 days	15 days	Wed 9/23/20	Tue 10/13/20	BI Dev[5%],BA[10%]
2507	1.3.3.2.3.2.7	Execute - Reference User Acceptance Testing	2416,2506	15 days	Wed 10/21/20	Tue 11/10/20	State[10%],BI Dev[1%],BA[5%]
2508	1.3.3.2.3.2.7	Milestone: Complete Reference User Acceptance Test	2507	0 days	Tue 11/10/20	Tue 11/10/20	
2509	1.3.3.2.3.2.8	Milestone: UAT for Data Warehouse Complete	2508,2504,2495	0 days	Tue 12/8/20	Tue 12/8/20	
2510	**1.3.3.3**	**Project 3: Analytics, BI, and Reporting Implementation**		**219 days**	**Mon 6/29/20**	**Mon 5/10/21**	
2511	**1.3.3.3.1**	**SDLC Gate Reviews**		**125 days**	**Mon 10/12/20**	**Mon 4/12/21**	
2512	**1.3.3.3.1.1**	**Design (Iterate, as needed)**		**47 days**	**Mon 10/12/20**	**Fri 12/18/20**	
2513	1.3.3.3.1.1.1	Milestone: Entrance Criteria Met for Design Phase	2588	0 days	Mon 10/12/20	Mon 10/12/20	
2514	1.3.3.3.1.1.2	Milestone: Exit Criteria Met for Design Phase	2670,2513	0 days	Fri 12/18/20	Fri 12/18/20	
2515	**1.3.3.3.1.2**	**Development (Iterate, as needed)**		**40 days**	**Wed 12/2/20**	**Mon 2/1/21**	
2516	1.3.3.3.1.2.1	Milestone: Entrance Criteria Met for Development Phase	2672	0 days	Wed 12/2/20	Wed 12/2/20	
2517	1.3.3.3.1.2.2	Milestone: Exit Criteria Met for Development Phase	2721,2516	0 days	Mon 2/1/21	Mon 2/1/21	
2518	**1.3.3.3.1.3**	**Testing (Iterate, as needed)**		**87 days**	**Mon 12/7/20**	**Mon 4/12/21**	
2519	1.3.3.3.1.3.1	Milestone: Entrance Criteria Met for Testing Phase	2723	0 days	Mon 12/7/20	Mon 12/7/20	
2520	1.3.3.3.1.3.2	Milestone: Exit Criteria Met for Testing Phase	2519,2825	0 days	Mon 4/12/21	Mon 4/12/21	
2521	**1.3.3.3.2**	**Analytics & BI**		**190 days**	**Mon 6/29/20**	**Tue 3/30/21**	
2522	**1.3.3.3.2.1**	**Analytics & BI Design**		**68 days**	**Mon 6/29/20**	**Fri 10/2/20**	
2523	**1.3.3.3.2.1.1**	**Analytics Set 1 Design**		**34 days**	**Mon 6/29/20**	**Fri 8/14/20**	
2524	1.3.3.3.2.1.1	Develop Analytics Set 1 Design	1042	15 days	Mon 6/29/20	Mon 7/20/20	BI Dev[25%],BI Dev (Cognos)[25%]
2525	1.3.3.3.2.1.1	Peer Review Analytics Set 1 Design	2524	5 days	Tue 7/21/20	Mon 7/27/20	BI Dev[20%],BI Dev (Cognos)[20%],BI Architect[10%]
2526	1.3.3.3.2.1.1	Update Design Analytics Set 1 based on Design	2525	2 days	Tue 7/28/20	Wed 7/29/20	BI Dev[25%],BI Dev (Cognos)[25%]
2527	1.3.3.3.2.1.1	Send Analytics Design to Client for Review	2526	10 days	Thu 7/30/20	Wed 8/12/20	BI Dev[5%],State[20%]
2528	1.3.3.3.2.1.1	Update Design Analytics set 1 Based on Design	2527	2 days	Thu 8/13/20	Fri 8/14/20	BI Dev[25%],BI Dev (Cognos)[25%]
2529	1.3.3.3.2.1.1	Milestone: Complete Analytics Set 1 Design	2528	0 days	Fri 8/14/20	Fri 8/14/20	
2530	**1.3.3.3.2.1.2**	**Analytics Set 2 Design**		**34 days**	**Mon 8/17/20**	**Fri 10/2/20**	
2531	1.3.3.3.2.1.2	Develop Analytics Set 2 Design	2529	15 days	Mon 8/17/20	Fri 9/4/20	BI Dev[25%],BI Dev (Cognos)[25%]
2532	1.3.3.3.2.1.2	Peer Review Analytics Set 2 Design	2531	5 days	Tue 9/8/20	Mon 9/14/20	BI Dev[20%],BI Dev (Cognos)[20%],BI Architect[10%]
2533	1.3.3.3.2.1.2	Update Design Analytics Set 2 based on Design	2532	2 days	Tue 9/15/20	Wed 9/16/20	BI Dev[25%],BI Dev (Cognos)[25%]
2534	1.3.3.3.2.1.2	Send Analytics Design to Client for Review	2533	10 days	Thu 9/17/20	Wed 9/30/20	BI Dev[5%],State[20%]
2535	1.3.3.3.2.1.2	Update Design Analytics set 2 Based on Design	2534	2 days	Thu 10/1/20	Fri 10/2/20	BI Dev[25%],BI Dev (Cognos)[25%]
2536	1.3.3.3.2.1.2	Milestone: Complete Analytics Set 2 Design	2535	0 days	Fri 10/2/20	Fri 10/2/20	
2537	**1.3.3.3.2.1.3**	**Analytics Set 3 Design**		**34 days**	**Mon 8/17/20**	**Fri 10/2/20**	
2538	1.3.3.3.2.1.3	Develop Analytics Set 3 Design	2529	15 days	Mon 8/17/20	Fri 9/4/20	BI Dev[25%],BI Dev (Cognos)[25%]
2539	1.3.3.3.2.1.3	Peer Review Analytics Set 3 Design	2538	5 days	Tue 9/8/20	Mon 9/14/20	BI Dev[20%],BI Dev (Cognos)[20%],BI Architect[10%]
2540	1.3.3.3.2.1.3	Update Design Analytics Set 3 based on Design	2539	2 days	Tue 9/15/20	Wed 9/16/20	BI Dev[25%],BI Dev (Cognos)[25%]
2541	1.3.3.3.2.1.3	Send Analytics Design to Client for Review	2540	10 days	Thu 9/17/20	Wed 9/30/20	BI Dev[5%],State[20%]
2542	1.3.3.3.2.1.3	Update Design Analytics set 3 Based on Design	2541	2 days	Thu 10/1/20	Fri 10/2/20	BI Dev[25%],BI Dev (Cognos)[25%]
2543	1.3.3.3.2.1.3	Milestone: Complete Analytics Set 3 Design	2542	0 days	Fri 10/2/20	Fri 10/2/20	
2544	1.3.3.3.2.1.4	Milestone: Complete Analytics Design	2529,2536,2543	0 days	Fri 10/2/20	Fri 10/2/20	
2545	**1.3.3.3.2.2**	**Analytics & BI Development**		**76 days**	**Mon 8/17/20**	**Thu 12/3/20**	

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ID	WBS	Task Name	Predecessors	Duration	Start	Finish	Resource Names
2546	**1.3.3.3.2.1**	**Analytics Set 1 Development**		**42 days**	**Mon 8/17/20**	**Wed 10/14/20**	
2547	1.3.3.3.2.1	Develop Analytics Set 1	2529	20 days	Mon 8/17/20	Mon 9/14/20	BI Dev[15%]
2548	1.3.3.3.2.1	Unit Test Analytics Set 1	2547FS+2 days	20 days	Thu 9/17/20	Wed 10/14/20	BI Dev[15%]
2549	1.3.3.3.2.1	Milestone: Complete Development Analytics Set 1	2548	0 days	Wed 10/14/20	Wed 10/14/20	
2550	**1.3.3.3.2.2**	**Analytics Set 2 Development**		**42 days**	**Mon 10/5/20**	**Thu 12/3/20**	
2551	1.3.3.3.2.2	Develop Analytics Set 2	2536	20 days	Mon 10/5/20	Fri 10/30/20	BI Dev[15%]
2552	1.3.3.3.2.2	Unit Test Analytics Set 2	2551FS+2 days	20 days	Wed 11/4/20	Thu 12/3/20	BI Dev[15%]
2553	1.3.3.3.2.2	Milestone: Complete Development Analytics Set 2	2552	0 days	Thu 12/3/20	Thu 12/3/20	
2554	**1.3.3.3.2.3**	**Analytics Set 3 Development**		**42 days**	**Mon 10/5/20**	**Thu 12/3/20**	
2555	1.3.3.3.2.3	Develop Analytics Set 3	2543,2544	20 days	Mon 10/5/20	Fri 10/30/20	BI Dev[15%]
2556	1.3.3.3.2.3	Unit Test Analytics Set 3	2555FS+2 days	20 days	Wed 11/4/20	Thu 12/3/20	BI Dev[15%]
2557	1.3.3.3.2.3	Milestone: Complete Development Analytics Set 3	2556	0 days	Thu 12/3/20	Thu 12/3/20	
2558	**1.3.3.3.2.3**	**Analytics & BI System Test**		**74 days**	**Thu 10/15/20**	**Tue 2/2/21**	
2559	**1.3.3.3.2.3.1**	**Analytics Set 1 System Test**		**40 days**	**Thu 10/15/20**	**Fri 12/11/20**	
2560	1.3.3.3.2.3.1	Create Analytics System test Case	2549	20 days	Thu 10/15/20	Wed 11/11/20	BI Dev[20%],BA[20%]
2561	1.3.3.3.2.3.1	Execute Analytics System Test	2560	20 days	Thu 11/12/20	Fri 12/11/20	BI Dev[20%],BA[20%]
2562	1.3.3.3.2.3.1	Milestone: Complete System Testing Analytics Set 1	2561	0 days	Fri 12/11/20	Fri 12/11/20	
2563	**1.3.3.3.2.3.2**	**Analytics Set 2 System Test**		**40 days**	**Fri 12/4/20**	**Tue 2/2/21**	
2564	1.3.3.3.2.3.2	Create Analytics System test Case	2553	20 days	Fri 12/4/20	Tue 1/5/21	BI Dev[20%],BA[20%]
2565	1.3.3.3.2.3.2	Execute Analytics System Test	2564	20 days	Wed 1/6/21	Tue 2/2/21	BI Dev[20%],BA[20%]
2566	1.3.3.3.2.3.2	Milestone: Complete System Testing Analytics Set 2	2565	0 days	Tue 2/2/21	Tue 2/2/21	
2567	**1.3.3.3.2.3.3**	**Analytics Set 3 System Test**		**40 days**	**Fri 12/4/20**	**Tue 2/2/21**	
2568	1.3.3.3.2.3.3	Create Analytics System test Case	2557	20 days	Fri 12/4/20	Tue 1/5/21	BI Dev[20%],BA[20%]
2569	1.3.3.3.2.3.3	Execute Analytics System Test	2568	20 days	Wed 1/6/21	Tue 2/2/21	BI Dev[20%],BA[20%]
2570	1.3.3.3.2.3.3	Milestone: Complete System Testing Analytics Set 3	2569	0 days	Tue 2/2/21	Tue 2/2/21	
2571	1.3.3.3.2.3.4	Milestone: Complete Analytics System Test	2562,2566,2570	0 days	Tue 2/2/21	Tue 2/2/21	
2572	**1.3.3.3.2.4**	**Analytics & BI UAT**		**74 days**	**Mon 12/14/20**	**Tue 3/30/21**	
2573	**1.3.3.3.2.4.1**	**Analytics Set 1 User Acceptance**		**40 days**	**Mon 12/14/20**	**Wed 2/10/21**	
2574	1.3.3.3.2.4.1	Create Analytics User Acceptance Case	2562	20 days	Mon 12/14/20	Wed 1/13/21	BI Dev[20%],BA[20%]
2575	1.3.3.3.2.4.1	Execute Analytics User Acceptance	2574,815	20 days	Thu 1/14/21	Wed 2/10/21	BI Dev[1%],BA[5%],State[10%]
2576	1.3.3.3.2.4.1	Milestone: Complete User Acceptance Analytics Set 1	2575	0 days	Wed 2/10/21	Wed 2/10/21	
2577	**1.3.3.3.2.4.2**	**Analytics Set 2 User Acceptance**		**40 days**	**Wed 2/3/21**	**Tue 3/30/21**	
2578	1.3.3.3.2.4.2	Create Analytics User Acceptance Case	2566	20 days	Wed 2/3/21	Tue 3/2/21	BI Dev[20%],BA[20%]
2579	1.3.3.3.2.4.2	Execute Analytics User Acceptance	2578	20 days	Wed 3/3/21	Tue 3/30/21	State[10%],BI Dev[1%],BA[5%]
2580	1.3.3.3.2.4.2	Milestone: Complete User Acceptance Analytics Set 2	2579	0 days	Tue 3/30/21	Tue 3/30/21	
2581	**1.3.3.3.2.4.3**	**Analytics Set 3 User Acceptance**		**40 days**	**Wed 2/3/21**	**Tue 3/30/21**	
2582	1.3.3.3.2.4.3	Create Analytics User Acceptance Case	2570	20 days	Wed 2/3/21	Tue 3/2/21	BI Dev[20%],BA[20%]
2583	1.3.3.3.2.4.3	Execute Analytics User Acceptance	2582,2571	20 days	Wed 3/3/21	Tue 3/30/21	State[10%],BI Dev[1%],BA[5%]
2584	1.3.3.3.2.4.3	Milestone: Complete User Acceptance Analytics Set 3	2583	0 days	Tue 3/30/21	Tue 3/30/21	
2585	1.3.3.3.2.5	Milestone: Complete Analytics User Acceptance Testing	2562,2566,2570	0 days	Tue 2/2/21	Tue 2/2/21	
2586	**1.3.3.3.3**	**Reporting**		**160 days**	**Tue 9/22/20**	**Mon 5/10/21**	
2587	**1.3.3.3.3.1**	**Reporting Design**		**82 days**	**Tue 9/22/20**	**Wed 1/20/21**	
2588	1.3.3.3.3.1.1	Milestone: Report Design Begins	2591	0 days	Mon 10/12/20	Mon 10/12/20	
2589	**1.3.3.3.3.1.2**	**Care Management Report Design**		**70 days**	**Tue 9/22/20**	**Mon 1/4/21**	
2590	**1.3.3.3.3.1.2**	**Report Set 1**		**30 days**	**Tue 9/22/20**	**Mon 11/2/20**	
2591	1.3.3.3.3.1.2	Create Report Designs	1069	15 days	Tue 9/22/20	Mon 10/12/20	BI Dev[50%],BA[25%],Data Architect[10%],Tech Lead[10%]
2592	1.3.3.3.3.1.2	Conduct Peer review on Report Design	2591	2 days	Tue 10/13/20	Wed 10/14/20	BI Dev[50%],BI Architect[25%]
2593	1.3.3.3.3.1.2	Update Design from peer review	2592	1 day	Thu 10/15/20	Thu 10/15/20	BI Dev[25%]
2594	1.3.3.3.3.1.2	Client Review Report	2593	10 days	Fri 10/16/20	Thu 10/29/20	State[25%]
2595	1.3.3.3.3.1.2	Update Design from Client Review	2594	2 days	Fri 10/30/20	Mon 11/2/20	BI Dev[25%]
2596	1.3.3.3.3.1.2	Milestone: Design Report Set 1 Complete	2595	0 days	Mon 11/2/20	Mon 11/2/20	
2597	**1.3.3.3.3.1.2**	**Report Set 2**		**30 days**	**Tue 10/20/20**	**Wed 12/2/20**	
2598	1.3.3.3.3.1.2	Create Report Designs	1076	15 days	Tue 10/20/20	Mon 11/9/20	BI Dev[50%],BA[25%],Data Architect[10%],Tech Lead[10%]
2599	1.3.3.3.3.1.2	Conduct Peer review on Report Design	2598	2 days	Tue 11/10/20	Wed 11/11/20	BI Dev[50%],BI Architect[25%]
2600	1.3.3.3.3.1.2	Update Design from peer review	2599	1 day	Thu 11/12/20	Thu 11/12/20	BI Dev[25%]
2601	1.3.3.3.3.1.2	Client Review Report	2600	10 days	Fri 11/13/20	Mon 11/30/20	State[25%]
2602	1.3.3.3.3.1.2	Update Design from Client Review	2601	2 days	Tue 12/1/20	Wed 12/2/20	BI Dev[25%]
2603	1.3.3.3.3.1.2	Milestone: Design Report Set 2 Complete	2602	0 days	Wed 12/2/20	Wed 12/2/20	
2604	**1.3.3.3.3.1.3**	**Report Set 3**		**30 days**	**Tue 11/17/20**	**Mon 1/4/21**	
2605	1.3.3.3.3.1.2	Create Report Designs	1083	15 days	Tue 11/17/20	Wed 12/9/20	BI Dev[50%],BA[25%],Data Architect[10%],Tech Lead[10%]
2606	1.3.3.3.3.1.2	Conduct Peer review on Report Design	2605	2 days	Thu 12/10/20	Fri 12/11/20	BI Dev[50%],BI Architect[25%]
2607	1.3.3.3.3.1.2	Update Design from peer review	2606	1 day	Mon 12/14/20	Mon 12/14/20	BI Dev[25%]
2608	1.3.3.3.3.1.2	Client Review Report	2607	10 days	Tue 12/15/20	Wed 12/30/20	State[25%]
2609	1.3.3.3.3.1.2	Update Design from Client Review	2608	2 days	Thu 12/31/20	Mon 1/4/21	BI Dev[25%]
2610	1.3.3.3.3.1.2	Milestone: Design Report Set 3 Complete	2609	0 days	Mon 1/4/21	Mon 1/4/21	
2611	**1.3.3.3.3.1.3**	**Financial Management Report Design**		**70 days**	**Tue 9/22/20**	**Mon 1/4/21**	
2612	**1.3.3.3.3.1.3**	**Report Set 1**		**30 days**	**Tue 9/22/20**	**Mon 11/2/20**	

ID	WBS	Task Name	Predecessors	Duration	Start	Finish	Resource Names
2613	1.3.3.3.3.1.3	Create Report Designs	1091	15 days	Tue 9/22/20	Mon 10/12/20	BI Dev[50%],BA[25%],Data Architect[10%],Tech Lead[10%]
2614	1.3.3.3.3.1.3	Conduct Peer review on Report Design	2613	2 days	Tue 10/13/20	Wed 10/14/20	BI Dev[50%],BI Architect[25%]
2615	1.3.3.3.3.1.3	Update Design from peer review	2614	1 day	Thu 10/15/20	Thu 10/15/20	BI Dev[25%]
2616	1.3.3.3.3.1.3	Client Review Report	2615	10 days	Fri 10/16/20	Thu 10/29/20	State[25%]
2617	1.3.3.3.3.1.3	Update Design from Client Review	2616	2 days	Fri 10/30/20	Mon 11/2/20	BI Dev[25%]
2618	1.3.3.3.3.1.3	Milestone: Design Report Set 1 Complete	2617	0 days	Mon 11/2/20	Mon 11/2/20	
2619	**1.3.3.3.3.1.3**	**Report Set 2**		**30 days**	**Tue 10/20/20**	**Wed 12/2/20**	
2620	1.3.3.3.3.1.3	Create Report Designs	1098	15 days	Tue 10/20/20	Mon 11/9/20	BI Dev[50%],BA[25%],Data Architect[10%],Tech Lead[10%]
2621	1.3.3.3.3.1.3	Conduct Peer review on Report Design	2620	2 days	Tue 11/10/20	Wed 11/11/20	BI Dev[50%],BI Architect[25%]
2622	1.3.3.3.3.1.3	Update Design from peer review	2621	1 day	Thu 11/12/20	Thu 11/12/20	BI Dev[25%]
2623	1.3.3.3.3.1.3	Client Review Report	2622	10 days	Fri 11/13/20	Mon 11/30/20	State[25%]
2624	1.3.3.3.3.1.3	Update Design from Client Review	2623	2 days	Tue 12/1/20	Wed 12/2/20	BI Dev[25%]
2625	1.3.3.3.3.1.3	Milestone: Design Report Set 2 Complete	2624	0 days	Wed 12/2/20	Wed 12/2/20	
2626	**1.3.3.3.3.1.3**	**Report Set 3**		**30 days**	**Tue 11/17/20**	**Mon 1/4/21**	
2627	1.3.3.3.3.1.3	Create Report Designs	1105	15 days	Tue 11/17/20	Wed 12/9/20	BI Dev[50%],BA[25%],Data Architect[10%],Tech Lead[10%]
2628	1.3.3.3.3.1.3	Conduct Peer review on Report Design	2627	2 days	Thu 12/10/20	Fri 12/11/20	BI Dev[50%],BI Architect[25%]
2629	1.3.3.3.3.1.3	Update Design from peer review	2628	1 day	Mon 12/14/20	Mon 12/14/20	BI Dev[25%]
2630	1.3.3.3.3.1.3	Client Review Report	2629	10 days	Tue 12/15/20	Wed 12/30/20	State[25%]
2631	1.3.3.3.3.1.3	Update Design from Client Review	2630	2 days	Thu 12/31/20	Mon 1/4/21	BI Dev[25%]
2632	1.3.3.3.3.1.3	Milestone: Design Report Set 3 Complete	2631	0 days	Mon 1/4/21	Mon 1/4/21	
2633	**1.3.3.3.3.1.4**	**Program Management Report Design**		**82 days**	**Tue 9/22/20**	**Wed 1/20/21**	
2634	**1.3.3.3.3.1.4**	**Report Set 1**		**42 days**	**Tue 9/22/20**	**Wed 11/18/20**	
2635	1.3.3.3.3.1.4	Create Report Designs	1113	27 days	Tue 9/22/20	Wed 10/28/20	BI Dev[50%],BA[25%],Data Architect[10%],Tech Lead[10%]
2636	1.3.3.3.3.1.4	Conduct Peer review on Report Design	2635	2 days	Thu 10/29/20	Fri 10/30/20	BI Dev[50%],BI Architect[25%]
2637	1.3.3.3.3.1.4	Update Design from peer review	2636	1 day	Mon 11/2/20	Mon 11/2/20	BI Dev[25%]
2638	1.3.3.3.3.1.4	Client Review Report	2637	10 days	Tue 11/3/20	Mon 11/16/20	State[25%]
2639	1.3.3.3.3.1.4	Update Design from Client Review	2638	2 days	Tue 11/17/20	Wed 11/18/20	BI Dev[25%]
2640	1.3.3.3.3.1.4	Milestone: Design Report Set 1 Complete	2639	0 days	Wed 11/18/20	Wed 11/18/20	
2641	**1.3.3.3.3.1.4**	**Report Set 2**		**42 days**	**Tue 10/20/20**	**Fri 12/18/20**	
2642	1.3.3.3.3.1.4	Create Report Designs	1120	27 days	Tue 10/20/20	Wed 11/25/20	BI Dev[50%],BA[25%],Data Architect[10%],Tech Lead[10%]
2643	1.3.3.3.3.1.4	Conduct Peer review on Report Design	2642	2 days	Mon 11/30/20	Tue 12/1/20	BI Dev[50%],BI Architect[25%]
2644	1.3.3.3.3.1.4	Update Design from peer review	2643	1 day	Wed 12/2/20	Wed 12/2/20	BI Dev[25%]
2645	1.3.3.3.3.1.4	Client Review Report	2644	10 days	Thu 12/3/20	Wed 12/16/20	State[25%]
2646	1.3.3.3.3.1.4	Update Design from Client Review	2645	2 days	Thu 12/17/20	Fri 12/18/20	BI Dev[25%]
2647	1.3.3.3.3.1.4	Milestone: Design Report Set 2 Complete	2646	0 days	Fri 12/18/20	Fri 12/18/20	
2648	**1.3.3.3.3.1.4**	**Report Set 3**		**42 days**	**Tue 11/17/20**	**Wed 1/20/21**	
2649	1.3.3.3.3.1.4	Create Report Designs	1127	27 days	Tue 11/17/20	Tue 12/29/20	BI Dev[50%],BA[25%],Data Architect[10%],Tech Lead[10%]
2650	1.3.3.3.3.1.4	Conduct Peer review on Report Design	2649	2 days	Wed 12/30/20	Thu 12/31/20	BI Dev[50%],BI Architect[25%]
2651	1.3.3.3.3.1.4	Update Design from peer review	2650	1 day	Mon 1/4/21	Mon 1/4/21	BI Dev[25%]
2652	1.3.3.3.3.1.4	Client Review Report	2651	10 days	Tue 1/5/21	Mon 1/18/21	State[25%]
2653	1.3.3.3.3.1.4	Update Design from Client Review	2652	2 days	Tue 1/19/21	Wed 1/20/21	BI Dev[25%]
2654	1.3.3.3.3.1.4	Milestone: Design Report Set 3 Complete	2653	0 days	Wed 1/20/21	Wed 1/20/21	
2655	**1.3.3.3.3.1.5**	**Additional Operational Report Design**		**62 days**	**Tue 9/22/20**	**Fri 12/18/20**	
2656	**1.3.3.3.3.1.5**	**Report Set 1**		**42 days**	**Tue 9/22/20**	**Wed 11/18/20**	
2657	1.3.3.3.3.1.5	Create Report Designs	1135	27 days	Tue 9/22/20	Wed 10/28/20	BI Dev[50%],BA[25%],Data Architect[10%],Tech Lead[10%]
2658	1.3.3.3.3.1.5	Conduct Peer review on Report Design	2657	2 days	Thu 10/29/20	Fri 10/30/20	BI Dev[50%],BI Architect[25%]
2659	1.3.3.3.3.1.5	Update Design from peer review	2658	1 day	Mon 11/2/20	Mon 11/2/20	BI Dev[25%]
2660	1.3.3.3.3.1.5	Client Review Report	2659	10 days	Tue 11/3/20	Mon 11/16/20	State[25%]
2661	1.3.3.3.3.1.5	Update Design from Client Review	2660	2 days	Tue 11/17/20	Wed 11/18/20	BI Dev[25%]
2662	1.3.3.3.3.1.5	Milestone: Design Report Set 1 Complete	2661	0 days	Wed 11/18/20	Wed 11/18/20	
2663	**1.3.3.3.3.1.5**	**Report Set 2**		**42 days**	**Tue 10/20/20**	**Fri 12/18/20**	
2664	1.3.3.3.3.1.5	Create Report Designs	1142	27 days	Tue 10/20/20	Wed 11/25/20	BI Dev[50%],BA[25%],Data Architect[10%],Tech Lead[10%]
2665	1.3.3.3.3.1.5	Conduct Peer review on Report Design	2664	2 days	Mon 11/30/20	Tue 12/1/20	BI Dev[50%],BI Architect[25%]
2666	1.3.3.3.3.1.5	Update Design from peer review	2665	1 day	Wed 12/2/20	Wed 12/2/20	BI Dev[25%]
2667	1.3.3.3.3.1.5	Client Review Report	2666	10 days	Thu 12/3/20	Wed 12/16/20	State[25%]
2668	1.3.3.3.3.1.5	Update Design from Client Review	2667	2 days	Thu 12/17/20	Fri 12/18/20	BI Dev[25%]
2669	1.3.3.3.3.1.5	Milestone: Design Report Set 2 Complete	2668	0 days	Fri 12/18/20	Fri 12/18/20	
2670	1.3.3.3.3.1.6	Milestone: Report Design Complete	2669	0 days	Fri 12/18/20	Fri 12/18/20	
2671	**1.3.3.3.3.2**	**Reporting Development**		**75 days**	**Tue 11/10/20**	**Mon 3/1/21**	
2672	1.3.3.3.3.2.1	Milestone: Report Development Begins	2675	0 days	Wed 12/2/20	Wed 12/2/20	
2673	**1.3.3.3.3.2.2**	**Care Management Report Development**		**58 days**	**Tue 11/10/20**	**Thu 2/4/21**	
2674	**1.3.3.3.3.2.2**	**Report Set 1**		**18 days**	**Tue 11/10/20**	**Mon 12/7/20**	
2675	1.3.3.3.3.2.2	Develop Report Set 1	2596SS+5 days,2	15 days	Tue 11/10/20	Wed 12/2/20	BI Dev[15%],BI Dev (Cognos)[15%]
2676	1.3.3.3.3.2.2	Unit Test Report Set 1	2675SS+3 days	15 days	Fri 11/13/20	Mon 12/7/20	BI Dev[15%],BI Dev (Cognos)[15%]
2677	1.3.3.3.3.2.2	Milestone: Report Set 1 Complete	2676	0 days	Mon 12/7/20	Mon 12/7/20	
2678	**1.3.3.3.3.2.2**	**Report Set 2**		**18 days**	**Thu 12/10/20**	**Thu 1/7/21**	
2679	1.3.3.3.3.2.2	Develop Report Set 2	2384,2603SS+5 d	15 days	Thu 12/10/20	Mon 1/4/21	BI Dev[15%],BI Dev (Cognos)[15%]

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ID	WBS	Task Name	Predecessors	Duration	Start	Finish	Resource Names
2680	1.3.3.3.3.2.2	Unit Test Report Set 2	2679SS+3 days	15 days	Tue 12/15/20	Thu 1/7/21	BI Dev[15%],BI Dev (Cognos)[15%]
2681	1.3.3.3.3.2.2	Milestone: Report Set 2 Complete	2680	0 days	Thu 1/7/21	Thu 1/7/21	
2682	**1.3.3.3.3.2.2**	**Report Set 3**		**18 days**	**Tue 1/12/21**	**Thu 2/4/21**	
2683	1.3.3.3.3.2.2	Develop Report Set 3	2384,2610SS+5 d	15 days	Tue 1/12/21	Mon 2/1/21	BI Dev[15%],BI Dev (Cognos)[15%]
2684	1.3.3.3.3.2.2	Unit Test Report Set 3	2683SS+3 days	15 days	Fri 1/15/21	Thu 2/4/21	BI Dev[15%],BI Dev (Cognos)[15%]
2685	1.3.3.3.3.2.2	Milestone: Report Set 3 Complete	2684	0 days	Thu 2/4/21	Thu 2/4/21	
2686	**1.3.3.3.3.2.3**	**Financial Management Report Development**		**58 days**	**Tue 11/10/20**	**Thu 2/4/21**	
2687	**1.3.3.3.3.2.3**	**Report Set 1**		**18 days**	**Tue 11/10/20**	**Mon 12/7/20**	
2688	1.3.3.3.3.2.3	Develop Report Set 1	2618SS+5 days,2	15 days	Tue 11/10/20	Wed 12/2/20	BI Dev[15%],BI Dev (Cognos)[15%]
2689	1.3.3.3.3.2.3	Unit Test Report Set 1	2688SS+3 days	15 days	Fri 11/13/20	Mon 12/7/20	BI Dev[15%],BI Dev (Cognos)[15%]
2690	1.3.3.3.3.2.3	Milestone: Report Set 1 Complete	2689	0 days	Mon 12/7/20	Mon 12/7/20	
2691	**1.3.3.3.3.2.3**	**Report Set 2**		**18 days**	**Thu 12/10/20**	**Thu 1/7/21**	
2692	1.3.3.3.3.2.3	Develop Report Set 2	2625SS+5 days,2	15 days	Thu 12/10/20	Mon 1/4/21	BI Dev[15%],BI Dev (Cognos)[15%]
2693	1.3.3.3.3.2.3	Unit Test Report Set 2	2692SS+3 days	15 days	Tue 12/15/20	Thu 1/7/21	BI Dev[15%],BI Dev (Cognos)[15%]
2694	1.3.3.3.3.2.3	Milestone: Report Set 2 Complete	2693	0 days	Thu 1/7/21	Thu 1/7/21	
2695	**1.3.3.3.3.2.3**	**Report Set 3**		**18 days**	**Tue 1/12/21**	**Thu 2/4/21**	
2696	1.3.3.3.3.2.3	Develop Report Set 3	2632SS+5 days,2	15 days	Tue 1/12/21	Mon 2/1/21	BI Dev[15%],BI Dev (Cognos)[15%]
2697	1.3.3.3.3.2.3	Unit Test Report Set 3	2696SS+3 days	15 days	Fri 1/15/21	Thu 2/4/21	BI Dev[15%],BI Dev (Cognos)[15%]
2698	1.3.3.3.3.2.3	Milestone: Report Set 3 Complete	2697	0 days	Thu 2/4/21	Thu 2/4/21	
2699	**1.3.3.3.3.2.4**	**Program Management Report Development**		**63 days**	**Mon 11/30/20**	**Mon 3/1/21**	
2700	**1.3.3.3.3.2.4**	**Report Set 1**		**23 days**	**Mon 11/30/20**	**Mon 1/4/21**	
2701	1.3.3.3.3.2.4	Develop Report Set 1	2640SS+5 days,2	20 days	Mon 11/30/20	Tue 12/29/20	BI Dev[15%],BI Dev (Cognos)[15%]
2702	1.3.3.3.3.2.4	Unit Test Report Set 1	2701SS+3 days,2	20 days	Thu 12/3/20	Mon 1/4/21	BI Dev[15%],BI Dev (Cognos)[15%]
2703	1.3.3.3.3.2.4	Milestone: Report Set 1 Complete	2702	0 days	Mon 1/4/21	Mon 1/4/21	
2704	**1.3.3.3.3.2.4**	**Report Set 2**		**23 days**	**Wed 12/30/20**	**Mon 2/1/21**	
2705	1.3.3.3.3.2.4	Develop Report Set 2	2384,2647SS+5 d	20 days	Wed 12/30/20	Wed 1/27/21	BI Dev[15%],BI Dev (Cognos)[15%]
2706	1.3.3.3.3.2.4	Unit Test Report Set 2	2705SS+3 days	20 days	Tue 1/5/21	Mon 2/1/21	BI Dev[15%],BI Dev (Cognos)[15%]
2707	1.3.3.3.3.2.4	Milestone: Report Set 2 Complete	2706	0 days	Mon 2/1/21	Mon 2/1/21	
2708	**1.3.3.3.3.2.4**	**Report Set 3**		**23 days**	**Thu 1/28/21**	**Mon 3/1/21**	
2709	1.3.3.3.3.2.4	Develop Report Set 3	2384,2654SS+5 d	20 days	Thu 1/28/21	Wed 2/24/21	BI Dev[15%],BI Dev (Cognos)[15%]
2710	1.3.3.3.3.2.4	Unit Test Report Set 3	2709SS+3 days	20 days	Tue 2/2/21	Mon 3/1/21	BI Dev[15%],BI Dev (Cognos)[15%]
2711	1.3.3.3.3.2.4	Milestone: Report Set 3 Complete	2710	0 days	Mon 3/1/21	Mon 3/1/21	
2712	**1.3.3.3.3.2.5**	**Additional Operational Report Development**		**43 days**	**Mon 11/30/20**	**Mon 2/1/21**	
2713	**1.3.3.3.3.2.5**	**Report Set 1**		**23 days**	**Mon 11/30/20**	**Mon 1/4/21**	
2714	1.3.3.3.3.2.5	Develop Report Set 1	2662SS+5 days,2	20 days	Mon 11/30/20	Tue 12/29/20	BI Dev[15%],BI Dev (Cognos)[15%]
2715	1.3.3.3.3.2.5	Unit Test Report Set 1	2714SS+3 days	20 days	Thu 12/3/20	Mon 1/4/21	BI Dev[15%],BI Dev (Cognos)[15%]
2716	1.3.3.3.3.2.5	Milestone: Report Set 1 Complete	2715	0 days	Mon 1/4/21	Mon 1/4/21	
2717	**1.3.3.3.3.2.5**	**Report Set 2**		**23 days**	**Wed 12/30/20**	**Mon 2/1/21**	
2718	1.3.3.3.3.2.5	Develop Report Set 2	2384,2669SS+5 d	20 days	Wed 12/30/20	Wed 1/27/21	BI Dev[15%],BI Dev (Cognos)[15%]
2719	1.3.3.3.3.2.5	Unit Test Report Set 2	2718SS+3 days	20 days	Tue 1/5/21	Mon 2/1/21	BI Dev[15%],BI Dev (Cognos)[15%]
2720	1.3.3.3.3.2.5	Milestone: Report Set 2 Complete	2719	0 days	Mon 2/1/21	Mon 2/1/21	
2721	1.3.3.3.3.2.6	Milestone: Report Development Complete	2720	0 days	Mon 2/1/21	Mon 2/1/21	
2722	**1.3.3.3.3.3**	**Reporting Testing**		**92 days**	**Mon 12/7/20**	**Mon 4/19/21**	
2723	1.3.3.3.3.3.1	Milestone: Report Testing Begins	2677	0 days	Mon 12/7/20	Mon 12/7/20	
2724	**1.3.3.3.3.3.2**	**Care Management Report System Testing**		**70 days**	**Tue 12/8/20**	**Thu 3/18/21**	
2725	**1.3.3.3.3.3.2**	**Report Set 1**		**30 days**	**Tue 12/8/20**	**Thu 1/21/21**	
2726	1.3.3.3.3.3.2	Create System Test cases	2677	15 days	Tue 12/8/20	Wed 12/30/20	BI Dev[25%],BA[25%],QA Mngr[10%]
2727	1.3.3.3.3.3.2	Execution System Test cases	2726	15 days	Thu 12/31/20	Thu 1/21/21	BI Dev[25%],BA[25%],QA Mngr[50%]
2728	1.3.3.3.3.3.2	Milestone: Report Set 1 System Test Complete	2727	0 days	Thu 1/21/21	Thu 1/21/21	
2729	**1.3.3.3.3.3.2**	**Report Set 2**		**30 days**	**Fri 1/8/21**	**Thu 2/18/21**	
2730	1.3.3.3.3.3.2	Create System Test cases	2681	15 days	Fri 1/8/21	Thu 1/28/21	BI Dev[25%],BA[25%],QA Mngr[10%]
2731	1.3.3.3.3.3.2	Execution System Test cases	2730	15 days	Fri 1/29/21	Thu 2/18/21	BI Dev[25%],BA[25%],QA Mngr[50%]
2732	1.3.3.3.3.3.2	Milestone: Report Set 2 System Test Complete	2731	0 days	Thu 2/18/21	Thu 2/18/21	
2733	**1.3.3.3.3.3.2**	**Report Set 3**		**30 days**	**Fri 2/5/21**	**Thu 3/18/21**	
2734	1.3.3.3.3.3.2	Create System Test cases	2685	15 days	Fri 2/5/21	Thu 2/25/21	BI Dev[25%],BA[25%],QA Mngr[10%]
2735	1.3.3.3.3.3.2	Execution System Test cases	2734	15 days	Fri 2/26/21	Thu 3/18/21	BI Dev[25%],BA[25%],QA Mngr[50%]
2736	1.3.3.3.3.3.2	Milestone: Report Set 3 System Test Complete	2735	0 days	Thu 3/18/21	Thu 3/18/21	
2737	**1.3.3.3.3.3.3**	**Financial Management Report System Testing**		**70 days**	**Tue 12/8/20**	**Thu 3/18/21**	
2738	**1.3.3.3.3.3.3**	**Report Set 1**		**30 days**	**Tue 12/8/20**	**Thu 1/21/21**	
2739	1.3.3.3.3.3.3	Create System Test cases	2690	15 days	Tue 12/8/20	Wed 12/30/20	BI Dev[25%],BA[25%],QA Mngr[10%]
2740	1.3.3.3.3.3.3	Execution System Test cases	2739	15 days	Thu 12/31/20	Thu 1/21/21	BI Dev[25%],BA[25%],QA Mngr[50%]
2741	1.3.3.3.3.3.3	Milestone: Report Set 1 System Test Complete	2740	0 days	Thu 1/21/21	Thu 1/21/21	
2742	**1.3.3.3.3.3.3**	**Report Set 2**		**30 days**	**Fri 1/8/21**	**Thu 2/18/21**	
2743	1.3.3.3.3.3.3	Create System Test cases	2694	15 days	Fri 1/8/21	Thu 1/28/21	BI Dev[25%],BA[25%],QA Mngr[10%]
2744	1.3.3.3.3.3.3	Execution System Test cases	2743	15 days	Fri 1/29/21	Thu 2/18/21	BI Dev[25%],BA[25%],QA Mngr[50%]
2745	1.3.3.3.3.3.3	Milestone: Report Set 2 System Test Complete	2744	0 days	Thu 2/18/21	Thu 2/18/21	
2746	**1.3.3.3.3.3.3**	**Report Set 3**		**30 days**	**Fri 2/5/21**	**Thu 3/18/21**	

ID	WBS	Task Name	Predecessors	Duration	Start	Finish	Resource Names
2747	1.3.3.3.3.3	Create System Test cases	2698	15 days	Fri 2/5/21	Thu 2/25/21	BI Dev[25%],BA[25%],QA Mngr[10%]
2748	1.3.3.3.3.3	Execution System Test cases	2747	15 days	Fri 2/26/21	Thu 3/18/21	BI Dev[25%],BA[25%],QA Mngr[50%]
2749	1.3.3.3.3.3	Milestone: Report Set 3 System Test Complete	2748	0 days	Thu 3/18/21	Thu 3/18/21	
2750	**1.3.3.3.3.4**	**Program Management Report System Testing**		**75 days**	**Tue 1/5/21**	**Mon 4/19/21**	
2751	**1.3.3.3.3.4**	**Report Set 1**		**35 days**	**Tue 1/5/21**	**Mon 2/22/21**	
2752	1.3.3.3.3.4	Create System Test cases	2703	15 days	Tue 1/5/21	Mon 1/25/21	BI Dev[25%],BA[25%],QA Mngr[10%]
2753	1.3.3.3.3.4	Execution System Test cases	2752	20 days	Tue 1/26/21	Mon 2/22/21	BI Dev[25%],BA[25%],QA Mngr[50%]
2754	1.3.3.3.3.4	Milestone: Report Set 1 System Test Complete	2753	0 days	Mon 2/22/21	Mon 2/22/21	
2755	**1.3.3.3.3.4**	**Report Set 2**		**35 days**	**Tue 2/2/21**	**Mon 3/22/21**	
2756	1.3.3.3.3.4	Create System Test cases	2707	15 days	Tue 2/2/21	Mon 2/22/21	BI Dev[25%],BA[25%],QA Mngr[10%]
2757	1.3.3.3.3.4	Execution System Test cases	2756	20 days	Tue 2/23/21	Mon 3/22/21	BI Dev[25%],BA[25%],QA Mngr[50%]
2758	1.3.3.3.3.4	Milestone: Report Set 2 System Test Complete	2757	0 days	Mon 3/22/21	Mon 3/22/21	
2759	**1.3.3.3.3.4**	**Report Set 3**		**35 days**	**Tue 3/2/21**	**Mon 4/19/21**	
2760	1.3.3.3.3.4	Create System Test cases	2711	15 days	Tue 3/2/21	Mon 3/22/21	BI Dev[25%],BA[25%],QA Mngr[10%]
2761	1.3.3.3.3.4	Execution System Test cases	2760	20 days	Tue 3/23/21	Mon 4/19/21	BI Dev[25%],BA[25%],QA Mngr[50%]
2762	1.3.3.3.3.4	Milestone: Report Set 3 System Test Complete	2761	0 days	Mon 4/19/21	Mon 4/19/21	
2763	**1.3.3.3.3.5**	**Additional Operational Report System Testing**		**55 days**	**Tue 1/5/21**	**Mon 3/22/21**	
2764	**1.3.3.3.3.5**	**Report Set 1**		**35 days**	**Tue 1/5/21**	**Mon 2/22/21**	
2765	1.3.3.3.3.5	Create System Test cases	2716	15 days	Tue 1/5/21	Mon 1/25/21	BI Dev[25%],BA[25%],QA Mngr[10%]
2766	1.3.3.3.3.5	Execution System Test cases	2765	20 days	Tue 1/26/21	Mon 2/22/21	BI Dev[25%],BA[25%],QA Mngr[50%]
2767	1.3.3.3.3.5	Milestone: Report Set 1 System Test Complete	2766	0 days	Mon 2/22/21	Mon 2/22/21	
2768	**1.3.3.3.3.5**	**Report Set 2**		**35 days**	**Tue 2/2/21**	**Mon 3/22/21**	
2769	1.3.3.3.3.5	Create System Test cases	2720	15 days	Tue 2/2/21	Mon 2/22/21	BI Dev[25%],BA[25%],QA Mngr[10%]
2770	1.3.3.3.3.5	Execution System Test cases	2769	20 days	Tue 2/23/21	Mon 3/22/21	BI Dev[25%],BA[25%],QA Mngr[50%]
2771	1.3.3.3.3.5	Milestone: Report Set 2 System Test Complete	2770	0 days	Mon 3/22/21	Mon 3/22/21	
2772	**1.3.3.3.4**	**Reporting UAT**		**107 days**	**Tue 12/8/20**	**Mon 5/10/21**	
2773	**1.3.3.3.4.1**	**Care Management Report User Acceptance Testing**		**80 days**	**Tue 12/8/20**	**Thu 4/1/21**	
2774	**1.3.3.3.4.1**	**Report Set 1**		**40 days**	**Tue 12/8/20**	**Thu 2/4/21**	
2775	1.3.3.3.4.1	Create User Acceptance Test cases	2726SS	10 days	Tue 12/8/20	Mon 12/21/20	BI Dev[25%],BA[25%],QA Mngr[10%]
2776	1.3.3.3.4.1	Execute User Acceptance Test cases	2775,815,2728	10 days	Fri 1/22/21	Thu 2/4/21	BI Dev[25%],BA[25%],QA Mngr[50%]
2777	1.3.3.3.4.1	Milestone: Report Set 1 User Acceptance Test Complete	2776	0 days	Thu 2/4/21	Thu 2/4/21	
2778	**1.3.3.3.4.1**	**Report Set 2**		**40 days**	**Fri 1/8/21**	**Thu 3/4/21**	
2779	1.3.3.3.4.1	Create User Acceptance Test cases	2730SS	10 days	Fri 1/8/21	Thu 1/21/21	BI Dev[25%],BA[25%],QA Mngr[10%]
2780	1.3.3.3.4.1	Execute User Acceptance Test cases	2779,2732	10 days	Fri 2/19/21	Thu 3/4/21	BI Dev[25%],BA[25%],QA Mngr[50%]
2781	1.3.3.3.4.1	Milestone: Report Set 2 User Acceptance Test Complete	2780	0 days	Thu 3/4/21	Thu 3/4/21	
2782	**1.3.3.3.4.1**	**Report Set 3**		**40 days**	**Fri 2/5/21**	**Thu 4/1/21**	
2783	1.3.3.3.4.1	Create User Acceptance Test cases	2734SS	10 days	Fri 2/5/21	Thu 2/18/21	BI Dev[25%],BA[25%],QA Mngr[10%]
2784	1.3.3.3.4.1	Execute User Acceptance Test cases	2783,2736	10 days	Fri 3/19/21	Thu 4/1/21	BI Dev[25%],BA[25%],QA Mngr[50%]
2785	1.3.3.3.4.1	Milestone: Report Set 3 User Acceptance Test Complete	2784	0 days	Thu 4/1/21	Thu 4/1/21	
2786	**1.3.3.3.4.2**	**Financial Management Report User Acceptance Testing**		**80 days**	**Tue 12/8/20**	**Thu 4/1/21**	
2787	**1.3.3.3.4.2**	**Report Set 1**		**40 days**	**Tue 12/8/20**	**Thu 2/4/21**	
2788	1.3.3.3.4.2	Create User Acceptance Test cases	2739SS	10 days	Tue 12/8/20	Mon 12/21/20	BI Dev[25%],BA[25%],QA Mngr[10%]
2789	1.3.3.3.4.2	Execute User Acceptance Test cases	2788,2741	10 days	Fri 1/22/21	Thu 2/4/21	BI Dev[25%],BA[25%],QA Mngr[50%]
2790	1.3.3.3.4.2	Milestone: Report Set 1 User Acceptance Test Complete	2789	0 days	Thu 2/4/21	Thu 2/4/21	
2791	**1.3.3.3.4.2**	**Report Set 2**		**40 days**	**Fri 1/8/21**	**Thu 3/4/21**	
2792	1.3.3.3.4.2	Create User Acceptance Test cases	2743SS	10 days	Fri 1/8/21	Thu 1/21/21	BI Dev[25%],BA[25%],QA Mngr[10%]
2793	1.3.3.3.4.2	Execute User Acceptance Test cases	2792,2745	10 days	Fri 2/19/21	Thu 3/4/21	BI Dev[25%],BA[25%],QA Mngr[50%]
2794	1.3.3.3.4.2	Milestone: Report Set 2 User Acceptance Test Complete	2793	0 days	Thu 3/4/21	Thu 3/4/21	
2795	**1.3.3.3.4.2**	**Report Set 3**		**40 days**	**Fri 2/5/21**	**Thu 4/1/21**	
2796	1.3.3.3.4.2	Create User Acceptance Test cases	2747SS	10 days	Fri 2/5/21	Thu 2/18/21	BI Dev[25%],BA[25%],QA Mngr[10%]
2797	1.3.3.3.4.2	Execute User Acceptance Test cases	2796,2749	10 days	Fri 3/19/21	Thu 4/1/21	BI Dev[25%],BA[25%],QA Mngr[50%]
2798	1.3.3.3.4.2	Milestone: Report Set 3 User Acceptance Test Complete	2797	0 days	Thu 4/1/21	Thu 4/1/21	
2799	**1.3.3.3.4.3**	**Program Management Report User Acceptance Testing**		**90 days**	**Tue 1/5/21**	**Mon 5/10/21**	
2800	**1.3.3.3.4.3**	**Report Set 1**		**50 days**	**Tue 1/5/21**	**Mon 3/15/21**	
2801	1.3.3.3.4.3	Create User Acceptance Test cases	2752SS	10 days	Tue 1/5/21	Mon 1/18/21	BI Dev[25%],BA[25%],QA Mngr[10%]
2802	1.3.3.3.4.3	Execute User Acceptance Test cases	2801,2754	15 days	Tue 2/23/21	Mon 3/15/21	BI Dev[25%],BA[25%],QA Mngr[50%]
2803	1.3.3.3.4.3	Milestone: Report Set 1 User Acceptance Test Complete	2802	0 days	Mon 3/15/21	Mon 3/15/21	
2804	**1.3.3.3.4.3**	**Report Set 2**		**50 days**	**Tue 2/2/21**	**Mon 4/12/21**	
2805	1.3.3.3.4.3	Create User Acceptance Test cases	2756SS	10 days	Tue 2/2/21	Mon 2/15/21	BI Dev[25%],BA[25%],QA Mngr[10%]
2806	1.3.3.3.4.3	Execute User Acceptance Test cases	2805,2754,2758	15 days	Tue 3/23/21	Mon 4/12/21	BI Dev[25%],BA[25%],QA Mngr[50%]
2807	1.3.3.3.4.3	Milestone: Report Set 2 User Acceptance Test Complete	2806	0 days	Mon 4/12/21	Mon 4/12/21	
2808	**1.3.3.3.4.3**	**Report Set 3**		**50 days**	**Tue 3/2/21**	**Mon 5/10/21**	
2809	1.3.3.3.4.3	Create User Acceptance Test cases	2760SS	10 days	Tue 3/2/21	Mon 3/15/21	BI Dev[25%],BA[25%],QA Mngr[10%]
2810	1.3.3.3.4.3	Execute User Acceptance Test cases	2809,2754,2762	15 days	Tue 4/20/21	Mon 5/10/21	BI Dev[25%],BA[25%],QA Mngr[50%]
2811	1.3.3.3.4.3	Milestone: Report Set 3 User Acceptance Test Complete	2810	0 days	Mon 5/10/21	Mon 5/10/21	
2812	1.3.3.3.4.3	Milestone: Complete Report User Acceptance Testing	2798	0 days	Thu 4/1/21	Thu 4/1/21	
2813	**1.3.3.3.4.4**	**Additional Operational Report User Acceptance Testing**		**70 days**	**Tue 1/5/21**	**Mon 4/12/21**	

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ID	WBS	Task Name	Predecessors	Duration	Start	Finish	Resource Names
2814	**1.3.3.3.3.4.**	**Report Set 1**		**50 days**	**Tue 1/5/21**	**Mon 3/15/21**	
2815	1.3.3.3.3.4.4	Create User Acceptance Test cases	2765SS	10 days	Tue 1/5/21	Mon 1/18/21	BI Dev[25%],BA[25%],QA Mngr[10%]
2816	1.3.3.3.3.4.4	Execute User Acceptance Test cases	2815,2767	15 days	Tue 2/23/21	Mon 3/15/21	BI Dev[25%],BA[25%],QA Mngr[50%]
2817	1.3.3.3.3.4.4	Milestone: Report Set 1 User Acceptance Test Complete	2816	0 days	Mon 3/15/21	Mon 3/15/21	
2818	**1.3.3.3.3.4.**	**Report Set 2**		**50 days**	**Tue 2/2/21**	**Mon 4/12/21**	
2819	1.3.3.3.3.4.4	Create User Acceptance Test cases	2769SS	10 days	Tue 2/2/21	Mon 2/15/21	BI Dev[25%],BA[25%],QA Mngr[10%]
2820	1.3.3.3.3.4.4	Execute User Acceptance Test cases	2819,2771	15 days	Tue 3/23/21	Mon 4/12/21	BI Dev[25%],BA[25%],QA Mngr[50%]
2821	1.3.3.3.3.4.4	Milestone: Report Set 2 User Acceptance Test Complete	2820	0 days	Mon 4/12/21	Mon 4/12/21	
2822	1.3.3.3.3.4.5	Milestone: Care Management Reporting UAT Complete	2785	0 days	Thu 4/1/21	Thu 4/1/21	
2823	1.3.3.3.3.4.6	Milestone: Financial Management Reporting UAT Complete	2798	0 days	Thu 4/1/21	Thu 4/1/21	
2824	1.3.3.3.3.4.7	Milestone: Program Management Reporting UAT Complete	2812	0 days	Thu 4/1/21	Thu 4/1/21	
2825	1.3.3.3.3.4.8	Milestone: Additional Operational Reporting UAT Complete	2821	0 days	Mon 4/12/21	Mon 4/12/21	
2826	1.3.3.3.3.4.9	Milestone: Report Testing Complete	2824,2825,2823,:	0 days	Mon 4/12/21	Mon 4/12/21	
2827	**1.3.3.4**	**Project 4: I-Sight Upgrade**		**128 days**	**Wed 6/17/20**	**Thu 12/17/20**	
2828	**1.3.3.4.1**	**SDLC Gate Reviews for I-Sight**		**86 days**	**Tue 6/23/20**	**Fri 10/23/20**	
2829	**1.3.3.4.1.1**	**Design & Development (iterate, as needed)**		**10 days**	**Fri 10/9/20**	**Fri 10/23/20**	
2830	1.3.3.4.1.1.1	Milestone: Entrance Criteria Met for Design Phase	2836	0 days	Fri 10/9/20	Fri 10/9/20	
2831	1.3.3.4.1.1.2	Milestone: Exit Criteria Met for Design Phase	2838,2830	0 days	Fri 10/23/20	Fri 10/23/20	
2832	**1.3.3.4.1.2**	**Testing (iterate, as needed)**		**0 days**	**Tue 6/23/20**	**Tue 6/23/20**	
2833	1.3.3.4.1.2.1	Milestone: Entrance Criteria Met for Testing Phase	2840	0 days	Tue 6/23/20	Tue 6/23/20	
2834	1.3.3.4.1.2.2	Milestone: Exit Criteria Met for Testing Phase	2833	0 days	Tue 6/23/20	Tue 6/23/20	
2835	**1.3.3.4.2**	**Migration from Current I-Sight**		**20 days**	**Mon 9/28/20**	**Fri 10/23/20**	
2836	1.3.3.4.2.1	Migration Script Mapping	1154,948,731	10 days	Mon 9/28/20	Fri 10/9/20	BA[25%],CE[10%]
2837	1.3.3.4.2.2	Migration Script Development	2836	10 days	Mon 10/12/20	Fri 10/23/20	CE[50%]
2838	1.3.3.4.2.3	Milestone: Complete Migration to i-Sight	2837	0 days	Fri 10/23/20	Fri 10/23/20	
2839	**1.3.3.4.3**	**System Testing**		**113 days**	**Wed 6/17/20**	**Tue 11/24/20**	
2840	1.3.3.4.3.1	Develop Test Plan	1154	5 days	Wed 6/17/20	Tue 6/23/20	BA[25%],QA Mngr[25%]
2841	1.3.3.4.3.2	Create Test Scripts	2840,2838	5 days	Mon 10/26/20	Fri 10/30/20	BA[25%],QA Mngr[25%]
2842	1.3.3.4.3.3	Perform System Test	2841,2838,2831	10 days	Mon 11/2/20	Fri 11/13/20	BA[25%],QA Mngr[25%]
2843	1.3.3.4.3.4	SIT Approved	2842	7 days	Mon 11/16/20	Tue 11/24/20	BA[25%],QA Mngr[25%]
2844	1.3.3.4.3.5	Milestone: I-Sight SIT Complete	2843	0 days	Tue 11/24/20	Tue 11/24/20	
2845	**1.3.3.4.4**	**User Acceptance Testing**		**15 days**	**Wed 11/25/20**	**Thu 12/17/20**	
2846	1.3.3.4.4.1	Perform User Acceptance Test on UAT vendor server	2844	5 days	Wed 11/25/20	Thu 12/3/20	State[10%],BA[5%]
2847	1.3.3.4.4.2	Conduct User Acceptance Reviews	2846	10 days	Fri 12/4/20	Thu 12/17/20	State[10%],BA[10%],Impl Mngr[10%]
2848	1.3.3.4.4.3	Milestone: i-Sight UAT Complete	2847	0 days	Thu 12/17/20	Thu 12/17/20	
2849	1.3.3.4.5	Milestone: Project 4: i-Sight Upgrade Complete	2848,2844,2838,:	0 days	Thu 12/17/20	Thu 12/17/20	
2850	**1.3.3.5**	**Project 5: J-SURS Implementation**		**145 days**	**Tue 9/22/20**	**Mon 4/19/21**	
2851	**1.3.3.5.1**	**SDLC Gate Reviews for J-SURS**		**145 days**	**Tue 9/22/20**	**Mon 4/19/21**	
2852	**1.3.3.5.1.1**	**Design (iterate, as needed)**		**30 days**	**Tue 9/22/20**	**Mon 11/2/20**	
2853	1.3.3.5.1.1.1	Milestone: Entrance Criteria Met for Design Phase	2865FS-30 days	0 days	Tue 9/22/20	Tue 9/22/20	
2854	1.3.3.5.1.1.2	Milestone: Exit Criteria Met for Design Phase	2865,2853	0 days	Mon 11/2/20	Mon 11/2/20	
2855	**1.3.3.5.1.2**	**Development (iterate, as needed)**		**30 days**	**Thu 12/17/20**	**Mon 2/1/21**	
2856	1.3.3.5.1.2.1	Milestone: Entrance Criteria Met for Development Phase	2866FS-30 days	0 days	Thu 12/17/20	Thu 12/17/20	
2857	1.3.3.5.1.2.2	Milestone: Exit Criteria Met for Development Phase	2856,2866	0 days	Mon 2/1/21	Mon 2/1/21	
2858	**1.3.3.5.1.3**	**Testing (iterate, as needed)**		**30 days**	**Tue 2/2/21**	**Mon 3/15/21**	
2859	1.3.3.5.1.3.1	Milestone: Entrance Criteria Met for Testing Phase	2867FS-30 days	0 days	Tue 2/2/21	Tue 2/2/21	
2860	1.3.3.5.1.3.2	Milestone: Exit Criteria Met for Testing Phase	2867,2859	0 days	Mon 3/15/21	Mon 3/15/21	
2861	**1.3.3.5.1.4**	**Implementation (iterate, as needed)**		**0 days**	**Mon 4/19/21**	**Mon 4/19/21**	
2862	1.3.3.5.1.4.1	Milestone: Entrance Criteria Met for Implementation Phase	4074	0 days	Mon 4/19/21	Mon 4/19/21	
2863	1.3.3.5.1.4.2	Milestone: Exit Criteria Met for Implementation Phase	4076,2862	0 days	Mon 4/19/21	Mon 4/19/21	
2864	**1.3.3.5.2**	**Create Data Mart**		**120 days**	**Tue 9/22/20**	**Mon 3/15/21**	
2865	1.3.3.5.2.1	Design Data Mart	1168,2304,2346,:	30 days	Tue 9/22/20	Mon 11/2/20	BI Dev[50%],BA[25%]
2866	1.3.3.5.2.2	Build Data Mart	2865,2854	60 days	Tue 11/3/20	Mon 2/1/21	BI Dev[50%]
2867	1.3.3.5.2.3	Test Data Mart	2866,2857	30 days	Tue 2/2/21	Mon 3/15/21	BI Dev[10%],BA[10%],Data Manager[15%],AC[15%]
2868	1.3.3.5.2.4	Milestone: Create Data Mart Complete	2867	0 days	Mon 3/15/21	Mon 3/15/21	
2869	1.3.3.5.3	Create Extract	2866	30 days	Tue 2/2/21	Mon 3/15/21	BI Dev[15%]
2870	1.3.3.5.4	Test and Refine Extract	2869FS-25 days	40 days	Tue 2/9/21	Mon 4/5/21	BI Dev[10%],BA[10%],Data Manager[15%],AC[15%]
2871	1.3.3.5.5	Milestone: Extract Created and Tested Complete	2870	0 days	Mon 4/5/21	Mon 4/5/21	
2872	**1.3.3.5.6**	**Create Reports**		**30 days**	**Tue 2/23/21**	**Mon 4/5/21**	
2873	1.3.3.5.6.1	Create Report Runs	2868FS-15 days	15 days	Tue 2/23/21	Mon 3/15/21	AC[50%],Data Manager[10%]
2874	1.3.3.5.6.2	Create Report Components	2868FS-5 days	20 days	Tue 3/9/21	Mon 4/5/21	AC[25%],Data Manager[5%]
2875	**1.3.3.5.7**	**Create Workflows**		**60 days**	**Tue 11/3/20**	**Mon 2/1/21**	
2876	1.3.3.5.7.1	Requirements	2865	15 days	Tue 11/3/20	Mon 11/23/20	AC[25%],Data Manager[5%]
2877	1.3.3.5.7.2	Creating workflows	2876	30 days	Tue 11/24/20	Mon 1/11/21	AC[25%],Data Manager[5%]
2878	1.3.3.5.7.3	Testing workflows	2877	15 days	Tue 1/12/21	Mon 2/1/21	AC[25%],Data Manager[5%]
2879	1.3.3.5.7.4	Milestone: Workflows Complete	2878	0 days	Mon 2/1/21	Mon 2/1/21	
2880	**1.3.3.5.8**	**J-SURS UAT**		**105 days**	**Tue 11/3/20**	**Mon 4/5/21**	

ID	WBS	Task Name	Predecessors	Duration	Start	Finish	Resource Names
2881	1.3.3.5.8.1	Create User Acceptance Test cases	2865	5 days	Tue 11/3/20	Mon 11/9/20	AC[15%],Data Manager[15%],BI Dev[10%],BA[10%]
2882	1.3.3.5.8.2	Execute User Acceptance Test cases (Data Mart)	2867,2881	5 days	Tue 3/16/21	Mon 3/22/21	AC[15%],Data Manager[15%],BI Dev[10%],BA[10%]
2883	1.3.3.5.8.3	Execute User Acceptance Test cases (Workflows)	2878	5 days	Tue 2/2/21	Mon 2/8/21	AC[25%],Data Manager[5%]
2884	1.3.3.5.8.4	Milestone: J-SURS UAT Complete	2882,2883,2879,2	0 days	Mon 4/5/21	Mon 4/5/21	
2885	**1.3.3.6**	**Deliverables**		**339 days**	**Mon 5/4/20**	**Thu 9/2/21**	
2886	**1.3.3.6.1**	**D030 Business Process Models (BPMs)**		**71 days**	**Mon 5/4/20**	**Wed 8/12/20**	
2887	**1.3.3.6.1.1**	**Develop DED**		**7 days**	**Mon 5/4/20**	**Tue 5/12/20**	
2888	1.3.3.6.1.1.1	Review deliverable requirements		2 days	Mon 5/4/20	Tue 5/5/20	PM[10%],Doc Mngr[50%]
2889	1.3.3.6.1.1.2	Draft DED	2888	3 days	Wed 5/6/20	Fri 5/8/20	PM[10%],Doc Mngr[50%],BA[25%]
2890	1.3.3.6.1.1.3	Review DED	2889	1 day	Mon 5/11/20	Mon 5/11/20	PM[10%],Doc Mngr[50%],BA[25%]
2891	1.3.3.6.1.1.4	Finalize DED	2890	1 day	Tue 5/12/20	Tue 5/12/20	PM[10%],Doc Mngr[50%],BA[25%]
2892	**1.3.3.6.1.2**	**Internally Review DED**		**6 days**	**Wed 5/13/20**	**Wed 5/20/20**	
2893	1.3.3.6.1.2.1	Complete Contract Review	2891	2 days	Wed 5/13/20	Thu 5/14/20	PM[10%]
2894	1.3.3.6.1.2.2	Complete Peer Review	2891	2 days	Wed 5/13/20	Thu 5/14/20	Doc Mngr[10%],Impl Mngr[5%],Acct Mngr[5%],BA[20%]
2895	1.3.3.6.1.2.3	Complete QA Review	2893,2894	2 days	Fri 5/15/20	Mon 5/18/20	Doc Mngr[25%]
2896	1.3.3.6.1.2.4	Update with feedback	2895	2 days	Tue 5/19/20	Wed 5/20/20	Doc Mngr[50%],BA[25%],PM[5%]
2897	1.3.3.6.1.3	Submit for State Review	2896	1 day	Thu 5/21/20	Thu 5/21/20	PM[10%]
2898	1.3.3.6.1.4	State reviews document and provides feedback	2897	3 days	Fri 5/22/20	Wed 5/27/20	State[20%]
2899	**1.3.3.6.1.5**	**DED: Review Cycle (1)**		**4 days**	**Thu 5/28/20**	**Tue 6/2/20**	
2900	1.3.3.6.1.5.1	Update DED with feedback	2898	1 day	Thu 5/28/20	Thu 5/28/20	PM[5%],Doc Mngr[10%],BA[25%]
2901	1.3.3.6.1.5.2	QA review and update	2900	0.5 days	Fri 5/29/20	Fri 5/29/20	Doc Mngr[40%],Impl Mngr[5%],BA[25%]
2902	1.3.3.6.1.5.3	Resubmit for State Review	2901	0.5 days	Fri 5/29/20	Fri 5/29/20	PM[10%]
2903	1.3.3.6.1.5.4	State reviews	2902	2 days	Mon 6/1/20	Tue 6/2/20	State[20%]
2904	**1.3.3.6.1.6**	**DED: Review Cycle (2)**		**5 days**	**Wed 6/3/20**	**Tue 6/9/20**	
2905	1.3.3.6.1.6.1	Update DED with feedback	2903	1 day	Wed 6/3/20	Wed 6/3/20	PM[5%],Doc Mngr[10%],BA[25%]
2906	1.3.3.6.1.6.2	QA review and update	2905	0.5 days	Thu 6/4/20	Thu 6/4/20	Doc Mngr[40%],Impl Mngr[5%],BA[25%]
2907	1.3.3.6.1.6.3	Resubmit for State Review	2906	0.5 days	Thu 6/4/20	Thu 6/4/20	PM[10%]
2908	1.3.3.6.1.6.4	State reviews	2907	2 days	Fri 6/5/20	Mon 6/8/20	State[20%]
2909	1.3.3.6.1.6.5	State approves DED	2908	1 day	Tue 6/9/20	Tue 6/9/20	State[20%]
2910	**1.3.3.6.1.7**	**Develop Deliverable**		**13 days**	**Wed 6/10/20**	**Fri 6/26/20**	
2911	1.3.3.6.1.7.1	Create baseline from approved DED	2909	5 days	Wed 6/10/20	Tue 6/16/20	PM[5%],Doc Mngr[10%],BA[25%]
2912	1.3.3.6.1.7.2	Update deliverable	2911	5 days	Wed 6/17/20	Tue 6/23/20	PM[5%],Doc Mngr[10%],BA[25%]
2913	1.3.3.6.1.7.3	Conduct Internal Review	2912	2 days	Wed 6/24/20	Thu 6/25/20	PM[5%],Doc Mngr[10%],BA[25%]
2914	1.3.3.6.1.7.4	Final QA Review/Update of Deliverable	2913	1 day	Fri 6/26/20	Fri 6/26/20	Doc Mngr[40%],Impl Mngr[5%],BA[25%]
2915	1.3.3.6.1.8	Submit Deliverable for State Review	2914	1 day	Mon 6/29/20	Mon 6/29/20	PM[10%]
2916	1.3.3.6.1.9	State reviews document and provides feedback	2915	10 days	Tue 6/30/20	Tue 7/14/20	State[20%]
2917	**1.3.3.6.1.10**	**Deliverable: Review Cycle (1)**		**10 days**	**Wed 7/15/20**	**Tue 7/28/20**	
2918	1.3.3.6.1.10.1	Update deliverable with feedback	2916	3 days	Wed 7/15/20	Fri 7/17/20	PM[5%],Doc Mngr[10%],BA[25%]
2919	1.3.3.6.1.10.2	QA review and update	2918	1.5 days	Mon 7/20/20	Tue 7/21/20	Doc Mngr[40%],Impl Mngr[5%],BA[25%]
2920	1.3.3.6.1.10.3	Submit for State approval	2919	0.5 days	Tue 7/21/20	Tue 7/21/20	PM[10%]
2921	1.3.3.6.1.10.4	State reviews	2920	5 days	Wed 7/22/20	Tue 7/28/20	State[20%]
2922	**1.3.3.6.1.11**	**Deliverable: Review Cycle (2)**		**10 days**	**Wed 7/29/20**	**Tue 8/11/20**	
2923	1.3.3.6.1.11.1	Update deliverable with feedback	2921	3 days	Wed 7/29/20	Fri 7/31/20	PM[5%],Doc Mngr[10%],BA[25%]
2924	1.3.3.6.1.11.2	QA review and update	2923	1.5 days	Mon 8/3/20	Tue 8/4/20	Doc Mngr[40%],Impl Mngr[5%],BA[25%]
2925	1.3.3.6.1.11.3	Submit for State approval	2924	0.5 days	Tue 8/4/20	Tue 8/4/20	PM[10%]
2926	1.3.3.6.1.11.4	State reviews	2925	5 days	Wed 8/5/20	Tue 8/11/20	State[20%]
2927	1.3.3.6.1.12	State Provides Final Approval	2926	1 day	Wed 8/12/20	Wed 8/12/20	State[20%]
2928	1.3.3.6.1.13	Milestone: Business Process Models Approved	2927	0 days	Wed 8/12/20	Wed 8/12/20	
2929	**1.3.3.6.2**	**D031 Capacity Plan**		**71 days**	**Mon 5/4/20**	**Wed 8/12/20**	
2930	**1.3.3.6.2.1**	**Develop DED**		**7 days**	**Mon 5/4/20**	**Tue 5/12/20**	
2931	1.3.3.6.2.1.1	Review deliverable requirements		2 days	Mon 5/4/20	Tue 5/5/20	PM[10%],Doc Mngr[50%]
2932	1.3.3.6.2.1.2	Draft DED	2931	3 days	Wed 5/6/20	Fri 5/8/20	PM[10%],Doc Mngr[50%],Impl Mngr[10%]
2933	1.3.3.6.2.1.3	Review DED	2932	1 day	Mon 5/11/20	Mon 5/11/20	PM[10%],Doc Mngr[50%],Impl Mngr[10%]
2934	1.3.3.6.2.1.4	Finalize DED	2933	1 day	Tue 5/12/20	Tue 5/12/20	PM[10%],Doc Mngr[50%],Impl Mngr[10%]
2935	**1.3.3.6.2.2**	**Internally Review DED**		**6 days**	**Wed 5/13/20**	**Wed 5/20/20**	
2936	1.3.3.6.2.2.1	Complete Contract Review	2934	2 days	Wed 5/13/20	Thu 5/14/20	PM[10%]
2937	1.3.3.6.2.2.2	Complete Peer Review	2934	2 days	Wed 5/13/20	Thu 5/14/20	Doc Mngr[10%],Impl Mngr[10%],Acct Mngr[10%]
2938	1.3.3.6.2.2.3	Complete QA Review	2936,2937	2 days	Fri 5/15/20	Mon 5/18/20	Doc Mngr[25%]
2939	1.3.3.6.2.2.4	Update with feedback	2938	2 days	Tue 5/19/20	Wed 5/20/20	Doc Mngr[10%],Impl Mngr[10%],Acct Mngr[10%]
2940	1.3.3.6.2.3	Submit for State Review	2939	1 day	Thu 5/21/20	Thu 5/21/20	PM[10%]
2941	1.3.3.6.2.4	State reviews document and provides feedback	2940	3 days	Fri 5/22/20	Wed 5/27/20	State[20%]
2942	**1.3.3.6.2.5**	**DED: Review Cycle (1)**		**4 days**	**Thu 5/28/20**	**Tue 6/2/20**	
2943	1.3.3.6.2.5.1	Update DED with feedback	2941	1 day	Thu 5/28/20	Thu 5/28/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
2944	1.3.3.6.2.5.2	QA review and update	2943	0.5 days	Fri 5/29/20	Fri 5/29/20	Doc Mngr[40%],Impl Mngr[25%]
2945	1.3.3.6.2.5.3	Resubmit for State Review	2944	0.5 days	Fri 5/29/20	Fri 5/29/20	PM[10%]
2946	1.3.3.6.2.5.4	State reviews	2945	2 days	Mon 6/1/20	Tue 6/2/20	State[20%]
2947	**1.3.3.6.2.6**	**DED: Review Cycle (2)**		**5 days**	**Wed 6/3/20**	**Tue 6/9/20**	

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ID	WBS	Task Name	Predecessors	Duration	Start	Finish	Resource Names
2948	1.3.3.6.2.6.1	Update DED with feedback	2946	1 day	Wed 6/3/20	Wed 6/3/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
2949	1.3.3.6.2.6.2	QA review and update	2948	0.5 days	Thu 6/4/20	Thu 6/4/20	Doc Mngr[40%],Impl Mngr[25%]
2950	1.3.3.6.2.6.3	Resubmit for State Review	2949	0.5 days	Thu 6/4/20	Thu 6/4/20	PM[10%]
2951	1.3.3.6.2.6.4	State reviews	2950	2 days	Fri 6/5/20	Mon 6/8/20	State[20%]
2952	1.3.3.6.2.6.5	State approves DED	2951	1 day	Tue 6/9/20	Tue 6/9/20	State[20%]
2953	**1.3.3.6.2.7**	**Develop Deliverable**		**13 days**	**Wed 6/10/20**	**Fri 6/26/20**	
2954	1.3.3.6.2.7.1	Create baseline from approved DED	2952	5 days	Wed 6/10/20	Tue 6/16/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
2955	1.3.3.6.2.7.2	Update deliverable	2954	5 days	Wed 6/17/20	Tue 6/23/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
2956	1.3.3.6.2.7.3	Conduct Internal Review	2955	2 days	Wed 6/24/20	Thu 6/25/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
2957	1.3.3.6.2.7.4	Final QA Review/Update of Deliverable	2956	1 day	Fri 6/26/20	Fri 6/26/20	Doc Mngr[40%],Impl Mngr[25%]
2958	1.3.3.6.2.8	Submit Deliverable for State Review	2957	1 day	Mon 6/29/20	Mon 6/29/20	PM[10%]
2959	1.3.3.6.2.9	State reviews document and provides feedback	2958	10 days	Tue 6/30/20	Tue 7/14/20	State[20%]
2960	**1.3.3.6.2.10**	**Deliverable: Review Cycle (1)**		**10 days**	**Wed 7/15/20**	**Tue 7/28/20**	
2961	1.3.3.6.2.10.	Update deliverable with feedback	2959	3 days	Wed 7/15/20	Fri 7/17/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
2962	1.3.3.6.2.10.	QA review and update	2961	1.5 days	Mon 7/20/20	Tue 7/21/20	Doc Mngr[40%],Impl Mngr[25%]
2963	1.3.3.6.2.10.	Submit for State approval	2962	0.5 days	Tue 7/21/20	Tue 7/21/20	PM[10%]
2964	1.3.3.6.2.10.	State reviews	2963	5 days	Wed 7/22/20	Tue 7/28/20	State[20%]
2965	**1.3.3.6.2.11**	**Deliverable: Review Cycle (2)**		**10 days**	**Wed 7/29/20**	**Tue 8/11/20**	
2966	1.3.3.6.2.11.	Update deliverable with feedback	2964	3 days	Wed 7/29/20	Fri 7/31/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
2967	1.3.3.6.2.11.	QA review and update	2966	1.5 days	Mon 8/3/20	Tue 8/4/20	Doc Mngr[40%],Impl Mngr[25%]
2968	1.3.3.6.2.11.	Submit for State approval	2967	0.5 days	Tue 8/4/20	Tue 8/4/20	PM[10%]
2969	1.3.3.6.2.11.	State reviews	2968	5 days	Wed 8/5/20	Tue 8/11/20	State[20%]
2970	1.3.3.6.2.12	State Provides Final Approval	2969	1 day	Wed 8/12/20	Wed 8/12/20	State[20%]
2971	1.3.3.6.2.13	Milestone: Capacity Plan Approved	2970	0 days	Wed 8/12/20	Wed 8/12/20	
2972	**1.3.3.6.3**	**D032 Configuration Management Plan**		**71 days**	**Mon 5/4/20**	**Wed 8/12/20**	
2973	**1.3.3.6.3.1**	**Develop DED**		**7 days**	**Mon 5/4/20**	**Tue 5/12/20**	
2974	1.3.3.6.3.1.1	Review deliverable requirements		2 days	Mon 5/4/20	Tue 5/5/20	PM[10%],Doc Mngr[50%]
2975	1.3.3.6.3.1.2	Draft DED	2974	3 days	Wed 5/6/20	Fri 5/8/20	PM[10%],Doc Mngr[50%],Impl Mngr[10%],BI Dev[5%],BA[5%]
2976	1.3.3.6.3.1.3	Review DED	2975	1 day	Mon 5/11/20	Mon 5/11/20	PM[10%],Doc Mngr[50%],Impl Mngr[10%]
2977	1.3.3.6.3.1.4	Finalize DED	2976	1 day	Tue 5/12/20	Tue 5/12/20	PM[10%],Doc Mngr[50%],Impl Mngr[10%]
2978	**1.3.3.6.3.2**	**Internally Review DED**		**6 days**	**Wed 5/13/20**	**Wed 5/20/20**	
2979	1.3.3.6.3.2.1	Complete Contract Review	2977	2 days	Wed 5/13/20	Thu 5/14/20	PM[10%]
2980	1.3.3.6.3.2.2	Complete Peer Review	2977	2 days	Wed 5/13/20	Thu 5/14/20	Doc Mngr[10%],Impl Mngr[10%],Acct Mngr[5%],BI Dev[10%],BA[10%]
2981	1.3.3.6.3.2.3	Complete QA Review	2979,2980	2 days	Fri 5/15/20	Mon 5/18/20	Doc Mngr[25%]
2982	1.3.3.6.3.2.4	Update with feedback	2981	2 days	Tue 5/19/20	Wed 5/20/20	Doc Mngr[10%],Impl Mngr[10%],Acct Mngr[5%],BI Dev[10%],BA[10%]
2983	1.3.3.6.3.3	Submit for State Review	2982	1 day	Thu 5/21/20	Thu 5/21/20	PM[10%]
2984	1.3.3.6.3.4	State reviews document and provides feedback	2983	3 days	Fri 5/22/20	Wed 5/27/20	State[20%]
2985	**1.3.3.6.3.5**	**DED: Review Cycle (1)**		**4 days**	**Thu 5/28/20**	**Tue 6/2/20**	
2986	1.3.3.6.3.5.1	Update DED with feedback	2984	1 day	Thu 5/28/20	Thu 5/28/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
2987	1.3.3.6.3.5.2	QA review and update	2986	0.5 days	Fri 5/29/20	Fri 5/29/20	Doc Mngr[40%],Impl Mngr[25%]
2988	1.3.3.6.3.5.3	Resubmit for State Review	2987	0.5 days	Fri 5/29/20	Fri 5/29/20	PM[10%]
2989	1.3.3.6.3.5.4	State reviews	2988	2 days	Mon 6/1/20	Tue 6/2/20	State[20%]
2990	**1.3.3.6.3.6**	**DED: Review Cycle (2)**		**5 days**	**Wed 6/3/20**	**Tue 6/9/20**	
2991	1.3.3.6.3.6.1	Update DED with feedback	2989	1 day	Wed 6/3/20	Wed 6/3/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
2992	1.3.3.6.3.6.2	QA review and update	2991	0.5 days	Thu 6/4/20	Thu 6/4/20	Doc Mngr[40%],Impl Mngr[25%]
2993	1.3.3.6.3.6.3	Resubmit for State Review	2992	0.5 days	Thu 6/4/20	Thu 6/4/20	PM[10%]
2994	1.3.3.6.3.6.4	State reviews	2993	2 days	Fri 6/5/20	Mon 6/8/20	State[20%]
2995	1.3.3.6.3.6.5	State approves DED	2994	1 day	Tue 6/9/20	Tue 6/9/20	State[20%]
2996	**1.3.3.6.3.7**	**Develop Deliverable**		**13 days**	**Wed 6/10/20**	**Fri 6/26/20**	
2997	1.3.3.6.3.7.1	Create baseline from approved DED	2995	5 days	Wed 6/10/20	Tue 6/16/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%]
2998	1.3.3.6.3.7.2	Update deliverable	2997	5 days	Wed 6/17/20	Tue 6/23/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%],BI Dev[5%],BA[5%]
2999	1.3.3.6.3.7.3	Conduct Internal Review	2998	2 days	Wed 6/24/20	Thu 6/25/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%],BI Dev[5%],BA[5%]
3000	1.3.3.6.3.7.4	Final QA Review/Update of Deliverable	2999	1 day	Fri 6/26/20	Fri 6/26/20	Doc Mngr[40%],Impl Mngr[25%]
3001	1.3.3.6.3.8	Submit Deliverable for State Review	3000	1 day	Mon 6/29/20	Mon 6/29/20	PM[10%]
3002	1.3.3.6.3.9	State reviews document and provides feedback	3001	10 days	Tue 6/30/20	Tue 7/14/20	State[20%]
3003	**1.3.3.6.3.10**	**Deliverable: Review Cycle (1)**		**10 days**	**Wed 7/15/20**	**Tue 7/28/20**	
3004	1.3.3.6.3.10	Update deliverable with feedback	3002	3 days	Wed 7/15/20	Fri 7/17/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%],BI Dev[5%],BA[5%]
3005	1.3.3.6.3.10	QA review and update	3004	1.5 days	Mon 7/20/20	Tue 7/21/20	Doc Mngr[40%],Impl Mngr[25%]
3006	1.3.3.6.3.10.	Submit for State approval	3005	0.5 days	Tue 7/21/20	Tue 7/21/20	PM[10%]
3007	1.3.3.6.3.10.	State reviews	3006	5 days	Wed 7/22/20	Tue 7/28/20	State[20%]
3008	**1.3.3.6.3.11**	**Deliverable: Review Cycle (2)**		**10 days**	**Wed 7/29/20**	**Tue 8/11/20**	
3009	1.3.3.6.3.11.	Update deliverable with feedback	3007	3 days	Wed 7/29/20	Fri 7/31/20	PM[5%],Doc Mngr[10%],Impl Mngr[10%],BI Dev[5%],BA[5%]
3010	1.3.3.6.3.11.	QA review and update	3009	1.5 days	Mon 8/3/20	Tue 8/4/20	Doc Mngr[40%],Impl Mngr[25%]
3011	1.3.3.6.3.11.	Submit for State approval	3010	0.5 days	Tue 8/4/20	Tue 8/4/20	PM[10%]
3012	1.3.3.6.3.11.	State reviews	3011	5 days	Wed 8/5/20	Tue 8/11/20	State[20%]
3013	1.3.3.6.3.12	State Provides Final Approval	3012	1 day	Wed 8/12/20	Wed 8/12/20	State[20%]
3014	1.3.3.6.3.13	Milestone: Configuration Management Plan Approved	3013	0 days	Wed 8/12/20	Wed 8/12/20	

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ID	WBS	Task Name	Predecessors	Duration	Start	Finish	Resource Names
3015	**1.3.3.6.4**	**D033 Data Conversion Plan**		**83 days**	**Mon 5/4/20**	**Fri 8/28/20**	
3016	**1.3.3.6.4.1**	**Develop DED**		**7 days**	**Mon 5/4/20**	**Tue 5/12/20**	
3017	1.3.3.6.4.1.1	Review deliverable requirements	2	2 days	Mon 5/4/20	Tue 5/5/20	PM[10%],Doc Mngr[50%]
3018	1.3.3.6.4.1.2	Draft DED	3017	3 days	Wed 5/6/20	Fri 5/8/20	PM[10%],Doc Mngr[50%],Impl Mngr[10%],BI Dev[5%],ETL Engnr[5%]
3019	1.3.3.6.4.1.3	Review DED	3018	1 day	Mon 5/11/20	Mon 5/11/20	PM[10%],Doc Mngr[50%],Impl Mngr[10%],BI Dev[5%],ETL Engnr[5%]
3020	1.3.3.6.4.1.4	Finallze DED	3019	1 day	Tue 5/12/20	Tue 5/12/20	PM[10%],Doc Mngr[50%],Impl Mngr[10%],BI Dev[5%],ETL Engnr[5%]
3021	**1.3.3.6.4.2**	**Internally Review DED**		**6 days**	**Wed 5/13/20**	**Wed 5/20/20**	
3022	1.3.3.6.4.2.1	Complete Contract Review	3020	2 days	Wed 5/13/20	Thu 5/14/20	PM[10%]
3023	1.3.3.6.4.2.2	Complete Peer Review	3020	2 days	Wed 5/13/20	Thu 5/14/20	Doc Mngr[10%],Impl Mngr[10%],BI Dev[10%],ETL Engnr[10%]
3024	1.3.3.6.4.2.3	Complete QA Review	3022,3023	2 days	Fri 5/15/20	Mon 5/18/20	Doc Mngr[25%]
3025	1.3.3.6.4.2.4	Update with feedback	3024	2 days	Tue 5/19/20	Wed 5/20/20	Doc Mngr[10%],Impl Mngr[10%],BI Dev[10%],ETL Engnr[10%]
3026	1.3.3.6.4.3	Submit for State Review	3025	1 day	Thu 5/21/20	Thu 5/21/20	PM[10%]
3027	1.3.3.6.4.4	State reviews document and provides feedback	3026	3 days	Fri 5/22/20	Wed 5/27/20	State[20%]
3028	**1.3.3.6.4.5**	**DED: Review Cycle (1)**		**4 days**	**Mon 6/15/20**	**Thu 6/18/20**	
3029	1.3.3.6.4.5.1	Update DED with feedback	3027	1 day	Mon 6/15/20	Mon 6/15/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],ETL Engnr[10%],BI Dev[10%]
3030	1.3.3.6.4.5.2	QA review and update	3029	0.5 days	Tue 6/16/20	Tue 6/16/20	Doc Mngr[40%],Impl Mngr[10%],ETL Engnr[10%],BI Dev[10%]
3031	1.3.3.6.4.5.3	Resubmit for State Review	3030	0.5 days	Tue 6/16/20	Tue 6/16/20	PM[10%]
3032	1.3.3.6.4.5.4	State reviews	3031	2 days	Wed 6/17/20	Thu 6/18/20	State[20%]
3033	**1.3.3.6.4.6**	**DED: Review Cycle (2)**		**5 days**	**Fri 6/19/20**	**Thu 6/25/20**	
3034	1.3.3.6.4.6.1	Update DED with feedback	3032	1 day	Fri 6/19/20	Fri 6/19/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],ETL Engnr[10%],BI Dev[10%]
3035	1.3.3.6.4.6.2	QA review and update	3034	0.5 days	Mon 6/22/20	Mon 6/22/20	Doc Mngr[40%],Impl Mngr[10%],ETL Engnr[10%],BI Dev[10%]
3036	1.3.3.6.4.6.3	Resubmit for State Review	3035	0.5 days	Mon 6/22/20	Mon 6/22/20	PM[10%]
3037	1.3.3.6.4.6.4	State reviews	3036	2 days	Tue 6/23/20	Wed 6/24/20	State[20%]
3038	1.3.3.6.4.6.5	State approves DED	3037	1 day	Thu 6/25/20	Thu 6/25/20	State[20%]
3039	**1.3.3.6.4.7**	**Develop Deliverable**		**13 days**	**Fri 6/26/20**	**Wed 7/15/20**	
3040	1.3.3.6.4.7.1	Create baseline from approved DED	3038	5 days	Fri 6/26/20	Thu 7/2/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],ETL Engnr[10%],BI Dev[10%]
3041	1.3.3.6.4.7.2	Update deliverable	3040	5 days	Mon 7/6/20	Fri 7/10/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%]
3042	1.3.3.6.4.7.3	Conduct Internal Review	3041	2 days	Mon 7/13/20	Tue 7/14/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%]
3043	1.3.3.6.4.7.4	Final QA Review/Update of Deliverable	3042	1 day	Wed 7/15/20	Wed 7/15/20	Doc Mngr[40%],Impl Mngr[10%],ETL Engnr[10%],BI Dev[10%]
3044	1.3.3.6.4.8	Submit Deliverable for State Review	3043	1 day	Thu 7/16/20	Thu 7/16/20	PM[10%]
3045	1.3.3.6.4.9	State reviews document and provides feedback	3044	10 days	Fri 7/17/20	Thu 7/30/20	State[20%]
3046	**1.3.3.6.4.10**	**Deliverable: Review Cycle (1)**		**10 days**	**Fri 7/31/20**	**Thu 8/13/20**	
3047	1.3.3.6.4.10.1	Update deliverable with feedback	3045	3 days	Fri 7/31/20	Tue 8/4/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%]
3048	1.3.3.6.4.10.2	QA review and update	3047	1.5 days	Wed 8/5/20	Thu 8/6/20	Doc Mngr[40%],Impl Mngr[10%],ETL Engnr[10%],BI Dev[10%]
3049	1.3.3.6.4.10.3	Submit for State approval	3048	0.5 days	Thu 8/6/20	Thu 8/6/20	PM[10%]
3050	1.3.3.6.4.10.4	State reviews	3049	5 days	Fri 8/7/20	Thu 8/13/20	State[20%]
3051	**1.3.3.6.4.11**	**Deliverable: Review Cycle (2)**		**10 days**	**Fri 8/14/20**	**Thu 8/27/20**	
3052	1.3.3.6.4.11.1	Update deliverable with feedback	3050	3 days	Fri 8/14/20	Tue 8/18/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%]
3053	1.3.3.6.4.11.2	QA review and update	3052	1.5 days	Wed 8/19/20	Thu 8/20/20	Doc Mngr[40%],Impl Mngr[10%],ETL Engnr[10%],BI Dev[10%]
3054	1.3.3.6.4.11.3	Submit for State approval	3053	0.5 days	Thu 8/20/20	Thu 8/20/20	PM[10%]
3055	1.3.3.6.4.11.4	State reviews	3054	5 days	Fri 8/21/20	Thu 8/27/20	State[20%]
3056	1.3.3.6.4.12	State Provides Final Approval	3050,3055	1 day	Fri 8/28/20	Fri 8/28/20	State[20%]
3057	1.3.3.6.4.13	Milestone: Data Conversion Plan Approved	3056	0 days	Fri 8/28/20	Fri 8/28/20	
3058	**1.3.3.6.5**	**D034 Data Conversion Test Cases**		**73 days**	**Fri 6/26/20**	**Thu 10/8/20**	
3059	**1.3.3.6.5.1**	**Develop DED**		**7 days**	**Fri 6/26/20**	**Tue 7/7/20**	
3060	1.3.3.6.5.1.1	Review deliverable requirements	3038	2 days	Fri 6/26/20	Mon 6/29/20	PM[10%],Doc Mngr[50%]
3061	1.3.3.6.5.1.2	Draft DED	3060	3 days	Tue 6/30/20	Thu 7/2/20	PM[10%],Doc Mngr[50%],Impl Mngr[10%],BI Dev[5%],ETL Engnr[5%]
3062	1.3.3.6.5.1.3	Review DED	3061	1 day	Mon 7/6/20	Mon 7/6/20	PM[10%],Doc Mngr[50%],Impl Mngr[10%],BI Dev[5%],ETL Engnr[5%]
3063	1.3.3.6.5.1.4	Finalize DED	3062	1 day	Tue 7/7/20	Tue 7/7/20	PM[10%],Doc Mngr[50%],Impl Mngr[10%],BI Dev[5%],ETL Engnr[5%]
3064	**1.3.3.6.5.2**	**Internally Review DED**		**6 days**	**Wed 7/8/20**	**Wed 7/15/20**	
3065	1.3.3.6.5.2.1	Complete Contract Review	3063	2 days	Wed 7/8/20	Thu 7/9/20	PM[10%]
3066	1.3.3.6.5.2.2	Complete Peer Review	3063	2 days	Wed 7/8/20	Thu 7/9/20	Doc Mngr[10%],Impl Mngr[10%],BI Dev[10%],ETL Engnr[10%]
3067	1.3.3.6.5.2.3	Complete QA Review	3065,3066	2 days	Fri 7/10/20	Mon 7/13/20	Doc Mngr[25%]
3068	1.3.3.6.5.2.4	Update with feedback	3067	2 days	Tue 7/14/20	Wed 7/15/20	Doc Mngr[10%],Impl Mngr[10%],BI Dev[10%],ETL Engnr[10%]
3069	1.3.3.6.5.3	Submit for State Review	3068	1 day	Thu 7/16/20	Thu 7/16/20	PM[10%]
3070	1.3.3.6.5.4	State reviews document and provides feedback	3069	3 days	Fri 7/17/20	Tue 7/21/20	State[20%]
3071	**1.3.3.6.5.5**	**DED: Review Cycle (1)**		**4 days**	**Fri 7/24/20**	**Wed 7/29/20**	
3072	1.3.3.6.5.5.1	Update DED with feedback	3070	1 day	Fri 7/24/20	Fri 7/24/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],ETL Engnr[10%],BI Dev[10%]
3073	1.3.3.6.5.5.2	QA review and update	3072	0.5 days	Mon 7/27/20	Mon 7/27/20	Doc Mngr[40%],Impl Mngr[10%],ETL Engnr[10%],BI Dev[10%]
3074	1.3.3.6.5.5.3	Resubmit for State Review	3073	0.5 days	Mon 7/27/20	Mon 7/27/20	PM[10%]
3075	1.3.3.6.5.5.4	State reviews	3074	2 days	Tue 7/28/20	Wed 7/29/20	State[20%]
3076	**1.3.3.6.5.6**	**DED: Review Cycle (2)**		**5 days**	**Thu 7/30/20**	**Wed 8/5/20**	
3077	1.3.3.6.5.6.1	Update DED with feedback	3075	1 day	Thu 7/30/20	Thu 7/30/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],ETL Engnr[10%],BI Dev[10%]
3078	1.3.3.6.5.6.2	QA review and update	3077	0.5 days	Fri 7/31/20	Fri 7/31/20	Doc Mngr[40%],Impl Mngr[10%],ETL Engnr[10%],BI Dev[10%]
3079	1.3.3.6.5.6.3	Resubmit for State Review	3078	0.5 days	Fri 7/31/20	Fri 7/31/20	PM[10%]
3080	State[20%]	State reviews	3079	2 days	Mon 8/3/20	Tue 8/4/20	State[20%]
3081	1.3.3.6.5.6.5	State approves DED	3080	1 day	Wed 8/5/20	Wed 8/5/20	State[20%]

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ID	WBS	Task Name	Predecessors	Duration	Start	Finish	Resource Names
3082	**1.3.3.6.5.7**	**Develop Deliverable**		**13 days**	**Thu 8/6/20**	**Mon 8/24/20**	
3083	1.3.3.6.5.7.1	Create baseline from approved DED	3081	5 days	Thu 8/6/20	Wed 8/12/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],ETL Engnr[10%],BI Dev[10%]
3084	1.3.3.6.5.7.2	Update deliverable	3083	5 days	Thu 8/13/20	Wed 8/19/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%]
3085	1.3.3.6.5.7.3	Conduct Internal Review	3084	2 days	Thu 8/20/20	Fri 8/21/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%]
3086	1.3.3.6.5.7.4	Final QA Review/Update of Deliverable	3085	1 day	Mon 8/24/20	Mon 8/24/20	Doc Mngr[40%],Impl Mngr[10%],ETL Engnr[10%],BI Dev[10%]
3087	1.3.3.6.5.8	Submit Deliverable for State Review	3086	1 day	Tue 8/25/20	Tue 8/25/20	PM[10%]
3088	1.3.3.6.5.9	State reviews document and provides feedback	3087	10 days	Wed 8/26/20	Wed 9/9/20	State[20%]
3089	**1.3.3.6.5.10**	**Deliverable: Review Cycle (1)**		**10 days**	**Thu 9/10/20**	**Wed 9/23/20**	
3090	1.3.3.6.5.10	Update deliverable with feedback	3088	3 days	Thu 9/10/20	Mon 9/14/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%]
3091	1.3.3.6.5.10	QA review and update	3090	1.5 days	Tue 9/15/20	Wed 9/16/20	Doc Mngr[40%],Impl Mngr[10%],ETL Engnr[10%],BI Dev[10%]
3092	1.3.3.6.5.10	Submit for State approval	3091	0.5 days	Wed 9/16/20	Wed 9/16/20	PM[10%]
3093	1.3.3.6.5.10	State reviews	3092	5 days	Thu 9/17/20	Wed 9/23/20	State[20%]
3094	**1.3.3.6.5.11**	**Deliverable: Review Cycle (2)**		**10 days**	**Thu 9/24/20**	**Wed 10/7/20**	
3095	1.3.3.6.5.11	Update deliverable with feedback	3093	3 days	Thu 9/24/20	Mon 9/28/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%]
3096	1.3.3.6.5.11	QA review and update	3095	1.5 days	Tue 9/29/20	Wed 9/30/20	Doc Mngr[40%],Impl Mngr[10%],ETL Engnr[10%],BI Dev[10%]
3097	1.3.3.6.5.11	Submit for State approval	3096	0.5 days	Wed 9/30/20	Wed 9/30/20	PM[10%]
3098	1.3.3.6.5.11	State reviews	3097	5 days	Thu 10/1/20	Wed 10/7/20	State[20%]
3099	1.3.3.6.5.12	State Provides Final Approval	3098	1 day	Thu 10/8/20	Thu 10/8/20	State[20%]
3100	1.3.3.6.5.13	Milestone: Data Conversion Test Cases Approved	3099	0 days	Thu 10/8/20	Thu 10/8/20	
3101	**1.3.3.6.6**	**D035 Data Conversion Test Results**		**73 days**	**Thu 8/6/20**	**Tue 11/17/20**	
3102	**1.3.3.6.6.1**	**Develop DED**		**7 days**	**Thu 8/6/20**	**Fri 8/14/20**	
3103	1.3.3.6.6.1.1	Review deliverable requirements	3081	2 days	Thu 8/6/20	Fri 8/7/20	PM[10%],Doc Mngr[50%]
3104	1.3.3.6.6.1.2	Draft DED	3103	3 days	Mon 8/10/20	Wed 8/12/20	PM[10%],Doc Mngr[50%],Impl Mngr[10%],BI Dev[5%],ETL Engnr[5%]
3105	1.3.3.6.6.1.3	Review DED	3104	1 day	Thu 8/13/20	Thu 8/13/20	PM[10%],Doc Mngr[50%],Impl Mngr[10%],BI Dev[5%],ETL Engnr[5%]
3106	1.3.3.6.6.1.4	Finalize DED	3105	1 day	Fri 8/14/20	Fri 8/14/20	PM[10%],Doc Mngr[50%],Impl Mngr[10%],BI Dev[5%],ETL Engnr[5%]
3107	**1.3.3.6.6.2**	**Internally Review DED**		**6 days**	**Mon 8/17/20**	**Mon 8/24/20**	
3108	1.3.3.6.6.2.1	Complete Contract Review	3106	2 days	Mon 8/17/20	Tue 8/18/20	PM[10%]
3109	1.3.3.6.6.2.2	Complete Peer Review	3106	2 days	Mon 8/17/20	Tue 8/18/20	Doc Mngr[10%],Impl Mngr[10%],BI Dev[10%],ETL Engnr[10%]
3110	1.3.3.6.6.2.3	Complete QA Review	3108,3109	2 days	Wed 8/19/20	Thu 8/20/20	Doc Mngr[25%]
3111	1.3.3.6.6.2.4	Update with feedback	3110	2 days	Fri 8/21/20	Mon 8/24/20	Doc Mngr[10%],Impl Mngr[10%],BI Dev[10%],ETL Engnr[10%]
3112	1.3.3.6.6.3	Submit for State Review	3111	1 day	Tue 8/25/20	Tue 8/25/20	PM[10%]
3113	1.3.3.6.6.4	State reviews document and provides feedback	3112	3 days	Wed 8/26/20	Fri 8/28/20	State[20%]
3114	**1.3.3.6.6.5**	**DED: Review Cycle (1)**		**4 days**	**Wed 9/2/20**	**Tue 9/8/20**	
3115	1.3.3.6.6.5.1	Update DED with feedback	3113	1 day	Wed 9/2/20	Wed 9/2/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],ETL Engnr[10%],BI Dev[10%]
3116	1.3.3.6.6.5.2	QA review and update	3115	0.5 days	Thu 9/3/20	Thu 9/3/20	Doc Mngr[40%],Impl Mngr[10%],ETL Engnr[10%],BI Dev[10%]
3117	1.3.3.6.6.5.3	Resubmit for State Review	3116	0.5 days	Thu 9/3/20	Thu 9/3/20	PM[10%]
3118	1.3.3.6.6.5.4	State reviews	3117	2 days	Fri 9/4/20	Tue 9/8/20	State[20%]
3119	**1.3.3.6.6.6**	**DED: Review Cycle (2)**		**5 days**	**Wed 9/9/20**	**Tue 9/15/20**	
3120	1.3.3.6.6.6.1	Update DED with feedback	3118	1 day	Wed 9/9/20	Wed 9/9/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],ETL Engnr[10%],BI Dev[10%]
3121	1.3.3.6.6.6.2	QA review and update	3120	0.5 days	Thu 9/10/20	Thu 9/10/20	Doc Mngr[40%],Impl Mngr[10%],ETL Engnr[10%],BI Dev[10%]
3122	1.3.3.6.6.6.3	Resubmit for State Review	3121	0.5 days	Thu 9/10/20	Thu 9/10/20	PM[10%]
3123	1.3.3.6.6.6.4	State reviews	3122	2 days	Fri 9/11/20	Mon 9/14/20	State[20%]
3124	1.3.3.6.6.6.5	State approves DED	3123	1 day	Tue 9/15/20	Tue 9/15/20	State[20%]
3125	**1.3.3.6.6.7**	**Develop Deliverable**		**13 days**	**Wed 9/16/20**	**Fri 10/2/20**	
3126	1.3.3.6.6.7.1	Create baseline from approved DED	3124	5 days	Wed 9/16/20	Tue 9/22/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],ETL Engnr[10%],BI Dev[10%]
3127	1.3.3.6.6.7.2	Update deliverable	3126	5 days	Wed 9/23/20	Tue 9/29/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%]
3128	1.3.3.6.6.7.3	Conduct Internal Review	3127	2 days	Wed 9/30/20	Thu 10/1/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%]
3129	1.3.3.6.6.7.4	Final QA Review/Update of Deliverable	3128	1 day	Fri 10/2/20	Fri 10/2/20	Doc Mngr[40%],Impl Mngr[10%],ETL Engnr[10%],BI Dev[10%]
3130	1.3.3.6.6.8	Submit Deliverable for State Review	3129	1 day	Mon 10/5/20	Mon 10/5/20	PM[10%]
3131	1.3.3.6.6.9	State reviews document and provides feedback	3130	10 days	Tue 10/6/20	Mon 10/19/20	State[20%]
3132	**1.3.3.6.6.10**	**Deliverable: Review Cycle (1)**		**10 days**	**Tue 10/20/20**	**Mon 11/2/20**	
3133	1.3.3.6.6.10	Update deliverable with feedback	3131	3 days	Tue 10/20/20	Thu 10/22/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%]
3134	1.3.3.6.6.10	QA review and update	3133	1.5 days	Fri 10/23/20	Mon 10/26/20	Doc Mngr[40%],Impl Mngr[10%],ETL Engnr[10%],BI Dev[10%]
3135	1.3.3.6.6.10	Submit for State approval	3134	0.5 days	Mon 10/26/20	Mon 10/26/20	PM[10%]
3136	1.3.3.6.6.10	State reviews	3135	5 days	Tue 10/27/20	Mon 11/2/20	State[20%]
3137	**1.3.3.6.6.11**	**Deliverable: Review Cycle (2)**		**11 days**	**Tue 11/3/20**	**Tue 11/17/20**	
3138	1.3.3.6.6.11	Update deliverable with feedback	3136	3 days	Tue 11/3/20	Thu 11/5/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%]
3139	1.3.3.6.6.11	QA review and update	3138	1.5 days	Fri 11/6/20	Mon 11/9/20	Doc Mngr[40%],Impl Mngr[10%],ETL Engnr[10%],BI Dev[10%]
3140	1.3.3.6.6.11	Submit for State approval	3139	0.5 days	Mon 11/9/20	Mon 11/9/20	PM[10%]
3141	1.3.3.6.6.11	State reviews	3140	5 days	Tue 11/10/20	Mon 11/16/20	State[20%]
3142	1.3.3.6.6.11	State Provides Final Approval	3141	1 day	Tue 11/17/20	Tue 11/17/20	State[20%]
3143	1.3.3.6.6.12	Milestone: Data Conversion Test Results Approved	3142	0 days	Tue 11/17/20	Tue 11/17/20	
3144	**1.3.3.6.7**	**D036 Database Design Document and Data Models**		**72.5 days**	**Mon 5/4/20**	**Fri 8/14/20**	
3145	**1.3.3.6.7.1**	**Develop DED**		**7 days**	**Mon 5/4/20**	**Tue 5/12/20**	
3146	1.3.3.6.7.1.1	Review deliverable requirements		2 days	Mon 5/4/20	Tue 5/5/20	PM[10%],Doc Mngr[50%]
3147	1.3.3.6.7.1.2	Draft DED	3146	3 days	Wed 5/6/20	Fri 5/8/20	PM[10%],Doc Mngr[50%],Impl Mngr[10%],BI Dev[5%],ETL Engnr[5%]
3148	1.3.3.6.7.1.3	Review DED	3147	1 day	Mon 5/11/20	Mon 5/11/20	PM[10%],Doc Mngr[50%],Impl Mngr[10%],BI Dev[5%],ETL Engnr[5%]

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ID	WBS	Task Name	Predecessors	Duration	Start	Finish	Resource Names
3149	1.3.3.6.7.1.4	Finalize DED	3148	1 day	Tue 5/12/20	Tue 5/12/20	PM[10%],Doc Mngr[50%],Impl Mngr[10%],BI Dev[5%],ETL Engnr[5%]
3150	**1.3.3.6.7.2**	**Internally Review DED**		**6 days**	**Wed 5/13/20**	**Wed 5/20/20**	
3151	1.3.3.6.7.2.1	Complete Contract Review	3149	2 days	Wed 5/13/20	Thu 5/14/20	PM[10%]
3152	1.3.3.6.7.2.2	Complete Peer Review	3149	2 days	Wed 5/13/20	Thu 5/14/20	Doc Mngr[10%],Impl Mngr[10%],BI Dev[10%],ETL Engnr[10%]
3153	1.3.3.6.7.2.3	Complete QA Review	3151,3152	2 days	Fri 5/15/20	Mon 5/18/20	Doc Mngr[25%]
3154	1.3.3.6.7.2.4	Update with feedback	3153	2 days	Tue 5/19/20	Wed 5/20/20	Doc Mngr[10%],Impl Mngr[10%],BI Dev[10%],ETL Engnr[10%]
3155	1.3.3.6.7.3	Submit for State Review	3154	1 day	Thu 5/21/20	Thu 5/21/20	PM[10%]
3156	1.3.3.6.7.4	State reviews document and provides feedback	3155	3 days	Fri 5/22/20	Wed 5/27/20	State[20%]
3157	**1.3.3.6.7.5**	**DED: Review Cycle (1)**		**4 days**	**Thu 5/28/20**	**Tue 6/2/20**	
3158	1.3.3.6.7.5.1	Update DED with feedback	3156	1 day	Thu 5/28/20	Thu 5/28/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],ETL Engnr[10%],BI Dev[10%]
3159	1.3.3.6.7.5.2	QA review and update	3158	0.5 days	Fri 5/29/20	Fri 5/29/20	Doc Mngr[40%],Impl Mngr[10%],ETL Engnr[10%],BI Dev[10%]
3160	1.3.3.6.7.5.3	Resubmit for State Review	3159	0.5 days	Fri 5/29/20	Fri 5/29/20	PM[10%]
3161	1.3.3.6.7.5.4	State reviews	3160	2 days	Mon 6/1/20	Tue 6/2/20	State[20%]
3162	**1.3.3.6.7.6**	**DED: Review Cycle (2)**		**6.5 days**	**Wed 6/3/20**	**Thu 6/11/20**	
3163	1.3.3.6.7.6.1	Update DED with feedback	3161	1 day	Wed 6/3/20	Wed 6/3/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],ETL Engnr[10%],BI Dev[10%]
3164	1.3.3.6.7.6.2	QA review and update	3163	0.5 days	Thu 6/4/20	Thu 6/4/20	Doc Mngr[40%],Impl Mngr[10%],ETL Engnr[10%],BI Dev[10%]
3165	1.3.3.6.7.6.3	Resubmit for State Review	3164	2 days	Thu 6/4/20	Mon 6/8/20	PM[10%]
3166	1.3.3.6.7.6.4	State reviews	3165	2 days	Mon 6/8/20	Wed 6/10/20	State[20%]
3167	1.3.3.6.7.6.5	State approves DED	3166	1 day	Wed 6/10/20	Thu 6/11/20	State[20%]
3168	**1.3.3.6.7.7**	**Develop Deliverable**		**13 days**	**Thu 6/11/20**	**Tue 6/30/20**	
3169	1.3.3.6.7.7.1	Create baseline from approved DED	3167	5 days	Thu 6/11/20	Thu 6/18/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],ETL Engnr[10%],BI Dev[10%]
3170	1.3.3.6.7.7.2	Update deliverable	3169	5 days	Thu 6/18/20	Thu 6/25/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%]
3171	1.3.3.6.7.7.3	Conduct Internal Review	3170	2 days	Thu 6/25/20	Mon 6/29/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%]
3172	1.3.3.6.7.7.4	Final QA Review/Update of Deliverable	3171	1 day	Mon 6/29/20	Tue 6/30/20	Doc Mngr[40%],Impl Mngr[10%],ETL Engnr[10%],BI Dev[10%]
3173	1.3.3.6.7.8	Submit Deliverable for State Review	3172	1 day	Tue 6/30/20	Wed 7/1/20	PM[10%]
3174	1.3.3.6.7.9	State reviews document and provides feedback	3173	10 days	Wed 7/1/20	Thu 7/16/20	State[20%]
3175	**1.3.3.6.7.10**	**Deliverable: Review Cycle (1)**		**10 days**	**Thu 7/16/20**	**Thu 7/30/20**	
3176	1.3.3.6.7.10.1	Update deliverable with feedback	3174	3 days	Thu 7/16/20	Tue 7/21/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%]
3177	1.3.3.6.7.10.2	QA review and update	3176	1.5 days	Tue 7/21/20	Wed 7/22/20	Doc Mngr[40%],Impl Mngr[10%],ETL Engnr[10%],BI Dev[10%]
3178	1.3.3.6.7.10.3	Submit for State approval	3177	0.5 days	Thu 7/23/20	Thu 7/23/20	PM[10%]
3179	1.3.3.6.7.10.4	State reviews	3178	5 days	Thu 7/23/20	Thu 7/30/20	State[20%]
3180	**1.3.3.6.7.11**	**Deliverable: Review Cycle (2)**		**10 days**	**Thu 7/30/20**	**Thu 8/13/20**	
3181	1.3.3.6.7.11.1	Update deliverable with feedback	3179	3 days	Thu 7/30/20	Tue 8/4/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%]
3182	1.3.3.6.7.11.2	QA review and update	3181	1.5 days	Tue 8/4/20	Wed 8/5/20	Doc Mngr[40%],Impl Mngr[10%],ETL Engnr[10%],BI Dev[10%]
3183	1.3.3.6.7.11.3	Submit for State approval	3182	0.5 days	Thu 8/6/20	Thu 8/6/20	PM[10%]
3184	1.3.3.6.7.11.4	State reviews	3183	5 days	Thu 8/6/20	Thu 8/13/20	State[20%]
3185	1.3.3.6.7.12	State Provides Final Approval	3184	1 day	Thu 8/13/20	Fri 8/14/20	State[20%]
3186	1.3.3.6.7.13	Milestone: Database Design Document and Data Models Approved	3185	0 days	Fri 8/14/20	Fri 8/14/20	
3187	**1.3.3.6.8**	**D037 Detailed System Design Document**		**158.5 days**	**Thu 6/11/20**	**Thu 1/28/21**	
3188	**1.3.3.6.8.1**	**Develop DED**		**7 days**	**Thu 6/11/20**	**Mon 6/22/20**	
3189	1.3.3.6.8.1.1	Review deliverable requirements	3167	2 days	Thu 6/11/20	Mon 6/15/20	PM[10%],Doc Mngr[50%]
3190	1.3.3.6.8.1.2	Draft DED	3189	3 days	Mon 6/15/20	Thu 6/18/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%],BA[1
3191	1.3.3.6.8.1.3	Review DED	3190	1 day	Thu 6/18/20	Fri 6/19/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%],BA[1
3192	1.3.3.6.8.1.4	Finalize DED	3191	1 day	Fri 6/19/20	Mon 6/22/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%],BA[1
3193	**1.3.3.6.8.2**	**Internally Review DED**		**6 days**	**Mon 6/22/20**	**Tue 6/30/20**	
3194	1.3.3.6.8.2.1	Complete Contract Review	3192	2 days	Mon 6/22/20	Wed 6/24/20	PM[10%]
3195	1.3.3.6.8.2.2	Complete Peer Review	3192	2 days	Mon 6/22/20	Wed 6/24/20	Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%],BA[10%],AC[1
3196	1.3.3.6.8.2.3	Complete QA Review	3194,3195	2 days	Wed 6/24/20	Fri 6/26/20	Doc Mngr[25%]
3197	1.3.3.6.8.2.4	Update with feedback	3196	2 days	Fri 6/26/20	Tue 6/30/20	Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%],BA[10%],AC[1
3198	1.3.3.6.8.3	Submit for State Review	3197	1 day	Tue 6/30/20	Wed 7/1/20	PM[10%]
3199	1.3.3.6.8.4	State reviews document and provides feedback	3198	3 days	Wed 7/1/20	Tue 7/7/20	State[20%]
3200	**1.3.3.6.8.5**	**DED: Review Cycle (1)**		**4 days**	**Tue 7/7/20**	**Mon 7/13/20**	
3201	1.3.3.6.8.5.1	Update DED with feedback	3199	1 day	Tue 7/7/20	Wed 7/8/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],ETL Engnr[10%],BI Dev[10%],BA[1
3202	1.3.3.6.8.5.2	QA review and update	3201	0.5 days	Wed 7/8/20	Wed 7/8/20	Doc Mngr[20%],Impl Mngr[5%],ETL Engnr[10%],BI Dev[10%],PM[5%],BA[1
3203	1.3.3.6.8.5.3	Resubmit for State Review	3202	0.5 days	Thu 7/9/20	Thu 7/9/20	PM[10%]
3204	1.3.3.6.8.5.4	State reviews	3203	2 days	Thu 7/9/20	Mon 7/13/20	State[20%]
3205	**1.3.3.6.8.6**	**DED: Review Cycle (2)**		**5 days**	**Mon 7/13/20**	**Mon 7/20/20**	
3206	1.3.3.6.8.6.1	Update DED with feedback	3204	1 day	Mon 7/13/20	Tue 7/14/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],ETL Engnr[10%],BI Dev[10%],BA[1
3207	1.3.3.6.8.6.2	QA review and update	3206	0.5 days	Tue 7/14/20	Tue 7/14/20	Doc Mngr[20%],Impl Mngr[5%],ETL Engnr[10%],BI Dev[10%],PM[5%],BA[1
3208	1.3.3.6.8.6.3	Resubmit for State Review	3207	0.5 days	Wed 7/15/20	Wed 7/15/20	PM[10%]
3209	1.3.3.6.8.6.4	State reviews	3208	2 days	Wed 7/15/20	Fri 7/17/20	State[20%]
3210	1.3.3.6.8.6.5	State approves DED	3209	1 day	Fri 7/17/20	Mon 7/20/20	State[20%]
3211	**1.3.3.6.8.7**	**Create Preliminary Version**		**45 days**	**Mon 7/20/20**	**Tue 9/22/20**	
3212	**1.3.3.6.8.7.1**	**Develop Deliverable**		**13 days**	**Mon 7/20/20**	**Thu 8/6/20**	
3213	1.3.3.6.8.7.1.1	Create baseline from approved DED	3210	5 days	Mon 7/20/20	Mon 7/27/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],ETL Engnr[10%],BI Dev[10%],BA[1
3214	1.3.3.6.8.7.1.2	Update deliverable	3213	5 days	Mon 7/27/20	Mon 8/3/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%],BA[1
3215	1.3.3.6.8.7.1.3	Conduct Internal Review	3214	2 days	Mon 8/3/20	Wed 8/5/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%],BA[1

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ID	WBS	Task Name	Predecessors	Duration	Start	Finish	Resource Names
3216	1.3.3.6.8.7.1	Final QA Review/Update of Deliverable	3215	1 day	Wed 8/5/20	Thu 8/6/20	Doc Mngr[20%],Impl Mngr[5%],ETL Engnr[10%],BI Dev[10%],PM[5%],BA[1
3217	1.3.3.6.8.7.2	Submit Deliverable for State Review	3216	1 day	Thu 8/6/20	Fri 8/7/20	PM[10%]
3218	1.3.3.6.8.7.3	State reviews document and provides feedback	3217	10 days	Fri 8/7/20	Fri 8/21/20	State[20%]
3219	**1.3.3.6.8.7.4**	**Deliverable: Review Cycle (1)**		**10 days**	**Fri 8/21/20**	**Fri 9/4/20**	
3220	1.3.3.6.8.7.4	Update deliverable with feedback	3218	3 days	Fri 8/21/20	Wed 8/26/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%],BA[1
3221	1.3.3.6.8.7.4	QA review and update	3220	1.5 days	Wed 8/26/20	Thu 8/27/20	Doc Mngr[20%],Impl Mngr[5%],ETL Engnr[10%],BI Dev[10%],PM[5%],BA[1
3222	1.3.3.6.8.7.4	Submit for State approval	3221	0.5 days	Fri 8/28/20	Fri 8/28/20	PM[10%]
3223	1.3.3.6.8.7.4	State reviews	3222	5 days	Fri 8/28/20	Fri 9/4/20	State[20%]
3224	**1.3.3.6.8.7.5**	**Deliverable: Review Cycle (2)**		**10 days**	**Fri 9/4/20**	**Mon 9/21/20**	
3225	1.3.3.6.8.7.5	Update deliverable with feedback	3223	3 days	Fri 9/4/20	Thu 9/10/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%],BA[1
3226	1.3.3.6.8.7.5	QA review and update	3225	1.5 days	Thu 9/10/20	Fri 9/11/20	Doc Mngr[20%],Impl Mngr[5%],ETL Engnr[10%],BI Dev[10%],PM[5%],BA[1
3227	1.3.3.6.8.7.5	Submit for State approval	3226	0.5 days	Mon 9/14/20	Mon 9/14/20	PM[10%]
3228	1.3.3.6.8.7.5	State reviews	3227	5 days	Mon 9/14/20	Mon 9/21/20	State[20%]
3229	1.3.3.6.8.7.6	State Provides Final Approval	3228	1 day	Mon 9/21/20	Tue 9/22/20	State[20%]
3230	1.3.3.6.8.7.7	Milestone: System Design Document Approved	3229	0 days	Tue 9/22/20	Tue 9/22/20	
3231	**1.3.3.6.8.8**	**Update Deliverable**		**58 days**	**Tue 11/3/20**	**Thu 1/28/21**	
3232	1.3.3.6.8.8.1	Update System Design Document	2865,3230	15 days	Tue 11/3/20	Mon 11/23/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%],BA[1
3233	1.3.3.6.8.8.2	Conduct Internal Review	3232	10 days	Tue 11/24/20	Wed 12/9/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%],BA[1
3234	1.3.3.6.8.8.3	Final QA Review/Update of Deliverable	3233	1 day	Thu 12/10/20	Thu 12/10/20	Doc Mngr[20%],Impl Mngr[5%],ETL Engnr[10%],BI Dev[10%],PM[5%],BA[1
3235	1.3.3.6.8.8.4	Submit Deliverable for State Review	3234	1 day	Fri 12/11/20	Fri 12/11/20	PM[10%]
3236	1.3.3.6.8.8.5	State reviews document and provides feedback	3235	10 days	Mon 12/14/20	Tue 12/29/20	State[20%]
3237	**1.3.3.6.8.8.6**	**Deliverable: Review Cycle (1)**		**10 days**	**Wed 12/30/20**	**Wed 1/13/21**	
3238	1.3.3.6.8.8.6	Update deliverable with feedback	3236	3 days	Wed 12/30/20	Mon 1/4/21	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%],BA[1
3239	1.3.3.6.8.8.6	QA review and update	3238	1.5 days	Tue 1/5/21	Wed 1/6/21	Doc Mngr[20%],Impl Mngr[5%],ETL Engnr[10%],Bi Dev[10%],PM[5%],BA[1
3240	1.3.3.6.8.8.6	Submit for State approval	3239	0.5 days	Wed 1/6/21	Wed 1/6/21	PM[10%]
3241	1.3.3.6.8.8.6	State reviews	3240	5 days	Thu 1/7/21	Wed 1/13/21	State[20%]
3242	**1.3.3.6.8.8.7**	**Deliverable: Review Cycle (2)**		**10 days**	**Thu 1/14/21**	**Wed 1/27/21**	
3243	1.3.3.6.8.8.7	Update deliverable with feedback	3241	3 days	Thu 1/14/21	Mon 1/18/21	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%],BA[1
3244	1.3.3.6.8.8.7	QA review and update	3243	1.5 days	Tue 1/19/21	Wed 1/20/21	Doc Mngr[20%],Impl Mngr[5%],ETL Engnr[10%],BI Dev[10%],PM[5%],BA[1
3245	1.3.3.6.8.8.7	Submit for State approval	3244	0.5 days	Wed 1/20/21	Wed 1/20/21	PM[10%]
3246	1.3.3.6.8.8.7	State reviews	3245	5 days	Thu 1/21/21	Wed 1/27/21	State[20%]
3247	1.3.3.6.8.8.8	State Provides Final Approval	3246	1 day	Thu 1/28/21	Thu 1/28/21	State[20%]
3248	1.3.3.6.8.8.9	Milestone: Final System Design Document Approved	3247	0 days	Thu 1/28/21	Thu 1/28/21	
3249	**1.3.3.6.9**	**D038 Disaster Recovery and Business Continuity Plan**		**83 days**	**Mon 5/4/20**	**Fri 8/28/20**	
3250	**1.3.3.6.9.1**	**Develop DED**		**7 days**	**Mon 5/4/20**	**Tue 5/12/20**	
3251	1.3.3.6.9.1.1	Review deliverable requirements	2	2 days	Mon 5/4/20	Tue 5/5/20	PM[10%],Doc Mngr[50%]
3252	1.3.3.6.9.1.2	Draft DED	3251	3 days	Wed 5/6/20	Fri 5/8/20	PM[10%],Doc Mngr[50%],Impl Mngr[5%],Info Sec Arch[5%]
3253	1.3.3.6.9.1.3	Review DED	3252	1 day	Mon 5/11/20	Mon 5/11/20	PM[10%],Doc Mngr[50%],Impl Mngr[5%],Info Sec Arch[5%]
3254	1.3.3.6.9.1.4	Finalize DED	3253	1 day	Tue 5/12/20	Tue 5/12/20	PM[10%],Doc Mngr[50%],Impl Mngr[5%],Info Sec Arch[5%]
3255	**1.3.3.6.9.2**	**Internally Review DED**		**6 days**	**Wed 5/13/20**	**Wed 5/20/20**	
3256	1.3.3.6.9.2.1	Complete Contract Review	3254	2 days	Wed 5/13/20	Thu 5/14/20	PM[10%]
3257	1.3.3.6.9.2.2	Complete Peer Review	3254	2 days	Wed 5/13/20	Thu 5/14/20	Doc Mngr[10%],Impl Mngr[5%],Acct Mngr[5%],Info Sec Arch[5%]
3258	1.3.3.6.9.2.3	Complete QA Review	3256,3257	2 days	Fri 5/15/20	Mon 5/18/20	Doc Mngr[25%]
3259	1.3.3.6.9.2.4	Update with feedback	3258	2 days	Tue 5/19/20	Wed 5/20/20	Doc Mngr[10%],Impl Mngr[5%],Acct Mngr[5%],Info Sec Arch[5%]
3260	1.3.3.6.9.3	Submit for State Review	3259	1 day	Thu 5/21/20	Thu 5/21/20	PM[10%]
3261	1.3.3.6.9.4	State reviews document and provides feedback	3260	3 days	Fri 5/22/20	Wed 5/27/20	State[20%]
3262	**1.3.3.6.9.5**	**DED: Review Cycle (1)**		**4 days**	**Mon 6/15/20**	**Thu 6/18/20**	
3263	1.3.3.6.9.5.1	Update DED with feedback	3261	1 day	Mon 6/15/20	Mon 6/15/20	PM[5%],Doc Mngr[10%],Info Sec Arch[10%]
3264	1.3.3.6.9.5.2	QA review and update	3263	0.5 days	Tue 6/16/20	Tue 6/16/20	Doc Mngr[40%],Impl Mngr[10%],Info Sec Arch[10%]
3265	1.3.3.6.9.5.3	Resubmit for State Review	3264	0.5 days	Tue 6/16/20	Tue 6/16/20	PM[10%]
3266	1.3.3.6.9.5.4	State reviews	3265	2 days	Wed 6/17/20	Thu 6/18/20	State[20%]
3267	**1.3.3.6.9.6**	**DED: Review Cycle (2)**		**5 days**	**Fri 6/19/20**	**Thu 6/25/20**	
3268	1.3.3.6.9.6.1	Update DED with feedback	3266	1 day	Fri 6/19/20	Fri 6/19/20	PM[5%],Doc Mngr[10%],Info Sec Arch[10%]
3269	1.3.3.6.9.6.2	QA review and update	3268	0.5 days	Mon 6/22/20	Mon 6/22/20	Doc Mngr[40%],Impl Mngr[10%],Info Sec Arch[10%]
3270	1.3.3.6.9.6.3	Resubmit for State Review	3269	0.5 days	Mon 6/22/20	Mon 6/22/20	PM[10%]
3271	1.3.3.6.9.6.4	State reviews	3270	2 days	Tue 6/23/20	Wed 6/24/20	State[20%]
3272	1.3.3.6.9.6.5	State approves DED	3271	1 day	Thu 6/25/20	Thu 6/25/20	State[20%]
3273	**1.3.3.6.9.7**	**Develop Deliverable**		**13 days**	**Fri 6/26/20**	**Wed 7/15/20**	
3274	1.3.3.6.9.7.1	Create baseline from approved DED	3272	5 days	Fri 6/26/20	Thu 7/2/20	PM[5%],Doc Mngr[10%],Info Sec Arch[10%]
3275	1.3.3.6.9.7.2	Update deliverable	3274	5 days	Mon 7/6/20	Fri 7/10/20	PM[5%],Doc Mngr[10%],Info Sec Arch[10%]
3276	1.3.3.6.9.7.3	Conduct Internal Review	3275	2 days	Mon 7/13/20	Tue 7/14/20	PM[5%],Doc Mngr[10%],Info Sec Arch[10%]
3277	1.3.3.6.9.7.4	Final QA Review/Update of Deliverable	3276	1 day	Wed 7/15/20	Wed 7/15/20	Doc Mngr[40%],Impl Mngr[10%],Info Sec Arch[10%]
3278	1.3.3.6.9.8	Submit Deliverable for State Review	3277	1 day	Thu 7/16/20	Thu 7/16/20	PM[10%]
3279	1.3.3.6.9.9	State reviews document and provides feedback	3278	10 days	Fri 7/17/20	Thu 7/30/20	State[20%]
3280	**1.3.3.6.9.10**	**Deliverable: Review Cycle (1)**		**10 days**	**Fri 7/31/20**	**Thu 8/13/20**	
3281	1.3.3.6.9.10	Update deliverable with feedback	3279	3 days	Fri 7/31/20	Tue 8/4/20	PM[5%],Doc Mngr[10%],Info Sec Arch[10%]
3282	1.3.3.6.9.10	QA review and update	3281	1.5 days	Wed 8/5/20	Thu 8/6/20	Doc Mngr[40%],Impl Mngr[10%],Info Sec Arch[10%]

ID	WBS	Task Name	Predecessors	Duration	Start	Finish	Resource Names
3283	1.3.3.6.9.10	Submit for State approval	3282	0.5 days	Thu 8/6/20	Thu 8/6/20	PM[10%]
3284	1.3.3.6.9.10	State reviews	3283	5 days	Fri 8/7/20	Thu 8/13/20	State[20%]
3285	**1.3.3.6.9.11**	**Deliverable: Review Cycle (2)**		**10 days**	**Fri 8/14/20**	**Thu 8/27/20**	
3286	1.3.3.6.9.11	Update deliverable with feedback	3284	3 days	Fri 8/14/20	Tue 8/18/20	PM[5%],Doc Mngr[10%],Info Sec Arch[10%]
3287	1.3.3.6.9.11	QA review and update	3286	1.5 days	Wed 8/19/20	Thu 8/20/20	Doc Mngr[40%],Impl Mngr[10%],Info Sec Arch[10%]
3288	1.3.3.6.9.11	Submit for State approval	3287	0.5 days	Thu 8/20/20	Thu 8/20/20	PM[10%]
3289	1.3.3.6.9.11	State reviews	3288	5 days	Fri 8/21/20	Thu 8/27/20	State[20%]
3290	1.3.3.6.9.12	State Provides Final Approval	3289	1 day	Fri 8/28/20	Fri 8/28/20	State[20%]
3291	1.3.3.6.9.13	Milestone: Disaster Recovery and Business Continuity Plan Approved	3290	0 days	Fri 8/28/20	Fri 8/28/20	
3292	**1.3.3.6.10**	**D039 Federal Certification and Review Management Plan**		**83 days**	**Wed 6/17/20**	**Tue 10/13/20**	
3293	**1.3.3.6.10.1**	**Develop DED**		**7 days**	**Wed 6/17/20**	**Thu 6/25/20**	
3294	1.3.3.6.10.1	Review deliverable requirements	4968	2 days	Wed 6/17/20	Thu 6/18/20	PM[10%],Doc Mngr[50%]
3295	1.3.3.6.10.1	Draft DED	3294	3 days	Fri 6/19/20	Tue 6/23/20	PM[10%],Doc Mngr[50%],CMS Cert SME[10%]
3296	1.3.3.6.10.1	Review DED	3295	1 day	Wed 6/24/20	Wed 6/24/20	PM[10%],Doc Mngr[50%],CMS Cert SME[10%]
3297	1.3.3.6.10.1	Finalize DED	3296	1 day	Thu 6/25/20	Thu 6/25/20	PM[10%],Doc Mngr[50%],CMS Cert SME[10%]
3298	**1.3.3.6.10.2**	**Internally Review DED**		**6 days**	**Fri 6/26/20**	**Mon 7/6/20**	
3299	1.3.3.6.10.2	Complete Contract Review	3297	2 days	Fri 6/26/20	Mon 6/29/20	PM[10%]
3300	1.3.3.6.10.2	Complete Peer Review	3297	2 days	Fri 6/26/20	Mon 6/29/20	Doc Mngr[10%],Impl Mngr[10%],CMS Cert SME[10%]
3301	1.3.3.6.10.2	Complete QA Review	3299,3300	2 days	Tue 6/30/20	Wed 7/1/20	Doc Mngr[25%]
3302	1.3.3.6.10.2	Update with feedback	3301	2 days	Thu 7/2/20	Mon 7/6/20	Doc Mngr[10%],Impl Mngr[10%],CMS Cert SME[10%]
3303	1.3.3.6.10.3	Submit for State Review	3302	1 day	Tue 7/7/20	Tue 7/7/20	PM[10%]
3304	1.3.3.6.10.4	State reviews document and provides feedback	3303	3 days	Wed 7/8/20	Fri 7/10/20	State[20%]
3305	**1.3.3.6.10.5**	**DED: Review Cycle (1)**		**4 days**	**Wed 7/29/20**	**Mon 8/3/20**	
3306	1.3.3.6.10.5	Update DED with feedback	3304	1 day	Wed 7/29/20	Wed 7/29/20	PM[5%],Doc Mngr[10%],CMS Cert SME[10%]
3307	1.3.3.6.10.5	QA review and update	3306	0.5 days	Thu 7/30/20	Thu 7/30/20	Doc Mngr[40%],CMS Cert SME[25%]
3308	1.3.3.6.10.5	Resubmit for State Review	3307	0.5 days	Thu 7/30/20	Thu 7/30/20	PM[10%]
3309	1.3.3.6.10.5	State reviews	3308	2 days	Fri 7/31/20	Mon 8/3/20	State[20%]
3310	**1.3.3.6.10.6**	**DED: Review Cycle (2)**		**5 days**	**Tue 8/4/20**	**Mon 8/10/20**	
3311	1.3.3.6.10.6	Update DED with feedback	3309	1 day	Tue 8/4/20	Tue 8/4/20	PM[5%],Doc Mngr[10%],CMS Cert SME[10%]
3312	1.3.3.6.10.6	QA review and update	3311	0.5 days	Wed 8/5/20	Wed 8/5/20	Doc Mngr[40%],CMS Cert SME[25%]
3313	1.3.3.6.10.6	Resubmit for State Review	3312	0.5 days	Wed 8/5/20	Wed 8/5/20	PM[10%]
3314	1.3.3.6.10.6	State reviews	3313	2 days	Thu 8/6/20	Fri 8/7/20	State[20%]
3315	1.3.3.6.10.6	State approves DED	3314	1 day	Mon 8/10/20	Mon 8/10/20	State[20%]
3316	**1.3.3.6.10.7**	**Develop Deliverable**		**13 days**	**Tue 8/11/20**	**Thu 8/27/20**	
3317	1.3.3.6.10.7	Create baseline from approved DED	3315	5 days	Tue 8/11/20	Mon 8/17/20	PM[5%],Doc Mngr[10%],CMS Cert SME[10%]
3318	1.3.3.6.10.7	Update deliverable	3317	5 days	Tue 8/18/20	Mon 8/24/20	PM[5%],Doc Mngr[10%],CMS Cert SME[10%]
3319	1.3.3.6.10.7	Conduct Internal Review	3318	2 days	Tue 8/25/20	Wed 8/26/20	PM[5%],Doc Mngr[10%],CMS Cert SME[10%]
3320	1.3.3.6.10.7	Final QA Review/Update of Deliverable	3319	1 day	Thu 8/27/20	Thu 8/27/20	Doc Mngr[40%],CMS Cert SME[25%]
3321	1.3.3.6.10.8	Submit Deliverable for State Review	3320	1 day	Fri 8/28/20	Fri 8/28/20	PM[10%]
3322	1.3.3.6.10.9	State reviews document and provides feedback	3321	10 days	Mon 8/31/20	Mon 9/14/20	State[20%]
3323	**1.3.3.6.10.1**	**Deliverable: Review Cycle (1)**		**10 days**	**Tue 9/15/20**	**Mon 9/28/20**	
3324	1.3.3.6.10.1	Update deliverable with feedback	3322	3 days	Tue 9/15/20	Thu 9/17/20	PM[5%],Doc Mngr[10%],CMS Cert SME[10%]
3325	1.3.3.6.10.1	QA review and update	3324	1.5 days	Fri 9/18/20	Mon 9/21/20	Doc Mngr[40%],CMS Cert SME[25%]
3326	1.3.3.6.10.1	Submit for State approval	3325	0.5 days	Mon 9/21/20	Mon 9/21/20	PM[10%]
3327	1.3.3.6.10.1	State reviews	3326	5 days	Tue 9/22/20	Mon 9/28/20	State[20%]
3328	**1.3.3.6.10.1**	**Deliverable: Review Cycle (2)**		**11 days**	**Tue 9/29/20**	**Tue 10/13/20**	
3329	1.3.3.6.10.1	Update deliverable with feedback	3327	3 days	Tue 9/29/20	Thu 10/1/20	PM[5%],Doc Mngr[10%],CMS Cert SME[10%]
3330	1.3.3.6.10.1	QA review and update	3329	1.5 days	Fri 10/2/20	Mon 10/5/20	Doc Mngr[40%],CMS Cert SME[25%]
3331	1.3.3.6.10.1	Submit for State approval	3330	0.5 days	Mon 10/5/20	Mon 10/5/20	PM[10%]
3332	1.3.3.6.10.1	State reviews	3331	5 days	Tue 10/6/20	Mon 10/12/20	State[20%]
3333	1.3.3.6.10.1	State Provides Final Approval	3332	1 day	Tue 10/13/20	Tue 10/13/20	State[20%]
3334	1.3.3.6.10.1	Milestone: Federal Certification and Review Management Plan Approved	3333	0 days	Tue 10/13/20	Tue 10/13/20	
3335	**1.3.3.6.11**	**D040 Interface Inventory**		**83 days**	**Mon 5/4/20**	**Fri 8/28/20**	
3336	**1.3.3.6.11.1**	**Develop DED**		**7 days**	**Mon 5/4/20**	**Tue 5/12/20**	
3337	1.3.3.6.11.1	Review deliverable requirements	2	2 days	Mon 5/4/20	Tue 5/5/20	PM[10%],Doc Mngr[50%]
3338	1.3.3.6.11.1	Draft DED	3337	3 days	Wed 5/6/20	Fri 5/8/20	PM[10%],Doc Mngr[50%],Impl Mngr[5%],Info Sec Arch[5%],Tech Lead[5%]
3339	1.3.3.6.11.1	Review DED	3338	1 day	Mon 5/11/20	Mon 5/11/20	PM[10%],Doc Mngr[50%],Impl Mngr[5%],Info Sec Arch[5%],Tech Lead[5%]
3340	1.3.3.6.11.1	Finalize DED	3339	1 day	Tue 5/12/20	Tue 5/12/20	PM[10%],Doc Mngr[50%],Impl Mngr[5%],Info Sec Arch[5%]
3341	**1.3.3.6.11.2**	**Internally Review DED**		**6 days**	**Wed 5/13/20**	**Wed 5/20/20**	
3342	1.3.3.6.11.2	Complete Contract Review	3340	2 days	Wed 5/13/20	Thu 5/14/20	PM[10%]
3343	1.3.3.6.11.2	Complete Peer Review	3340	2 days	Wed 5/13/20	Thu 5/14/20	Doc Mngr[10%],Impl Mngr[5%],Acct Mngr[5%],Info Sec Arch[5%],Tech Lea
3344	1.3.3.6.11.2	Complete QA Review	3342,3343	2 days	Fri 5/15/20	Mon 5/18/20	Doc Mngr[25%]
3345	1.3.3.6.11.2	Update with feedback	3344	2 days	Tue 5/19/20	Wed 5/20/20	Doc Mngr[10%],Impl Mngr[5%],Acct Mngr[5%],Info Sec Arch[5%],Tech Lea
3346	1.3.3.6.11.3	Submit for State Review	3345	1 day	Thu 5/21/20	Thu 5/21/20	PM[10%]
3347	1.3.3.6.11.4	State reviews document and provides feedback	3346	3 days	Fri 5/22/20	Wed 5/27/20	State[20%]
3348	**1.3.3.6.11.5**	**DED: Review Cycle (1)**		**4 days**	**Mon 6/15/20**	**Thu 6/18/20**	
3349	1.3.3.6.11.5	Update DED with feedback	3347	1 day	Mon 6/15/20	Mon 6/15/20	PM[5%],Doc Mngr[10%],Info Sec Arch[5%],Tech Lead[5%],Impl Mngr[5%]

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ID	WBS	Task Name	Predecessors	Duration	Start	Finish	Resource Names
3350	1.3.3.6.11.5	QA review and update	3349	0.5 days	Tue 6/16/20	Tue 6/16/20	Doc Mngr[40%],Impl Mngr[10%],Acct Mngr[5%]
3351	1.3.3.6.11.5	Resubmit for State Review	3350	0.5 days	Tue 6/16/20	Tue 6/16/20	PM[10%]
3352	1.3.3.6.11.5	State reviews	3351	2 days	Wed 6/17/20	Thu 6/18/20	State[20%]
3353	**1.3.3.6.11.6**	**DED: Review Cycle (2)**		**5 days**	**Fri 6/19/20**	**Thu 6/25/20**	
3354	1.3.3.6.11.6	Update DED with feedback	3352	1 day	Fri 6/19/20	Fri 6/19/20	PM[5%],Doc Mngr[10%],Info Sec Arch[5%],Tech Lead[5%],Impl Mngr[5%]
3355	1.3.3.6.11.6	QA review and update	3354	0.5 days	Mon 6/22/20	Mon 6/22/20	Doc Mngr[40%],Impl Mngr[10%],Acct Mngr[5%]
3356	1.3.3.6.11.6	Resubmit for State Review	3355	0.5 days	Mon 6/22/20	Mon 6/22/20	PM[10%]
3357	1.3.3.6.11.6	State reviews	3356	2 days	Tue 6/23/20	Wed 6/24/20	State[20%]
3358	1.3.3.6.11.6	State approves DED	3357	1 day	Thu 6/25/20	Thu 6/25/20	State[20%]
3359	**1.3.3.6.11.7**	**Develop Deliverable**		**13 days**	**Fri 6/26/20**	**Wed 7/15/20**	
3360	1.3.3.6.11.7	Create baseline from approved DED	3358	5 days	Fri 6/26/20	Thu 7/2/20	PM[5%],Doc Mngr[10%],Info Sec Arch[5%],Tech Lead[5%],Impl Mngr[5%]
3361	1.3.3.6.11.7	Update deliverable	3360	5 days	Mon 7/6/20	Fri 7/10/20	PM[5%],Doc Mngr[10%],Info Sec Arch[5%],Tech Lead[5%],Impl Mngr[5%]
3362	1.3.3.6.11.7	Conduct Internal Review	3361	2 days	Mon 7/13/20	Tue 7/14/20	PM[5%],Doc Mngr[10%],Info Sec Arch[5%],Tech Lead[5%],Impl Mngr[5%]
3363	1.3.3.6.11.7	Final QA Review/Update of Deliverable	3362	1 day	Wed 7/15/20	Wed 7/15/20	Doc Mngr[40%],Impl Mngr[10%],Acct Mngr[5%]
3364	1.3.3.6.11.8	Submit Deliverable for State Review	3363	1 day	Thu 7/16/20	Thu 7/16/20	PM[10%]
3365	1.3.3.6.11.9	State reviews document and provides feedback	3364	10 days	Fri 7/17/20	Thu 7/30/20	State[20%]
3366	**1.3.3.6.11.1**	**Deliverable: Review Cycle (1)**		**10 days**	**Fri 7/31/20**	**Thu 8/13/20**	
3367	1.3.3.6.11.1	Update deliverable with feedback	3365	3 days	Fri 7/31/20	Tue 8/4/20	PM[5%],Doc Mngr[10%],Info Sec Arch[5%],Tech Lead[5%],Impl Mngr[5%]
3368	1.3.3.6.11.1	QA review and update	3367	1.5 days	Wed 8/5/20	Thu 8/6/20	Doc Mngr[40%],Impl Mngr[10%],Acct Mngr[5%]
3369	1.3.3.6.11.1	Submit for State approval	3368	0.5 days	Thu 8/6/20	Thu 8/6/20	PM[10%]
3370	1.3.3.6.11.1	State reviews	3369	5 days	Fri 8/7/20	Thu 8/13/20	State[20%]
3371	**1.3.3.6.11.1**	**Deliverable: Review Cycle (2)**		**10 days**	**Fri 8/14/20**	**Thu 8/27/20**	
3372	1.3.3.6.11.1	Update deliverable with feedback	3370	3 days	Fri 8/14/20	Tue 8/18/20	PM[5%],Doc Mngr[10%],Info Sec Arch[5%],Tech Lead[5%],Impl Mngr[5%]
3373	1.3.3.6.11.1	QA review and update	3372	1.5 days	Wed 8/19/20	Thu 8/20/20	Doc Mngr[40%],Impl Mngr[10%],Acct Mngr[5%]
3374	1.3.3.6.11.1	Submit for State approval	3373	0.5 days	Thu 8/20/20	Thu 8/20/20	PM[10%]
3375	1.3.3.6.11.1	State reviews	3374	5 days	Fri 8/21/20	Thu 8/27/20	State[20%]
3376	1.3.3.6.11.1	State Provides Final Approval	3375	1 day	Fri 8/28/20	Fri 8/28/20	State[20%]
3377	1.3.3.6.11.1	Milestone: Interface Inventory Approved	3376	0 days	Fri 8/28/20	Fri 8/28/20	
3378	**1.3.3.6.12**	**D041 Load and Stress Test Cases**		**338 days**	**Mon 5/4/20**	**Wed 9/1/21**	
3379	**1.3.3.6.12.1**	**Develop DED**		**7 days**	**Mon 5/4/20**	**Tue 5/12/20**	
3380	1.3.3.6.12.1	Review deliverable requirements	2	2 days	Mon 5/4/20	Tue 5/5/20	PM[10%],Doc Mngr[50%]
3381	1.3.3.6.12.1	Draft DED	3380	3 days	Wed 5/6/20	Fri 5/8/20	PM[10%],Doc Mngr[50%],Impl Mngr[10%],BI Dev[5%],ETL Engnr[5%]
3382	1.3.3.6.12.1	Review DED	3381	1 day	Mon 5/11/20	Mon 5/11/20	PM[10%],Doc Mngr[50%],Impl Mngr[10%],BI Dev[5%],ETL Engnr[5%]
3383	1.3.3.6.12.1	Finalize DED	3382	1 day	Tue 5/12/20	Tue 5/12/20	PM[10%],Doc Mngr[50%],Impl Mngr[10%],BI Dev[5%],ETL Engnr[5%]
3384	**1.3.3.6.12.2**	**Internally Review DED**		**6 days**	**Wed 5/13/20**	**Wed 5/20/20**	
3385	1.3.3.6.12.2	Complete Contract Review	3383	2 days	Wed 5/13/20	Thu 5/14/20	PM[10%]
3386	1.3.3.6.12.2	Complete Peer Review	3383	2 days	Wed 5/13/20	Thu 5/14/20	Doc Mngr[10%],Impl Mngr[10%],BI Dev[10%],ETL Engnr[10%]
3387	1.3.3.6.12.2	Complete QA Review	3385,3386	2 days	Fri 5/15/20	Mon 5/18/20	Doc Mngr[25%]
3388	1.3.3.6.12.2	Update with feedback	3387	2 days	Tue 5/19/20	Wed 5/20/20	Doc Mngr[10%],Impl Mngr[10%],BI Dev[10%],ETL Engnr[10%]
3389	1.3.3.6.12.3	Submit for State Review	3388	1 day	Thu 5/21/20	Thu 5/21/20	PM[10%]
3390	1.3.3.6.12.4	State reviews document and provides feedback	3389	3 days	Fri 5/22/20	Wed 5/27/20	State[20%]
3391	**1.3.3.6.12.5**	**DED: Review Cycle (1)**		**4 days**	**Fri 6/18/21**	**Wed 6/23/21**	
3392	1.3.3.6.12.5	Update DED with feedback	3390	1 day	Fri 6/18/21	Fri 6/18/21	PM[5%],Doc Mngr[10%],Impl Mngr[5%],ETL Engnr[10%],BI Dev[10%]
3393	1.3.3.6.12.5	QA review and update	3392	0.5 days	Mon 6/21/21	Mon 6/21/21	Doc Mngr[40%],Impl Mngr[10%],ETL Engnr[10%],BI Dev[10%]
3394	1.3.3.6.12.5	Resubmit for State Review	3393	0.5 days	Mon 6/21/21	Mon 6/21/21	PM[10%]
3395	1.3.3.6.12.5	State reviews	3394	2 days	Tue 6/22/21	Wed 6/23/21	State[20%]
3396	**1.3.3.6.12.6**	**DED: Review Cycle (2)**		**5 days**	**Thu 6/24/21**	**Wed 6/30/21**	
3397	1.3.3.6.12.6	Update DED with feedback	3395	1 day	Thu 6/24/21	Thu 6/24/21	PM[5%],Doc Mngr[10%],Impl Mngr[5%],ETL Engnr[10%],BI Dev[10%]
3398	1.3.3.6.12.6	QA review and update	3397	0.5 days	Fri 6/25/21	Fri 6/25/21	Doc Mngr[40%],Impl Mngr[10%],ETL Engnr[10%],BI Dev[10%]
3399	1.3.3.6.12.6	Resubmit for State Review	3398	0.5 days	Fri 6/25/21	Fri 6/25/21	PM[10%]
3400	1.3.3.6.12.6	State reviews	3399	2 days	Mon 6/28/21	Tue 6/29/21	State[20%]
3401	1.3.3.6.12.6	State approves DED	3400	1 day	Wed 6/30/21	Wed 6/30/21	State[20%]
3402	**1.3.3.6.12.7**	**Develop Deliverable**		**13 days**	**Thu 7/1/21**	**Tue 7/20/21**	
3403	1.3.3.6.12.7	Create baseline from approved DED	3401	5 days	Thu 7/1/21	Thu 7/8/21	PM[5%],Doc Mngr[10%],Impl Mngr[5%],ETL Engnr[10%],BI Dev[10%]
3404	1.3.3.6.12.7	Update deliverable	3403	5 days	Fri 7/9/21	Thu 7/15/21	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%]
3405	1.3.3.6.12.7	Conduct Internal Review	3404	2 days	Fri 7/16/21	Mon 7/19/21	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%]
3406	1.3.3.6.12.7	Final QA Review/Update of Deliverable	3405	1 day	Tue 7/20/21	Tue 7/20/21	Doc Mngr[40%],Impl Mngr[10%],ETL Engnr[10%],BI Dev[10%]
3407	1.3.3.6.12.8	Submit Deliverable for State Review	3406	1 day	Wed 7/21/21	Wed 7/21/21	PM[10%]
3408	1.3.3.6.12.9	State reviews document and provides feedback	3407	10 days	Thu 7/22/21	Wed 8/4/21	State[20%]
3409	**1.3.3.6.12.1**	**Deliverable: Review Cycle (1)**		**10 days**	**Thu 8/5/21**	**Wed 8/18/21**	
3410	1.3.3.6.12.1	Update deliverable with feedback	3408	3 days	Thu 8/5/21	Mon 8/9/21	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%]
3411	1.3.3.6.12.1	QA review and update	3410	1.5 days	Tue 8/10/21	Wed 8/11/21	Doc Mngr[40%],Impl Mngr[10%],ETL Engnr[10%],BI Dev[10%]
3412	1.3.3.6.12.1	Submit for State approval	3411	0.5 days	Wed 8/11/21	Wed 8/11/21	PM[10%]
3413	1.3.3.6.12.1	State reviews	3412	5 days	Thu 8/12/21	Wed 8/18/21	State[20%]
3414	**1.3.3.6.12.1**	**Deliverable: Review Cycle (2)**		**10 days**	**Thu 8/19/21**	**Wed 9/1/21**	
3415	1.3.3.6.12.1	Update deliverable with feedback	3413	3 days	Thu 8/19/21	Mon 8/23/21	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%]
3416	1.3.3.6.12.1	QA review and update	3415	1.5 days	Tue 8/24/21	Wed 8/25/21	Doc Mngr[40%],Impl Mngr[10%],ETL Engnr[10%],BI Dev[10%]

ID	WBS	Task Name	Predecessors	Duration	Start	Finish	Resource Names
3417	1.3.3.6.12.1	Submit for State approval	3416	0.5 days	Wed 8/25/21	Wed 8/25/21	PM[10%]
3418	1.3.3.6.12.1	State reviews	3417	5 days	Thu 8/26/21	Wed 9/1/21	State[20%]
3419	1.3.3.6.12.1	Milestone: Load and Stress Test Cases Approved	3418	0 days	Wed 9/1/21	Wed 9/1/21	
3420	**1.3.3.6.13**	**D042 Load and Stress Test Results**		**71 days**	**Tue 5/25/21**	**Thu 9/2/21**	
3421	**1.3.3.6.13.1**	**Develop DED**		**7 days**	**Tue 5/25/21**	**Thu 6/3/21**	
3422	1.3.3.6.13.1	Review deliverable requirements	4092	2 days	Tue 5/25/21	Wed 5/26/21	PM[10%],Doc Mngr[50%]
3423	1.3.3.6.13.1	Draft DED	3422	3 days	Thu 5/27/21	Tue 6/1/21	PM[10%],Doc Mngr[50%],Impl Mngr[10%],BI Dev[5%],ETL Engnr[5%]
3424	1.3.3.6.13.1	Review DED	3423	1 day	Wed 6/2/21	Wed 6/2/21	PM[10%],Doc Mngr[50%],Impl Mngr[10%],BI Dev[5%],ETL Engnr[5%]
3425	1.3.3.6.13.1	Finalize DED	3424	1 day	Thu 6/3/21	Thu 6/3/21	PM[10%],Doc Mngr[50%],Impl Mngr[10%],BI Dev[5%],ETL Engnr[5%]
3426	**1.3.3.6.13.2**	**Internally Review DED**		**6 days**	**Fri 6/4/21**	**Fri 6/11/21**	
3427	1.3.3.6.13.2	Complete Contract Review	3425	2 days	Fri 6/4/21	Mon 6/7/21	PM[10%]
3428	1.3.3.6.13.2	Complete Peer Review	3425	2 days	Fri 6/4/21	Mon 6/7/21	Doc Mngr[10%],Impl Mngr[10%],BI Dev[10%],ETL Engnr[10%]
3429	1.3.3.6.13.2	Complete QA Review	3427,3428	2 days	Tue 6/8/21	Wed 6/9/21	Doc Mngr[25%]
3430	1.3.3.6.13.2	Update with feedback	3429	2 days	Thu 6/10/21	Fri 6/11/21	Doc Mngr[10%],Impl Mngr[10%],BI Dev[10%],ETL Engnr[10%]
3431	1.3.3.6.13.3	Submit for State Review	3430	1 day	Mon 6/14/21	Mon 6/14/21	PM[10%]
3432	1.3.3.6.13.4	State reviews document and provides feedback	3431	3 days	Tue 6/15/21	Thu 6/17/21	State[20%]
3433	**1.3.3.6.13.5**	**DED: Review Cycle (1)**		**4 days**	**Fri 6/18/21**	**Wed 6/23/21**	
3434	1.3.3.6.13.5	Update DED with feedback	3432	1 day	Fri 6/18/21	Fri 6/18/21	PM[5%],Doc Mngr[10%],Impl Mngr[5%],ETL Engnr[10%],BI Dev[10%]
3435	1.3.3.6.13.5	QA review and update	3434	0.5 days	Mon 6/21/21	Mon 6/21/21	Doc Mngr[40%],Impl Mngr[10%],ETL Engnr[10%],BI Dev[10%]
3436	1.3.3.6.13.5	Resubmit for State Review	3435	0.5 days	Mon 6/21/21	Mon 6/21/21	PM[10%]
3437	1.3.3.6.13.5	State reviews	3436	2 days	Tue 6/22/21	Wed 6/23/21	State[20%]
3438	**1.3.3.6.13.6**	**DED: Review Cycle (2)**		**5 days**	**Thu 6/24/21**	**Wed 6/30/21**	
3439	1.3.3.6.13.6	Update DED with feedback	3437	1 day	Thu 6/24/21	Thu 6/24/21	PM[5%],Doc Mngr[10%],Impl Mngr[5%],ETL Engnr[10%],BI Dev[10%]
3440	1.3.3.6.13.6	QA review and update	3439	0.5 days	Fri 6/25/21	Fri 6/25/21	Doc Mngr[40%],Impl Mngr[10%],ETL Engnr[10%],BI Dev[10%]
3441	1.3.3.6.13.6	Resubmit for State Review	3440	0.5 days	Fri 6/25/21	Fri 6/25/21	PM[10%]
3442	1.3.3.6.13.6	State reviews	3441	2 days	Mon 6/28/21	Tue 6/29/21	State[20%]
3443	1.3.3.6.13.6	State approves DED	3442	1 day	Wed 6/30/21	Wed 6/30/21	State[20%]
3444	**1.3.3.6.13.7**	**Develop Deliverable**		**13 days**	**Thu 7/1/21**	**Tue 7/20/21**	
3445	1.3.3.6.13.7	Create baseline from approved DED	3443	5 days	Thu 7/1/21	Thu 7/8/21	PM[5%],Doc Mngr[10%],Impl Mngr[5%],ETL Engnr[10%],BI Dev[10%]
3446	1.3.3.6.13.7	Update deliverable	3445	5 days	Fri 7/9/21	Thu 7/15/21	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%]
3447	1.3.3.6.13.7	Conduct Internal Review	3446	2 days	Fri 7/16/21	Mon 7/19/21	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%]
3448	1.3.3.6.13.7	Final QA Review/Update of Deliverable	3447	1 day	Tue 7/20/21	Tue 7/20/21	Doc Mngr[40%],Impl Mngr[10%],ETL Engnr[10%],BI Dev[10%]
3449	1.3.3.6.13.8	Submit Deliverable for State Review	3448	1 day	Wed 7/21/21	Wed 7/21/21	PM[10%]
3450	1.3.3.6.13.9	State reviews document and provides feedback	3449	10 days	Thu 7/22/21	Wed 8/4/21	State[20%]
3451	**1.3.3.6.13.1**	**Deliverable: Review Cycle (1)**		**10 days**	**Thu 8/5/21**	**Wed 8/18/21**	
3452	1.3.3.6.13.1	Update deliverable with feedback	3450	3 days	Thu 8/5/21	Mon 8/9/21	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%]
3453	1.3.3.6.13.1	QA review and update	3452	1.5 days	Tue 8/10/21	Wed 8/11/21	Doc Mngr[40%],Impl Mngr[10%],ETL Engnr[10%],BI Dev[10%]
3454	1.3.3.6.13.1	Submit for State approval	3453	0.5 days	Wed 8/11/21	Wed 8/11/21	PM[10%]
3455	1.3.3.6.13.1	State reviews	3454	5 days	Thu 8/12/21	Wed 8/18/21	State[20%]
3456	**1.3.3.6.13.1**	**Deliverable: Review Cycle (2)**		**10 days**	**Thu 8/19/21**	**Wed 9/1/21**	
3457	1.3.3.6.13.1	Update deliverable with feedback	3455	3 days	Thu 8/19/21	Mon 8/23/21	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%]
3458	1.3.3.6.13.1	QA review and update	3457	1.5 days	Tue 8/24/21	Wed 8/25/21	Doc Mngr[40%],Impl Mngr[10%],ETL Engnr[10%],BI Dev[10%]
3459	1.3.3.6.13.1	Submit for State approval	3458	0.5 days	Wed 8/25/21	Wed 8/25/21	PM[10%]
3460	1.3.3.6.13.1	State reviews	3459	5 days	Thu 8/26/21	Wed 9/1/21	State[20%]
3461	1.3.3.6.13.1	State Provides Final Approval	3460	1 day	Thu 9/2/21	Thu 9/2/21	State[20%]
3462	1.3.3.6.13.1	Milestone: Load and Stress Test Results Approved	3461	0 days	Thu 9/2/21	Thu 9/2/21	
3463	**1.3.3.6.14**	**D043 Operational Readiness Plan**		**228 days**	**Mon 5/4/20**	**Mon 3/29/21**	
3464	**1.3.3.6.14.1**	**Develop DED**		**7 days**	**Mon 5/4/20**	**Tue 5/12/20**	
3465	1.3.3.6.14.1	Review deliverable requirements		2 days	Mon 5/4/20	Tue 5/5/20	PM[10%],Doc Mngr[50%]
3466	1.3.3.6.14.1	Draft DED	3465	3 days	Wed 5/6/20	Fri 5/8/20	PM[10%],Doc Mngr[50%],Impl Mngr[10%],Ops Mngr[5%]
3467	1.3.3.6.14.1	Review DED	3466	1 day	Mon 5/11/20	Mon 5/11/20	PM[10%],Doc Mngr[50%],Impl Mngr[10%],Ops Mngr[5%]
3468	1.3.3.6.14.1	Finalize DED	3467	1 day	Tue 5/12/20	Tue 5/12/20	PM[10%],Doc Mngr[50%],Impl Mngr[10%],Ops Mngr[5%]
3469	**1.3.3.6.14.2**	**Internally Review DED**		**6 days**	**Wed 5/13/20**	**Wed 5/20/20**	
3470	1.3.3.6.14.2	Complete Contract Review	3468	2 days	Wed 5/13/20	Thu 5/14/20	PM[10%]
3471	1.3.3.6.14.2	Complete Peer Review	3468	2 days	Wed 5/13/20	Thu 5/14/20	Doc Mngr[10%],Impl Mngr[10%],Ops Mngr[10%],Acct Mngr[10%]
3472	1.3.3.6.14.2	Complete QA Review	3470,3471	2 days	Fri 5/15/20	Mon 5/18/20	Doc Mngr[25%]
3473	1.3.3.6.14.2	Update with feedback	3472	2 days	Tue 5/19/20	Wed 5/20/20	Doc Mngr[10%],Impl Mngr[10%],Ops Mngr[10%],Acct Mngr[10%]
3474	1.3.3.6.14.3	Submit for State Review	3473	1 day	Thu 5/21/20	Thu 5/21/20	PM[10%]
3475	1.3.3.6.14.4	State reviews document and provides feedback	3474	3 days	Fri 5/22/20	Wed 5/27/20	State[20%]
3476	**1.3.3.6.14.5**	**DED: Review Cycle (1)**		**4 days**	**Thu 5/28/20**	**Tue 6/2/20**	
3477	1.3.3.6.14.5	Update DED with feedback	3475	1 day	Thu 5/28/20	Thu 5/28/20	PM[5%],Doc Mngr[50%],Impl Mngr[10%],Ops Mngr[5%]
3478	1.3.3.6.14.5	QA review and update	3477	0.5 days	Fri 5/29/20	Fri 5/29/20	Doc Mngr[40%],Impl Mngr[10%],Acct Mngr[10%],Ops Mngr[10%]
3479	1.3.3.6.14.5	Resubmit for State Review	3478	0.5 days	Fri 5/29/20	Fri 5/29/20	PM[10%]
3480	1.3.3.6.14.5	State reviews	3479	2 days	Mon 6/1/20	Tue 6/2/20	State[20%]
3481	**1.3.3.6.14.6**	**DED: Review Cycle (2)**		**5 days**	**Wed 6/3/20**	**Tue 6/9/20**	
3482	1.3.3.6.14.6	Update DED with feedback	3480	1 day	Wed 6/3/20	Wed 6/3/20	PM[5%],Doc Mngr[50%],Impl Mngr[10%],Ops Mngr[5%]
3483	1.3.3.6.14.6	QA review and update	3482	0.5 days	Thu 6/4/20	Thu 6/4/20	Doc Mngr[40%],Impl Mngr[10%],Acct Mngr[10%],Ops Mngr[10%]

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ID	WBS	Task Name	Predecessors	Duration	Start	Finish	Resource Names
3484	1.3.3.6.14.6	Resubmit for State Review	3483	0.5 days	Thu 6/4/20	Thu 6/4/20	PM[10%]
3485	1.3.3.6.14.6	State reviews	3484	2 days	Fri 6/5/20	Mon 6/8/20	State[20%]
3486	1.3.3.6.14.6	State approves DED	3485	1 day	Tue 6/9/20	Tue 6/9/20	State[20%]
3487	**1.3.3.6.14.7**	**Develop Deliverable**		**13 days**	**Tue 1/26/21**	**Thu 2/11/21**	
3488	1.3.3.6.14.7	Create baseline from approved DED	4099FS-60 days,3	5 days	Tue 1/26/21	Mon 2/1/21	PM[5%],Doc Mngr[50%],Impl Mngr[10%],Ops Mngr[5%]
3489	1.3.3.6.14.7	Update deliverable	3488	5 days	Tue 2/2/21	Mon 2/8/21	PM[5%],Doc Mngr[50%],Impl Mngr[10%],Ops Mngr[5%]
3490	1.3.3.6.14.7	Conduct Internal Review	3489	2 days	Tue 2/9/21	Wed 2/10/21	PM[5%],Doc Mngr[50%],Impl Mngr[10%],Ops Mngr[5%]
3491	1.3.3.6.14.7	Final QA Review/Update of Deliverable	3490	1 day	Thu 2/11/21	Thu 2/11/21	Doc Mngr[40%],Impl Mngr[10%],Acct Mngr[10%],Ops Mngr[10%]
3492	1.3.3.6.14.8	Submit Deliverable for State Review	3491	1 day	Fri 2/12/21	Fri 2/12/21	PM[10%]
3493	1.3.3.6.14.9	State reviews document and provides feedback	3492	10 days	Mon 2/15/21	Fri 2/26/21	State[20%]
3494	**1.3.3.6.14.1**	**Deliverable: Review Cycle (1)**		**10 days**	**Mon 3/1/21**	**Fri 3/12/21**	
3495	1.3.3.6.14.1	Update deliverable with feedback	3493	3 days	Mon 3/1/21	Wed 3/3/21	PM[5%],Doc Mngr[50%],Impl Mngr[10%],Ops Mngr[5%]
3496	1.3.3.6.14.1	QA review and update	3495	1.5 days	Thu 3/4/21	Fri 3/5/21	Doc Mngr[40%],Impl Mngr[10%],Acct Mngr[10%],Ops Mngr[10%]
3497	1.3.3.6.14.1	Submit for State approval	3496	0.5 days	Fri 3/5/21	Fri 3/5/21	PM[10%]
3498	1.3.3.6.14.1	State reviews	3497	5 days	Mon 3/8/21	Fri 3/12/21	State[20%]
3499	**1.3.3.6.14.1**	**Deliverable: Review Cycle (2)**		**10 days**	**Mon 3/15/21**	**Fri 3/26/21**	
3500	1.3.3.6.14.1	Update deliverable with feedback	3498	3 days	Mon 3/15/21	Wed 3/17/21	PM[5%],Doc Mngr[50%],Impl Mngr[10%],Ops Mngr[5%]
3501	1.3.3.6.14.1	QA review and update	3500	1.5 days	Thu 3/18/21	Fri 3/19/21	Doc Mngr[40%],Impl Mngr[10%],Acct Mngr[10%],Ops Mngr[10%]
3502	1.3.3.6.14.1	Submit for State approval	3501	0.5 days	Fri 3/19/21	Fri 3/19/21	PM[10%]
3503	1.3.3.6.14.1	State reviews	3502	5 days	Mon 3/22/21	Fri 3/26/21	State[20%]
3504	1.3.3.6.14.1	State Provides Final Approval	3503	1 day	Mon 3/29/21	Mon 3/29/21	State[20%]
3505	1.3.3.6.14.1	Milestone: Operational Readiness Plan Approved	3504	0 days	Mon 3/29/21	Mon 3/29/21	
3506	**1.3.3.6.15**	**D044 ORT Scripts**		**71 days**	**Wed 6/10/20**	**Fri 9/18/20**	
3507	**1.3.3.6.15.1**	**Develop DED**		**7 days**	**Wed 6/10/20**	**Thu 6/18/20**	
3508	1.3.3.6.15.1	Review deliverable requirements	3486	2 days	Wed 6/10/20	Thu 6/11/20	PM[10%],Doc Mngr[50%]
3509	1.3.3.6.15.1	Draft DED	3508	3 days	Fri 6/12/20	Tue 6/16/20	PM[10%],Doc Mngr[50%],Impl Mngr[10%],BI Dev[5%],ETL Engnr[5%],BA[5
3510	1.3.3.6.15.1	Review DED	3509	1 day	Wed 6/17/20	Wed 6/17/20	PM[10%],Doc Mngr[50%],Impl Mngr[10%],BI Dev[5%],ETL Engnr[5%],BA[5
3511	1.3.3.6.15.1	Finalize DED	3510	1 day	Thu 6/18/20	Thu 6/18/20	PM[10%],Doc Mngr[50%],Impl Mngr[10%],BI Dev[5%],ETL Engnr[5%],BA[5
3512	**1.3.3.6.15.2**	**Internally Review DED**		**6 days**	**Fri 6/19/20**	**Fri 6/26/20**	
3513	1.3.3.6.15.2	Complete Contract Review	3511	2 days	Fri 6/19/20	Mon 6/22/20	PM[10%]
3514	1.3.3.6.15.2	Complete Peer Review	3511	2 days	Fri 6/19/20	Mon 6/22/20	Impl Mngr[10%],BI Dev[5%],ETL Engnr[5%],BA[5%]
3515	1.3.3.6.15.2	Complete QA Review	3513,3514	2 days	Tue 6/23/20	Wed 6/24/20	Doc Mngr[25%]
3516	1.3.3.6.15.2	Update with feedback	3515	2 days	Thu 6/25/20	Fri 6/26/20	Impl Mngr[10%],BI Dev[5%],ETL Engnr[5%],BA[5%]
3517	1.3.3.6.15.3	Submit for State Review	3516	1 day	Mon 6/29/20	Mon 6/29/20	PM[10%]
3518	1.3.3.6.15.4	State reviews document and provides feedback	3517	3 days	Tue 6/30/20	Thu 7/2/20	State[20%]
3519	**1.3.3.6.15.5**	**DED: Review Cycle (1)**		**4 days**	**Mon 7/6/20**	**Thu 7/9/20**	
3520	1.3.3.6.15.5	Update DED with feedback	3518	1 day	Mon 7/6/20	Mon 7/6/20	Impl Mngr[10%],ETL Engnr[5%],BI Dev[5%],BA[5%]
3521	1.3.3.6.15.5	QA review and update	3520	0.5 days	Tue 7/7/20	Tue 7/7/20	Impl Mngr[10%],ETL Engnr[5%],BI Dev[5%],BA[5%]
3522	1.3.3.6.15.5	Resubmit for State Review	3521	0.5 days	Tue 7/7/20	Tue 7/7/20	PM[10%]
3523	1.3.3.6.15.5	State reviews	3522	2 days	Wed 7/8/20	Thu 7/9/20	State[20%]
3524	**1.3.3.6.15.6**	**DED: Review Cycle (2)**		**5 days**	**Fri 7/10/20**	**Thu 7/16/20**	
3525	1.3.3.6.15.6	Update DED with feedback	3523	1 day	Fri 7/10/20	Fri 7/10/20	Impl Mngr[10%],ETL Engnr[5%],BI Dev[5%],BA[5%]
3526	1.3.3.6.15.6	QA review and update	3525	0.5 days	Mon 7/13/20	Mon 7/13/20	Impl Mngr[10%],ETL Engnr[5%],BI Dev[5%],BA[5%]
3527	1.3.3.6.15.6	Resubmit for State Review	3526	0.5 days	Mon 7/13/20	Mon 7/13/20	PM[10%]
3528	1.3.3.6.15.6	State reviews	3527	2 days	Tue 7/14/20	Wed 7/15/20	State[20%]
3529	1.3.3.6.15.6	State approves DED	3528	1 day	Thu 7/16/20	Thu 7/16/20	State[20%]
3530	**1.3.3.6.15.7**	**Develop Deliverable**		**13 days**	**Fri 7/17/20**	**Tue 8/4/20**	
3531	1.3.3.6.15.7	Create baseline from approved DED	3529	5 days	Fri 7/17/20	Thu 7/23/20	Impl Mngr[10%],ETL Engnr[5%],BI Dev[5%],BA[5%]
3532	1.3.3.6.15.7	Update deliverable	3531	5 days	Fri 7/24/20	Thu 7/30/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%]
3533	1.3.3.6.15.7	Conduct Internal Review	3532	2 days	Fri 7/31/20	Mon 8/3/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%]
3534	1.3.3.6.15.7	Final QA Review/Update of Deliverable	3533	1 day	Tue 8/4/20	Tue 8/4/20	Impl Mngr[10%],ETL Engnr[5%],BI Dev[5%],BA[5%]
3535	1.3.3.6.15.8	Submit Deliverable for State Review	3534	1 day	Wed 8/5/20	Wed 8/5/20	PM[10%]
3536	1.3.3.6.15.9	State reviews document and provides feedback	3535	10 days	Thu 8/6/20	Wed 8/19/20	State[20%]
3537	**1.3.3.6.15.1**	**Deliverable: Review Cycle (1)**		**10 days**	**Thu 8/20/20**	**Wed 9/2/20**	
3538	1.3.3.6.15.1	Update deliverable with feedback	3536	3 days	Thu 8/20/20	Mon 8/24/20	Impl Mngr[10%],BI Dev[5%],ETL Engnr[5%],BA[5%]
3539	1.3.3.6.15.1	QA review and update	3538	1.5 days	Tue 8/25/20	Wed 8/26/20	Doc Mngr[40%],Impl Mngr[10%],ETL Engnr[10%],BI Dev[10%]
3540	1.3.3.6.15.1	Submit for State approval	3539	0.5 days	Wed 8/26/20	Wed 8/26/20	PM[10%]
3541	1.3.3.6.15.1	State reviews	3540	5 days	Thu 8/27/20	Wed 9/2/20	State[20%]
3542	**1.3.3.6.15.1**	**Deliverable: Review Cycle (2)**		**10 days**	**Thu 9/3/20**	**Thu 9/17/20**	
3543	1.3.3.6.15.1	Update deliverable with feedback	3541	3 days	Thu 9/3/20	Tue 9/8/20	Impl Mngr[10%],BI Dev[5%],ETL Engnr[5%],BA[5%]
3544	1.3.3.6.15.1	QA review and update	3543	1.5 days	Wed 9/9/20	Thu 9/10/20	Doc Mngr[40%],Impl Mngr[10%],ETL Engnr[10%],BI Dev[10%]
3545	1.3.3.6.15.1	Submit for State approval	3544	0.5 days	Thu 9/10/20	Thu 9/10/20	PM[10%]
3546	1.3.3.6.15.1	State reviews	3545	5 days	Fri 9/11/20	Thu 9/17/20	State[20%]
3547	1.3.3.6.15.1	State Provides Final Approval	3546	1 day	Fri 9/18/20	Fri 9/18/20	State[20%]
3548	1.3.3.6.15.1	Milestone: ORT Scripts Approved	3547	0 days	Fri 9/18/20	Fri 9/18/20	
3549	**1.3.3.6.16**	**D045 ORT Results**		**191 days**	**Fri 7/17/20**	**Mon 4/19/21**	
3550	**1.3.3.6.16.1**	**Develop DED**		**7 days**	**Fri 7/17/20**	**Mon 7/27/20**	

ID	WBS	Task Name	Predecessors	Duration	Start	Finish	Resource Names
3551	1.3.3.6.16.1	Review deliverable requirements	3529	2 days	Fri 7/17/20	Mon 7/20/20	PM[10%],Doc Mngr[50%]
3552	1.3.3.6.16.1	Draft DED	3551	3 days	Tue 7/21/20	Thu 7/23/20	PM[10%],Doc Mngr[50%],Impl Mngr[10%],BI Dev[5%],ETL Engnr[5%],BA[5
3553	1.3.3.6.16.1	Review DED	3552	1 day	Fri 7/24/20	Fri 7/24/20	PM[10%],Doc Mngr[50%],Impl Mngr[10%],BI Dev[5%],ETL Engnr[5%],BA[5
3554	1.3.3.6.16.1	Finalize DED	3553	1 day	Mon 7/27/20	Mon 7/27/20	PM[10%],Doc Mngr[50%],Impl Mngr[10%],BI Dev[5%],ETL Engnr[5%],BA[5
3555	**1.3.3.6.16.2**	**Internally Review DED**		**6 days**	**Tue 7/28/20**	**Tue 8/4/20**	
3556	1.3.3.6.16.2	Complete Contract Review	3554	2 days	Tue 7/28/20	Wed 7/29/20	PM[10%]
3557	1.3.3.6.16.2	Complete Peer Review	3554	2 days	Tue 7/28/20	Wed 7/29/20	Impl Mngr[10%],BI Dev[5%],ETL Engnr[5%],BA[5%]
3558	1.3.3.6.16.2	Complete QA Review	3556,3557	2 days	Thu 7/30/20	Fri 7/31/20	Doc Mngr[25%]
3559	1.3.3.6.16.2	Update with feedback	3558	2 days	Mon 8/3/20	Tue 8/4/20	Impl Mngr[10%],BI Dev[5%],ETL Engnr[5%],BA[5%]
3560	1.3.3.6.16.3	Submit for State Review	3559	1 day	Wed 8/5/20	Wed 8/5/20	PM[10%]
3561	1.3.3.6.16.4	State reviews document and provides feedback	3560	3 days	Thu 8/6/20	Mon 8/10/20	State[20%]
3562	**1.3.3.6.16.5**	**DED: Review Cycle (1)**		**4 days**	**Tue 8/11/20**	**Fri 8/14/20**	
3563	1.3.3.6.16.5	Update DED with feedback	3561	1 day	Tue 8/11/20	Tue 8/11/20	Impl Mngr[10%],ETL Engnr[5%],BI Dev[5%],BA[5%]
3564	1.3.3.6.16.5	QA review and update	3563	0.5 days	Wed 8/12/20	Wed 8/12/20	Impl Mngr[10%],ETL Engnr[5%],BI Dev[5%],BA[5%]
3565	1.3.3.6.16.5	Resubmit for State Review	3564	0.5 days	Wed 8/12/20	Wed 8/12/20	PM[10%]
3566	1.3.3.6.16.5	State reviews	3565	2 days	Thu 8/13/20	Fri 8/14/20	State[20%]
3567	**1.3.3.6.16.6**	**DED: Review Cycle (2)**		**5 days**	**Mon 8/17/20**	**Fri 8/21/20**	
3568	1.3.3.6.16.6	Update DED with feedback	3566	1 day	Mon 8/17/20	Mon 8/17/20	Impl Mngr[10%],ETL Engnr[5%],BI Dev[5%],BA[5%]
3569	1.3.3.6.16.6	QA review and update	3568	0.5 days	Tue 8/18/20	Tue 8/18/20	Impl Mngr[10%],ETL Engnr[5%],BI Dev[5%],BA[5%]
3570	1.3.3.6.16.6	Resubmit for State Review	3569	0.5 days	Tue 8/18/20	Tue 8/18/20	PM[10%]
3571	1.3.3.6.16.6	State reviews	3570	2 days	Wed 8/19/20	Thu 8/20/20	State[20%]
3572	1.3.3.6.16.6	State approves DED	3571	1 day	Fri 8/21/20	Fri 8/21/20	State[20%]
3573	**1.3.3.6.16.7**	**Develop Deliverable**		**13 days**	**Tue 2/16/21**	**Thu 3/4/21**	
3574	1.3.3.6.16.7	Create baseline from approved DED	4082FS-40 days,3	5 days	Tue 2/16/21	Mon 2/22/21	Impl Mngr[10%],ETL Engnr[5%],BI Dev[5%],BA[5%]
3575	1.3.3.6.16.7	Update deliverable	3574	5 days	Tue 2/23/21	Mon 3/1/21	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%]
3576	1.3.3.6.16.7	Conduct Internal Review	3575	2 days	Tue 3/2/21	Wed 3/3/21	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%]
3577	1.3.3.6.16.7	Final QA Review/Update of Deliverable	3576	1 day	Thu 3/4/21	Thu 3/4/21	Impl Mngr[10%],ETL Engnr[5%],BI Dev[5%],BA[5%]
3578	1.3.3.6.16.8	Submit Deliverable for State Review	3577	1 day	Fri 3/5/21	Fri 3/5/21	PM[10%]
3579	1.3.3.6.16.9	State reviews document and provides feedback	3578	10 days	Mon 3/8/21	Fri 3/19/21	State[20%]
3580	**1.3.3.6.16.1**	**Deliverable: Review Cycle (1)**		**10 days**	**Mon 3/22/21**	**Fri 4/2/21**	
3581	1.3.3.6.16.1	Update deliverable with feedback	3579	3 days	Mon 3/22/21	Wed 3/24/21	Impl Mngr[10%],BI Dev[5%],ETL Engnr[5%],BA[5%]
3582	1.3.3.6.16.1	QA review and update	3581	1.5 days	Thu 3/25/21	Fri 3/26/21	Doc Mngr[40%],Impl Mngr[10%],ETL Engnr[10%],BI Dev[10%]
3583	1.3.3.6.16.1	Submit for State approval	3582	0.5 days	Fri 3/26/21	Fri 3/26/21	PM[10%]
3584	1.3.3.6.16.1	State reviews	3583	5 days	Mon 3/29/21	Fri 4/2/21	State[20%]
3585	**1.3.3.6.16.1**	**Deliverable: Review Cycle (2)**		**10 days**	**Mon 4/5/21**	**Fri 4/16/21**	
3586	1.3.3.6.16.1	Update deliverable with feedback	3584	3 days	Mon 4/5/21	Wed 4/7/21	Impl Mngr[10%],BI Dev[5%],ETL Engnr[5%],BA[5%]
3587	1.3.3.6.16.1	QA review and update	3586	1.5 days	Thu 4/8/21	Fri 4/9/21	Doc Mngr[40%],Impl Mngr[10%],ETL Engnr[10%],BI Dev[10%]
3588	1.3.3.6.16.1	Submit for State approval	3587	0.5 days	Fri 4/9/21	Fri 4/9/21	PM[10%]
3589	1.3.3.6.16.1	State reviews	3588	5 days	Mon 4/12/21	Fri 4/16/21	State[20%]
3590	1.3.3.6.16.1	State Provides Final Approval	3584,3589	1 day	Mon 4/19/21	Mon 4/19/21	State[20%]
3591	1.3.3.6.16.1	Milestone: Operational Readiness Plan Approved	3590	0 days	Mon 4/19/21	Mon 4/19/21	
3592	**1.3.3.6.17**	**D046 Regression Test Cases**		**71 days**	**Mon 5/4/20**	**Wed 8/12/20**	
3593	**1.3.3.6.17.1**	**Develop DED**		**7 days**	**Mon 5/4/20**	**Tue 5/12/20**	
3594	1.3.3.6.17.1	Review deliverable requirements		2 days	Mon 5/4/20	Tue 5/5/20	PM[10%],Doc Mngr[50%]
3595	1.3.3.6.17.1	Draft DED	3594	3 days	Wed 5/6/20	Fri 5/8/20	PM[10%],Doc Mngr[50%],Impl Mngr[10%],BI Dev[5%],ETL Engnr[5%],BA[5
3596	1.3.3.6.17.1	Review DED	3595	1 day	Mon 5/11/20	Mon 5/11/20	PM[10%],Doc Mngr[50%],Impl Mngr[10%],BI Dev[5%],ETL Engnr[5%],BA[5
3597	1.3.3.6.17.1	Finalize DED	3596	1 day	Tue 5/12/20	Tue 5/12/20	PM[10%],Doc Mngr[50%],Impl Mngr[10%],BI Dev[5%],ETL Engnr[5%],BA[5
3598	**1.3.3.6.17.2**	**Internally Review DED**		**6 days**	**Wed 5/13/20**	**Wed 5/20/20**	
3599	1.3.3.6.17.2	Complete Contract Review	3597	2 days	Wed 5/13/20	Thu 5/14/20	PM[10%]
3600	1.3.3.6.17.2	Complete Peer Review	3597	2 days	Wed 5/13/20	Thu 5/14/20	Impl Mngr[10%],BI Dev[5%],ETL Engnr[5%],BA[5%]
3601	1.3.3.6.17.2	Complete QA Review	3599,3600	2 days	Fri 5/15/20	Mon 5/18/20	Doc Mngr[25%]
3602	1.3.3.6.17.2	Update with feedback	3601	2 days	Tue 5/19/20	Wed 5/20/20	Impl Mngr[10%],BI Dev[5%],ETL Engnr[5%],BA[5%]
3603	1.3.3.6.17.3	Submit for State Review	3602	1 day	Thu 5/21/20	Thu 5/21/20	PM[10%]
3604	1.3.3.6.17.4	State reviews document and provides feedback	3603	3 days	Fri 5/22/20	Wed 5/27/20	State[20%]
3605	**1.3.3.6.17.5**	**DED: Review Cycle (1)**		**4 days**	**Thu 5/28/20**	**Tue 6/2/20**	
3606	1.3.3.6.17.5	Update DED with feedback	3604	1 day	Thu 5/28/20	Thu 5/28/20	Impl Mngr[10%],ETL Engnr[5%],BI Dev[5%],BA[5%]
3607	1.3.3.6.17.5	QA review and update	3606	0.5 days	Fri 5/29/20	Fri 5/29/20	Impl Mngr[10%],ETL Engnr[5%],BI Dev[5%],BA[5%]
3608	1.3.3.6.17.5	Resubmit for State Review	3607	0.5 days	Fri 5/29/20	Fri 5/29/20	PM[10%]
3609	1.3.3.6.17.5	State reviews	3608	2 days	Mon 6/1/20	Tue 6/2/20	State[20%]
3610	**1.3.3.6.17.6**	**DED: Review Cycle (2)**		**5 days**	**Wed 6/3/20**	**Tue 6/9/20**	
3611	1.3.3.6.17.6	Update DED with feedback	3609	1 day	Wed 6/3/20	Wed 6/3/20	Impl Mngr[10%],ETL Engnr[5%],BI Dev[5%],BA[5%]
3612	1.3.3.6.17.6	QA review and update	3611	0.5 days	Thu 6/4/20	Thu 6/4/20	Impl Mngr[10%],ETL Engnr[5%],BI Dev[5%],BA[5%]
3613	1.3.3.6.17.6	Resubmit for State Review	3612	0.5 days	Thu 6/4/20	Thu 6/4/20	PM[10%]
3614	1.3.3.6.17.6	State reviews	3613	2 days	Fri 6/5/20	Mon 6/8/20	State[20%]
3615	1.3.3.6.17.6	State approves DED	3614	1 day	Tue 6/9/20	Tue 6/9/20	State[20%]
3616	**1.3.3.6.17.7**	**Develop Deliverable**		**13 days**	**Wed 6/10/20**	**Fri 6/26/20**	
3617	1.3.3.6.17.7	Create baseline from approved DED	3615	5 days	Wed 6/10/20	Tue 6/16/20	Impl Mngr[10%],ETL Engnr[5%],BI Dev[5%],BA[5%]

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ID	WBS	Task Name	Predecessors	Duration	Start	Finish	Resource Names
3618	1.3.3.6.17.7	Update deliverable	3617	5 days	Wed 6/17/20	Tue 6/23/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%]
3619	1.3.3.6.17.7	Conduct Internal Review	3618	2 days	Wed 6/24/20	Thu 6/25/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%]
3620	1.3.3.6.17.7	Final QA Review/Update of Deliverable	3619	1 day	Fri 6/26/20	Fri 6/26/20	Impl Mngr[10%],ETL Engnr[5%],BI Dev[5%],BA[5%]
3621	1.3.3.6.17.8	Submit Deliverable for State Review	3620	1 day	Mon 6/29/20	Mon 6/29/20	PM[10%]
3622	1.3.3.6.17.9	State reviews document and provides feedback	3621	10 days	Tue 6/30/20	Tue 7/14/20	State[20%]
3623	**1.3.3.6.17.1**	**Deliverable: Review Cycle (1)**		**10 days**	**Wed 7/15/20**	**Tue 7/28/20**	
3624	1.3.3.6.17.1(	Update deliverable with feedback	3622	3 days	Wed 7/15/20	Fri 7/17/20	Impl Mngr[10%],BI Dev[5%],ETL Engnr[5%],BA[5%]
3625	1.3.3.6.17.1(	QA review and update	3624	1.5 days	Mon 7/20/20	Tue 7/21/20	Doc Mngr[40%],Impl Mngr[10%],ETL Engnr[10%],BI Dev[10%]
3626	1.3.3.6.17.1(	Submit for State approval	3625	0.5 days	Tue 7/21/20	Tue 7/21/20	PM[10%]
3627	1.3.3.6.17.1(	State reviews	3626	5 days	Wed 7/22/20	Tue 7/28/20	State[20%]
3628	**1.3.3.6.17.1**	**Deliverable: Review Cycle (2)**		**10 days**	**Wed 7/29/20**	**Tue 8/11/20**	
3629	1.3.3.6.17.1	Update deliverable with feedback	3627	3 days	Wed 7/29/20	Fri 7/31/20	Impl Mngr[10%],BI Dev[5%],ETL Engnr[5%],BA[5%]
3630	1.3.3.6.17.1	QA review and update	3629	1.5 days	Mon 8/3/20	Tue 8/4/20	Doc Mngr[40%],Impl Mngr[10%],ETL Engnr[10%],BI Dev[10%]
3631	1.3.3.6.17.1	Submit for State approval	3630	0.5 days	Tue 8/4/20	Tue 8/4/20	PM[10%]
3632	1.3.3.6.17.1	State reviews	3631	5 days	Wed 8/5/20	Tue 8/11/20	State[20%]
3633	1.3.3.6.17.1	State Provides Final Approval	3632	1 day	Wed 8/12/20	Wed 8/12/20	State[20%]
3634	1.3.3.6.17.1	Milestone: Regression Test Cases Approved	3633	0 days	Wed 8/12/20	Wed 8/12/20	
3635	**1.3.3.6.18**	**D047 Regression Test Results**		**71 days**	**Wed 6/10/20**	**Fri 9/18/20**	
3636	**1.3.3.6.18.1**	**Develop DED**		**7 days**	**Wed 6/10/20**	**Thu 6/18/20**	
3637	1.3.3.6.18.1	Review deliverable requirements	3615	2 days	Wed 6/10/20	Thu 6/11/20	PM[10%],Doc Mngr[50%]
3638	1.3.3.6.18.1	Draft DED	3637	3 days	Fri 6/12/20	Tue 6/16/20	PM[10%],Doc Mngr[50%],Impl Mngr[10%],BI Dev[5%],ETL Engnr[5%],BA[5
3639	1.3.3.6.18.1	Review DED	3638	1 day	Wed 6/17/20	Wed 6/17/20	PM[10%],Doc Mngr[50%],Impl Mngr[10%],BI Dev[5%],ETL Engnr[5%],BA[5
3640	1.3.3.6.18.1	Finalize DED	3639	1 day	Thu 6/18/20	Thu 6/18/20	PM[10%],Doc Mngr[50%],Impl Mngr[10%],BI Dev[5%],ETL Engnr[5%],BA[5
3641	**1.3.3.6.18.2**	**Internally Review DED**		**6 days**	**Fri 6/19/20**	**Fri 6/26/20**	
3642	1.3.3.6.18.2	Complete Contract Review	3640	2 days	Fri 6/19/20	Mon 6/22/20	PM[10%]
3643	1.3.3.6.18.2	Complete Peer Review	3640	2 days	Fri 6/19/20	Mon 6/22/20	Impl Mngr[10%],BI Dev[5%],ETL Engnr[5%],BA[5%]
3644	1.3.3.6.18.2	Complete QA Review	3642,3643	2 days	Tue 6/23/20	Wed 6/24/20	Doc Mngr[25%]
3645	1.3.3.6.18.2	Update with feedback	3644	2 days	Thu 6/25/20	Fri 6/26/20	Impl Mngr[10%],BI Dev[5%],ETL Engnr[5%],BA[5%]
3646	1.3.3.6.18.3	Submit for State Review	3645	1 day	Mon 6/29/20	Mon 6/29/20	PM[10%]
3647	1.3.3.6.18.4	State reviews document and provides feedback	3646	3 days	Tue 6/30/20	Thu 7/2/20	State[20%]
3648	**1.3.3.6.18.5**	**DED: Review Cycle (1)**		**4 days**	**Mon 7/6/20**	**Thu 7/9/20**	
3649	1.3.3.6.18.5	Update DED with feedback	3647	1 day	Mon 7/6/20	Mon 7/6/20	Impl Mngr[10%],ETL Engnr[5%],BI Dev[5%],BA[5%]
3650	1.3.3.6.18.5	QA review and update	3649	0.5 days	Tue 7/7/20	Tue 7/7/20	Impl Mngr[10%],ETL Engnr[5%],BI Dev[5%],BA[5%]
3651	1.3.3.6.18.5	Resubmit for State Review	3650	0.5 days	Tue 7/7/20	Tue 7/7/20	PM[10%]
3652	1.3.3.6.18.5	State reviews	3651	2 days	Wed 7/8/20	Thu 7/9/20	State[20%]
3653	**1.3.3.6.18.6**	**DED: Review Cycle (2)**		**5 days**	**Fri 7/10/20**	**Thu 7/16/20**	
3654	1.3.3.6.18.6	Update DED with feedback	3652	1 day	Fri 7/10/20	Fri 7/10/20	Impl Mngr[10%],ETL Engnr[5%],BI Dev[5%],BA[5%]
3655	1.3.3.6.18.6	QA review and update	3654	0.5 days	Mon 7/13/20	Mon 7/13/20	Impl Mngr[10%],ETL Engnr[5%],BI Dev[5%],BA[5%]
3656	1.3.3.6.18.6	Resubmit for State Review	3655	0.5 days	Mon 7/13/20	Mon 7/13/20	PM[10%]
3657	1.3.3.6.18.6	State reviews	3656	2 days	Tue 7/14/20	Wed 7/15/20	State[20%]
3658	1.3.3.6.18.6	State approves DED	3657	1 day	Thu 7/16/20	Thu 7/16/20	State[20%]
3659	**1.3.3.6.18.7**	**Develop Deliverable**		**13 days**	**Fri 7/17/20**	**Tue 8/4/20**	
3660	1.3.3.6.18.7	Create baseline from approved DED	3658	5 days	Fri 7/17/20	Thu 7/23/20	Impl Mngr[10%],ETL Engnr[5%],BI Dev[5%],BA[5%]
3661	1.3.3.6.18.7	Update deliverable	3660	5 days	Fri 7/24/20	Thu 7/30/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%]
3662	1.3.3.6.18.7	Conduct Internal Review	3661	2 days	Fri 7/31/20	Mon 8/3/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%]
3663	1.3.3.6.18.7	Final QA Review/Update of Deliverable	3662	1 day	Tue 8/4/20	Tue 8/4/20	Impl Mngr[10%],ETL Engnr[5%],BI Dev[5%],BA[5%]
3664	1.3.3.6.18.8	Submit Deliverable for State Review	3663	1 day	Wed 8/5/20	Wed 8/5/20	PM[10%]
3665	1.3.3.6.18.9	State reviews document and provides feedback	3664	10 days	Thu 8/6/20	Wed 8/19/20	State[20%]
3666	**1.3.3.6.18.1**	**Deliverable: Review Cycle (1)**		**10 days**	**Thu 8/20/20**	**Wed 9/2/20**	
3667	1.3.3.6.18.1(	Update deliverable with feedback	3665	3 days	Thu 8/20/20	Mon 8/24/20	Impl Mngr[10%],BI Dev[5%],ETL Engnr[5%],BA[5%]
3668	1.3.3.6.18.1(	QA review and update	3667	1.5 days	Tue 8/25/20	Wed 8/26/20	Doc Mngr[40%],Impl Mngr[10%],ETL Engnr[10%],BI Dev[10%]
3669	1.3.3.6.18.1(	Submit for State approval	3668	0.5 days	Wed 8/26/20	Wed 8/26/20	PM[10%]
3670	1.3.3.6.18.1(	State reviews	3669	5 days	Thu 8/27/20	Wed 9/2/20	State[20%]
3671	**1.3.3.6.18.1**	**Deliverable: Review Cycle (2)**		**10 days**	**Thu 9/3/20**	**Thu 9/17/20**	
3672	1.3.3.6.18.1	Update deliverable with feedback	3670	3 days	Thu 9/3/20	Tue 9/8/20	Impl Mngr[10%],BI Dev[5%],ETL Engnr[5%],BA[5%]
3673	1.3.3.6.18.1	QA review and update	3672	1.5 days	Wed 9/9/20	Thu 9/10/20	Doc Mngr[40%],Impl Mngr[10%],ETL Engnr[10%],BI Dev[10%]
3674	1.3.3.6.18.1	Submit for State approval	3673	0.5 days	Thu 9/10/20	Thu 9/10/20	PM[10%]
3675	1.3.3.6.18.1	State reviews	3674	5 days	Fri 9/11/20	Thu 9/17/20	State[20%]
3676	1.3.3.6.18.1	State Provides Final Approval	3675	1 day	Fri 9/18/20	Fri 9/18/20	State[20%]
3677	1.3.3.6.18.1	Milestone: Regression Test Results Approved	3676	0 days	Fri 9/18/20	Fri 9/18/20	
3678	**1.3.3.6.19**	**D048 Reports and Forms Inventory**		**71 days**	**Mon 5/4/20**	**Wed 8/12/20**	
3679	**1.3.3.6.19.1**	**Develop DED**		**7 days**	**Mon 5/4/20**	**Tue 5/12/20**	
3680	1.3.3.6.19.1	Review deliverable requirements		2 days	Mon 5/4/20	Tue 5/5/20	PM[10%],Doc Mngr[50%]
3681	1.3.3.6.19.1	Draft DED	3680	3 days	Wed 5/6/20	Fri 5/8/20	PM[10%],Doc Mngr[10%],AC[10%],BI Dev[10%],BA[10%]
3682	1.3.3.6.19.1	Review DED	3681	1 day	Mon 5/11/20	Mon 5/11/20	PM[10%],Doc Mngr[10%],AC[10%],BI Dev[10%],BA[10%]
3683	1.3.3.6.19.1	Finalize DED	3682	1 day	Tue 5/12/20	Tue 5/12/20	PM[10%],Doc Mngr[10%],AC[10%],BI Dev[10%],BA[10%]
3684	**1.3.3.6.19.2**	**Internally Review DED**		**6 days**	**Wed 5/13/20**	**Wed 5/20/20**	

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ID	WBS	Task Name	Predecessors	Duration	Start	Finish	Resource Names
3685	1.3.3.6.19.2	Complete Contract Review	3683	2 days	Wed 5/13/20	Thu 5/14/20	PM[10%]
3686	1.3.3.6.19.2	Complete Peer Review	3683	2 days	Wed 5/13/20	Thu 5/14/20	Doc Mngr[10%],PM[10%],AC[10%],BI Dev[10%],BA[10%]
3687	1.3.3.6.19.2	Complete QA Review	3685,3686	2 days	Fri 5/15/20	Mon 5/18/20	Doc Mngr[25%]
3688	1.3.3.6.19.2	Update with feedback	3687	2 days	Tue 5/19/20	Wed 5/20/20	Doc Mngr[10%],PM[10%],AC[10%],BI Dev[10%],BA[10%]
3689	1.3.3.6.19.3	Submit for State Review	3688	1 day	Thu 5/21/20	Thu 5/21/20	PM[10%]
3690	1.3.3.6.19.4	State reviews document and provides feedback	3689	3 days	Fri 5/22/20	Wed 5/27/20	State[20%]
3691	**1.3.3.6.19.5**	**DED: Review Cycle (1)**		**4 days**	**Thu 5/28/20**	**Tue 6/2/20**	
3692	1.3.3.6.19.5	Update DED with feedback	3690	1 day	Thu 5/28/20	Thu 5/28/20	PM[10%],Doc Mngr[10%],AC[10%],BI Dev[10%],BA[10%]
3693	1.3.3.6.19.5	QA review and update	3692	0.5 days	Fri 5/29/20	Fri 5/29/20	Doc Mngr[10%],PM[10%],AC[10%],BI Dev[10%],BA[10%]
3694	1.3.3.6.19.5	Resubmit for State Review	3693	0.5 days	Fri 5/29/20	Fri 5/29/20	PM[10%]
3695	1.3.3.6.19.5	State reviews	3694	2 days	Mon 6/1/20	Tue 6/2/20	State[20%]
3696	**1.3.3.6.19.6**	**DED: Review Cycle (2)**		**5 days**	**Wed 6/3/20**	**Tue 6/9/20**	
3697	1.3.3.6.19.6	Update DED with feedback	3695	1 day	Wed 6/3/20	Wed 6/3/20	PM[10%],Doc Mngr[10%],AC[10%],BI Dev[10%],BA[10%]
3698	1.3.3.6.19.6	QA review and update	3697	0.5 days	Thu 6/4/20	Thu 6/4/20	Doc Mngr[10%],PM[10%],AC[10%],BI Dev[10%],BA[10%]
3699	1.3.3.6.19.6	Resubmit for State Review	3698	0.5 days	Thu 6/4/20	Thu 6/4/20	PM[10%]
3700	1.3.3.6.19.6	State reviews	3699	2 days	Fri 6/5/20	Mon 6/8/20	State[20%]
3701	1.3.3.6.19.6	State approves DED	3700	1 day	Tue 6/9/20	Tue 6/9/20	State[20%]
3702	**1.3.3.6.19.7**	**Develop Deliverable**		**13 days**	**Wed 6/10/20**	**Fri 6/26/20**	
3703	1.3.3.6.19.7	Create baseline from approved DED	3701	5 days	Wed 6/10/20	Tue 6/16/20	PM[10%],Doc Mngr[10%],AC[10%],BI Dev[10%],BA[10%]
3704	1.3.3.6.19.7	Update deliverable	3703	5 days	Wed 6/17/20	Tue 6/23/20	PM[5%],Doc Mngr[10%]
3705	1.3.3.6.19.7	Conduct Internal Review	3704	2 days	Wed 6/24/20	Thu 6/25/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%]
3706	1.3.3.6.19.7	Final QA Review/Update of Deliverable	3705	1 day	Fri 6/26/20	Fri 6/26/20	Doc Mngr[10%],PM[10%],AC[10%],BI Dev[10%],BA[10%]
3707	1.3.3.6.19.8	Submit Deliverable for State Review	3706	1 day	Mon 6/29/20	Mon 6/29/20	PM[10%]
3708	1.3.3.6.19.9	State reviews document and provides feedback	3707	10 days	Tue 6/30/20	Tue 7/14/20	State[20%]
3709	**1.3.3.6.19.1**	**Deliverable: Review Cycle (1)**		**10 days**	**Wed 7/15/20**	**Tue 7/28/20**	
3710	1.3.3.6.19.1	Update deliverable with feedback	3708	3 days	Wed 7/15/20	Fri 7/17/20	PM[10%],Doc Mngr[10%],AC[10%],BI Dev[10%],BA[10%]
3711	1.3.3.6.19.1	QA review and update	3710	1.5 days	Mon 7/20/20	Tue 7/21/20	Doc Mngr[10%],PM[10%],AC[10%],BI Dev[10%],BA[10%]
3712	1.3.3.6.19.1	Submit for State approval	3711	0.5 days	Tue 7/21/20	Tue 7/21/20	PM[10%]
3713	1.3.3.6.19.1	State reviews	3712	5 days	Wed 7/22/20	Tue 7/28/20	State[20%]
3714	**1.3.3.6.19.1**	**Deliverable: Review Cycle (2)**		**10 days**	**Wed 7/29/20**	**Tue 8/11/20**	
3715	1.3.3.6.19.1	Update deliverable with feedback	3713	3 days	Wed 7/29/20	Fri 7/31/20	PM[10%],Doc Mngr[10%],AC[10%],BI Dev[10%],BA[10%]
3716	1.3.3.6.19.1	QA review and update	3715	1.5 days	Mon 8/3/20	Tue 8/4/20	Doc Mngr[10%],PM[10%],AC[10%],BI Dev[10%],BA[10%]
3717	1.3.3.6.19.1	Submit for State approval	3716	0.5 days	Tue 8/4/20	Tue 8/4/20	PM[10%]
3718	1.3.3.6.19.1	State reviews	3717	5 days	Wed 8/5/20	Tue 8/11/20	State[20%]
3719	1.3.3.6.19.1	State Provides Final Approval	3718	1 day	Wed 8/12/20	Wed 8/12/20	State[20%]
3720	1.3.3.6.19.1	Milestone: Reports and Forms Inventory Approved	3719	0 days	Wed 8/12/20	Wed 8/12/20	
3721	**1.3.3.6.20**	**D049 System Integration Plan**		**71 days**	**Mon 5/4/20**	**Wed 8/12/20**	
3722	**1.3.3.6.20.1**	**Develop DED**		**7 days**	**Mon 5/4/20**	**Tue 5/12/20**	
3723	1.3.3.6.20.1	Review deliverable requirements		2 days	Mon 5/4/20	Tue 5/5/20	PM[10%],Doc Mngr[50%]
3724	1.3.3.6.20.1	Draft DED	3723	3 days	Wed 5/6/20	Fri 5/8/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%],BA[1
3725	1.3.3.6.20.1	Review DED	3724	1 day	Mon 5/11/20	Mon 5/11/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%],BA[1
3726	1.3.3.6.20.1	Finalize DED	3725	1 day	Tue 5/12/20	Tue 5/12/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%],BA[1
3727	**1.3.3.6.20.2**	**Internally Review DED**		**6 days**	**Wed 5/13/20**	**Wed 5/20/20**	
3728	1.3.3.6.20.2	Complete Contract Review	3726	2 days	Wed 5/13/20	Thu 5/14/20	PM[10%]
3729	1.3.3.6.20.2	Complete Peer Review	3726	2 days	Wed 5/13/20	Thu 5/14/20	Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%],BA[10%],AC[1
3730	1.3.3.6.20.2	Complete QA Review	3728,3729	2 days	Fri 5/15/20	Mon 5/18/20	Doc Mngr[25%]
3731	1.3.3.6.20.2	Update with feedback	3730	2 days	Tue 5/19/20	Wed 5/20/20	Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%],BA[10%],AC[1
3732	1.3.3.6.20.3	Submit for State Review	3731	1 day	Thu 5/21/20	Thu 5/21/20	PM[10%]
3733	1.3.3.6.20.4	State reviews document and provides feedback	3732	3 days	Fri 5/22/20	Wed 5/27/20	State[20%]
3734	**1.3.3.6.20.5**	**DED: Review Cycle (1)**		**4 days**	**Thu 5/28/20**	**Tue 6/2/20**	
3735	1.3.3.6.20.5	Update DED with feedback	3733	1 day	Thu 5/28/20	Thu 5/28/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],ETL Engnr[10%],BI Dev[10%],BA[1
3736	1.3.3.6.20.5	QA review and update	3735	0.5 days	Fri 5/29/20	Fri 5/29/20	Doc Mngr[20%],Impl Mngr[5%],ETL Engnr[10%],BI Dev[10%],PM[5%],BA[1
3737	1.3.3.6.20.5	Resubmit for State Review	3736	0.5 days	Fri 5/29/20	Fri 5/29/20	PM[10%]
3738	1.3.3.6.20.5	State reviews	3737	2 days	Mon 6/1/20	Tue 6/2/20	State[20%]
3739	**1.3.3.6.20.6**	**DED: Review Cycle (2)**		**5 days**	**Wed 6/3/20**	**Tue 6/9/20**	
3740	1.3.3.6.20.6	Update DED with feedback	3738	1 day	Wed 6/3/20	Wed 6/3/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],ETL Engnr[10%],BI Dev[10%],BA[1
3741	1.3.3.6.20.6	QA review and update	3740	0.5 days	Thu 6/4/20	Thu 6/4/20	Doc Mngr[20%],Impl Mngr[5%],ETL Engnr[10%],BI Dev[10%],PM[5%],BA[1
3742	1.3.3.6.20.6	Resubmit for State Review	3741	0.5 days	Thu 6/4/20	Thu 6/4/20	PM[10%]
3743	1.3.3.6.20.6	State reviews	3742	2 days	Fri 6/5/20	Mon 6/8/20	State[20%]
3744	1.3.3.6.20.6	State approves DED	3743	1 day	Tue 6/9/20	Tue 6/9/20	State[20%]
3745	**1.3.3.6.20.7**	**Develop Deliverable**		**13 days**	**Wed 6/10/20**	**Fri 6/26/20**	
3746	1.3.3.6.20.7	Create baseline from approved DED	3744	5 days	Wed 6/10/20	Tue 6/16/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],ETL Engnr[10%],BI Dev[10%],BA[1
3747	1.3.3.6.20.7	Update deliverable	3746	5 days	Wed 6/17/20	Tue 6/23/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%],BA[1
3748	1.3.3.6.20.7	Conduct Internal Review	3747	2 days	Wed 6/24/20	Thu 6/25/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%],BA[1
3749	1.3.3.6.20.7	Final QA Review/Update of Deliverable	3748	1 day	Fri 6/26/20	Fri 6/26/20	Doc Mngr[20%],Impl Mngr[5%],ETL Engnr[10%],BI Dev[10%],PM[5%],BA[1
3750	1.3.3.6.20.8	Submit Deliverable for State Review	3749	1 day	Mon 6/29/20	Mon 6/29/20	PM[10%]
3751	1.3.3.6.20.9	State reviews document and provides feedback	3750	10 days	Tue 6/30/20	Tue 7/14/20	State[20%]

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ID	WBS	Task Name	Predecessors	Duration	Start	Finish	Resource Names
3752	**1.3.3.6.20.1**	**Deliverable: Review Cycle (1)**		**10 days**	**Wed 7/15/20**	**Tue 7/28/20**	
3753	1.3.3.6.20.1	Update deliverable with feedback	3751	3 days	Wed 7/15/20	Fri 7/17/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%],BA[1
3754	1.3.3.6.20.1	QA review and update	3753	1.5 days	Mon 7/20/20	Tue 7/21/20	Doc Mngr[20%],Impl Mngr[5%],ETL Engnr[10%],BI Dev[10%],PM[5%],BA[1
3755	1.3.3.6.20.1	Submit for State approval	3754	0.5 days	Tue 7/21/20	Tue 7/21/20	PM[10%]
3756	1.3.3.6.20.1	State reviews	3755	5 days	Wed 7/22/20	Tue 7/28/20	State[20%]
3757	**1.3.3.6.20.1**	**Deliverable: Review Cycle (2)**		**10 days**	**Wed 7/29/20**	**Tue 8/11/20**	
3758	1.3.3.6.20.1	Update deliverable with feedback	3756	3 days	Wed 7/29/20	Fri 7/31/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%],BA[1
3759	1.3.3.6.20.1	QA review and update	3758	1.5 days	Mon 8/3/20	Tue 8/4/20	Doc Mngr[20%],Impl Mngr[5%],ETL Engnr[10%],BI Dev[10%],PM[5%],BA[1
3760	1.3.3.6.20.1	Submit for State approval	3759	0.5 days	Tue 8/4/20	Tue 8/4/20	PM[10%]
3761	1.3.3.6.20.1	State reviews	3760	5 days	Wed 8/5/20	Tue 8/11/20	State[20%]
3762	1.3.3.6.20.1	State Provides Final Approval	3761	1 day	Wed 8/12/20	Wed 8/12/20	State[20%]
3763	1.3.3.6.20.1	Milestone: System Integration Plan Approved	3762	0 days	Wed 8/12/20	Wed 8/12/20	
3764	**1.3.3.6.21**	**D050 System Integration Test Cases**		**116 days**	**Mon 5/4/20**	**Thu 10/15/20**	
3765	**1.3.3.6.21.1**	**Develop DED**		**7 days**	**Mon 5/4/20**	**Tue 5/12/20**	
3766	1.3.3.6.21.1	Review deliverable requirements		2 days	Mon 5/4/20	Tue 5/5/20	PM[10%],Doc Mngr[50%]
3767	1.3.3.6.21.1	Draft DED	3766	3 days	Wed 5/6/20	Fri 5/8/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%],BA[1
3768	1.3.3.6.21.1	Review DED	3767	1 day	Mon 5/11/20	Mon 5/11/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%],BA[1
3769	1.3.3.6.21.1	Finalize DED	3768	1 day	Tue 5/12/20	Tue 5/12/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%],BA[1
3770	**1.3.3.6.21.2**	**Internally Review DED**		**6 days**	**Wed 5/13/20**	**Wed 5/20/20**	
3771	1.3.3.6.21.2	Complete Contract Review	3769	2 days	Wed 5/13/20	Thu 5/14/20	PM[10%]
3772	1.3.3.6.21.2	Complete Peer Review	3769	2 days	Wed 5/13/20	Thu 5/14/20	Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%],BA[10%],AC[1
3773	1.3.3.6.21.2	Complete QA Review	3771,3772	2 days	Fri 5/15/20	Mon 5/18/20	Doc Mngr[25%]
3774	1.3.3.6.21.2	Update with feedback	3773	2 days	Tue 5/19/20	Wed 5/20/20	Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%],BA[10%],AC[1
3775	1.3.3.6.21.3	Submit for State Review	3774	1 day	Thu 5/21/20	Thu 5/21/20	PM[10%]
3776	1.3.3.6.21.4	State reviews document and provides feedback	3775	3 days	Fri 5/22/20	Wed 5/27/20	State[20%]
3777	**1.3.3.6.21.5**	**DED: Review Cycle (1)**		**5 days**	**Thu 5/28/20**	**Wed 6/3/20**	
3778	1.3.3.6.21.5	Update DED with feedback	3776	1 day	Thu 5/28/20	Thu 5/28/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],ETL Engnr[10%],BI Dev[10%],BA[1
3779	1.3.3.6.21.5	QA review and update	3778	0.5 days	Fri 5/29/20	Fri 5/29/20	Doc Mngr[20%],Impl Mngr[5%],ETL Engnr[10%],BI Dev[10%],PM[5%],BA[1
3780	1.3.3.6.21.5	Resubmit for State Review	3779	0.5 days	Fri 5/29/20	Fri 5/29/20	PM[10%]
3781	1.3.3.6.21.5	State reviews	3780	2 days	Mon 6/1/20	Tue 6/2/20	State[20%]
3782	1.3.3.6.21.5	State approves DED	3781	1 day	Wed 6/3/20	Wed 6/3/20	State[20%]
3783	**1.3.3.6.21.6**	**DED: Review Cycle (2)**		**5 days**	**Thu 6/4/20**	**Wed 6/10/20**	
3784	1.3.3.6.21.6	Update DED with feedback	3782	1 day	Thu 6/4/20	Thu 6/4/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],ETL Engnr[10%],BI Dev[10%],BA[1
3785	1.3.3.6.21.6	QA review and update	3784	0.5 days	Fri 6/5/20	Fri 6/5/20	Doc Mngr[20%],Impl Mngr[5%],ETL Engnr[10%],BI Dev[10%],PM[5%],BA[1
3786	1.3.3.6.21.6	Resubmit for State Review	3785	0.5 days	Fri 6/5/20	Fri 6/5/20	PM[10%]
3787	1.3.3.6.21.6	State reviews	3786	2 days	Mon 6/8/20	Tue 6/9/20	State[20%]
3788	1.3.3.6.21.6	State approves DED	3787	1 day	Wed 6/10/20	Wed 6/10/20	State[20%]
3789	**1.3.3.6.21.7**	**Develop Deliverable**		**13 days**	**Thu 8/13/20**	**Mon 8/31/20**	
3790	1.3.3.6.21.7	Create baseline from approved DED	3783,3782,3788	5 days	Thu 8/13/20	Wed 8/19/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],ETL Engnr[10%],BI Dev[10%],BA[1
3791	1.3.3.6.21.7	Update deliverable	3790	5 days	Thu 8/20/20	Wed 8/26/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%],BA[1
3792	1.3.3.6.21.7	Conduct Internal Review	3791	2 days	Thu 8/27/20	Fri 8/28/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%],BA[1
3793	1.3.3.6.21.7	Final QA Review/Update of Deliverable	3792	1 day	Mon 8/31/20	Mon 8/31/20	Doc Mngr[20%],Impl Mngr[5%],ETL Engnr[10%],BI Dev[10%],PM[5%],BA[1
3794	1.3.3.6.21.8	Submit Deliverable for State Review	3793	1 day	Tue 9/1/20	Tue 9/1/20	PM[10%]
3795	1.3.3.6.21.9	State reviews document and provides feedback	3794	10 days	Wed 9/2/20	Wed 9/16/20	State[20%]
3796	**1.3.3.6.21.1**	**Deliverable: Review Cycle (1)**		**10 days**	**Thu 9/17/20**	**Wed 9/30/20**	
3797	1.3.3.6.21.1	Update deliverable with feedback	3795	3 days	Thu 9/17/20	Mon 9/21/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%],BA[1
3798	1.3.3.6.21.1	QA review and update	3797	1.5 days	Tue 9/22/20	Wed 9/23/20	Doc Mngr[20%],Impl Mngr[5%],ETL Engnr[10%],BI Dev[10%],PM[5%],BA[1
3799	1.3.3.6.21.1	Submit for State approval	3798	0.5 days	Wed 9/23/20	Wed 9/23/20	PM[10%]
3800	1.3.3.6.21.1	State reviews	3799	5 days	Thu 9/24/20	Wed 9/30/20	State[20%]
3801	**1.3.3.6.21.1**	**Deliverable: Review Cycle (2)**		**10 days**	**Thu 10/1/20**	**Wed 10/14/20**	
3802	1.3.3.6.21.1	Update deliverable with feedback	3800	3 days	Thu 10/1/20	Mon 10/5/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%],BA[1
3803	1.3.3.6.21.1	QA review and update	3802	1.5 days	Tue 10/6/20	Wed 10/7/20	Doc Mngr[20%],Impl Mngr[5%],ETL Engnr[10%],BI Dev[10%],PM[5%],BA[1
3804	1.3.3.6.21.1	Submit for State approval	3803	0.5 days	Wed 10/7/20	Wed 10/7/20	PM[10%]
3805	1.3.3.6.21.1	State reviews	3804	5 days	Thu 10/8/20	Wed 10/14/20	State[20%]
3806	1.3.3.6.21.1	State Provides Final Approval	3800,3805	1 day	Thu 10/15/20	Thu 10/15/20	State[20%]
3807	1.3.3.6.21.1	Milestone: System Integration Test Cases Approved	3806	0 days	Thu 10/15/20	Thu 10/15/20	
3808	**1.3.3.6.22**	**D051 System Integration Test Results**		**244 days**	**Thu 6/11/20**	**Thu 5/27/21**	
3809	**1.3.3.6.22.1**	**Develop DED**		**7 days**	**Thu 6/11/20**	**Fri 6/19/20**	
3810	1.3.3.6.22.1	Review deliverable requirements	3782,3788	2 days	Thu 6/11/20	Fri 6/12/20	PM[10%],Doc Mngr[50%]
3811	1.3.3.6.22.1	Draft DED	3810	3 days	Mon 6/15/20	Wed 6/17/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%],BA[1
3812	1.3.3.6.22.1	Review DED	3811	1 day	Thu 6/18/20	Thu 6/18/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%],BA[1
3813	1.3.3.6.22.1	Finalize DED	3812	1 day	Fri 6/19/20	Fri 6/19/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%],BA[1
3814	**1.3.3.6.22.2**	**Internally Review DED**		**6 days**	**Mon 6/22/20**	**Mon 6/29/20**	
3815	1.3.3.6.22.2	Complete Contract Review	3813	2 days	Mon 6/22/20	Tue 6/23/20	PM[10%]
3816	1.3.3.6.22.2	Complete Peer Review	3813	2 days	Mon 6/22/20	Tue 6/23/20	Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%],BA[10%],AC[1
3817	1.3.3.6.22.2	Complete QA Review	3815,3816	2 days	Wed 6/24/20	Thu 6/25/20	Doc Mngr[25%]
3818	1.3.3.6.22.2	Update with feedback	3817	2 days	Fri 6/26/20	Mon 6/29/20	Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%],BA[10%],AC[1

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ID	WBS	Task Name	Predecessors	Duration	Start	Finish	Resource Names
3819	1.3.3.6.22.3	Submit for State Review	3818	1 day	Tue 6/30/20	Tue 6/30/20	PM[10%]
3820	1.3.3.6.22.4	State reviews document and provides feedback	3819	3 days	Wed 7/1/20	Mon 7/6/20	State[20%]
3821	**1.3.3.6.22.5**	**DED: Review Cycle (1)**		**4 days**	**Tue 3/16/21**	**Fri 3/19/21**	
3822	1.3.3.6.22.5	Update DED with feedback	3820	1 day	Tue 3/16/21	Tue 3/16/21	PM[5%],Doc Mngr[10%],Impl Mngr[5%],ETL Engnr[10%],BI Dev[10%],BA[1
3823	1.3.3.6.22.5	QA review and update	3822	0.5 days	Wed 3/17/21	Wed 3/17/21	Doc Mngr[20%],Impl Mngr[5%],ETL Engnr[10%],BI Dev[10%],PM[5%],BA[1
3824	1.3.3.6.22.5	Resubmit for State Review	3823	0.5 days	Wed 3/17/21	Wed 3/17/21	PM[10%]
3825	1.3.3.6.22.5	State reviews	3824	1 day	Thu 3/18/21	Thu 3/18/21	State[20%]
3826	**1.3.3.6.22.6**	**DED: Review Cycle (2)**		**5 days**	**Fri 3/19/21**	**Thu 3/25/21**	
3827	1.3.3.6.22.6	Update DED with feedback	3825	1 day	Fri 3/19/21	Fri 3/19/21	PM[5%],Doc Mngr[10%],Impl Mngr[5%],ETL Engnr[10%],BI Dev[10%],BA[1
3828	1.3.3.6.22.6	QA review and update	3827	0.5 days	Mon 3/22/21	Mon 3/22/21	Doc Mngr[20%],Impl Mngr[5%],ETL Engnr[10%],BI Dev[10%],PM[5%],BA[1
3829	1.3.3.6.22.6	Resubmit for State Review	3828	0.5 days	Mon 3/22/21	Mon 3/22/21	PM[10%]
3830	1.3.3.6.22.6	State reviews	3829	2 days	Tue 3/23/21	Wed 3/24/21	State[20%]
3831	1.3.3.6.22.6	State approves DED	3830	1 day	Thu 3/25/21	Thu 3/25/21	State[20%]
3832	**1.3.3.6.22.7**	**Develop Deliverable**		**13 days**	**Fri 3/26/21**	**Tue 4/13/21**	
3833	1.3.3.6.22.7	Create baseline from approved DED	3831	5 days	Fri 3/26/21	Thu 4/1/21	PM[5%],Doc Mngr[10%],Impl Mngr[5%],ETL Engnr[10%],BI Dev[10%],BA[1
3834	1.3.3.6.22.7	Update deliverable	3833	5 days	Fri 4/2/21	Thu 4/8/21	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%],BA[1
3835	1.3.3.6.22.7	Conduct Internal Review	3834	2 days	Fri 4/9/21	Mon 4/12/21	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%],BA[1
3836	1.3.3.6.22.7	Final QA Review/Update of Deliverable	3835	1 day	Tue 4/13/21	Tue 4/13/21	Doc Mngr[20%],Impl Mngr[5%],ETL Engnr[10%],BI Dev[10%],PM[5%],BA[1
3837	1.3.3.6.22.8	Submit Deliverable for State Review	3836	1 day	Wed 4/14/21	Wed 4/14/21	PM[10%]
3838	1.3.3.6.22.9	State reviews document and provides feedback	3837	10 days	Thu 4/15/21	Wed 4/28/21	State[20%]
3839	**1.3.3.6.22.1**	**Deliverable: Review Cycle (1)**		**10 days**	**Thu 4/29/21**	**Wed 5/12/21**	
3840	1.3.3.6.22.1	Update deliverable with feedback	3838	3 days	Thu 4/29/21	Mon 5/3/21	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%],BA[1
3841	1.3.3.6.22.1	QA review and update	3840	1.5 days	Tue 5/4/21	Wed 5/5/21	Doc Mngr[20%],Impl Mngr[5%],ETL Engnr[10%],BI Dev[10%],PM[5%],BA[1
3842	1.3.3.6.22.1	Submit for State approval	3841	0.5 days	Wed 5/5/21	Wed 5/5/21	PM[10%]
3843	1.3.3.6.22.1	State reviews	3842	5 days	Thu 5/6/21	Wed 5/12/21	State[20%]
3844	**1.3.3.6.22.1**	**Deliverable: Review Cycle (2)**		**10 days**	**Thu 5/13/21**	**Wed 5/26/21**	
3845	1.3.3.6.22.1	Update deliverable with feedback	3843	3 days	Thu 5/13/21	Mon 5/17/21	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%],BA[1
3846	1.3.3.6.22.1	QA review and update	3845	1.5 days	Tue 5/18/21	Wed 5/19/21	Doc Mngr[20%],Impl Mngr[5%],ETL Engnr[10%],BI Dev[10%],PM[5%],BA[1
3847	1.3.3.6.22.1	Submit for State approval	3846	0.5 days	Wed 5/19/21	Wed 5/19/21	PM[10%]
3848	1.3.3.6.22.1	State reviews	3847	5 days	Thu 5/20/21	Wed 5/26/21	State[20%]
3849	1.3.3.6.22.1	State Provides Final Approval	3848	1 day	Thu 5/27/21	Thu 5/27/21	State[20%]
3850	1.3.3.6.22.1	Milestone: System Integration Test Results Approved	3849	0 days	Thu 5/27/21	Thu 5/27/21	
3851	**1.3.3.6.23**	**D0S2 Training Management Plan**		**83 days**	**Mon 5/4/20**	**Fri 8/28/20**	
3852	**1.3.3.6.23.1**	**Develop DED**		**7 days**	**Mon 5/4/20**	**Tue 5/12/20**	
3853	1.3.3.6.23.1	Review deliverable requirements	2	2 days	Mon 5/4/20	Tue 5/5/20	PM[10%],Doc Mngr[50%]
3854	1.3.3.6.23.1	Draft DED	3853	3 days	Wed 5/6/20	Fri 5/8/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BA[10%],AC[10%],Trainer[10%]
3855	1.3.3.6.23.1	Review DED	3854	1 day	Mon 5/11/20	Mon 5/11/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BA[10%],AC[10%],Trainer[10%]
3856	1.3.3.6.23.1	Finalize DED	3855	1 day	Tue 5/12/20	Tue 5/12/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BA[10%],AC[10%],Trainer[10%]
3857	**1.3.3.6.23.2**	**Internally Review DED**		**6 days**	**Wed 5/13/20**	**Wed 5/20/20**	
3858	1.3.3.6.23.2	Complete Contract Review	3856	2 days	Wed 5/13/20	Thu 5/14/20	PM[10%]
3859	1.3.3.6.23.2	Complete Peer Review	3856	2 days	Wed 5/13/20	Thu 5/14/20	Doc Mngr[10%],Impl Mngr[5%],BA[10%],AC[10%],PM[5%],Trainer[10%]
3860	1.3.3.6.23.2	Complete QA Review	3858,3859	2 days	Fri 5/15/20	Mon 5/18/20	Doc Mngr[25%]
3861	1.3.3.6.23.2	Update with feedback	3860	2 days	Tue 5/19/20	Wed 5/20/20	Doc Mngr[10%],Impl Mngr[5%],BA[10%],AC[10%],PM[5%],Trainer[10%]
3862	1.3.3.6.23.3	Submit for State Review	3861	1 day	Thu 5/21/20	Thu 5/21/20	PM[10%]
3863	1.3.3.6.23.4	State reviews document and provides feedback	3862	3 days	Fri 5/22/20	Wed 5/27/20	State[20%]
3864	**1.3.3.6.23.5**	**DED: Review Cycle (1)**		**4 days**	**Mon 6/15/20**	**Thu 6/18/20**	
3865	1.3.3.6.23.5	Update DED with feedback	3863	1 day	Mon 6/15/20	Mon 6/15/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BA[10%],AC[10%],Trainer[10%]
3866	1.3.3.6.23.5	QA review and update	3865	0.5 days	Tue 6/16/20	Tue 6/16/20	Doc Mngr[10%],Impl Mngr[5%],PM[5%],BA[10%],AC[10%],Trainer[10%]
3867	1.3.3.6.23.5	Resubmit for State Review	3866	0.5 days	Tue 6/16/20	Tue 6/16/20	PM[10%]
3868	1.3.3.6.23.5	State reviews	3867	2 days	Wed 6/17/20	Thu 6/18/20	State[20%]
3869	**1.3.3.6.23.6**	**DED: Review Cycle (2)**		**5 days**	**Fri 6/19/20**	**Thu 6/25/20**	
3870	1.3.3.6.23.6	Update DED with feedback	3868	1 day	Fri 6/19/20	Fri 6/19/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BA[10%],AC[10%],Trainer[10%]
3871	1.3.3.6.23.6	QA review and update	3870	0.5 days	Mon 6/22/20	Mon 6/22/20	Doc Mngr[10%],Impl Mngr[5%],PM[5%],BA[10%],AC[10%],Trainer[10%]
3872	1.3.3.6.23.6	Resubmit for State Review	3871	0.5 days	Mon 6/22/20	Mon 6/22/20	PM[10%]
3873	1.3.3.6.23.6	State reviews	3872	2 days	Tue 6/23/20	Wed 6/24/20	State[20%]
3874	1.3.3.6.23.6	State approves DED	3873	1 day	Thu 6/25/20	Thu 6/25/20	State[20%]
3875	**1.3.3.6.23.7**	**Develop Deliverable**		**13 days**	**Fri 6/26/20**	**Wed 7/15/20**	
3876	1.3.3.6.23.7	Create baseline from approved DED	3874	5 days	Fri 6/26/20	Thu 7/2/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BA[10%],AC[10%],Trainer[10%]
3877	1.3.3.6.23.7	Update deliverable	3876	5 days	Mon 7/6/20	Fri 7/10/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BA[10%],AC[10%],Trainer[10%]
3878	1.3.3.6.23.7	Conduct Internal Review	3877	2 days	Mon 7/13/20	Tue 7/14/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BA[10%],AC[10%],Trainer[10%]
3879	1.3.3.6.23.7	Final QA Review/Update of Deliverable	3878	1 day	Wed 7/15/20	Wed 7/15/20	Doc Mngr[10%],Impl Mngr[5%],PM[5%],BA[10%],AC[10%],Trainer[10%]
3880	1.3.3.6.23.8	Submit Deliverable for State Review	3879	1 day	Thu 7/16/20	Thu 7/16/20	PM[10%]
3881	1.3.3.6.23.9	State reviews document and provides feedback	3880	10 days	Fri 7/17/20	Thu 7/30/20	State[20%]
3882	**1.3.3.6.23.1**	**Deliverable: Review Cycle (1)**		**10 days**	**Fri 7/31/20**	**Thu 8/13/20**	
3883	1.3.3.6.23.1	Update deliverable with feedback	3881	3 days	Fri 7/31/20	Tue 8/4/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BA[10%],AC[10%],Trainer[10%]
3884	1.3.3.6.23.1	QA review and update	3883	1.5 days	Wed 8/5/20	Thu 8/6/20	Doc Mngr[10%],Impl Mngr[5%],PM[5%],BA[10%],AC[10%],Trainer[10%]
3885	1.3.3.6.23.1	Submit for State approval	3884	0.5 days	Thu 8/6/20	Thu 8/6/20	PM[10%]

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ID	WBS	Task Name	Predecessors	Duration	Start	Finish	Resource Names
3886	1.3.3.6.23.1	State reviews	3885	5 days	Fri 8/7/20	Thu 8/13/20	State[20%]
3887	**1.3.3.6.23.1**	**Deliverable: Review Cycle (2)**		**10 days**	**Fri 8/14/20**	**Thu 8/27/20**	
3888	1.3.3.6.23.1	Update deliverable with feedback	3886	3 days	Fri 8/14/20	Tue 8/18/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BA[10%],AC[10%],Trainer[10%]
3889	1.3.3.6.23.1	QA review and update	3888	1.5 days	Wed 8/19/20	Thu 8/20/20	Doc Mngr[10%],Impl Mngr[5%],PM[5%],BA[10%],AC[10%],Trainer[10%]
3890	1.3.3.6.23.1	Submit for State approval	3889	0.5 days	Thu 8/20/20	Thu 8/20/20	PM[10%]
3891	1.3.3.6.23.1	State reviews	3890	5 days	Fri 8/21/20	Thu 8/27/20	State[20%]
3892	1.3.3.6.23.1	State Provides Final Approval	3891	1 day	Fri 8/28/20	Fri 8/28/20	State[20%]
3893	1.3.3.6.23.1	Milestone: Training Management Plan Approved	3892	0 days	Fri 8/28/20	Fri 8/28/20	
3894	**1.3.3.6.24**	**D053 UAT Cases**		**200 days**	**Thu 6/11/20**	**Fri 3/26/21**	
3895	**1.3.3.6.24.1**	**Develop DED**		**7 days**	**Thu 6/11/20**	**Fri 6/19/20**	
3896	1.3.3.6.24.1	Review deliverable requirements	3782,3788	2 days	Thu 6/11/20	Fri 6/12/20	PM[10%],Doc Mngr[50%]
3897	1.3.3.6.24.1	Draft DED	3896	3 days	Mon 6/15/20	Wed 6/17/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%],BA[1
3898	1.3.3.6.24.1	Review DED	3897	1 day	Thu 6/18/20	Thu 6/18/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%],BA[1
3899	1.3.3.6.24.1	Finalize DED	3898	1 day	Fri 6/19/20	Fri 6/19/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%],BA[1
3900	**1.3.3.6.24.2**	**Internally Review DED**		**6 days**	**Mon 6/22/20**	**Mon 6/29/20**	
3901	1.3.3.6.24.2	Complete Contract Review	3899	2 days	Mon 6/22/20	Tue 6/23/20	PM[10%]
3902	1.3.3.6.24.2	Complete Peer Review	3899	2 days	Mon 6/22/20	Tue 6/23/20	Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%],BA[10%],AC[1
3903	1.3.3.6.24.2	Complete QA Review	3901,3902	2 days	Wed 6/24/20	Thu 6/25/20	Doc Mngr[25%]
3904	1.3.3.6.24.2	Update with feedback	3903	2 days	Fri 6/26/20	Mon 6/29/20	Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%],BA[10%],AC[1
3905	1.3.3.6.24.3	Submit for State Review	3904	1 day	Tue 6/30/20	Tue 6/30/20	PM[10%]
3906	1.3.3.6.24.4	State reviews document and provides feedback	3905	3 days	Wed 7/1/20	Mon 7/6/20	State[20%]
3907	**1.3.3.6.24.5**	**DED: Review Cycle (1)**		**4 days**	**Tue 3/16/21**	**Fri 3/19/21**	
3908	1.3.3.6.24.5	Update DED with feedback	3906	1 day	Tue 3/16/21	Tue 3/16/21	PM[5%],Doc Mngr[10%],Impl Mngr[5%],ETL Engnr[10%],BI Dev[10%],BA[1
3909	1.3.3.6.24.5	QA review and update	3908	0.5 days	Wed 3/17/21	Wed 3/17/21	Doc Mngr[20%],Impl Mngr[5%],ETL Engnr[10%],BI Dev[10%],PM[5%],BA[1
3910	1.3.3.6.24.5	Resubmit for State Review	3909	0.5 days	Wed 3/17/21	Wed 3/17/21	PM[10%]
3911	1.3.3.6.24.5	State reviews	3910	2 days	Thu 3/18/21	Fri 3/19/21	State[20%]
3912	**1.3.3.6.24.6**	**DED: Review Cycle (2)**		**5 days**	**Mon 3/22/21**	**Fri 3/26/21**	
3913	1.3.3.6.24.6	Update DED with feedback	3911	1 day	Mon 3/22/21	Mon 3/22/21	PM[5%],Doc Mngr[10%],Impl Mngr[5%],ETL Engnr[10%],BI Dev[10%],BA[1
3914	1.3.3.6.24.6	QA review and update	3913	0.5 days	Tue 3/23/21	Tue 3/23/21	Doc Mngr[20%],Impl Mngr[5%],ETL Engnr[10%],BI Dev[10%],PM[5%],BA[1
3915	1.3.3.6.24.6	Resubmit for State Review	3914	0.5 days	Tue 3/23/21	Tue 3/23/21	PM[10%]
3916	1.3.3.6.24.6	State reviews	3915	2 days	Wed 3/24/21	Thu 3/25/21	State[20%]
3917	1.3.3.6.24.6	State approves DED	3916	1 day	Fri 3/26/21	Fri 3/26/21	State[20%]
3918	**1.3.3.6.24.7**	**Develop Deliverable**		**13 days**	**Tue 12/15/20**	**Tue 1/5/21**	
3919	1.3.3.6.24.7	Create baseline from approved DED	2235	5 days	Tue 12/15/20	Mon 12/21/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],ETL Engnr[10%],BI Dev[10%],BA[1
3920	1.3.3.6.24.7	Update deliverable	3919	5 days	Tue 12/22/20	Wed 12/30/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%],BA[1
3921	1.3.3.6.24.7	Conduct Internal Review	3920	2 days	Thu 12/31/20	Mon 1/4/21	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%],BA[1
3922	1.3.3.6.24.7	Final QA Review/Update of Deliverable	3921	1 day	Tue 1/5/21	Tue 1/5/21	Doc Mngr[20%],Impl Mngr[5%],ETL Engnr[10%],BI Dev[10%],PM[5%],BA[1
3923	1.3.3.6.24.8	Submit Deliverable for State Review	3922	1 day	Wed 1/6/21	Wed 1/6/21	PM[10%]
3924	1.3.3.6.24.9	State reviews document and provides feedback	3923	10 days	Thu 1/7/21	Wed 1/20/21	State[20%]
3925	**1.3.3.6.24.1**	**Deliverable: Review Cycle (1)**		**10 days**	**Thu 1/21/21**	**Wed 2/3/21**	
3926	1.3.3.6.24.1	Update deliverable with feedback	3924	3 days	Thu 1/21/21	Mon 1/25/21	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%],BA[1
3927	1.3.3.6.24.1	QA review and update	3926	1.5 days	Tue 1/26/21	Wed 1/27/21	Doc Mngr[20%],Impl Mngr[5%],ETL Engnr[10%],BI Dev[10%],PM[5%],BA[1
3928	1.3.3.6.24.1	Submit for State approval	3927	0.5 days	Wed 1/27/21	Wed 1/27/21	PM[10%]
3929	1.3.3.6.24.1	State reviews	3928	5 days	Thu 1/28/21	Wed 2/3/21	State[20%]
3930	**1.3.3.6.24.1**	**Deliverable: Review Cycle (2)**		**10 days**	**Thu 2/4/21**	**Wed 2/17/21**	
3931	1.3.3.6.24.1	Update deliverable with feedback	3929	3 days	Thu 2/4/21	Mon 2/8/21	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%],BA[1
3932	1.3.3.6.24.1	QA review and update	3931	1.5 days	Tue 2/9/21	Wed 2/10/21	Doc Mngr[20%],Impl Mngr[5%],ETL Engnr[10%],BI Dev[10%],PM[5%],BA[1
3933	1.3.3.6.24.1	Submit for State approval	3932	0.5 days	Wed 2/10/21	Wed 2/10/21	PM[10%]
3934	1.3.3.6.24.1	State reviews	3933	5 days	Thu 2/11/21	Wed 2/17/21	State[20%]
3935	1.3.3.6.24.1	State Provides Final Approval	3929,3934	1 day	Thu 2/18/21	Thu 2/18/21	State[20%]
3936	1.3.3.6.24.1	Milestone: UAT Cases Approved	3935	0 days	Thu 2/18/21	Thu 2/18/21	
3937	**1.3.3.6.25**	**D054 UAT Results and Letter**		**73 days**	**Mon 3/29/21**	**Fri 7/9/21**	
3938	**1.3.3.6.25.1**	**Develop DED**		**7 days**	**Mon 3/29/21**	**Tue 4/6/21**	
3939	1.3.3.6.25.1	Review deliverable requirements	3917	2 days	Mon 3/29/21	Tue 3/30/21	PM[10%],Doc Mngr[50%]
3940	1.3.3.6.25.1	Draft DED	3939	3 days	Wed 3/31/21	Fri 4/2/21	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%],BA[1
3941	1.3.3.6.25.1	Review DED	3940	1 day	Mon 4/5/21	Mon 4/5/21	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%],BA[1
3942	1.3.3.6.25.1	Finalize DED	3941	1 day	Tue 4/6/21	Tue 4/6/21	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%],BA[1
3943	**1.3.3.6.25.2**	**Internally Review DED**		**6 days**	**Wed 4/7/21**	**Wed 4/14/21**	
3944	1.3.3.6.25.2	Complete Contract Review	3942	2 days	Wed 4/7/21	Thu 4/8/21	PM[10%]
3945	1.3.3.6.25.2	Complete Peer Review	3942	2 days	Wed 4/7/21	Thu 4/8/21	Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%],BA[10%],AC[1
3946	1.3.3.6.25.2	Complete QA Review	3944,3945	2 days	Fri 4/9/21	Mon 4/12/21	Doc Mngr[25%]
3947	1.3.3.6.25.2	Update with feedback	3946	2 days	Tue 4/13/21	Wed 4/14/21	Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%],BA[10%],AC[1
3948	1.3.3.6.25.3	Submit for State Review	3947	1 day	Thu 4/15/21	Thu 4/15/21	PM[10%]
3949	1.3.3.6.25.4	State reviews document and provides feedback	3948	3 days	Fri 4/16/21	Tue 4/20/21	State[20%]
3950	**1.3.3.6.25.5**	**DED: Review Cycle (1)**		**4 days**	**Fri 4/23/21**	**Wed 4/28/21**	
3951	1.3.3.6.25.5	Update DED with feedback	3949	1 day	Fri 4/23/21	Fri 4/23/21	PM[5%],Doc Mngr[10%],Impl Mngr[5%],ETL Engnr[10%],BI Dev[10%],BA[1
3952	1.3.3.6.25.5	QA review and update	3951	0.5 days	Mon 4/26/21	Mon 4/26/21	Doc Mngr[20%],Impl Mngr[5%],ETL Engnr[10%],BI Dev[10%],PM[5%],BA[1

ID	WBS	Task Name	Predecessors	Duration	Start	Finish	Resource Names
3953	1.3.3.6.25.5	Resubmit for State Review	3952	0.5 days	Mon 4/26/21	Mon 4/26/21	PM[10%]
3954	1.3.3.6.25.5	State reviews	3953	2 days	Tue 4/27/21	Wed 4/28/21	State[20%]
3955	**1.3.3.6.25.6**	**DED: Review Cycle (2)**		**5 days**	**Thu 4/29/21**	**Wed 5/5/21**	
3956	1.3.3.6.25.6	Update DED with feedback	3954	1 day	Thu 4/29/21	Thu 4/29/21	PM[5%],Doc Mngr[10%],Impl Mngr[5%],ETL Engnr[10%],BI Dev[10%],BA[1
3957	1.3.3.6.25.6	QA review and update	3956	0.5 days	Fri 4/30/21	Fri 4/30/21	Doc Mngr[20%],Impl Mngr[5%],ETL Engnr[10%],BI Dev[10%],PM[5%],BA[1
3958	1.3.3.6.25.6	Resubmit for State Review	3957	0.5 days	Fri 4/30/21	Fri 4/30/21	PM[10%]
3959	1.3.3.6.25.6	State reviews	3958	2 days	Mon 5/3/21	Tue 5/4/21	State[20%]
3960	1.3.3.6.25.6	State approves DED	3959	1 day	Wed 5/5/21	Wed 5/5/21	State[20%]
3961	**1.3.3.6.25.7**	**Develop Deliverable**		**13 days**	**Thu 5/6/21**	**Mon 5/24/21**	
3962	1.3.3.6.25.7	Create baseline from approved DED	4082,3960	5 days	Thu 5/6/21	Wed 5/12/21	PM[5%],Doc Mngr[10%],Impl Mngr[5%],ETL Engnr[10%],BI Dev[10%],BA[1
3963	1.3.3.6.25.7	Update deliverable	3962	5 days	Thu 5/13/21	Wed 5/19/21	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%],BA[1
3964	1.3.3.6.25.7	Conduct Internal Review	3963	2 days	Thu 5/20/21	Fri 5/21/21	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%],BA[1
3965	1.3.3.6.25.7	Final QA Review/Update of Deliverable	3964	1 day	Mon 5/24/21	Mon 5/24/21	Doc Mngr[20%],Impl Mngr[5%],ETL Engnr[10%],BI Dev[10%],PM[5%],BA[1
3966	1.3.3.6.25.8	Submit Deliverable for State Review	3965	1 day	Tue 5/25/21	Tue 5/25/21	PM[10%]
3967	1.3.3.6.25.9	State reviews document and provides feedback	3966	10 days	Wed 5/26/21	Wed 6/9/21	State[20%]
3968	**1.3.3.6.25.1**	**Deliverable: Review Cycle (1)**		**10 days**	**Thu 6/10/21**	**Wed 6/23/21**	
3969	1.3.3.6.25.1	Update deliverable with feedback	3967	3 days	Thu 6/10/21	Mon 6/14/21	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%],BA[1
3970	1.3.3.6.25.1	QA review and update	3969	1.5 days	Tue 6/15/21	Wed 6/16/21	Doc Mngr[20%],Impl Mngr[5%],ETL Engnr[10%],BI Dev[10%],PM[5%],BA[1
3971	1.3.3.6.25.1	Submit for State approval	3970	0.5 days	Wed 6/16/21	Wed 6/16/21	PM[10%]
3972	1.3.3.6.25.1	State reviews	3971	5 days	Thu 6/17/21	Wed 6/23/21	State[20%]
3973	**1.3.3.6.25.1**	**Deliverable: Review Cycle (1)**		**10 days**	**Thu 6/24/21**	**Thu 7/8/21**	
3974	1.3.3.6.25.1	Update deliverable with feedback	3972	3 days	Thu 6/24/21	Mon 6/28/21	PM[5%],Doc Mngr[10%],Impl Mngr[5%],BI Dev[10%],ETL Engnr[10%],BA[1
3975	1.3.3.6.25.1	QA review and update	3974	1.5 days	Tue 6/29/21	Wed 6/30/21	Doc Mngr[20%],Impl Mngr[5%],ETL Engnr[10%],BI Dev[10%],PM[5%],BA[1
3976	1.3.3.6.25.1	Submit for State approval	3975	0.5 days	Wed 6/30/21	Wed 6/30/21	PM[10%]
3977	1.3.3.6.25.1	State reviews	3976	5 days	Thu 7/1/21	Thu 7/8/21	State[20%]
3978	1.3.3.6.25.1	State Provides Final Approval	3977	1 day	Fri 7/9/21	Fri 7/9/21	State[20%]
3979	1.3.3.6.25.1	Milestone: UAT Results and Letter Approved	3978	0 days	Fri 7/9/21	Fri 7/9/21	
3980	**1.3.4**	**Solution Deployment**		**366 days**	**Mon 5/4/20**	**Tue 10/12/21**	
3981	**1.3.4.1**	**Project 1: EDS Platform and Data Mining Tools Configuration**		**173 days**	**Wed 7/8/20**	**Mon 3/15/21**	
3982	**1.3.4.1.1**	**Develop and Deliver Final Implementation Training**		**173 days**	**Wed 7/8/20**	**Mon 3/15/21**	
3983	**1.3.4.1.1.1**	**Final Implementation Training**		**173 days**	**Wed 7/8/20**	**Mon 3/15/21**	
3984	**1.3.4.1.1.1**	**Develop Training Curriculum - Implementation**		**40 days**	**Wed 7/8/20**	**Tue 9/1/20**	
3985	1.3.4.1.1.1	Develop Training Curriculum outline	3986SS-25 days	15 days	Wed 7/8/20	Tue 7/28/20	Trainer[10%]
3986	1.3.4.1.1.1	Review Training Curriculum outlines with State	3989SS-25 days	15 days	Wed 8/12/20	Tue 9/1/20	Trainer[10%],State[10%]
3987	1.3.4.1.1.1	Milestone: Complete Training Curriculum outlines	3986,3985	0 days	Tue 9/1/20	Tue 9/1/20	
3988	**1.3.4.1.1.1**	**Develop Training Materials**		**70 days**	**Thu 9/17/20**	**Tue 12/29/20**	
3989	1.3.4.1.1.1	Develop materials based on curriculum	3990SS-50 days	45 days	Thu 9/17/20	Wed 11/18/20	Trainer[10%]
3990	1.3.4.1.1.1	Review materials with State	3993SS-33 days	20 days	Mon 11/30/20	Tue 12/29/20	Trainer[10%],State[10%]
3991	1.3.4.1.1.1	Milestone: Complete Training and Answers	3990	0 days	Tue 12/29/20	Tue 12/29/20	
3992	**1.3.4.1.1.1**	**Execute Training**		**40 days**	**Tue 1/19/21**	**Mon 3/15/21**	
3993	1.3.4.1.1.1	Execute Training Initial Training (SMEs)	3994SS-20 days	5 days	Tue 1/19/21	Mon 1/25/21	Trainer[10%]
3994	1.3.4.1.1.1	Execute Training for Go-live	4083SS-40 days	20 days	Tue 2/16/21	Mon 3/15/21	Trainer[10%],State[10%]
3995	1.3.4.1.1.1	Milestone: Training Complete	3994	0 days	Mon 3/15/21	Mon 3/15/21	
3996	1.3.4.1.1.1	Milestone: Final Implementation Training Complete	3991,3995,3987	0 days	Mon 3/15/21	Mon 3/15/21	
3997	**1.3.4.2**	**Project 2: EDS Implementation**		**40 days**	**Tue 1/26/21**	**Tue 3/23/21**	
3998	**1.3.4.2.1**	**SDLC Gate Reviews**		**5 days**	**Tue 3/16/21**	**Tue 3/23/21**	
3999	**1.3.4.2.1.1**	**Implementation (iterate, as needed)**		**5 days**	**Tue 3/16/21**	**Tue 3/23/21**	
4000	1.3.4.2.1.1	Milestone: Entrance Criteria Met for Implementation Phase	4015	0 days	Tue 3/16/21	Tue 3/16/21	
4001	1.3.4.2.1.1	Milestone: Exit Criteria Met for Implementation Phase	4000,4027	0 days	Tue 3/23/21	Tue 3/23/21	
4002	1.3.4.2.2	Milestone: Data Warehouse Ready for Pre-Production	2509,2296	0 days	Tue 1/26/21	Tue 1/26/21	
4003	1.3.4.2.3	Milestone: Data Warehouse Ready for Production	4002,4083FS-20 d	0 days	Tue 3/16/21	Tue 3/16/21	
4004	**1.3.4.2.4**	**EDS Structure Deployment to Production**		**1 day**	**Tue 3/16/21**	**Tue 3/16/21**	
4005	1.3.4.2.4.1	Deploy Provider Analytic Data Store to Production	2470,4003	1 day	Tue 3/16/21	Tue 3/16/21	BI Dev[25%],DBA[25%]
4006	1.3.4.2.4.2	Deploy Drug Claim Data Store to Production	2479,4003	1 day	Tue 3/16/21	Tue 3/16/21	BI Dev[25%],DBA[25%]
4007	1.3.4.2.4.3	Deploy Prior Authorization Data Store to Production	2483,4003	1 day	Tue 3/16/21	Tue 3/16/21	BI Dev[25%],DBA[25%]
4008	1.3.4.2.4.4	Deploy Institutional Claims Data Store to Production	2487,4003	1 day	Tue 3/16/21	Tue 3/16/21	BI Dev[25%],DBA[25%]
4009	1.3.4.2.4.5	Deploy Dental Claims Data Store to Production	2491,4003	1 day	Tue 3/16/21	Tue 3/16/21	BI Dev[25%],DBA[25%]
4010	1.3.4.2.4.6	Deploy Professional Claims Data Store to Production	2495,4003	1 day	Tue 3/16/21	Tue 3/16/21	BI Dev[25%],DBA[25%]
4011	1.3.4.2.4.7	Deploy Financial Analytic Data Store to Production	2475,4003	1 day	Tue 3/16/21	Tue 3/16/21	BI Dev[25%],DBA[25%]
4012	1.3.4.2.4.8	Deploy Reference Data Store to Production	2508,4003	1 day	Tue 3/16/21	Tue 3/16/21	BI Dev[25%],DBA[25%]
4013	1.3.4.2.4.9	Deploy Eligibility Data Store to Production	2504,4003	1 day	Tue 3/16/21	Tue 3/16/21	BI Dev[25%],DBA[25%]
4014	1.3.4.2.4.10	Deploy Client Data Store to Production	2500,4003	1 day	Tue 3/16/21	Tue 3/16/21	BI Dev[25%],DBA[25%]
4015	1.3.4.2.4.11	Milestone: EDS Structure Deployment to Production Complete	4005,4006,4007,4	0 days	Tue 3/16/21	Tue 3/16/21	
4016	**1.3.4.2.5**	**EDS Production Data Load**		**5 days**	**Wed 3/17/21**	**Tue 3/23/21**	
4017	1.3.4.2.5.1	Deploy Provider Analytic Data to Production	4005	5 days	Wed 3/17/21	Tue 3/23/21	BI Dev[25%],DBA[25%]
4018	1.3.4.2.5.2	Deploy Drug Claim Data to Production	4006	5 days	Wed 3/17/21	Tue 3/23/21	BI Dev[25%],DBA[25%]
4019	1.3.4.2.5.3	Deploy Prior Authorization Data to Production	4007	5 days	Wed 3/17/21	Tue 3/23/21	BI Dev[25%],DBA[25%]

WV EDW

ID	WBS	Task Name	Predecessors	Duration	Start	Finish	Resource Names
4020	1.3.4.2.5.4	Deploy Institutional Claims Data to Production	4008	5 days	Wed 3/17/21	Tue 3/23/21	BI Dev[25%],DBA[25%]
4021	1.3.4.2.5.5	Deploy Dental Claims Data to Production	4009	5 days	Wed 3/17/21	Tue 3/23/21	BI Dev[25%],DBA[25%]
4022	1.3.4.2.5.6	Deploy Professional Claims Data to Production	4010	5 days	Wed 3/17/21	Tue 3/23/21	BI Dev[25%],DBA[25%]
4023	1.3.4.2.5.7	Deploy Financial Analytic Data to Production	4011	5 days	Wed 3/17/21	Tue 3/23/21	BI Dev[25%],DBA[25%]
4024	1.3.4.2.5.8	Deploy Reference Data to Production	4012	5 days	Wed 3/17/21	Tue 3/23/21	BI Dev[25%],DBA[25%]
4025	1.3.4.2.5.9	Deploy Eligibility Data to Production	4013	5 days	Wed 3/17/21	Tue 3/23/21	BI Dev[25%],DBA[25%]
4026	1.3.4.2.5.10	Deploy Client Data to Production	4014	5 days	Wed 3/17/21	Tue 3/23/21	BI Dev[25%],DBA[25%]
4027	1.3.4.2.5.11	Milestone: EDS Production Data Load Complete	4017,4018,4019,4	0 days	Tue 3/23/21	Tue 3/23/21	
4028	1.3.4.2.6	Milestone: Data Warehouse Production Deployment Complete	4017,4018,4019,4	0 days	Tue 3/23/21	Tue 3/23/21	
4029	**1.3.4.3**	**Project 3: Analytics, BI, and Reporting Implementation**		**73 days**	**Tue 2/2/21**	**Fri 5/14/21**	
4030	**1.3.4.3.1**	**SDLC Gate Reviews**		**4 days**	**Mon 4/12/21**	**Fri 4/16/21**	
4031	**1.3.4.3.1.1**	**Implementation (Iterate, as needed)**		**4 days**	**Mon 4/12/21**	**Fri 4/16/21**	
4032	1.3.4.3.1.1.1	Milestone: Entrance Criteria Met for Implementation Phase	4043	0 days	Mon 4/12/21	Mon 4/12/21	
4033	1.3.4.3.1.1.2	Milestone: Exit Criteria Met for Implementation Phase	4062,4032	0 days	Fri 4/16/21	Fri 4/16/21	
4034	**1.3.4.3.2**	**Analytics & BI Pre-Production/Implementation**		**49 days**	**Tue 2/2/21**	**Mon 4/12/21**	
4035	1.3.4.3.2.1	Milestone: Analytics Ready for Pre-Production	2585	0 days	Tue 2/2/21	Tue 2/2/21	
4036	1.3.4.3.2.2	Milestone: Analytics Ready for Production	4035,4083FS-1 d	0 days	Mon 4/12/21	Mon 4/12/21	
4037	1.3.4.3.2.3	Deploy Analytics Set 1 to Production	2576,4036	1 day	Mon 4/12/21	Mon 4/12/21	BI Dev[25%],BA[25%]
4038	1.3.4.3.2.4	Deploy Analytics Set 2 to Production	2580,4036	1 day	Mon 4/12/21	Mon 4/12/21	BI Dev[25%],BA[25%]
4039	1.3.4.3.2.5	Deploy Analytics Set 3 to Production	2584,4036	1 day	Mon 4/12/21	Mon 4/12/21	BI Dev[25%],BA[25%]
4040	1.3.4.3.2.6	Milestone: Analytics Deployment Complete	4037,4038,4039	0 days	Mon 4/12/21	Mon 4/12/21	
4041	**1.3.4.3.3**	**Reporting Pre-Production/Implementation**		**24 days**	**Mon 4/12/21**	**Fri 5/14/21**	
4042	1.3.4.3.3.1	Milestone: Report Implementation Ready for Pre-Production	2826	0 days	Mon 4/12/21	Mon 4/12/21	
4043	1.3.4.3.3.2	Milestone: Report Implementation Deployment Begins	4042,4083FS-4 d	0 days	Mon 4/12/21	Mon 4/12/21	
4044	**1.3.4.3.3.3**	**Care Management Report Implementation**		**4 days**	**Tue 4/13/21**	**Fri 4/16/21**	
4045	1.3.4.3.3.3.1	Implement Report Set 1	2777,4043	4 days	Tue 4/13/21	Fri 4/16/21	BI Dev[25%],BA[25%]
4046	1.3.4.3.3.3.2	Implement Report Set 2	2781,4043	4 days	Tue 4/13/21	Fri 4/16/21	BI Dev[25%],BA[25%]
4047	1.3.4.3.3.3.3	Implement Report Set 3	2785,4043	4 days	Tue 4/13/21	Fri 4/16/21	BI Dev[25%],BA[25%]
4048	1.3.4.3.3.3.4	Milestone: Care Management Reports Complete	4045,4046,4047	0 days	Fri 4/16/21	Fri 4/16/21	
4049	**1.3.4.3.3.4**	**Financial Management Report Implementation**		**4 days**	**Tue 4/13/21**	**Fri 4/16/21**	
4050	1.3.4.3.3.4.1	Implement Report Set 1	2790,4043	4 days	Tue 4/13/21	Fri 4/16/21	BI Dev[25%],BA[25%]
4051	1.3.4.3.3.4.2	Implement Report Set 2	2794,4043	4 days	Tue 4/13/21	Fri 4/16/21	BI Dev[25%],BA[25%]
4052	1.3.4.3.3.4.3	Implement Report Set 3	2798,4043	4 days	Tue 4/13/21	Fri 4/16/21	BI Dev[25%],BA[25%]
4053	1.3.4.3.3.4.4	Milestone: Financial Management Reports Complete	4050,4051,4052	0 days	Fri 4/16/21	Fri 4/16/21	
4054	**1.3.4.3.3.5**	**Program Management Report Implementation**		**24 days**	**Tue 4/13/21**	**Fri 5/14/21**	
4055	1.3.4.3.3.5.1	Implement Report Set 1	2803,4043	4 days	Tue 4/13/21	Fri 4/16/21	BI Dev[25%],BA[25%]
4056	1.3.4.3.3.5.2	Implement Report Set 2	2807,4043	4 days	Tue 4/13/21	Fri 4/16/21	BI Dev[25%],BA[25%]
4057	1.3.4.3.3.5.3	Implement Report Set 3	2811,4043	4 days	Tue 5/11/21	Fri 5/14/21	BI Dev[25%],BA[25%]
4058	1.3.4.3.3.5.4	Milestone: Program Management Reports Complete	4055,4056,4057	0 days	Fri 5/14/21	Fri 5/14/21	
4059	**1.3.4.3.3.6**	**Additional Operational Report Implementation**		**4 days**	**Tue 4/13/21**	**Fri 4/16/21**	
4060	1.3.4.3.3.6.1	Implement Report Set 1	2817,4043	4 days	Tue 4/13/21	Fri 4/16/21	BI Dev[25%],BA[25%]
4061	1.3.4.3.3.6.2	Implement Report Set 2	2821,4043	4 days	Tue 4/13/21	Fri 4/16/21	BI Dev[25%],BA[25%]
4062	1.3.4.3.3.6.3	Milestone: Additional Operational Reports Complete	4060,4061	0 days	Fri 4/16/21	Fri 4/16/21	
4063	1.3.4.3.4	Milestone: Report Deployment Complete	4062,4058,4053,4	0 days	Fri 5/14/21	Fri 5/14/21	
4064	**1.3.4.4**	**Project 4: I-Sight Upgrade**		**84 days**	**Tue 12/29/20**	**Mon 4/26/21**	
4065	1.3.4.4.1	Milestone: i-Sight Ready for Pre-Production	4067	0 days	Tue 1/5/21	Tue 1/5/21	
4066	**1.3.4.4.2**	**Go-Live**		**79 days**	**Tue 12/29/20**	**Mon 4/19/21**	
4067	1.3.4.4.2.1	SIAM Installation and Creation	1874,2849	5 days	Tue 12/29/20	Tue 1/5/21	App Admin - iSight[20%]
4068	1.3.4.4.2.2	Go Live Production	4065,4083	5 days	Tue 4/13/21	Mon 4/19/21	App Admin - iSight[20%]
4069	1.3.4.4.2.3	Milestone: GO-LIVE I-SIGHT	4068	0 days	Mon 4/19/21	Mon 4/19/21	
4070	1.3.4.4.3	i-Sight Deployment to Production	4069	5 days	Tue 4/20/21	Mon 4/26/21	
4071	**1.3.4.5**	**Project 5: J-SURS Implementation**		**10 days**	**Mon 4/5/21**	**Mon 4/19/21**	
4072	**1.3.4.5.1**	**SDLC Gate Reviews**		**5 days**	**Tue 4/13/21**	**Mon 4/19/21**	
4073	**1.3.4.5.1.1**	**J-SURS Pre-Production/Implementation**		**5 days**	**Tue 4/13/21**	**Mon 4/19/21**	
4074	1.3.4.5.1.1.1	Milestone: Program Integrity (PI) Pre-Production/Implementation Begins	4080	0 days	Mon 4/19/21	Mon 4/19/21	
4075	1.3.4.5.1.1.2	Implement Program Integrity (PI) in Production	4074FF	5 days	Tue 4/13/21	Mon 4/19/21	AC[50%],Data Manager[25%]
4076	1.3.4.5.1.1.3	Milestone: Program Integrity (PI) Pre-Production/Implementation Complete	4075	0 days	Mon 4/19/21	Mon 4/19/21	
4077	1.3.4.5.2	Milestone: J-SURS Ready for Pre-Production	2884	0 days	Mon 4/5/21	Mon 4/5/21	
4078	1.3.4.5.3	Milestone: J-SURS Ready for Production	4077,4083FS-10 d	0 days	Mon 4/5/21	Mon 4/5/21	
4079	1.3.4.5.4	J-SURS Deployment to Production	4078	10 days	Tue 4/6/21	Mon 4/19/21	AC[50%],Data Manager[25%]
4080	1.3.4.5.5	Milestone: J-SURS Implementation Complete	4079	0 days	Mon 4/19/21	Mon 4/19/21	
4081	**1.3.4.6**	**Project 2-5: Deployment**		**58 days**	**Mon 4/12/21**	**Fri 7/2/21**	
4082	1.3.4.6.1	Milestone: UAT Complete	2509,2826,2585,3	0 days	Mon 4/12/21	Mon 4/12/21	
4083	1.3.4.6.2	Milestone: WV EDS Solution Approved for Go Live	4077,4035,4002,4	0 days	Mon 4/12/21	Mon 4/12/21	
4084	**1.3.4.6.3**	**Deployment Project Phase Lifecycle Reviews**		**58 days**	**Tue 4/13/21**	**Fri 7/2/21**	
4085	**1.3.4.6.3.1**	**Production Readiness Review**		**10 days**	**Tue 4/13/21**	**Mon 4/26/21**	
4086	1.3.4.6.3.1.1	Execute Production Readiness Review	4083	5 days	Tue 4/13/21	Mon 4/19/21	Acct Mngr[10%],Impl Mngr[10%]

ID	WBS	Task Name	Predecessors	Duration	Start	Finish	Resource Names
4087	1.3.4.6.3.1.2	Client Approves Production Readiness Review	4086	5 days	Tue 4/20/21	Mon 4/26/21	State[25%]
4088	1.3.4.6.3.1.3	Milestone Complete Production Readiness Review	4087	0 days	Mon 4/26/21	Mon 4/26/21	
4089	**1.3.4.6.3.2**	**Environment Readiness Review**		**53 days**	**Tue 4/13/21**	**Fri 6/25/21**	
4090	1.3.4.6.3.2.1	Dependency: End-to End Testing Complete	4082	10 days	Tue 4/13/21	Mon 4/26/21	
4091	1.3.4.6.3.2.2	Dependency: Security Testing Complete	4082,4090	10 days	Tue 4/27/21	Mon 5/10/21	
4092	1.3.4.6.3.2.3	Dependency: Performance Testing Complete	4091	10 days	Tue 5/11/21	Mon 5/24/21	
4093	1.3.4.6.3.2.4	Dependency: Usability/Accessibility Testing Complete	4092	10 days	Tue 5/25/21	Tue 6/8/21	
4094	1.3.4.6.3.2.5	Dependency: Browser Testing Complete	4093	3 days	Wed 6/9/21	Fri 6/11/21	
4095	1.3.4.6.3.2.6	Execute Environment Readiness Review	852,4082,4094	5 days	Mon 6/14/21	Fri 6/18/21	Acct Mngr[10%],Impl Mngr[10%]
4096	1.3.4.6.3.2.7	Client Approves Environment Readiness Review	4095	5 days	Mon 6/21/21	Fri 6/25/21	State[25%]
4097	1.3.4.6.3.2.8	Milestone Complete Environment Readiness Review	4096	0 days	Fri 6/25/21	Fri 6/25/21	
4098	**1.3.4.6.3.3**	**Operational Readiness Review (ORR)**		**15 days**	**Tue 4/13/21**	**Mon 5/3/21**	
4099	1.3.4.6.3.3.1	Execute Operational Readiness Testing	4083	5 days	Tue 4/13/21	Mon 4/19/21	Acct Mngr[10%],Impl Mngr[10%]
4100	1.3.4.6.3.3.2	Execute Operational Readiness Review	4099	5 days	Tue 4/20/21	Mon 4/26/21	Acct Mngr[25%],Impl Mngr[25%],Ops Mngr[25%]
4101	1.3.4.6.3.3.3	Client Approves Operational Readiness Testing	4100	5 days	Tue 4/27/21	Mon 5/3/21	State[25%]
4102	1.3.4.6.3.3.4	Milestone: Operational Readiness Complete	4101	0 days	Mon 5/3/21	Mon 5/3/21	
4103	1.3.4.6.3.4	Client Approves for Production	4087,4096,4101	5 days	Mon 6/28/21	Fri 7/2/21	State[25%]
4104	1.3.4.6.4	Milestone: Approved for Production by State	4103	0 days	Fri 7/2/21	Fri 7/2/21	
4105	1.3.4.6.5	Milestone: Production Deployment Complete	4028,4080,4040,4	0 days	Fri 7/2/21	Fri 7/2/21	
4106	1.3.4.6.6	Milestone: Operations Begins	4105	0 days	Fri 7/2/21	Fri 7/2/21	
4107	**1.3.4.7**	**Deliverables**		**366 days**	**Mon 5/4/20**	**Tue 10/12/21**	
4108	**1.3.4.7.1**	**D055 Cutover Play Book**		**78 days**	**Wed 2/3/21**	**Fri 5/21/21**	
4109	**1.3.4.7.1.1**	**Develop DED**		**7 days**	**Wed 2/3/21**	**Thu 2/11/21**	
4110	1.3.4.7.1.1.1	Review deliverable requirements	2571	2 days	Wed 2/3/21	Thu 2/4/21	PM[10%],Doc Mngr[50%]
4111	1.3.4.7.1.1.2	Draft DED	4110	3 days	Fri 2/5/21	Tue 2/9/21	PM[10%],Doc Mngr[50%],Impl Mngr[10%],Ops Mngr[5%]
4112	1.3.4.7.1.1.3	Review DED	4111	1 day	Wed 2/10/21	Wed 2/10/21	PM[10%],Doc Mngr[50%],Impl Mngr[10%],Ops Mngr[5%]
4113	1.3.4.7.1.1.4	Finalize DED	4112	1 day	Thu 2/11/21	Thu 2/11/21	PM[10%],Doc Mngr[50%],Impl Mngr[10%],Ops Mngr[5%]
4114	**1.3.4.7.1.2**	**Internally Review DED**		**6 days**	**Fri 2/12/21**	**Fri 2/19/21**	
4115	1.3.4.7.1.2.1	Complete Contract Review	4113	2 days	Fri 2/12/21	Mon 2/15/21	PM[10%]
4116	1.3.4.7.1.2.2	Complete Peer Review	4113	2 days	Fri 2/12/21	Mon 2/15/21	Doc Mngr[10%],Impl Mngr[10%],Ops Mngr[10%],Acct Mngr[10%]
4117	1.3.4.7.1.2.3	Complete QA Review	4115,4116	2 days	Tue 2/16/21	Wed 2/17/21	Doc Mngr[25%]
4118	1.3.4.7.1.2.4	Update with feedback	4117	2 days	Thu 2/18/21	Fri 2/19/21	Doc Mngr[10%],Impl Mngr[10%],Ops Mngr[10%],Acct Mngr[10%]
4119	1.3.4.7.1.3	Submit for State Review	4118	1 day	Mon 2/22/21	Mon 2/22/21	PM[10%]
4120	1.3.4.7.1.4	State reviews document and provides feedback	4119	3 days	Tue 2/23/21	Thu 2/25/21	State[20%]
4121	**1.3.4.7.1.5**	**DED: Review Cycle (1)**		**4 days**	**Tue 3/9/21**	**Fri 3/12/21**	
4122	1.3.4.7.1.5.1	Update DED with feedback	4120	1 day	Tue 3/9/21	Tue 3/9/21	PM[5%],Doc Mngr[50%],Impl Mngr[10%],Ops Mngr[5%]
4123	1.3.4.7.1.5.2	QA review and update	4122	0.5 days	Wed 3/10/21	Wed 3/10/21	Doc Mngr[40%],Impl Mngr[10%],Acct Mngr[10%],Ops Mngr[10%]
4124	1.3.4.7.1.5.3	Resubmit for State Review	4123	0.5 days	Wed 3/10/21	Wed 3/10/21	PM[10%]
4125	1.3.4.7.1.5.4	State reviews	4124	2 days	Thu 3/11/21	Fri 3/12/21	State[20%]
4126	**1.3.4.7.1.6**	**DED: Review Cycle (2)**		**5 days**	**Mon 3/15/21**	**Fri 3/19/21**	
4127	1.3.4.7.1.6.1	Update DED with feedback	4125	1 day	Mon 3/15/21	Mon 3/15/21	PM[5%],Doc Mngr[50%],Impl Mngr[10%],Ops Mngr[5%]
4128	1.3.4.7.1.6.2	QA review and update	4127	0.5 days	Tue 3/16/21	Tue 3/16/21	Doc Mngr[40%],Impl Mngr[10%],Acct Mngr[10%],Ops Mngr[10%]
4129	1.3.4.7.1.6.3	Resubmit for State Review	4128	0.5 days	Tue 3/16/21	Tue 3/16/21	PM[10%]
4130	1.3.4.7.1.6.4	State reviews	4129	2 days	Wed 3/17/21	Thu 3/18/21	State[20%]
4131	1.3.4.7.1.6.5	State approves DED	4130	1 day	Fri 3/19/21	Fri 3/19/21	State[20%]
4132	**1.3.4.7.1.7**	**Develop Deliverable**		**13 days**	**Mon 3/22/21**	**Wed 4/7/21**	
4133	1.3.4.7.1.7.1	Create baseline from approved DED	4131	5 days	Mon 3/22/21	Fri 3/26/21	PM[5%],Doc Mngr[50%],Impl Mngr[10%],Ops Mngr[5%]
4134	1.3.4.7.1.7.2	Update deliverable	4133	5 days	Mon 3/29/21	Fri 4/2/21	PM[5%],Doc Mngr[50%],Impl Mngr[10%],Ops Mngr[5%]
4135	1.3.4.7.1.7.3	Conduct Internal Review	4134	2 days	Mon 4/5/21	Tue 4/6/21	PM[5%],Doc Mngr[50%],Impl Mngr[10%],Ops Mngr[5%]
4136	1.3.4.7.1.7.4	Final QA Review/Update of Deliverable	4135	1 day	Wed 4/7/21	Wed 4/7/21	Doc Mngr[40%],Impl Mngr[10%],Acct Mngr[10%],Ops Mngr[10%]
4137	1.3.4.7.1.8	Submit Deliverable for State Review	4136	1 day	Thu 4/8/21	Thu 4/8/21	PM[10%]
4138	1.3.4.7.1.9	State reviews document and provides feedback	4137	10 days	Fri 4/9/21	Thu 4/22/21	State[20%]
4139	**1.3.4.7.1.10**	**Deliverable: Review Cycle (1)**		**10 days**	**Fri 4/23/21**	**Thu 5/6/21**	
4140	1.3.4.7.1.10.1	Update deliverable with feedback	4138	3 days	Fri 4/23/21	Tue 4/27/21	PM[5%],Doc Mngr[50%],Impl Mngr[10%],Ops Mngr[5%]
4141	1.3.4.7.1.10.2	QA review and update	4140	1.5 days	Wed 4/28/21	Thu 4/29/21	Doc Mngr[40%],Impl Mngr[10%],Acct Mngr[10%],Ops Mngr[10%]
4142	1.3.4.7.1.10.3	Submit for State approval	4141	0.5 days	Thu 4/29/21	Thu 4/29/21	PM[10%]
4143	1.3.4.7.1.10.4	State reviews	4142	5 days	Fri 4/30/21	Thu 5/6/21	State[20%]
4144	**1.3.4.7.1.11**	**Deliverable: Review Cycle (2)**		**10 days**	**Fri 5/7/21**	**Thu 5/20/21**	
4145	1.3.4.7.1.11.1	Update deliverable with feedback	4143	3 days	Fri 5/7/21	Tue 5/11/21	PM[5%],Doc Mngr[50%],Impl Mngr[10%],Ops Mngr[5%]
4146	1.3.4.7.1.11.2	QA review and update	4145	1.5 days	Wed 5/12/21	Thu 5/13/21	Doc Mngr[40%],Impl Mngr[10%],Acct Mngr[10%],Ops Mngr[10%]
4147	1.3.4.7.1.11.3	Submit for State approval	4146	0.5 days	Thu 5/13/21	Thu 5/13/21	PM[10%]
4148	1.3.4.7.1.11.4	State reviews	4147	5 days	Fri 5/14/21	Thu 5/20/21	State[20%]
4149	1.3.4.7.1.12	State Provides Final Approval	4148	1 day	Fri 5/21/21	Fri 5/21/21	State[20%]
4150	1.3.4.7.1.13	Milestone: Cutover Play Book Approved	4149	0 days	Fri 5/21/21	Fri 5/21/21	
4151	**1.3.4.7.2**	**D056 Federal Review Supporting Documentation**		**78 days**	**Wed 2/3/21**	**Fri 5/21/21**	
4152	**1.3.4.7.2.1**	**Develop DED**		**7 days**	**Wed 2/3/21**	**Thu 2/11/21**	
4153	1.3.4.7.2.1.1	Review deliverable requirements	2571	2 days	Wed 2/3/21	Thu 2/4/21	PM[10%],Doc Mngr[50%]

WV EDW

ID	WBS	Task Name	Predecessors	Duration	Start	Finish	Resource Names
4154	1.3.4.7.2.1.2	Draft DED	4153	3 days	Fri 2/5/21	Tue 2/9/21	PM[10%],Doc Mngr[50%],CMS Cert SME[10%]
4155	1.3.4.7.2.1.3	Review DED	4154	1 day	Wed 2/10/21	Wed 2/10/21	PM[10%],Doc Mngr[50%],CMS Cert SME[10%]
4156	1.3.4.7.2.1.4	Finalize DED	4155	1 day	Thu 2/11/21	Thu 2/11/21	PM[10%],Doc Mngr[50%],CMS Cert SME[10%]
4157	**1.3.4.7.2.2**	**Internally Review DED**		**6 days**	**Fri 2/12/21**	**Fri 2/19/21**	
4158	1.3.4.7.2.2.1	Complete Contract Review	4156	2 days	Fri 2/12/21	Mon 2/15/21	PM[10%]
4159	1.3.4.7.2.2.2	Complete Peer Review	4156	2 days	Fri 2/12/21	Mon 2/15/21	Doc Mngr[10%],Impl Mngr[10%],CMS Cert SME[10%]
4160	1.3.4.7.2.2.3	Complete QA Review	4158,4159	2 days	Tue 2/16/21	Wed 2/17/21	Doc Mngr[25%]
4161	1.3.4.7.2.2.4	Update with feedback	4160	2 days	Thu 2/18/21	Fri 2/19/21	Doc Mngr[10%],Impl Mngr[10%],CMS Cert SME[10%]
4162	1.3.4.7.2.3	Submit for State Review	4161	1 day	Mon 2/22/21	Mon 2/22/21	PM[10%]
4163	1.3.4.7.2.4	State reviews document and provides feedback	4162	3 days	Tue 2/23/21	Thu 2/25/21	State[20%]
4164	**1.3.4.7.2.5**	**DED: Review Cycle (1)**		**4 days**	**Tue 3/9/21**	**Fri 3/12/21**	
4165	1.3.4.7.2.5.1	Update DED with feedback	4163	1 day	Tue 3/9/21	Tue 3/9/21	PM[5%],Doc Mngr[10%],CMS Cert SME[10%]
4166	1.3.4.7.2.5.2	QA review and update	4165	0.5 days	Wed 3/10/21	Wed 3/10/21	Doc Mngr[40%],CMS Cert SME[25%]
4167	1.3.4.7.2.5.3	Resubmit for State Review	4166	0.5 days	Wed 3/10/21	Wed 3/10/21	PM[10%]
4168	1.3.4.7.2.5.4	State reviews	4167	2 days	Thu 3/11/21	Fri 3/12/21	State[20%]
4169	**1.3.4.7.2.6**	**DED: Review Cycle (2)**		**5 days**	**Mon 3/15/21**	**Fri 3/19/21**	
4170	1.3.4.7.2.6.1	Update DED with feedback	4168	1 day	Mon 3/15/21	Mon 3/15/21	PM[5%],Doc Mngr[10%],CMS Cert SME[10%]
4171	1.3.4.7.2.6.2	QA review and update	4170	0.5 days	Tue 3/16/21	Tue 3/16/21	Doc Mngr[40%],CMS Cert SME[25%]
4172	1.3.4.7.2.6.3	Resubmit for State Review	4171	0.5 days	Tue 3/16/21	Tue 3/16/21	PM[10%]
4173	1.3.4.7.2.6.4	State reviews	4172	2 days	Wed 3/17/21	Thu 3/18/21	State[20%]
4174	1.3.4.7.2.6.5	State approves DED	4173	1 day	Fri 3/19/21	Fri 3/19/21	State[20%]
4175	**1.3.4.7.2.7**	**Develop Deliverable**		**13 days**	**Mon 3/22/21**	**Wed 4/7/21**	
4176	1.3.4.7.2.7.1	Create baseline from approved DED	4174	5 days	Mon 3/22/21	Fri 3/26/21	PM[5%],Doc Mngr[10%],CMS Cert SME[10%]
4177	1.3.4.7.2.7.2	Update deliverable	4176	5 days	Mon 3/29/21	Fri 4/2/21	PM[5%],Doc Mngr[10%],CMS Cert SME[10%]
4178	1.3.4.7.2.7.3	Conduct Internal Review	4177	2 days	Mon 4/5/21	Tue 4/6/21	PM[5%],Doc Mngr[10%],CMS Cert SME[10%]
4179	1.3.4.7.2.7.4	Final QA Review/Update of Deliverable	4178	1 day	Wed 4/7/21	Wed 4/7/21	Doc Mngr[40%],CMS Cert SME[25%]
4180	1.3.4.7.2.8	Submit Deliverable for State Review	4179	1 day	Thu 4/8/21	Thu 4/8/21	PM[10%]
4181	1.3.4.7.2.9	State reviews document and provides feedback	4180	10 days	Fri 4/9/21	Thu 4/22/21	State[20%]
4182	**1.3.4.7.2.10**	**Deliverable: Review Cycle (1)**		**10 days**	**Fri 4/23/21**	**Thu 5/6/21**	
4183	1.3.4.7.2.10	Update deliverable with feedback	4181	3 days	Fri 4/23/21	Tue 4/27/21	PM[5%],Doc Mngr[10%],CMS Cert SME[10%]
4184	1.3.4.7.2.10	QA review and update	4183	1.5 days	Wed 4/28/21	Thu 4/29/21	Doc Mngr[40%],CMS Cert SME[25%]
4185	1.3.4.7.2.10	Submit for State approval	4184	0.5 days	Thu 4/29/21	Thu 4/29/21	PM[10%]
4186	1.3.4.7.2.10	State reviews	4185	5 days	Fri 4/30/21	Thu 5/6/21	State[20%]
4187	**1.3.4.7.2.11**	**Deliverable: Review Cycle (2)**		**10 days**	**Fri 5/7/21**	**Thu 5/20/21**	
4188	1.3.4.7.2.11	Update deliverable with feedback	4186	3 days	Fri 5/7/21	Tue 5/11/21	PM[5%],Doc Mngr[10%],CMS Cert SME[10%]
4189	1.3.4.7.2.11	QA review and update	4188	1.5 days	Wed 5/12/21	Thu 5/13/21	Doc Mngr[40%],CMS Cert SME[25%]
4190	1.3.4.7.2.11	Submit for State approval	4189	0.5 days	Thu 5/13/21	Thu 5/13/21	PM[10%]
4191	1.3.4.7.2.11	State reviews	4190	5 days	Fri 5/14/21	Thu 5/20/21	State[20%]
4192	1.3.4.7.2.12	State Provides Final Approval	4191	1 day	Fri 5/21/21	Fri 5/21/21	State[20%]
4193	1.3.4.7.2.13	Milestone: Federal Review Supporting Documentation Approved	4192	0 days	Fri 5/21/21	Fri 5/21/21	
4194	**1.3.4.7.3**	**D057 Implementation Certification Letter**		**78 days**	**Wed 2/3/21**	**Fri 5/21/21**	
4195	**1.3.4.7.3.1**	**Develop DED**		**7 days**	**Wed 2/3/21**	**Thu 2/11/21**	
4196	1.3.4.7.3.1.1	Review deliverable requirements	2571	2 days	Wed 2/3/21	Thu 2/4/21	PM[10%],Doc Mngr[50%]
4197	1.3.4.7.3.1.2	Draft DED	4196	3 days	Fri 2/5/21	Tue 2/9/21	PM[10%],Doc Mngr[50%],Impl Mngr[10%],Ops Mngr[5%]
4198	1.3.4.7.3.1.3	Review DED	4197	1 day	Wed 2/10/21	Wed 2/10/21	PM[10%],Doc Mngr[50%],Impl Mngr[10%],Ops Mngr[5%]
4199	1.3.4.7.3.1.4	Finalize DED	4198	1 day	Thu 2/11/21	Thu 2/11/21	PM[10%],Doc Mngr[50%],Impl Mngr[10%],Ops Mngr[5%]
4200	**1.3.4.7.3.2**	**Internally Review DED**		**6 days**	**Fri 2/12/21**	**Fri 2/19/21**	
4201	1.3.4.7.3.2.1	Complete Contract Review	4199	2 days	Fri 2/12/21	Mon 2/15/21	PM[10%]
4202	1.3.4.7.3.2.2	Complete Peer Review	4199	2 days	Fri 2/12/21	Mon 2/15/21	Doc Mngr[10%],Impl Mngr[10%],Ops Mngr[10%],Acct Mngr[10%]
4203	1.3.4.7.3.2.3	Complete QA Review	4201,4202	2 days	Tue 2/16/21	Wed 2/17/21	Doc Mngr[25%]
4204	1.3.4.7.3.2.4	Update with feedback	4203	2 days	Thu 2/18/21	Fri 2/19/21	Doc Mngr[10%],Impl Mngr[10%],Ops Mngr[10%],Acct Mngr[10%]
4205	1.3.4.7.3.3	Submit for State Review	4204	1 day	Mon 2/22/21	Mon 2/22/21	PM[10%]
4206	1.3.4.7.3.4	State reviews document and provides feedback	4205	3 days	Tue 2/23/21	Thu 2/25/21	State[20%]
4207	**1.3.4.7.3.5**	**DED: Review Cycle (1)**		**4 days**	**Tue 3/9/21**	**Fri 3/12/21**	
4208	1.3.4.7.3.5.1	Update DED with feedback	4206	1 day	Tue 3/9/21	Tue 3/9/21	PM[5%],Doc Mngr[50%],Impl Mngr[10%],Ops Mngr[5%]
4209	1.3.4.7.3.5.2	QA review and update	4208	0.5 days	Wed 3/10/21	Wed 3/10/21	Doc Mngr[40%],Impl Mngr[10%],Acct Mngr[10%],Ops Mngr[10%]
4210	1.3.4.7.3.5.3	Resubmit for State Review	4209	0.5 days	Wed 3/10/21	Wed 3/10/21	PM[10%]
4211	1.3.4.7.3.5.4	State reviews	4210	2 days	Thu 3/11/21	Fri 3/12/21	State[20%]
4212	**1.3.4.7.3.6**	**DED: Review Cycle (2)**		**5 days**	**Mon 3/15/21**	**Fri 3/19/21**	
4213	1.3.4.7.3.6.1	Update DED with feedback	4211	1 day	Mon 3/15/21	Mon 3/15/21	PM[5%],Doc Mngr[50%],Impl Mngr[10%],Ops Mngr[5%]
4214	1.3.4.7.3.6.2	QA review and update	4213	0.5 days	Tue 3/16/21	Tue 3/16/21	Doc Mngr[40%],Impl Mngr[10%],Acct Mngr[10%],Ops Mngr[10%]
4215	1.3.4.7.3.6.3	Resubmit for State Review	4214	0.5 days	Tue 3/16/21	Tue 3/16/21	PM[10%]
4216	1.3.4.7.3.6.4	State reviews	4215	2 days	Wed 3/17/21	Thu 3/18/21	State[20%]
4217	1.3.4.7.3.6.5	State approves DED	4216	1 day	Fri 3/19/21	Fri 3/19/21	State[20%]
4218	**1.3.4.7.3.7**	**Develop Deliverable**		**13 days**	**Mon 3/22/21**	**Wed 4/7/21**	
4219	1.3.4.7.3.7.1	Create baseline from approved DED	4217	5 days	Mon 3/22/21	Fri 3/26/21	PM[5%],Doc Mngr[50%],Impl Mngr[10%],Ops Mngr[5%]
4220	1.3.4.7.3.7.2	Update deliverable	4219	5 days	Mon 3/29/21	Fri 4/2/21	PM[5%],Doc Mngr[50%],Impl Mngr[10%],Ops Mngr[5%]

ID	WBS	Task Name	Predecessors	Duration	Start	Finish	Resource Names
4221	1.3.4.7.3.7.3	Conduct Internal Review	4220	2 days	Mon 4/5/21	Tue 4/6/21	PM[5%],Doc Mngr[50%],Impl Mngr[10%],Ops Mngr[5%]
4222	1.3.4.7.3.7.4	Final QA Review/Update of Deliverable	4221	1 day	Wed 4/7/21	Wed 4/7/21	Doc Mngr[40%],Impl Mngr[10%],Acct Mngr[10%],Ops Mngr[10%]
4223	1.3.4.7.3.8	Submit Deliverable for State Review	4222	1 day	Thu 4/8/21	Thu 4/8/21	PM[10%]
4224	1.3.4.7.3.9	State reviews document and provides feedback	4223	10 days	Fri 4/9/21	Thu 4/22/21	State[20%]
4225	**1.3.4.7.3.10**	**Deliverable: Review Cycle (1)**		**10 days**	**Fri 4/23/21**	**Thu 5/6/21**	
4226	1.3.4.7.3.10.1	Update deliverable with feedback	4224	3 days	Fri 4/23/21	Tue 4/27/21	PM[5%],Doc Mngr[50%],Impl Mngr[10%],Ops Mngr[5%]
4227	1.3.4.7.3.10.2	QA review and update	4226	1.5 days	Wed 4/28/21	Thu 4/29/21	Doc Mngr[40%],Impl Mngr[10%],Acct Mngr[10%],Ops Mngr[10%]
4228	1.3.4.7.3.10.3	Submit for State approval	4227	0.5 days	Thu 4/29/21	Thu 4/29/21	PM[10%]
4229	1.3.4.7.3.10.4	State reviews	4228	5 days	Fri 4/30/21	Thu 5/6/21	State[20%]
4230	**1.3.4.7.3.11**	**Deliverable: Review Cycle (2)**		**10 days**	**Fri 5/7/21**	**Thu 5/20/21**	
4231	1.3.4.7.3.11.1	Update deliverable with feedback	4229	3 days	Fri 5/7/21	Tue 5/11/21	PM[5%],Doc Mngr[50%],Impl Mngr[10%],Ops Mngr[5%]
4232	1.3.4.7.3.11.2	QA review and update	4231	1.5 days	Wed 5/12/21	Thu 5/13/21	Doc Mngr[40%],Impl Mngr[10%],Acct Mngr[10%],Ops Mngr[10%]
4233	1.3.4.7.3.11.3	Submit for State approval	4232	0.5 days	Thu 5/13/21	Thu 5/13/21	PM[10%]
4234	1.3.4.7.3.11.4	State reviews	4233	5 days	Fri 5/14/21	Thu 5/20/21	State[20%]
4235	1.3.4.7.3.12	State Provides Final Approval	4234	1 day	Fri 5/21/21	Fri 5/21/21	State[20%]
4236	1.3.4.7.3.13	Milestone: Implementation Certification Letter Approved	4235	0 days	Fri 5/21/21	Fri 5/21/21	
4237	**1.3.4.7.4**	**D058 Implementation Plan (Rollout Plan)**		**78 days**	**Wed 2/3/21**	**Fri 5/21/21**	
4238	**1.3.4.7.4.1**	**Develop DED**		**7 days**	**Wed 2/3/21**	**Thu 2/11/21**	
4239	1.3.4.7.4.1.1	Review deliverable requirements	2571	2 days	Wed 2/3/21	Thu 2/4/21	PM[10%],Doc Mngr[50%]
4240	1.3.4.7.4.1.2	Draft DED	4239	3 days	Fri 2/5/21	Tue 2/9/21	PM[10%],Doc Mngr[50%],Impl Mngr[10%],Ops Mngr[5%]
4241	1.3.4.7.4.1.3	Review DED	4240	1 day	Wed 2/10/21	Wed 2/10/21	PM[10%],Doc Mngr[50%],Impl Mngr[10%],Ops Mngr[5%]
4242	1.3.4.7.4.1.4	Finalize DED	4241	1 day	Thu 2/11/21	Thu 2/11/21	PM[10%],Doc Mngr[50%],Impl Mngr[10%],Ops Mngr[5%]
4243	**1.3.4.7.4.2**	**Internally Review DED**		**6 days**	**Fri 2/12/21**	**Fri 2/19/21**	
4244	1.3.4.7.4.2.1	Complete Contract Review	4242	2 days	Fri 2/12/21	Mon 2/15/21	PM[10%]
4245	1.3.4.7.4.2.2	Complete Peer Review	4242	2 days	Fri 2/12/21	Mon 2/15/21	Doc Mngr[10%],Impl Mngr[10%],Ops Mngr[10%],Acct Mngr[10%]
4246	1.3.4.7.4.2.3	Complete QA Review	4244,4245	2 days	Tue 2/16/21	Wed 2/17/21	Doc Mngr[25%]
4247	1.3.4.7.4.2.4	Update with feedback	4246	2 days	Thu 2/18/21	Fri 2/19/21	Doc Mngr[10%],Impl Mngr[10%],Ops Mngr[10%],Acct Mngr[10%]
4248	1.3.4.7.4.3	Submit for State Review	4247	1 day	Mon 2/22/21	Mon 2/22/21	PM[10%]
4249	1.3.4.7.4.4	State reviews document and provides feedback	4248	3 days	Tue 2/23/21	Thu 2/25/21	State[20%]
4250	**1.3.4.7.4.5**	**DED: Review Cycle (1)**		**4 days**	**Tue 3/9/21**	**Fri 3/12/21**	
4251	1.3.4.7.4.5.1	Update DED with feedback	4249	1 day	Tue 3/9/21	Tue 3/9/21	PM[5%],Doc Mngr[50%],Impl Mngr[10%],Ops Mngr[5%]
4252	1.3.4.7.4.5.2	QA review and update	4251	0.5 days	Wed 3/10/21	Wed 3/10/21	Doc Mngr[40%],Impl Mngr[10%],Acct Mngr[10%],Ops Mngr[10%]
4253	1.3.4.7.4.5.3	Resubmit for State Review	4252	0.5 days	Wed 3/10/21	Wed 3/10/21	PM[10%]
4254	1.3.4.7.4.5.4	State reviews	4253	2 days	Thu 3/11/21	Fri 3/12/21	State[20%]
4255	**1.3.4.7.4.6**	**DED: Review Cycle (2)**		**5 days**	**Mon 3/15/21**	**Fri 3/19/21**	
4256	1.3.4.7.4.6.1	Update DED with feedback	4254	1 day	Mon 3/15/21	Mon 3/15/21	PM[5%],Doc Mngr[50%],Impl Mngr[10%],Ops Mngr[5%]
4257	1.3.4.7.4.6.2	QA review and update	4256	0.5 days	Tue 3/16/21	Tue 3/16/21	Doc Mngr[40%],Impl Mngr[10%],Acct Mngr[10%],Ops Mngr[10%]
4258	1.3.4.7.4.6.3	Resubmit for State Review	4257	0.5 days	Tue 3/16/21	Tue 3/16/21	PM[10%]
4259	1.3.4.7.4.6.4	State reviews	4258	2 days	Wed 3/17/21	Thu 3/18/21	State[20%]
4260	1.3.4.7.4.6.5	State approves DED	4259	1 day	Fri 3/19/21	Fri 3/19/21	State[20%]
4261	**1.3.4.7.4.7**	**Develop Deliverable**		**13 days**	**Mon 3/22/21**	**Wed 4/7/21**	
4262	1.3.4.7.4.7.1	Create baseline from approved DED	4260	5 days	Mon 3/22/21	Fri 3/26/21	PM[5%],Doc Mngr[50%],Impl Mngr[10%],Ops Mngr[5%]
4263	1.3.4.7.4.7.2	Update deliverable	4262	5 days	Mon 3/29/21	Fri 4/2/21	PM[5%],Doc Mngr[50%],Impl Mngr[10%],Ops Mngr[5%]
4264	1.3.4.7.4.7.3	Conduct Internal Review	4263	2 days	Mon 4/5/21	Tue 4/6/21	PM[5%],Doc Mngr[50%],Impl Mngr[10%],Ops Mngr[5%]
4265	1.3.4.7.4.7.4	Final QA Review/Update of Deliverable	4264	1 day	Wed 4/7/21	Wed 4/7/21	Doc Mngr[40%],Impl Mngr[10%],Acct Mngr[10%],Ops Mngr[10%]
4266	1.3.4.7.4.8	Submit Deliverable for State Review	4265	1 day	Thu 4/8/21	Thu 4/8/21	PM[10%]
4267	1.3.4.7.4.9	State reviews document and provides feedback	4266	10 days	Fri 4/9/21	Thu 4/22/21	State[20%]
4268	**1.3.4.7.4.10**	**Deliverable: Review Cycle (1)**		**10 days**	**Fri 4/23/21**	**Thu 5/6/21**	
4269	1.3.4.7.4.10.1	Update deliverable with feedback	4267	3 days	Fri 4/23/21	Tue 4/27/21	PM[5%],Doc Mngr[50%],Impl Mngr[10%],Ops Mngr[5%]
4270	1.3.4.7.4.10.2	QA review and update	4269	1.5 days	Wed 4/28/21	Thu 4/29/21	Doc Mngr[40%],Impl Mngr[10%],Acct Mngr[10%],Ops Mngr[10%]
4271	1.3.4.7.4.10.3	Submit for State approval	4270	0.5 days	Thu 4/29/21	Thu 4/29/21	PM[10%]
4272	1.3.4.7.4.10.4	State reviews	4271	5 days	Fri 4/30/21	Thu 5/6/21	State[20%]
4273	**1.3.4.7.4.11**	**Deliverable: Review Cycle (2)**		**10 days**	**Fri 5/7/21**	**Thu 5/20/21**	
4274	1.3.4.7.4.11.1	Update deliverable with feedback	4272	3 days	Fri 5/7/21	Tue 5/11/21	PM[5%],Doc Mngr[50%],Impl Mngr[10%],Ops Mngr[5%]
4275	1.3.4.7.4.11.2	QA review and update	4274	1.5 days	Wed 5/12/21	Thu 5/13/21	Doc Mngr[40%],Impl Mngr[10%],Acct Mngr[10%],Ops Mngr[10%]
4276	1.3.4.7.4.11.3	Submit for State approval	4275	0.5 days	Thu 5/13/21	Thu 5/13/21	PM[10%]
4277	1.3.4.7.4.11.4	State reviews	4276	5 days	Fri 5/14/21	Thu 5/20/21	State[20%]
4278	1.3.4.7.4.12	State Provides Final Approval	4277	1 day	Fri 5/21/21	Fri 5/21/21	State[20%]
4279	1.3.4.7.4.13	Milestone: Implementation Plan (Rollout Plan) Approved	4278	0 days	Fri 5/21/21	Fri 5/21/21	
4280	**1.3.4.7.5**	**D059 Operations Change Management Plan**		**71 days**	**Wed 2/3/21**	**Wed 5/12/21**	
4281	**1.3.4.7.5.1**	**Develop DED**		**7 days**	**Wed 2/3/21**	**Thu 2/11/21**	
4282	1.3.4.7.5.1.1	Review deliverable requirements	2571,66	2 days	Wed 2/3/21	Thu 2/4/21	PM[10%],Doc Mngr[50%]
4283	1.3.4.7.5.1.2	Draft DED	4282	3 days	Fri 2/5/21	Tue 2/9/21	PM[10%],Doc Mngr[50%],Change / Release Manager[10%]
4284	1.3.4.7.5.1.3	Review DED	4283	1 day	Wed 2/10/21	Wed 2/10/21	PM[10%],Doc Mngr[50%],Change / Release Manager[10%]
4285	1.3.4.7.5.1.4	Finalize DED	4284	1 day	Thu 2/11/21	Thu 2/11/21	PM[10%],Doc Mngr[50%],Change / Release Manager[10%]
4286	**1.3.4.7.5.2**	**Internally Review DED**		**6 days**	**Fri 2/12/21**	**Fri 2/19/21**	
4287	1.3.4.7.5.2.1	Complete Contract Review	4285	2 days	Fri 2/12/21	Mon 2/15/21	PM[10%]

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ID	WBS	Task Name	Predecessors	Duration	Start	Finish	Resource Names
4288	1.3.4.7.5.2	Complete Peer Review	4285	2 days	Fri 2/12/21	Mon 2/15/21	Doc Mngr[10%],Change / Release Manager[10%],Ops Mngr[10%]
4289	1.3.4.7.5.3	Complete QA Review	4287,4288	2 days	Tue 2/16/21	Wed 2/17/21	Doc Mngr[25%]
4290	1.3.4.7.5.4	Update with feedback	4289	2 days	Thu 2/18/21	Fri 2/19/21	Doc Mngr[10%],Change / Release Manager[10%],Ops Mngr[10%]
4291	1.3.4.7.5.3	Submit for State Review	4290	1 day	Mon 2/22/21	Mon 2/22/21	PM[10%]
4292	1.3.4.7.5.4	State reviews document and provides feedback	4291	3 days	Tue 2/23/21	Thu 2/25/21	State[20%]
4293	**1.3.4.7.5.5**	**DED: Review Cycle (1)**		**4 days**	**Fri 2/26/21**	**Wed 3/3/21**	
4294	1.3.4.7.5.5.1	Update DED with feedback	4292	1 day	Fri 2/26/21	Fri 2/26/21	PM[5%],Doc Mngr[10%],Change / Release Manager[10%]
4295	1.3.4.7.5.5.2	QA review and update	4294	0.5 days	Mon 3/1/21	Mon 3/1/21	Doc Mngr[40%],Change / Release Manager[25%]
4296	1.3.4.7.5.5.3	Resubmit for State Review	4295	0.5 days	Mon 3/1/21	Mon 3/1/21	PM[10%]
4297	1.3.4.7.5.5.4	State reviews	4296	2 days	Tue 3/2/21	Wed 3/3/21	State[20%]
4298	**1.3.4.7.5.6**	**DED: Review Cycle (2)**		**5 days**	**Thu 3/4/21**	**Wed 3/10/21**	
4299	1.3.4.7.5.6.1	Update DED with feedback	4297	1 day	Thu 3/4/21	Thu 3/4/21	PM[5%],Doc Mngr[10%],Change / Release Manager[10%]
4300	1.3.4.7.5.6.2	QA review and update	4299	0.5 days	Fri 3/5/21	Fri 3/5/21	Doc Mngr[40%],Change / Release Manager[25%]
4301	1.3.4.7.5.6.3	Resubmit for State Review	4300	0.5 days	Fri 3/5/21	Fri 3/5/21	PM[10%]
4302	1.3.4.7.5.6.4	State reviews	4301	2 days	Mon 3/8/21	Tue 3/9/21	State[20%]
4303	1.3.4.7.5.6.5	State approves DED	4302	1 day	Wed 3/10/21	Wed 3/10/21	State[20%]
4304	**1.3.4.7.5.7**	**Develop Deliverable**		**13 days**	**Thu 3/11/21**	**Mon 3/29/21**	
4305	1.3.4.7.5.7.1	Create baseline from approved DED	4303	5 days	Thu 3/11/21	Wed 3/17/21	PM[5%],Doc Mngr[10%],Change / Release Manager[10%]
4306	1.3.4.7.5.7.2	Update deliverable	4305	5 days	Thu 3/18/21	Wed 3/24/21	PM[5%],Doc Mngr[10%],Change / Release Manager[10%]
4307	1.3.4.7.5.7.3	Conduct Internal Review	4306	2 days	Thu 3/25/21	Fri 3/26/21	PM[5%],Doc Mngr[10%],Change / Release Manager[10%]
4308	1.3.4.7.5.7.4	Final QA Review/Update of Deliverable	4307	1 day	Mon 3/29/21	Mon 3/29/21	Doc Mngr[40%],Change / Release Manager[25%]
4309	1.3.4.7.5.8	Submit Deliverable for State Review	4308	1 day	Tue 3/30/21	Tue 3/30/21	PM[10%]
4310	1.3.4.7.5.9	State reviews document and provides feedback	4309	10 days	Wed 3/31/21	Tue 4/13/21	State[20%]
4311	**1.3.4.7.5.10**	**Deliverable: Review Cycle (1)**		**10 days**	**Wed 4/14/21**	**Tue 4/27/21**	
4312	1.3.4.7.5.10.	Update deliverable with feedback	4310	3 days	Wed 4/14/21	Fri 4/16/21	PM[5%],Doc Mngr[10%],Change / Release Manager[10%]
4313	1.3.4.7.5.10.	QA review and update	4312	1.5 days	Mon 4/19/21	Tue 4/20/21	Doc Mngr[40%],Change / Release Manager[25%]
4314	1.3.4.7.5.10.	Submit for State approval	4313	0.5 days	Tue 4/20/21	Tue 4/20/21	PM[10%]
4315	1.3.4.7.5.10.	State reviews	4314	5 days	Wed 4/21/21	Tue 4/27/21	State[20%]
4316	**1.3.4.7.5.11**	**Deliverable: Review Cycle (2)**		**10 days**	**Wed 4/28/21**	**Tue 5/11/21**	
4317	1.3.4.7.5.11.	Update deliverable with feedback	4315	3 days	Wed 4/28/21	Fri 4/30/21	PM[5%],Doc Mngr[10%],Change / Release Manager[10%]
4318	1.3.4.7.5.11.	QA review and update	4317	1.5 days	Mon 5/3/21	Tue 5/4/21	Doc Mngr[40%],Change / Release Manager[25%]
4319	1.3.4.7.5.11.	Submit for State approval	4318	0.5 days	Tue 5/4/21	Tue 5/4/21	PM[10%]
4320	1.3.4.7.5.11.	State reviews	4319	5 days	Wed 5/5/21	Tue 5/11/21	State[20%]
4321	1.3.4.7.5.12	State Provides Final Approval	4320	1 day	Wed 5/12/21	Wed 5/12/21	State[20%]
4322	1.3.4.7.5.13	Milestone: Operations Change Management Plan Approved	4321	0 days	Wed 5/12/21	Wed 5/12/21	
4323	**1.3.4.7.6**	**D060 Operational Milestone Review**		**73 days**	**Mon 3/22/21**	**Thu 7/1/21**	
4324	**1.3.4.7.6.1**	**Develop DED**		**7 days**	**Mon 3/22/21**	**Tue 3/30/21**	
4325	1.3.4.7.6.1.1	Review deliverable requirements	4260	2 days	Mon 3/22/21	Tue 3/23/21	PM[10%],Doc Mngr[50%]
4326	1.3.4.7.6.1.2	Draft DED	4325	3 days	Wed 3/24/21	Fri 3/26/21	PM[10%],Doc Mngr[50%],Impl Mngr[10%],Ops Mngr[5%]
4327	1.3.4.7.6.1.3	Review DED	4326	1 day	Mon 3/29/21	Mon 3/29/21	PM[10%],Doc Mngr[50%],Impl Mngr[10%],Ops Mngr[5%]
4328	1.3.4.7.6.1.4	Finalize DED	4327	1 day	Tue 3/30/21	Tue 3/30/21	PM[10%],Doc Mngr[50%],Impl Mngr[10%],Ops Mngr[5%]
4329	**1.3.4.7.6.2**	**Internally Review DED**		**6 days**	**Wed 3/31/21**	**Wed 4/7/21**	
4330	1.3.4.7.6.2.1	Complete Contract Review	4328	2 days	Wed 3/31/21	Thu 4/1/21	PM[10%]
4331	1.3.4.7.6.2.2	Complete Peer Review	4328	2 days	Wed 3/31/21	Thu 4/1/21	Doc Mngr[10%],Impl Mngr[10%],Ops Mngr[10%],Acct Mngr[10%],CMS Cer
4332	1.3.4.7.6.2.3	Complete QA Review	4330,4331	2 days	Fri 4/2/21	Mon 4/5/21	Doc Mngr[25%]
4333	1.3.4.7.6.2.4	Update with feedback	4332	2 days	Tue 4/6/21	Wed 4/7/21	Doc Mngr[10%],Impl Mngr[10%],Ops Mngr[10%],Acct Mngr[10%]
4334	1.3.4.7.6.3	Submit for State Review	4333	1 day	Thu 4/8/21	Thu 4/8/21	PM[10%]
4335	1.3.4.7.6.4	State reviews document and provides feedback	4334	3 days	Fri 4/9/21	Tue 4/13/21	State[20%]
4336	**1.3.4.7.6.5**	**DED: Review Cycle (1)**		**4 days**	**Fri 4/16/21**	**Wed 4/21/21**	
4337	1.3.4.7.6.5.1	Update DED with feedback	4335	1 day	Fri 4/16/21	Fri 4/16/21	PM[5%],Doc Mngr[50%],Impl Mngr[10%],Ops Mngr[5%]
4338	1.3.4.7.6.5.2	QA review and update	4337	0.5 days	Mon 4/19/21	Mon 4/19/21	Doc Mngr[40%],Impl Mngr[10%],Acct Mngr[10%],Ops Mngr[10%],CMS Cer
4339	1.3.4.7.6.5.3	Resubmit for State Review	4338	0.5 days	Mon 4/19/21	Mon 4/19/21	PM[10%]
4340	1.3.4.7.6.5.4	State reviews	4339	2 days	Tue 4/20/21	Wed 4/21/21	State[20%]
4341	**1.3.4.7.6.6**	**DED: Review Cycle (2)**		**5 days**	**Thu 4/22/21**	**Wed 4/28/21**	
4342	1.3.4.7.6.6.1	Update DED with feedback	4340	1 day	Thu 4/22/21	Thu 4/22/21	PM[5%],Doc Mngr[50%],Impl Mngr[10%],Ops Mngr[5%]
4343	1.3.4.7.6.6.2	QA review and update	4342	0.5 days	Fri 4/23/21	Fri 4/23/21	Doc Mngr[40%],Impl Mngr[10%],Acct Mngr[10%],Ops Mngr[10%],CMS Cer
4344	1.3.4.7.6.6.3	Resubmit for State Review	4343	0.5 days	Fri 4/23/21	Fri 4/23/21	PM[10%]
4345	1.3.4.7.6.6.4	State reviews	4344	2 days	Mon 4/26/21	Tue 4/27/21	State[20%]
4346	1.3.4.7.6.6.5	State approves DED	4345	1 day	Wed 4/28/21	Wed 4/28/21	State[20%]
4347	**1.3.4.7.6.7**	**Develop Deliverable**		**13 days**	**Thu 4/29/21**	**Mon 5/17/21**	
4348	1.3.4.7.6.7.1	Create baseline from approved DED	4346	5 days	Thu 4/29/21	Wed 5/5/21	PM[5%],Doc Mngr[50%],Impl Mngr[10%],Ops Mngr[5%]
4349	1.3.4.7.6.7.2	Update deliverable	4348	5 days	Thu 5/6/21	Wed 5/12/21	PM[5%],Doc Mngr[50%],Impl Mngr[10%],Ops Mngr[5%]
4350	1.3.4.7.6.7.3	Conduct Internal Review	4349	2 days	Thu 5/13/21	Fri 5/14/21	PM[5%],Doc Mngr[50%],Impl Mngr[10%],Ops Mngr[5%],CMS Cert SME
4351	1.3.4.7.6.7.4	Final QA Review/Update of Deliverable	4350	1 day	Mon 5/17/21	Mon 5/17/21	Doc Mngr[40%],Impl Mngr[10%],Acct Mngr[10%],Ops Mngr[10%],CMS Cer
4352	1.3.4.7.6.8	Submit Deliverable for State Review	4351	1 day	Tue 5/18/21	Tue 5/18/21	PM[10%]
4353	1.3.4.7.6.9	State reviews document and provides feedback	4352	10 days	Wed 5/19/21	Wed 6/2/21	State[20%]
4354	**1.3.4.7.6.10**	**Deliverable: Review Cycle (1)**		**10 days**	**Thu 6/3/21**	**Wed 6/16/21**	

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ID	WBS	Task Name	Predecessors	Duration	Start	Finish	Resource Names
4355	1.3.4.7.6.10	Update deliverable with feedback	4353	3 days	Thu 6/3/21	Mon 6/7/21	PM[5%],Doc Mngr[50%],Impl Mngr[10%],Ops Mngr[5%]
4356	1.3.4.7.6.10	QA review and update	4355	1.5 days	Tue 6/8/21	Wed 6/9/21	Doc Mngr[40%],Impl Mngr[10%],Acct Mngr[10%],Ops Mngr[10%],CMS Cer
4357	1.3.4.7.6.10	Submit for State approval	4356	0.5 days	Wed 6/9/21	Wed 6/9/21	PM[10%]
4358	1.3.4.7.6.10	State reviews	4357	5 days	Thu 6/10/21	Wed 6/16/21	State[20%]
4359	**1.3.4.7.6.11**	**Deliverable: Review Cycle (2)**		**10 days**	**Thu 6/17/21**	**Wed 6/30/21**	
4360	1.3.4.7.6.11	Update deliverable with feedback	4358	3 days	Thu 6/17/21	Mon 6/21/21	PM[5%],Doc Mngr[50%],Impl Mngr[10%],Ops Mngr[5%]
4361	1.3.4.7.6.11	QA review and update	4360	1.5 days	Tue 6/22/21	Wed 6/23/21	Doc Mngr[40%],Impl Mngr[10%],Acct Mngr[10%],Ops Mngr[10%],CMS Cer
4362	1.3.4.7.6.11	Submit for State approval	4361	0.5 days	Wed 6/23/21	Wed 6/23/21	PM[10%]
4363	1.3.4.7.6.11	State reviews	4362	5 days	Thu 6/24/21	Wed 6/30/21	State[20%]
4364	1.3.4.7.6.12	State Provides Final Approval	4363	1 day	Thu 7/1/21	Thu 7/1/21	State[20%]
4365	1.3.4.7.6.13	Milestone: Reports and Forms Inventory Approved	4364	0 days	Thu 7/1/21	Thu 7/1/21	
4366	**1.3.4.7.7**	**D061 Production Screenshots, Reports, and Data for Certification**		**124 days**	**Wed 2/3/21**	**Wed 7/28/21**	
4367	**1.3.4.7.7.1**	**Develop DED**		**7 days**	**Wed 2/3/21**	**Thu 2/11/21**	
4368	1.3.4.7.7.1.1	Review deliverable requirements	2571	2 days	Wed 2/3/21	Thu 2/4/21	PM[10%],Doc Mngr[50%]
4369	1.3.4.7.7.1.2	Draft DED	4368	3 days	Fri 2/5/21	Tue 2/9/21	PM[10%],Doc Mngr[50%],CMS Cert SME[10%]
4370	1.3.4.7.7.1.3	Review DED	4369	1 day	Wed 2/10/21	Wed 2/10/21	PM[10%],Doc Mngr[50%],CMS Cert SME[10%]
4371	1.3.4.7.7.1.4	Finalize DED	4370	1 day	Thu 2/11/21	Thu 2/11/21	PM[10%],Doc Mngr[50%],CMS Cert SME[10%]
4372	**1.3.4.7.7.2**	**Internally Review DED**		**6 days**	**Fri 2/12/21**	**Fri 2/19/21**	
4373	1.3.4.7.7.2.1	Complete Contract Review	4371	2 days	Fri 2/12/21	Mon 2/15/21	PM[10%]
4374	1.3.4.7.7.2.2	Complete Peer Review	4371	2 days	Fri 2/12/21	Mon 2/15/21	Doc Mngr[10%],Impl Mngr[10%],CMS Cert SME[10%]
4375	1.3.4.7.7.2.3	Complete QA Review	4373,4374	2 days	Tue 2/16/21	Wed 2/17/21	Doc Mngr[25%]
4376	1.3.4.7.7.2.4	Update with feedback	4375	2 days	Thu 2/18/21	Fri 2/19/21	Doc Mngr[10%],Impl Mngr[10%],CMS Cert SME[10%]
4377	1.3.4.7.7.3	Submit for State Review	4376	1 day	Mon 2/22/21	Mon 2/22/21	PM[10%]
4378	1.3.4.7.7.4	State reviews document and provides feedback	4377	3 days	Tue 2/23/21	Thu 2/25/21	State[20%]
4379	**1.3.4.7.7.5**	**DED: Review Cycle (1)**		**4 days**	**Tue 3/9/21**	**Fri 3/12/21**	
4380	1.3.4.7.7.5.1	Update DED with feedback	4378	1 day	Tue 3/9/21	Tue 3/9/21	PM[5%],Doc Mngr[10%],CMS Cert SME[10%]
4381	1.3.4.7.7.5.2	QA review and update	4380	0.5 days	Wed 3/10/21	Wed 3/10/21	Doc Mngr[40%],CMS Cert SME[25%]
4382	1.3.4.7.7.5.3	Resubmit for State Review	4381	0.5 days	Wed 3/10/21	Wed 3/10/21	PM[10%]
4383	1.3.4.7.7.5.4	State reviews	4382	2 days	Thu 3/11/21	Fri 3/12/21	State[20%]
4384	**1.3.4.7.7.6**	**DED: Review Cycle (2)**		**5 days**	**Mon 3/15/21**	**Fri 3/19/21**	
4385	1.3.4.7.7.6.1	Update DED with feedback	4383	1 day	Mon 3/15/21	Mon 3/15/21	PM[5%],Doc Mngr[10%],CMS Cert SME[10%]
4386	1.3.4.7.7.6.2	QA review and update	4385	0.5 days	Tue 3/16/21	Tue 3/16/21	Doc Mngr[40%],CMS Cert SME[25%]
4387	1.3.4.7.7.6.3	Resubmit for State Review	4386	0.5 days	Tue 3/16/21	Tue 3/16/21	PM[10%]
4388	1.3.4.7.7.6.4	State reviews	4387	2 days	Wed 3/17/21	Thu 3/18/21	State[20%]
4389	1.3.4.7.7.6.5	State approves DED	4388	1 day	Fri 3/19/21	Fri 3/19/21	State[20%]
4390	**1.3.4.7.7.7**	**Develop Deliverable**		**13 days**	**Tue 5/25/21**	**Fri 6/11/21**	
4391	1.3.4.7.7.7.1	Create baseline from approved DED	4083FS+30 days,4	5 days	Tue 5/25/21	Tue 6/1/21	PM[5%],Doc Mngr[10%],CMS Cert SME[10%],AC[10%],BA[10%]
4392	1.3.4.7.7.7.2	Update deliverable	4391	5 days	Wed 6/2/21	Tue 6/8/21	PM[5%],Doc Mngr[10%],CMS Cert SME[10%],AC[10%],BA[10%]
4393	1.3.4.7.7.7.3	Conduct Internal Review	4392	2 days	Wed 6/9/21	Thu 6/10/21	PM[5%],Doc Mngr[10%],CMS Cert SME[10%],AC[10%],BA[10%]
4394	1.3.4.7.7.7.4	Final QA Review/Update of Deliverable	4393	1 day	Fri 6/11/21	Fri 6/11/21	Doc Mngr[40%],CMS Cert SME[25%]
4395	1.3.4.7.7.8	Submit Deliverable for State Review	4394	1 day	Mon 6/14/21	Mon 6/14/21	PM[10%]
4396	1.3.4.7.7.9	State reviews document and provides feedback	4395	10 days	Tue 6/15/21	Mon 6/28/21	State[20%]
4397	**1.3.4.7.7.10**	**Deliverable: Review Cycle (1)**		**10 days**	**Tue 6/29/21**	**Tue 7/13/21**	
4398	1.3.4.7.7.10	Update deliverable with feedback	4396	3 days	Tue 6/29/21	Thu 7/1/21	PM[5%],Doc Mngr[10%],CMS Cert SME[10%],AC[10%],BA[10%]
4399	1.3.4.7.7.10	QA review and update	4398	1.5 days	Fri 7/2/21	Tue 7/6/21	Doc Mngr[40%],CMS Cert SME[25%]
4400	1.3.4.7.7.10	Submit for State approval	4399	0.5 days	Tue 7/6/21	Tue 7/6/21	PM[10%]
4401	1.3.4.7.7.10	State reviews	4400	5 days	Wed 7/7/21	Tue 7/13/21	State[20%]
4402	**1.3.4.7.7.11**	**Deliverable: Review Cycle (2)**		**10 days**	**Wed 7/14/21**	**Tue 7/27/21**	
4403	1.3.4.7.7.11	Update deliverable with feedback	4401	3 days	Wed 7/14/21	Fri 7/16/21	PM[5%],Doc Mngr[10%],CMS Cert SME[10%],AC[10%],BA[10%]
4404	1.3.4.7.7.11	QA review and update	4403	1.5 days	Mon 7/19/21	Tue 7/20/21	Doc Mngr[40%],CMS Cert SME[25%]
4405	1.3.4.7.7.11	Submit for State approval	4404	0.5 days	Tue 7/20/21	Tue 7/20/21	PM[10%]
4406	1.3.4.7.7.11	State reviews	4405	5 days	Wed 7/21/21	Tue 7/27/21	State[20%]
4407	1.3.4.7.7.12	State Provides Final Approval	4406	1 day	Wed 7/28/21	Wed 7/28/21	State[20%]
4408	1.3.4.7.7.13	Milestone: Production Screenshots, Reports, and Data for Certification Approved	4407	0 days	Wed 7/28/21	Wed 7/28/21	
4409	**1.3.4.7.8**	**D062 Report Distribution Schedule**		**152 days**	**Thu 8/13/20**	**Mon 3/22/21**	
4410	**1.3.4.7.8.1**	**Develop DED**		**7 days**	**Thu 8/13/20**	**Fri 8/21/20**	
4411	1.3.4.7.8.1.1	Review deliverable requirements	3720	2 days	Thu 8/13/20	Fri 8/14/20	PM[10%],Doc Mngr[50%]
4412	1.3.4.7.8.1.2	Draft DED	4411	3 days	Mon 8/17/20	Wed 8/19/20	PM[10%],Doc Mngr[10%],AC[10%],BI Dev[10%],BA[10%]
4413	1.3.4.7.8.1.3	Review DED	4412	1 day	Thu 8/20/20	Thu 8/20/20	PM[10%],Doc Mngr[10%],AC[10%],BI Dev[10%],BA[10%]
4414	1.3.4.7.8.1.4	Finalize DED	4413	1 day	Fri 8/21/20	Fri 8/21/20	PM[10%],Doc Mngr[10%],AC[10%],BI Dev[10%],BA[10%]
4415	**1.3.4.7.8.2**	**Internally Review DED**		**6 days**	**Mon 8/24/20**	**Mon 8/31/20**	
4416	1.3.4.7.8.2.1	Complete Contract Review	4414	2 days	Mon 8/24/20	Tue 8/25/20	PM[10%]
4417	1.3.4.7.8.2.2	Complete Peer Review	4414	2 days	Mon 8/24/20	Tue 8/25/20	Doc Mngr[10%],PM[10%],AC[10%],BI Dev[10%],BA[10%]
4418	1.3.4.7.8.2.3	Complete QA Review	4416,4417	2 days	Wed 8/26/20	Thu 8/27/20	Doc Mngr[25%]
4419	1.3.4.7.8.2.4	Update with feedback	4418	2 days	Fri 8/28/20	Mon 8/31/20	Doc Mngr[10%],PM[10%],AC[10%],BI Dev[10%],BA[10%]
4420	1.3.4.7.8.3	Submit for State Review	4419	1 day	Tue 9/1/20	Tue 9/1/20	PM[10%]
4421	1.3.4.7.8.4	State reviews document and provides feedback	4420	3 days	Wed 9/2/20	Fri 9/4/20	State[20%]

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ID	WBS	Task Name	Predecessors	Duration	Start	Finish	Resource Names
4422	**1.3.4.7.8.5**	**DED: Review Cycle (1)**		**4 days**	**Tue 9/8/20**	**Fri 9/11/20**	
4423	1.3.4.7.8.5.1	Update DED with feedback	4421	1 day	Tue 9/8/20	Tue 9/8/20	PM[10%],Doc Mngr[10%],AC[10%],BI Dev[10%],BA[10%]
4424	1.3.4.7.8.5.2	QA review and update	4423	0.5 days	Wed 9/9/20	Wed 9/9/20	Doc Mngr[10%],PM[10%],AC[10%],BI Dev[10%],BA[10%]
4425	1.3.4.7.8.5.3	Resubmit for State Review	4424	0.5 days	Wed 9/9/20	Wed 9/9/20	PM[10%]
4426	1.3.4.7.8.5.4	State reviews	4425	2 days	Thu 9/10/20	Fri 9/11/20	State[20%]
4427	**1.3.4.7.8.6**	**DED: Review Cycle (2)**		**5 days**	**Mon 9/14/20**	**Fri 9/18/20**	
4428	1.3.4.7.8.6.1	Update DED with feedback	4426	1 day	Mon 9/14/20	Mon 9/14/20	PM[10%],Doc Mngr[10%],AC[10%],BI Dev[10%],BA[10%]
4429	1.3.4.7.8.6.2	QA review and update	4428	0.5 days	Tue 9/15/20	Tue 9/15/20	Doc Mngr[10%],PM[10%],AC[10%],BI Dev[10%],BA[10%]
4430	1.3.4.7.8.6.3	Resubmit for State Review	4429	0.5 days	Tue 9/15/20	Tue 9/15/20	PM[10%]
4431	1.3.4.7.8.6.4	State reviews	4430	2 days	Wed 9/16/20	Thu 9/17/20	State[20%]
4432	1.3.4.7.8.6.5	State approves DED	4431	1 day	Fri 9/18/20	Fri 9/18/20	State[20%]
4433	**1.3.4.7.8.7**	**Develop Deliverable**		**13 days**	**Tue 1/19/21**	**Thu 2/4/21**	
4434	1.3.4.7.8.7.1	Create baseline from approved DED	4083FS-60 days,4	5 days	Tue 1/19/21	Mon 1/25/21	PM[10%],Doc Mngr[10%],AC[10%],BI Dev[10%],BA[10%]
4435	1.3.4.7.8.7.2	Update deliverable	4434	5 days	Tue 1/26/21	Mon 2/1/21	PM[5%],Doc Mngr[10%]
4436	1.3.4.7.8.7.3	Conduct Internal Review	4435	2 days	Tue 2/2/21	Wed 2/3/21	PM[5%],Doc Mngr[10%],Ops Mngr[5%]
4437	1.3.4.7.8.7.4	Final QA Review/Update of Deliverable	4436	1 day	Thu 2/4/21	Thu 2/4/21	Doc Mngr[10%],PM[10%],AC[10%],BI Dev[10%],BA[10%]
4438	1.3.4.7.8.8	Submit Deliverable for State Review	4437	1 day	Fri 2/5/21	Fri 2/5/21	PM[10%]
4439	1.3.4.7.8.9	State reviews document and provides feedback	4438	10 days	Mon 2/8/21	Fri 2/19/21	State[20%]
4440	**1.3.4.7.8.10**	**Deliverable: Review Cycle (1)**		**10 days**	**Mon 2/22/21**	**Fri 3/5/21**	
4441	1.3.4.7.8.10.1	Update deliverable with feedback	4439	3 days	Mon 2/22/21	Wed 2/24/21	PM[10%],Doc Mngr[10%],AC[10%],BI Dev[10%],BA[10%]
4442	1.3.4.7.8.10.2	QA review and update	4441	1.5 days	Thu 2/25/21	Fri 2/26/21	Doc Mngr[10%],PM[10%],AC[10%],BI Dev[10%],BA[10%]
4443	1.3.4.7.8.10.3	Submit for State approval	4442	0.5 days	Fri 2/26/21	Fri 2/26/21	PM[10%]
4444	1.3.4.7.8.10.4	State reviews	4443	5 days	Mon 3/1/21	Fri 3/5/21	State[20%]
4445	**1.3.4.7.8.11**	**Deliverable: Review Cycle (2)**		**10 days**	**Mon 3/8/21**	**Fri 3/19/21**	
4446	1.3.4.7.8.11.1	Update deliverable with feedback	4444	3 days	Mon 3/8/21	Wed 3/10/21	PM[10%],Doc Mngr[10%],AC[10%],BI Dev[10%],BA[10%]
4447	1.3.4.7.8.11.2	QA review and update	4446	1.5 days	Thu 3/11/21	Fri 3/12/21	Doc Mngr[10%],PM[10%],AC[10%],BI Dev[10%],BA[10%]
4448	1.3.4.7.8.11.3	Submit for State approval	4447	0.5 days	Fri 3/12/21	Fri 3/12/21	PM[10%]
4449	1.3.4.7.8.11.4	State reviews	4448	5 days	Mon 3/15/21	Fri 3/19/21	State[20%]
4450	1.3.4.7.8.12	State Provides Final Approval	4449	1 day	Mon 3/22/21	Mon 3/22/21	State[20%]
4451	1.3.4.7.8.13	Milestone: Report Distribution Schedule Approved	4450	0 days	Mon 3/22/21	Mon 3/22/21	
4452	**1.3.4.7.9**	**D063 Solution Health Monitoring Plan**		**72 days**	**Mon 3/22/21**	**Wed 6/30/21**	
4453	**1.3.4.7.9.1**	**Develop DED**		**7 days**	**Mon 3/22/21**	**Tue 3/30/21**	
4454	1.3.4.7.9.1.1	Review deliverable requirements	4260	2 days	Mon 3/22/21	Tue 3/23/21	PM[10%],Doc Mngr[50%]
4455	1.3.4.7.9.1.2	Draft DED	4454	3 days	Wed 3/24/21	Fri 3/26/21	PM[10%],Doc Mngr[50%],Ops Mngr[5%]
4456	1.3.4.7.9.1.3	Review DED	4455	1 day	Mon 3/29/21	Mon 3/29/21	PM[10%],Doc Mngr[50%],Ops Mngr[5%]
4457	1.3.4.7.9.1.4	Finalize DED	4456	1 day	Tue 3/30/21	Tue 3/30/21	PM[10%],Doc Mngr[50%],Ops Mngr[5%]
4458	**1.3.4.7.9.2**	**Internally Review DED**		**6 days**	**Wed 3/31/21**	**Wed 4/7/21**	
4459	1.3.4.7.9.2.1	Complete Contract Review	4457	2 days	Wed 3/31/21	Thu 4/1/21	PM[10%]
4460	1.3.4.7.9.2.2	Complete Peer Review	4457	2 days	Wed 3/31/21	Thu 4/1/21	Doc Mngr[10%],Ops Mngr[10%],Acct Mngr[10%]
4461	1.3.4.7.9.2.3	Complete QA Review	4459,4460	2 days	Fri 4/2/21	Mon 4/5/21	Doc Mngr[25%]
4462	1.3.4.7.9.2.4	Update with feedback	4461	2 days	Tue 4/6/21	Wed 4/7/21	Doc Mngr[10%],Ops Mngr[10%],Acct Mngr[10%]
4463	1.3.4.7.9.3	Submit for State Review	4462	1 day	Thu 4/8/21	Thu 4/8/21	PM[10%]
4464	1.3.4.7.9.4	State reviews document and provides feedback	4463	3 days	Fri 4/9/21	Tue 4/13/21	State[20%]
4465	**1.3.4.7.9.5**	**DED: Review Cycle (1)**		**5 days**	**Wed 4/14/21**	**Tue 4/20/21**	
4466	1.3.4.7.9.5.1	Update DED with feedback	4464	1 day	Wed 4/14/21	Wed 4/14/21	PM[10%],Doc Mngr[50%],Ops Mngr[5%]
4467	1.3.4.7.9.5.2	QA review and update	4466	0.5 days	Thu 4/15/21	Thu 4/15/21	Doc Mngr[40%],Acct Mngr[10%],Ops Mngr[10%]
4468	1.3.4.7.9.5.3	Resubmit for State Review	4467	0.5 days	Thu 4/15/21	Thu 4/15/21	PM[10%]
4469	1.3.4.7.9.5.4	State reviews	4468	2 days	Fri 4/16/21	Mon 4/19/21	State[20%]
4470	1.3.4.7.9.5.5	State approves DED	4469	1 day	Tue 4/20/21	Tue 4/20/21	State[20%]
4471	**1.3.4.7.9.6**	**DED: Review Cycle (2)**		**5 days**	**Wed 4/21/21**	**Tue 4/27/21**	
4472	1.3.4.7.9.6.1	Update DED with feedback	4470	1 day	Wed 4/21/21	Wed 4/21/21	PM[10%],Doc Mngr[50%],Ops Mngr[5%]
4473	1.3.4.7.9.6.2	QA review and update	4472	0.5 days	Thu 4/22/21	Thu 4/22/21	Doc Mngr[40%],Acct Mngr[10%],Ops Mngr[10%]
4474	1.3.4.7.9.6.3	Resubmit for State Review	4473	0.5 days	Thu 4/22/21	Thu 4/22/21	PM[10%]
4475	1.3.4.7.9.6.4	State reviews	4474	2 days	Fri 4/23/21	Mon 4/26/21	State[20%]
4476	1.3.4.7.9.6.5	State approves DED	4475	1 day	Tue 4/27/21	Tue 4/27/21	State[20%]
4477	**1.3.4.7.9.7**	**Develop Deliverable**		**13 days**	**Wed 4/28/21**	**Fri 5/14/21**	
4478	1.3.4.7.9.7.1	Create baseline from approved DED	4470,4476	5 days	Wed 4/28/21	Tue 5/4/21	PM[10%],Doc Mngr[50%],Ops Mngr[5%]
4479	1.3.4.7.9.7.2	Update deliverable	4478	5 days	Wed 5/5/21	Tue 5/11/21	PM[10%],Doc Mngr[50%],Ops Mngr[5%]
4480	1.3.4.7.9.7.3	Conduct Internal Review	4479	2 days	Wed 5/12/21	Thu 5/13/21	PM[10%],Doc Mngr[50%],Ops Mngr[5%]
4481	1.3.4.7.9.7.4	Final QA Review/Update of Deliverable	4480	1 day	Fri 5/14/21	Fri 5/14/21	Doc Mngr[40%],Acct Mngr[10%],Ops Mngr[10%]
4482	1.3.4.7.9.8	Submit Deliverable for State Review	4481	1 day	Mon 5/17/21	Mon 5/17/21	PM[10%]
4483	1.3.4.7.9.9	State reviews document and provides feedback	4482	10 days	Tue 5/18/21	Tue 6/1/21	State[20%]
4484	**1.3.4.7.9.10**	**Deliverable: Review Cycle (1)**		**10 days**	**Wed 6/2/21**	**Tue 6/15/21**	
4485	1.3.4.7.9.10.1	Update deliverable with feedback	4483	3 days	Wed 6/2/21	Fri 6/4/21	PM[10%],Doc Mngr[50%],Ops Mngr[5%]
4486	1.3.4.7.9.10.2	QA review and update	4485	1.5 days	Mon 6/7/21	Tue 6/8/21	Doc Mngr[40%],Acct Mngr[10%],Ops Mngr[10%]
4487	1.3.4.7.9.10.3	Submit for State approval	4486	0.5 days	Tue 6/8/21	Tue 6/8/21	PM[10%]
4488	1.3.4.7.9.10.4	State reviews	4487	5 days	Wed 6/9/21	Tue 6/15/21	State[20%]

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ID	WBS	Task Name	Predecessors	Duration	Start	Finish	Resource Names
4489	**1.3.4.7.9.11**	**Deliverable: Review Cycle (2)**		**10 days**	**Wed 6/16/21**	**Tue 6/29/21**	
4490	1.3.4.7.9.11	Update deliverable with feedback	4488	3 days	Wed 6/16/21	Fri 6/18/21	PM[10%],Doc Mngr[50%],Ops Mngr[5%]
4491	1.3.4.7.9.11	QA review and update	4490	1.5 days	Mon 6/21/21	Tue 6/22/21	Doc Mngr[40%],Acct Mngr[10%],Ops Mngr[10%]
4492	1.3.4.7.9.11	Submit for State approval	4491	0.5 days	Tue 6/22/21	Tue 6/22/21	PM[10%]
4493	1.3.4.7.9.11	State reviews	4492	5 days	Wed 6/23/21	Tue 6/29/21	State[20%]
4494	1.3.4.7.9.12	State Provides Final Approval	4493	1 day	Wed 6/30/21	Wed 6/30/21	State[20%]
4495	1.3.4.7.9.13	Milestone: Solution Health Monitoring Plan Approved	4494	0 days	Wed 6/30/21	Wed 6/30/21	
4496	**1.3.4.7.10**	**D064 System Operations Plan**		**78 days**	**Wed 2/3/21**	**Fri 5/21/21**	
4497	**1.3.4.7.10.1**	**Develop DED**		**7 days**	**Wed 2/3/21**	**Thu 2/11/21**	
4498	1.3.4.7.10.1	Review deliverable requirements	2571	2 days	Wed 2/3/21	Thu 2/4/21	PM[10%],Doc Mngr[50%]
4499	1.3.4.7.10.1	Draft DED	4498	3 days	Fri 2/5/21	Tue 2/9/21	PM[5%],Doc Mngr[10%],BI Dev[10%],ETL Engnr[10%],BA[10%],AC[10%],Da
4500	1.3.4.7.10.1	Review DED	4499	1 day	Wed 2/10/21	Wed 2/10/21	PM[5%],Doc Mngr[10%],BI Dev[10%],ETL Engnr[10%],BA[10%],AC[10%],Da
4501	1.3.4.7.10.1	Finalize DED	4500	1 day	Thu 2/11/21	Thu 2/11/21	PM[5%],Doc Mngr[10%],BI Dev[10%],ETL Engnr[10%],BA[10%],AC[10%],Da
4502	**1.3.4.7.10.2**	**Internally Review DED**		**6 days**	**Fri 2/12/21**	**Fri 2/19/21**	
4503	1.3.4.7.10.2	Complete Contract Review	4501	2 days	Fri 2/12/21	Mon 2/15/21	PM[10%]
4504	1.3.4.7.10.2	Complete Peer Review	4501	2 days	Fri 2/12/21	Mon 2/15/21	Doc Mngr[10%],BI Dev[10%],ETL Engnr[10%],BA[10%],AC[10%],Data Mana
4505	1.3.4.7.10.2	Complete QA Review	4503,4504	2 days	Tue 2/16/21	Wed 2/17/21	Doc Mngr[25%]
4506	1.3.4.7.10.2	Update with feedback	4505	2 days	Thu 2/18/21	Fri 2/19/21	Doc Mngr[10%],BI Dev[10%],ETL Engnr[10%],BA[10%],AC[10%],Data Mana
4507	1.3.4.7.10.3	Submit for State Review	4506	1 day	Mon 2/22/21	Mon 2/22/21	PM[10%]
4508	1.3.4.7.10.4	State reviews document and provides feedback	4507	3 days	Tue 2/23/21	Thu 2/25/21	State[20%]
4509	**1.3.4.7.10.5**	**DED: Review Cycle (1)**		**4 days**	**Tue 3/9/21**	**Fri 3/12/21**	
4510	1.3.4.7.10.5	Update DED with feedback	4508	1 day	Tue 3/9/21	Tue 3/9/21	PM[5%],Doc Mngr[10%],ETL Engnr[10%],BI Dev[10%],BA[10%],AC[10%],Da
4511	1.3.4.7.10.5	QA review and update	4510	0.5 days	Wed 3/10/21	Wed 3/10/21	Doc Mngr[20%],ETL Engnr[10%],BI Dev[10%],PM[5%],BA[10%],AC[10%],Da
4512	1.3.4.7.10.5	Resubmit for State Review	4511	0.5 days	Wed 3/10/21	Wed 3/10/21	PM[10%]
4513	1.3.4.7.10.5	State reviews	4512	2 days	Thu 3/11/21	Fri 3/12/21	State[20%]
4514	**1.3.4.7.10.6**	**DED: Review Cycle (2)**		**5 days**	**Mon 3/15/21**	**Fri 3/19/21**	
4515	1.3.4.7.10.6	Update DED with feedback	4513	1 day	Mon 3/15/21	Mon 3/15/21	PM[5%],Doc Mngr[10%],ETL Engnr[10%],BI Dev[10%],BA[10%],AC[10%],Da
4516	1.3.4.7.10.6	QA review and update	4515	0.5 days	Tue 3/16/21	Tue 3/16/21	Doc Mngr[20%],ETL Engnr[10%],BI Dev[10%],PM[5%],BA[10%],AC[10%],Da
4517	1.3.4.7.10.6	Resubmit for State Review	4516	0.5 days	Tue 3/16/21	Tue 3/16/21	PM[10%]
4518	1.3.4.7.10.6	State reviews	4517	2 days	Wed 3/17/21	Thu 3/18/21	State[20%]
4519	1.3.4.7.10.6	State approves DED	4518	1 day	Fri 3/19/21	Fri 3/19/21	State[20%]
4520	**1.3.4.7.10.7**	**Develop Deliverable**		**13 days**	**Mon 3/22/21**	**Wed 4/7/21**	
4521	1.3.4.7.10.7	Create baseline from approved DED	4519	5 days	Mon 3/22/21	Fri 3/26/21	PM[5%],Doc Mngr[10%],ETL Engnr[10%],BI Dev[10%],BA[10%],AC[10%],Da
4522	1.3.4.7.10.7	Update deliverable	4521	5 days	Mon 3/29/21	Fri 4/2/21	PM[5%],Doc Mngr[10%],BI Dev[10%],ETL Engnr[10%],BA[10%],AC[10%],Da
4523	1.3.4.7.10.7	Conduct Internal Review	4522	2 days	Mon 4/5/21	Tue 4/6/21	PM[5%],Doc Mngr[10%],BI Dev[10%],ETL Engnr[10%],BA[10%],AC[10%],Da
4524	1.3.4.7.10.7	Final QA Review/Update of Deliverable	4523	1 day	Wed 4/7/21	Wed 4/7/21	Doc Mngr[20%],ETL Engnr[10%],BI Dev[10%],PM[5%],BA[10%],AC[10%],Da
4525	1.3.4.7.10.8	Submit Deliverable for State Review	4524	1 day	Thu 4/8/21	Thu 4/8/21	PM[10%]
4526	1.3.4.7.10.9	State reviews document and provides feedback	4525	10 days	Fri 4/9/21	Thu 4/22/21	State[20%]
4527	**1.3.4.7.10.1**	**Deliverable: Review Cycle (1)**		**10 days**	**Fri 4/23/21**	**Thu 5/6/21**	
4528	1.3.4.7.10.1	Update deliverable with feedback	4526	3 days	Fri 4/23/21	Tue 4/27/21	PM[5%],Doc Mngr[10%],BI Dev[10%],ETL Engnr[10%],BA[10%],AC[10%],Da
4529	1.3.4.7.10.1	QA review and update	4528	1.5 days	Wed 4/28/21	Thu 4/29/21	Doc Mngr[20%],ETL Engnr[10%],BI Dev[10%],PM[5%],BA[10%],AC[10%],Da
4530	1.3.4.7.10.1	Submit for State approval	4529	0.5 days	Thu 4/29/21	Thu 4/29/21	PM[10%]
4531	1.3.4.7.10.1	State reviews	4530	5 days	Fri 4/30/21	Thu 5/6/21	State[20%]
4532	**1.3.4.7.10.1**	**Deliverable: Review Cycle (2)**		**10 days**	**Fri 5/7/21**	**Thu 5/20/21**	
4533	1.3.4.7.10.1	Update deliverable with feedback	4531	3 days	Fri 5/7/21	Tue 5/11/21	PM[5%],Doc Mngr[10%],BI Dev[10%],ETL Engnr[10%],BA[10%],AC[10%],Da
4534	1.3.4.7.10.1	QA review and update	4533	1.5 days	Wed 5/12/21	Thu 5/13/21	Doc Mngr[20%],ETL Engnr[10%],BI Dev[10%],PM[5%],BA[10%],AC[10%],Da
4535	1.3.4.7.10.1	Submit for State approval	4534	0.5 days	Thu 5/13/21	Thu 5/13/21	PM[10%]
4536	1.3.4.7.10.1	State reviews	4535	5 days	Fri 5/14/21	Thu 5/20/21	State[20%]
4537	1.3.4.7.10.1	State Provides Final Approval	4536	1 day	Fri 5/21/21	Fri 5/21/21	State[20%]
4538	1.3.4.7.10.1	Milestone: System Operations Plan Approved	4537	0 days	Fri 5/21/21	Fri 5/21/21	
4539	**1.3.4.7.11**	**D065 System and User Documentation**		**71 days**	**Mon 5/4/20**	**Wed 8/12/20**	
4540	**1.3.4.7.11.1**	**Develop DED**		**7 days**	**Mon 5/4/20**	**Tue 5/12/20**	
4541	1.3.4.7.11.1	Review deliverable requirements		2 days	Mon 5/4/20	Tue 5/5/20	PM[10%],Doc Mngr[50%]
4542	1.3.4.7.11.1	Draft DED	4541	3 days	Wed 5/6/20	Fri 5/8/20	PM[5%],Doc Mngr[10%],BI Dev[10%],ETL Engnr[10%],BA[10%],AC[10%],Da
4543	1.3.4.7.11.1	Review DED	4542	1 day	Mon 5/11/20	Mon 5/11/20	PM[5%],Doc Mngr[10%],BI Dev[10%],ETL Engnr[10%],BA[10%],AC[10%],Da
4544	1.3.4.7.11.1	Finalize DED	4543	1 day	Tue 5/12/20	Tue 5/12/20	PM[5%],Doc Mngr[10%],BI Dev[10%],ETL Engnr[10%],BA[10%],AC[10%],Da
4545	**1.3.4.7.11.2**	**Internally Review DED**		**6 days**	**Wed 5/13/20**	**Wed 5/20/20**	
4546	1.3.4.7.11.2	Complete Contract Review	4544	2 days	Wed 5/13/20	Thu 5/14/20	PM[10%]
4547	1.3.4.7.11.2	Complete Peer Review	4544	2 days	Wed 5/13/20	Thu 5/14/20	Doc Mngr[10%],BI Dev[10%],ETL Engnr[10%],BA[10%],AC[10%],Data Mana
4548	1.3.4.7.11.2	Complete QA Review	4546,4547	2 days	Fri 5/15/20	Mon 5/18/20	Doc Mngr[25%]
4549	1.3.4.7.11.2	Update with feedback	4548	2 days	Tue 5/19/20	Wed 5/20/20	Doc Mngr[10%],BI Dev[10%],ETL Engnr[10%],BA[10%],AC[10%],Data Mana
4550	1.3.4.7.11.3	Submit for State Review	4549	1 day	Thu 5/21/20	Thu 5/21/20	PM[10%]
4551	1.3.4.7.11.4	State reviews document and provides feedback	4550	3 days	Fri 5/22/20	Wed 5/27/20	State[20%]
4552	**1.3.4.7.11.5**	**DED: Review Cycle (1)**		**4 days**	**Thu 5/28/20**	**Tue 6/2/20**	
4553	1.3.4.7.11.5	Update DED with feedback	4551	1 day	Thu 5/28/20	Thu 5/28/20	PM[5%],Doc Mngr[10%],ETL Engnr[10%],BI Dev[10%],BA[10%],AC[10%],Da
4554	1.3.4.7.11.5	QA review and update	4553	0.5 days	Fri 5/29/20	Fri 5/29/20	Doc Mngr[20%],ETL Engnr[10%],BI Dev[10%],PM[5%],BA[10%],AC[10%],Da
4555	1.3.4.7.11.5	Resubmit for State Review	4554	0.5 days	Fri 5/29/20	Fri 5/29/20	PM[10%]

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ID	WBS	Task Name	Predecessors	Duration	Start	Finish	Resource Names
4556	1.3.4.7.11.5	State reviews	4555	2 days	Mon 6/1/20	Tue 6/2/20	State[20%]
4557	**1.3.4.7.11.6**	**DED: Review Cycle (2)**		**5 days**	**Wed 6/3/20**	**Tue 6/9/20**	
4558	1.3.4.7.11.6.	Update DED with feedback	4556	1 day	Wed 6/3/20	Wed 6/3/20	PM[5%],Doc Mngr[10%],ETL Engnr[10%],BI Dev[10%],BA[10%],AC[10%],Da
4559	1.3.4.7.11.6.	QA review and update	4558	0.5 days	Thu 6/4/20	Thu 6/4/20	Doc Mngr[20%],ETL Engnr[10%],BI Dev[10%],PM[5%],BA[10%],AC[10%],De
4560	1.3.4.7.11.6.	Resubmit for State Review	4559	0.5 days	Thu 6/4/20	Thu 6/4/20	PM[10%]
4561	1.3.4.7.11.6.	State reviews	4560	2 days	Fri 6/5/20	Mon 6/8/20	State[20%]
4562	1.3.4.7.11.6.	State approves DED	4561	1 day	Tue 6/9/20	Tue 6/9/20	State[20%]
4563	**1.3.4.7.11.7**	**Develop Deliverable**		**13 days**	**Wed 6/10/20**	**Fri 6/26/20**	
4564	1.3.4.7.11.7.	Create baseline from approved DED	4562	5 days	Wed 6/10/20	Tue 6/16/20	PM[5%],Doc Mngr[10%],ETL Engnr[10%],BI Dev[10%],BA[10%],AC[10%],Da
4565	1.3.4.7.11.7.	Update deliverable	4564	5 days	Wed 6/17/20	Tue 6/23/20	PM[5%],Doc Mngr[10%],BI Dev[10%],ETL Engnr[10%],BA[10%],AC[10%],Da
4566	1.3.4.7.11.7.	Conduct Internal Review	4565	2 days	Wed 6/24/20	Thu 6/25/20	PM[5%],Doc Mngr[10%],BI Dev[10%],ETL Engnr[10%],BA[10%],AC[10%],Da
4567	1.3.4.7.11.7	Final QA Review/Update of Deliverable	4566	1 day	Fri 6/26/20	Fri 6/26/20	Doc Mngr[20%],ETL Engnr[10%],BI Dev[10%],PM[5%],BA[10%],AC[10%],De
4568	1.3.4.7.11.8	Submit Deliverable for State Review	4567	1 day	Mon 6/29/20	Mon 6/29/20	PM[10%]
4569	1.3.4.7.11.9	State reviews document and provides feedback	4568	10 days	Tue 6/30/20	Tue 7/14/20	State[20%]
4570	**1.3.4.7.11.1**	**Deliverable: Review Cycle (1)**		**10 days**	**Wed 7/15/20**	**Tue 7/28/20**	
4571	1.3.4.7.11.1	Update deliverable with feedback	4569	3 days	Wed 7/15/20	Fri 7/17/20	PM[5%],Doc Mngr[10%],BI Dev[10%],ETL Engnr[10%],BA[10%],AC[10%],Da
4572	1.3.4.7.11.1	QA review and update	4571	1.5 days	Mon 7/20/20	Tue 7/21/20	Doc Mngr[20%],ETL Engnr[10%],BI Dev[10%],PM[5%],BA[10%],AC[10%],De
4573	1.3.4.7.11.1	Submit for State approval	4572	0.5 days	Tue 7/21/20	Tue 7/21/20	PM[10%]
4574	1.3.4.7.11.1	State reviews	4573	5 days	Wed 7/22/20	Tue 7/28/20	State[20%]
4575	**1.3.4.7.11.1**	**Deliverable: Review Cycle (2)**		**10 days**	**Wed 7/29/20**	**Tue 8/11/20**	
4576	1.3.4.7.11.1	Update deliverable with feedback	4574	3 days	Wed 7/29/20	Fri 7/31/20	PM[5%],Doc Mngr[10%],BI Dev[10%],ETL Engnr[10%],BA[10%],AC[10%],Da
4577	1.3.4.7.11.1	QA review and update	4576	1.5 days	Mon 8/3/20	Tue 8/4/20	Doc Mngr[20%],ETL Engnr[10%],BI Dev[10%],PM[5%],BA[10%],AC[10%],De
4578	1.3.4.7.11.1	Submit for State approval	4577	0.5 days	Tue 8/4/20	Tue 8/4/20	PM[10%]
4579	1.3.4.7.11.1	State reviews	4578	5 days	Wed 8/5/20	Tue 8/11/20	State[20%]
4580	1.3.4.7.11.1	State Provides Final Approval	4574,4579	1 day	Wed 8/12/20	Wed 8/12/20	State[20%]
4581	1.3.4.7.11.1	Milestone: System and User Documentation Approved	4580	0 days	Wed 8/12/20	Wed 8/12/20	
4582	**1.3.4.7.12**	**D066 Training Materials**		**267 days**	**Mon 5/4/20**	**Fri 5/21/21**	
4583	**1.3.4.7.12.1**	**Develop DED**		**7 days**	**Mon 5/4/20**	**Tue 5/12/20**	
4584	1.3.4.7.12.1.	Review deliverable requirements	2	2 days	Mon 5/4/20	Tue 5/5/20	PM[10%],Doc Mngr[50%]
4585	1.3.4.7.12.1	Draft DED	4584	3 days	Wed 5/6/20	Fri 5/8/20	PM[5%],Doc Mngr[10%],BA[10%],AC[10%],Trainer[10%],Ops Mngr[5%]
4586	1.3.4.7.12.1	Review DED	4585	1 day	Mon 5/11/20	Mon 5/11/20	PM[5%],Doc Mngr[10%],BA[10%],AC[10%],Trainer[10%],Ops Mngr[5%]
4587	1.3.4.7.12.1	Finalize DED	4586	1 day	Tue 5/12/20	Tue 5/12/20	PM[5%],Doc Mngr[10%],BA[10%],AC[10%],Trainer[10%],Ops Mngr[5%]
4588	**1.3.4.7.12.2**	**Internally Review DED**		**6 days**	**Wed 5/13/20**	**Wed 5/20/20**	
4589	1.3.4.7.12.2	Complete Contract Review	4587	2 days	Wed 5/13/20	Thu 5/14/20	PM[10%]
4590	1.3.4.7.12.2	Complete Peer Review	4587	2 days	Wed 5/13/20	Thu 5/14/20	Doc Mngr[10%],BA[10%],AC[10%],PM[5%],Trainer[10%],Ops Mngr[5%]
4591	1.3.4.7.12.2	Complete QA Review	4589,4590	2 days	Fri 5/15/20	Mon 5/18/20	Doc Mngr[25%]
4592	1.3.4.7.12.2	Update with feedback	4591	2 days	Tue 5/19/20	Wed 5/20/20	Doc Mngr[10%],BA[10%],AC[10%],PM[5%],Trainer[10%],Ops Mngr[5%]
4593	1.3.4.7.12.3	Submit for State Review	4592	1 day	Thu 5/21/20	Thu 5/21/20	PM[10%]
4594	1.3.4.7.12.4	State reviews document and provides feedback	4593	3 days	Fri 5/22/20	Wed 5/27/20	State[20%]
4595	**1.3.4.7.12.5**	**DED: Review Cycle (1)**		**4 days**	**Tue 3/9/21**	**Fri 3/12/21**	
4596	1.3.4.7.12.5	Update DED with feedback	4594	1 day	Tue 3/9/21	Tue 3/9/21	PM[5%],Doc Mngr[10%],BA[10%],AC[10%],Trainer[10%],Ops Mngr[5%]
4597	1.3.4.7.12.5	QA review and update	4596	0.5 days	Wed 3/10/21	Wed 3/10/21	Doc Mngr[10%],PM[5%],BA[10%],AC[10%],Trainer[10%],Ops Mngr[5%]
4598	1.3.4.7.12.5	Resubmit for State Review	4597	0.5 days	Wed 3/10/21	Wed 3/10/21	PM[10%]
4599	1.3.4.7.12.5	State reviews	4598	2 days	Thu 3/11/21	Fri 3/12/21	State[20%]
4600	**1.3.4.7.12.6**	**DED: Review Cycle (2)**		**5 days**	**Mon 3/15/21**	**Fri 3/19/21**	
4601	1.3.4.7.12.6	Update DED with feedback	4599	1 day	Mon 3/15/21	Mon 3/15/21	PM[5%],Doc Mngr[10%],BA[10%],AC[10%],Trainer[10%],Ops Mngr[5%]
4602	1.3.4.7.12.6	QA review and update	4601	0.5 days	Tue 3/16/21	Tue 3/16/21	Doc Mngr[10%],PM[5%],BA[10%],AC[10%],Trainer[10%],Ops Mngr[5%]
4603	1.3.4.7.12.6	Resubmit for State Review	4602	0.5 days	Tue 3/16/21	Tue 3/16/21	PM[10%]
4604	1.3.4.7.12.6	State reviews	4603	2 days	Wed 3/17/21	Thu 3/18/21	State[20%]
4605	1.3.4.7.12.6	State approves DED	4604	1 day	Fri 3/19/21	Fri 3/19/21	State[20%]
4606	**1.3.4.7.12.7**	**Develop Deliverable**		**13 days**	**Mon 3/22/21**	**Wed 4/7/21**	
4607	1.3.4.7.12.7	Create baseline from approved DED	3893,4605	5 days	Mon 3/22/21	Fri 3/26/21	PM[5%],Doc Mngr[10%],BA[10%],AC[10%],Trainer[10%],Ops Mngr[5%]
4608	1.3.4.7.12.7	Update deliverable	4607	5 days	Mon 3/29/21	Fri 4/2/21	PM[5%],Doc Mngr[10%],BA[10%],AC[10%],Trainer[10%],Ops Mngr[5%]
4609	1.3.4.7.12.7	Conduct Internal Review	4608	2 days	Mon 4/5/21	Tue 4/6/21	PM[5%],Doc Mngr[10%],BA[10%],AC[10%],Trainer[10%],Ops Mngr[5%]
4610	1.3.4.7.12.7	Final QA Review/Update of Deliverable	4609	1 day	Wed 4/7/21	Wed 4/7/21	Doc Mngr[10%],PM[5%],BA[10%],AC[10%],Trainer[10%],Ops Mngr[5%]
4611	1.3.4.7.12.8	Submit Deliverable for State Review	4610	1 day	Thu 4/8/21	Thu 4/8/21	PM[10%]
4612	1.3.4.7.12.9	State reviews document and provides feedback	4611	10 days	Fri 4/9/21	Thu 4/22/21	State[20%]
4613	**1.3.4.7.12.1**	**Deliverable: Review Cycle (1)**		**10 days**	**Fri 4/23/21**	**Thu 5/6/21**	
4614	1.3.4.7.12.1	Update deliverable with feedback	4612	3 days	Fri 4/23/21	Tue 4/27/21	PM[5%],Doc Mngr[10%],BA[10%],AC[10%],Trainer[10%],Ops Mngr[5%]
4615	1.3.4.7.12.1	QA review and update	4614	1.5 days	Wed 4/28/21	Thu 4/29/21	Doc Mngr[10%],PM[5%],BA[10%],AC[10%],Trainer[10%],Ops Mngr[5%]
4616	1.3.4.7.12.1	Submit for State approval	4615	0.5 days	Thu 4/29/21	Thu 4/29/21	PM[10%]
4617	1.3.4.7.12.1	State reviews	4616	5 days	Fri 4/30/21	Thu 5/6/21	State[20%]
4618	**1.3.4.7.12.1**	**Deliverable: Review Cycle (2)**		**10 days**	**Fri 5/7/21**	**Thu 5/20/21**	
4619	1.3.4.7.12.1	Update deliverable with feedback	4617	3 days	Fri 5/7/21	Tue 5/11/21	PM[5%],Doc Mngr[10%],BA[10%],AC[10%],Trainer[10%],Ops Mngr[5%]
4620	1.3.4.7.12.1	QA review and update	4619	1.5 days	Wed 5/12/21	Thu 5/13/21	Doc Mngr[10%],PM[5%],BA[10%],AC[10%],Trainer[10%],Ops Mngr[5%]
4621	1.3.4.7.12.1	Submit for State approval	4620	0.5 days	Thu 5/13/21	Thu 5/13/21	PM[10%]
4622	1.3.4.7.12.1	State reviews	4621	5 days	Fri 5/14/21	Thu 5/20/21	State[20%]

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ID	WBS	Task Name	Predecessors	Duration	Start	Finish	Resource Names
4623	1.3.4.7.12.1	State Provides Final Approval	4622	1 day	Fri 5/21/21	Fri 5/21/21	State[20%]
4624	1.3.4.7.12.1	Milestone: Training Materials Approved	4623	0 days	Fri 5/21/21	Fri 5/21/21	
4625	**1.3.4.7.13**	**D067 Training Report**		**267 days**	**Mon 5/4/20**	**Fri 5/21/21**	
4626	**1.3.4.7.13.1**	**Develop DED**		**7 days**	**Mon 5/4/20**	**Tue 5/12/20**	
4627	1.3.4.7.13.1	Review deliverable requirements	2	2 days	Mon 5/4/20	Tue 5/5/20	PM[10%],Doc Mngr[50%]
4628	1.3.4.7.13.1	Draft DED	4627	3 days	Wed 5/6/20	Fri 5/8/20	PM[5%],Doc Mngr[10%],BA[10%],AC[10%],Trainer[10%],Ops Mngr[5%]
4629	1.3.4.7.13.1	Review DED	4628	1 day	Mon 5/11/20	Mon 5/11/20	PM[5%],Doc Mngr[10%],BA[10%],AC[10%],Trainer[10%],Ops Mngr[5%]
4630	1.3.4.7.13.1	Finalize DED	4629	1 day	Tue 5/12/20	Tue 5/12/20	PM[5%],Doc Mngr[10%],BA[10%],AC[10%],Trainer[10%],Ops Mngr[5%]
4631	**1.3.4.7.13.2**	**Internally Review DED**		**6 days**	**Wed 5/13/20**	**Wed 5/20/20**	
4632	1.3.4.7.13.2	Complete Contract Review	4630	2 days	Wed 5/13/20	Thu 5/14/20	PM[10%]
4633	1.3.4.7.13.2	Complete Peer Review	4630	2 days	Wed 5/13/20	Thu 5/14/20	Doc Mngr[10%],BA[10%],AC[10%],PM[5%],Trainer[10%],Ops Mngr[5%]
4634	1.3.4.7.13.2	Complete QA Review	4632,4633	2 days	Fri 5/15/20	Mon 5/18/20	Doc Mngr[25%]
4635	1.3.4.7.13.2	Update with feedback	4634	2 days	Tue 5/19/20	Wed 5/20/20	Doc Mngr[10%],BA[10%],AC[10%],PM[5%],Trainer[10%],Ops Mngr[5%]
4636	1.3.4.7.13.3	Submit for State Review	4635	1 day	Thu 5/21/20	Thu 5/21/20	PM[10%]
4637	1.3.4.7.13.4	State reviews document and provides feedback	4636	3 days	Fri 5/22/20	Wed 5/27/20	State[20%]
4638	**1.3.4.7.13.5**	**DED: Review Cycle (1)**		**4 days**	**Tue 3/9/21**	**Fri 3/12/21**	
4639	1.3.4.7.13.5	Update DED with feedback	4637	1 day	Tue 3/9/21	Tue 3/9/21	PM[5%],Doc Mngr[10%],BA[10%],AC[10%],Trainer[10%],Ops Mngr[5%]
4640	1.3.4.7.13.5	QA review and update	4639	0.5 days	Wed 3/10/21	Wed 3/10/21	Doc Mngr[10%],PM[5%],BA[10%],AC[10%],Trainer[10%],Ops Mngr[5%]
4641	1.3.4.7.13.5	Resubmit for State Review	4640	0.5 days	Wed 3/10/21	Wed 3/10/21	PM[10%]
4642	1.3.4.7.13.5	State reviews	4641	2 days	Thu 3/11/21	Fri 3/12/21	State[20%]
4643	**1.3.4.7.13.6**	**DED: Review Cycle (2)**		**5 days**	**Mon 3/15/21**	**Fri 3/19/21**	
4644	1.3.4.7.13.6	Update DED with feedback	4642	1 day	Mon 3/15/21	Mon 3/15/21	PM[5%],Doc Mngr[10%],BA[10%],AC[10%],Trainer[10%],Ops Mngr[5%]
4645	1.3.4.7.13.6	QA review and update	4644	0.5 days	Tue 3/16/21	Tue 3/16/21	Doc Mngr[10%],PM[5%],BA[10%],AC[10%],Trainer[10%],Ops Mngr[5%]
4646	1.3.4.7.13.6	Resubmit for State Review	4645	0.5 days	Tue 3/16/21	Tue 3/16/21	PM[10%]
4647	1.3.4.7.13.6	State reviews	4646	2 days	Wed 3/17/21	Thu 3/18/21	State[20%]
4648	1.3.4.7.13.6	State approves DED	4647	1 day	Fri 3/19/21	Fri 3/19/21	State[20%]
4649	**1.3.4.7.13.7**	**Develop Deliverable**		**13 days**	**Mon 3/22/21**	**Wed 4/7/21**	
4650	1.3.4.7.13.7	Create baseline from approved DED	3995,4648	5 days	Mon 3/22/21	Fri 3/26/21	PM[5%],Doc Mngr[10%],BA[10%],AC[10%],Trainer[10%],Ops Mngr[5%]
4651	1.3.4.7.13.7	Update deliverable	4650	5 days	Mon 3/29/21	Fri 4/2/21	PM[5%],Doc Mngr[10%],BA[10%],AC[10%],Trainer[10%],Ops Mngr[5%]
4652	1.3.4.7.13.7	Conduct Internal Review	4651	2 days	Mon 4/5/21	Tue 4/6/21	PM[5%],Doc Mngr[10%],BA[10%],AC[10%],Trainer[10%],Ops Mngr[5%]
4653	1.3.4.7.13.7	Final QA Review/Update of Deliverable	4652	1 day	Wed 4/7/21	Wed 4/7/21	Doc Mngr[10%],PM[5%],BA[10%],AC[10%],Trainer[10%],Ops Mngr[5%]
4654	1.3.4.7.13.8	Submit Deliverable for State Review	4653	1 day	Thu 4/8/21	Thu 4/8/21	PM[10%]
4655	1.3.4.7.13.9	State reviews document and provides feedback	4654	10 days	Fri 4/9/21	Thu 4/22/21	State[20%]
4656	**1.3.4.7.13.1**	**Deliverable: Review Cycle (1)**		**10 days**	**Fri 4/23/21**	**Thu 5/6/21**	
4657	1.3.4.7.13.1	Update deliverable with feedback	4655	3 days	Fri 4/23/21	Tue 4/27/21	PM[5%],Doc Mngr[10%],BA[10%],AC[10%],Trainer[10%],Ops Mngr[5%]
4658	1.3.4.7.13.1	QA review and update	4657	1.5 days	Wed 4/28/21	Thu 4/29/21	Doc Mngr[10%],PM[5%],BA[10%],AC[10%],Trainer[10%],Ops Mngr[5%]
4659	1.3.4.7.13.1	Submit for State approval	4658	0.5 days	Thu 4/29/21	Thu 4/29/21	PM[10%]
4660	1.3.4.7.13.1	State reviews	4659	5 days	Fri 4/30/21	Thu 5/6/21	State[20%]
4661	**1.3.4.7.13.1**	**Deliverable: Review Cycle (2)**		**10 days**	**Fri 5/7/21**	**Thu 5/20/21**	
4662	1.3.4.7.13.1	Update deliverable with feedback	4660	3 days	Fri 5/7/21	Tue 5/11/21	PM[5%],Doc Mngr[10%],BA[10%],AC[10%],Trainer[10%],Ops Mngr[5%]
4663	1.3.4.7.13.1	QA review and update	4662	1.5 days	Wed 5/12/21	Thu 5/13/21	Doc Mngr[10%],PM[5%],BA[10%],AC[10%],Trainer[10%],Ops Mngr[5%]
4664	1.3.4.7.13.1	Submit for State approval	4663	0.5 days	Thu 5/13/21	Thu 5/13/21	PM[10%]
4665	1.3.4.7.13.1	State reviews	4664	5 days	Fri 5/14/21	Thu 5/20/21	State[20%]
4666	1.3.4.7.13.1	State Provides Final Approval	4665	1 day	Fri 5/21/21	Fri 5/21/21	State[20%]
4667	1.3.4.7.13.1	Milestone: Training Report Approved	4666	0 days	Fri 5/21/21	Fri 5/21/21	
4668	**1.3.4.7.14**	**D068 Training Schedule**		**267 days**	**Mon 5/4/20**	**Fri 5/21/21**	
4669	**1.3.4.7.14.1**	**Develop DED**		**7 days**	**Mon 5/4/20**	**Tue 5/12/20**	
4670	1.3.4.7.14.1	Review deliverable requirements	2	2 days	Mon 5/4/20	Tue 5/5/20	PM[10%],Doc Mngr[50%]
4671	1.3.4.7.14.1	Draft DED	4670	3 days	Wed 5/6/20	Fri 5/8/20	PM[5%],Doc Mngr[10%],BA[10%],AC[10%],Trainer[10%],Ops Mngr[5%]
4672	1.3.4.7.14.1	Review DED	4671	1 day	Mon 5/11/20	Mon 5/11/20	PM[5%],Doc Mngr[10%],BA[10%],AC[10%],Trainer[10%],Ops Mngr[5%]
4673	1.3.4.7.14.1	Finalize DED	4672	1 day	Tue 5/12/20	Tue 5/12/20	PM[5%],Doc Mngr[10%],BA[10%],AC[10%],Trainer[10%],Ops Mngr[5%]
4674	**1.3.4.7.14.2**	**Internally Review DED**		**6 days**	**Wed 5/13/20**	**Wed 5/20/20**	
4675	1.3.4.7.14.2	Complete Contract Review	4673	2 days	Wed 5/13/20	Thu 5/14/20	PM[10%]
4676	1.3.4.7.14.2	Complete Peer Review	4673	2 days	Wed 5/13/20	Thu 5/14/20	Doc Mngr[10%],BA[10%],AC[10%],PM[5%],Trainer[10%],Ops Mngr[5%]
4677	1.3.4.7.14.2	Complete QA Review	4675,4676	2 days	Fri 5/15/20	Mon 5/18/20	Doc Mngr[25%]
4678	1.3.4.7.14.2	Update with feedback	4677	2 days	Tue 5/19/20	Wed 5/20/20	Doc Mngr[10%],BA[10%],AC[10%],PM[5%],Trainer[10%],Ops Mngr[5%]
4679	1.3.4.7.14.3	Submit for State Review	4678	1 day	Thu 5/21/20	Thu 5/21/20	PM[10%]
4680	1.3.4.7.14.4	State reviews document and provides feedback	4679	3 days	Fri 5/22/20	Wed 5/27/20	State[20%]
4681	**1.3.4.7.14.5**	**DED: Review Cycle (1)**		**4 days**	**Tue 3/9/21**	**Fri 3/12/21**	
4682	1.3.4.7.14.5	Update DED with feedback	4680	1 day	Tue 3/9/21	Tue 3/9/21	PM[5%],Doc Mngr[10%],BA[10%],AC[10%],Trainer[10%],Ops Mngr[5%]
4683	1.3.4.7.14.5	QA review and update	4682	0.5 days	Wed 3/10/21	Wed 3/10/21	Doc Mngr[10%],PM[5%],BA[10%],AC[10%],Trainer[10%],Ops Mngr[5%]
4684	1.3.4.7.14.5	Resubmit for State Review	4683	0.5 days	Wed 3/10/21	Wed 3/10/21	PM[10%]
4685	1.3.4.7.14.5	State reviews	4684	2 days	Thu 3/11/21	Fri 3/12/21	State[20%]
4686	**1.3.4.7.14.6**	**DED: Review Cycle (2)**		**5 days**	**Mon 3/15/21**	**Fri 3/19/21**	
4687	1.3.4.7.14.6	Update DED with feedback	4685	1 day	Mon 3/15/21	Mon 3/15/21	PM[5%],Doc Mngr[10%],BA[10%],AC[10%],Trainer[10%],Ops Mngr[5%]
4688	1.3.4.7.14.6	QA review and update	4687	0.5 days	Tue 3/16/21	Tue 3/16/21	Doc Mngr[10%],PM[5%],BA[10%],AC[10%],Trainer[10%],Ops Mngr[5%]
4689	1.3.4.7.14.6	Resubmit for State Review	4688	0.5 days	Tue 3/16/21	Tue 3/16/21	PM[10%]

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ID	WBS	Task Name	Predecessors	Duration	Start	Finish	Resource Names
4690	1.3.4.7.14.6	State reviews	4689	2 days	Wed 3/17/21	Thu 3/18/21	State[20%]
4691	1.3.4.7.14.6	State approves DED	4690	1 day	Fri 3/19/21	Fri 3/19/21	State[20%]
4692	**1.3.4.7.14.7**	**Develop Deliverable**		**13 days**	**Mon 3/22/21**	**Wed 4/7/21**	
4693	1.3.4.7.14.7	Create baseline from approved DED	1842SS,4691	5 days	Mon 3/22/21	Fri 3/26/21	PM[5%],Doc Mngr[10%],BA[10%],AC[10%],Trainer[10%],Ops Mngr[5%]
4694	1.3.4.7.14.7	Update deliverable	4693	5 days	Mon 3/29/21	Fri 4/2/21	PM[5%],Doc Mngr[10%],BA[10%],AC[10%],Trainer[10%],Ops Mngr[5%]
4695	1.3.4.7.14.7	Conduct Internal Review	4694	2 days	Mon 4/5/21	Tue 4/6/21	PM[5%],Doc Mngr[10%],BA[10%],AC[10%],Trainer[10%],Ops Mngr[5%]
4696	1.3.4.7.14.7	Final QA Review/Update of Deliverable	4695	1 day	Wed 4/7/21	Wed 4/7/21	Doc Mngr[10%],PM[5%],BA[10%],AC[10%],Trainer[10%],Ops Mngr[5%]
4697	1.3.4.7.14.8	Submit Deliverable for State Review	4696	1 day	Thu 4/8/21	Thu 4/8/21	PM[10%]
4698	1.3.4.7.14.9	State reviews document and provides feedback	4697	10 days	Fri 4/9/21	Thu 4/22/21	State[20%]
4699	**1.3.4.7.14.1**	**Deliverable: Review Cycle (1)**		**10 days**	**Fri 4/23/21**	**Thu 5/6/21**	
4700	1.3.4.7.14.1	Update deliverable with feedback	4698	3 days	Fri 4/23/21	Tue 4/27/21	PM[5%],Doc Mngr[10%],BA[10%],AC[10%],Trainer[10%],Ops Mngr[5%]
4701	1.3.4.7.14.1	QA review and update	4700	1.5 days	Wed 4/28/21	Thu 4/29/21	Doc Mngr[10%],PM[5%],BA[10%],AC[10%],Trainer[10%],Ops Mngr[5%]
4702	1.3.4.7.14.1	Submit for State approval	4701	0.5 days	Thu 4/29/21	Thu 4/29/21	PM[10%]
4703	1.3.4.7.14.1	State reviews	4702	5 days	Fri 4/30/21	Thu 5/6/21	State[20%]
4704	**1.3.4.7.14.1**	**Deliverable: Review Cycle (2)**		**10 days**	**Fri 5/7/21**	**Thu 5/20/21**	
4705	1.3.4.7.14.1	Update deliverable with feedback	4703	3 days	Fri 5/7/21	Tue 5/11/21	PM[5%],Doc Mngr[10%],BA[10%],AC[10%],Trainer[10%],Ops Mngr[5%]
4706	1.3.4.7.14.1	QA review and update	4705	1.5 days	Wed 5/12/21	Thu 5/13/21	Doc Mngr[10%],PM[5%],BA[10%],AC[10%],Trainer[10%],Ops Mngr[5%]
4707	1.3.4.7.14.1	Submit for State approval	4706	0.5 days	Thu 5/13/21	Thu 5/13/21	PM[10%]
4708	1.3.4.7.14.1	State reviews	4707	5 days	Fri 5/14/21	Thu 5/20/21	State[20%]
4709	1.3.4.7.14.1	State Provides Final Approval	4703,4708	1 day	Fri 5/21/21	Fri 5/21/21	State[20%]
4710	1.3.4.7.14.1	Milestone: Training Schedule Approved	4709	0 days	Fri 5/21/21	Fri 5/21/21	
4711	**1.3.4.7.15**	**D069 Turnover and Closeout Management Plan**		**71 days**	**Fri 7/2/21**	**Tue 10/12/21**	
4712	**1.3.4.7.15.1**	**Develop DED**		**7 days**	**Fri 7/2/21**	**Tue 7/13/21**	
4713	1.3.4.7.15.1	Review deliverable requirements	4365	2 days	Fri 7/2/21	Tue 7/6/21	PM[10%],Doc Mngr[50%]
4714	1.3.4.7.15.1	Draft DED	4713	3 days	Wed 7/7/21	Fri 7/9/21	PM[10%],Doc Mngr[50%],Acct Mngr[10%]
4715	1.3.4.7.15.1	Review DED	4714	1 day	Mon 7/12/21	Mon 7/12/21	PM[10%],Doc Mngr[50%],Acct Mngr[10%]
4716	1.3.4.7.15.1	Finalize DED	4715	1 day	Tue 7/13/21	Tue 7/13/21	PM[10%],Doc Mngr[50%],Acct Mngr[10%]
4717	**1.3.4.7.15.2**	**Internally Review DED**		**6 days**	**Wed 7/14/21**	**Wed 7/21/21**	
4718	1.3.4.7.15.2	Complete Contract Review	4716	2 days	Wed 7/14/21	Thu 7/15/21	PM[10%]
4719	1.3.4.7.15.2	Complete Peer Review	4716	2 days	Wed 7/14/21	Thu 7/15/21	Doc Mngr[10%],Acct Mngr[10%],Ops Mngr[10%]
4720	1.3.4.7.15.2	Complete QA Review	4718,4719	2 days	Fri 7/16/21	Mon 7/19/21	Doc Mngr[25%]
4721	1.3.4.7.15.2	Update with feedback	4720	2 days	Tue 7/20/21	Wed 7/21/21	Doc Mngr[10%],Acct Mngr[10%],Ops Mngr[10%]
4722	1.3.4.7.15.3	Submit for State Review	4721	1 day	Thu 7/22/21	Thu 7/22/21	PM[10%]
4723	1.3.4.7.15.4	State reviews document and provides feedback	4722	3 days	Fri 7/23/21	Tue 7/27/21	State[20%]
4724	**1.3.4.7.15.5**	**DED: Review Cycle (1)**		**4 days**	**Wed 7/28/21**	**Mon 8/2/21**	
4725	1.3.4.7.15.5	Update DED with feedback	4723	1 day	Wed 7/28/21	Wed 7/28/21	PM[5%],Doc Mngr[10%],Ops Mngr[10%]
4726	1.3.4.7.15.5	QA review and update	4725	0.5 days	Thu 7/29/21	Thu 7/29/21	Doc Mngr[40%],Ops Mngr[25%]
4727	1.3.4.7.15.5	Resubmit for State Review	4726	0.5 days	Thu 7/29/21	Thu 7/29/21	PM[10%]
4728	1.3.4.7.15.5	State reviews	4727	2 days	Fri 7/30/21	Mon 8/2/21	State[20%]
4729	**1.3.4.7.15.6**	**DED: Review Cycle (2)**		**5 days**	**Tue 8/3/21**	**Mon 8/9/21**	
4730	1.3.4.7.15.6	Update DED with feedback	4728	1 day	Tue 8/3/21	Tue 8/3/21	PM[5%],Doc Mngr[10%],Ops Mngr[10%]
4731	1.3.4.7.15.6	QA review and update	4730	0.5 days	Wed 8/4/21	Wed 8/4/21	Doc Mngr[40%],Ops Mngr[25%]
4732	1.3.4.7.15.6	Resubmit for State Review	4731	0.5 days	Wed 8/4/21	Wed 8/4/21	PM[10%]
4733	1.3.4.7.15.6	State reviews	4732	2 days	Thu 8/5/21	Fri 8/6/21	State[20%]
4734	1.3.4.7.15.6	State approves DED	4733	1 day	Mon 8/9/21	Mon 8/9/21	State[20%]
4735	**1.3.4.7.15.7**	**Develop Deliverable**		**13 days**	**Tue 8/10/21**	**Thu 8/26/21**	
4736	1.3.4.7.15.7	Create baseline from approved DED	4734	5 days	Tue 8/10/21	Mon 8/16/21	PM[5%],Doc Mngr[10%],Ops Mngr[10%]
4737	1.3.4.7.15.7	Update deliverable	4736	5 days	Tue 8/17/21	Mon 8/23/21	PM[5%],Doc Mngr[10%],Ops Mngr[10%]
4738	1.3.4.7.15.7	Conduct Internal Review	4737	2 days	Tue 8/24/21	Wed 8/25/21	PM[5%],Doc Mngr[10%],Ops Mngr[10%]
4739	1.3.4.7.15.7	Final QA Review/Update of Deliverable	4738	1 day	Thu 8/26/21	Thu 8/26/21	Doc Mngr[40%],Ops Mngr[25%]
4740	1.3.4.7.15.8	Submit Deliverable for State Review	4739	1 day	Fri 8/27/21	Fri 8/27/21	PM[10%]
4741	1.3.4.7.15.9	State reviews document and provides feedback	4740	10 days	Mon 8/30/21	Mon 9/13/21	State[20%]
4742	**1.3.4.7.15.1**	**Deliverable: Review Cycle (1)**		**10 days**	**Tue 9/14/21**	**Mon 9/27/21**	
4743	1.3.4.7.15.1	Update deliverable with feedback	4741	3 days	Tue 9/14/21	Thu 9/16/21	PM[5%],Doc Mngr[10%],Ops Mngr[10%]
4744	1.3.4.7.15.1	QA review and update	4743	1.5 days	Fri 9/17/21	Mon 9/20/21	Doc Mngr[40%],Ops Mngr[25%]
4745	1.3.4.7.15.1	Submit for State approval	4744	0.5 days	Mon 9/20/21	Mon 9/20/21	PM[10%]
4746	1.3.4.7.15.1	State reviews	4745	5 days	Tue 9/21/21	Mon 9/27/21	State[20%]
4747	**1.3.4.7.15.1**	**Deliverable: Review Cycle (2)**		**10 days**	**Tue 9/28/21**	**Mon 10/11/21**	
4748	1.3.4.7.15.1	Update deliverable with feedback	4746	3 days	Tue 9/28/21	Thu 9/30/21	PM[5%],Doc Mngr[10%],Ops Mngr[10%]
4749	1.3.4.7.15.1	QA review and update	4748	1.5 days	Fri 10/1/21	Mon 10/4/21	Doc Mngr[40%],Ops Mngr[25%]
4750	1.3.4.7.15.1	Submit for State approval	4749	0.5 days	Mon 10/4/21	Mon 10/4/21	PM[10%]
4751	1.3.4.7.15.1	State reviews	4750	5 days	Tue 10/5/21	Mon 10/11/21	State[20%]
4752	1.3.4.7.15.1	State Provides Final Approval	4746,4751	1 day	Tue 10/12/21	Tue 10/12/21	State[20%]
4753	1.3.4.7.15.1	Milestone: Turnover and Closeout Management Plan Approved	4752	0 days	Tue 10/12/21	Tue 10/12/21	
4754	**1.3.5**	**Project Monitor & Control**		**383 days**	**Mon 5/4/20**	**Thu 11/4/21**	
4755	1.3.5.1	Prepare and Submit Weekly Project Metrics	17FS+10 days	250 days	Wed 5/27/20	Thu 5/20/21	PM[5%]
4756	1.3.5.2	Track and Manage Actions Items and Decisions	17	260 days	Tue 5/12/20	Thu 5/20/21	PM[5%]

ID	WBS	Task Name	Predecessors	Duration	Start	Finish	Resource Names
4757	1.3.5.3	Track and Manage Change Requests	17	260 days	Tue 5/12/20	Thu 5/20/21	PM[5%]
4758	**1.3.5.4**	**Implementation SLAs and Performance Standards**		**296 days**	**Mon 5/4/20**	**Fri 7/2/21**	
4759	**1.3.5.4.1**	**SLA-001: Deliverable Service Level**		**0 days**	**Mon 5/4/20**	**Mon 5/4/20**	
4760	1.3.5.4.1.1	Project Initiation and Project Planning Deliverables Accepted	2	0 days	Mon 5/4/20	Mon 5/4/20	
4761	1.3.5.4.1.2	Solution Planning Deliverables Accepted	2	0 days	Mon 5/4/20	Mon 5/4/20	
4762	1.3.5.4.1.3	Solution Design, Testing, and Operations Deliverables Accepted	2	0 days	Mon 5/4/20	Mon 5/4/20	
4763	1.3.5.4.1.4	Solution Deployment Deliverables Accepted	2	0 days	Mon 5/4/20	Mon 5/4/20	
4764	1.3.5.4.1.5	Project Monitor & Control Deliverables Accepted	2	0 days	Mon 5/4/20	Mon 5/4/20	
4765	1.3.5.4.1.6	Milestone: Implementation Deliverables Approved	4760,4761,4762,4	0 days	Mon 5/4/20	Mon 5/4/20	
4766	**1.3.5.4.2**	**SLA-002: Solution Acceptance**		**0 days**	**Fri 7/2/21**	**Fri 7/2/21**	
4767	1.3.5.4.2.1	Deployment to Production Completion Accepted	4106	0 days	Fri 7/2/21	Fri 7/2/21	
4768	1.3.5.4.3	Milestone: Implementation SLAs Approved	4767,4765	0 days	Fri 7/2/21	Fri 7/2/21	
4769	**1.3.5.5**	**Recurring Meetings (Internal)**		**320 days**	**Mon 5/4/20**	**Fri 8/6/21**	
4770	1.3.5.5.1	Weekly Project Team Meeting (Internal)	2	320 days	Mon 5/4/20	Fri 8/6/21	Acct Mngr[1%],AC[1%],BI Dev[1%],BA[1%],Data Architect[1%],Data Manag
4771	1.3.5.5.2	Daily PMO Standup (Internal)	2	320 days	Mon 5/4/20	Fri 8/6/21	Acct Mngr[1%],AC[1%],BI Dev[1%],BA[1%],Data Architect[1%],Data Manag
4772	1.3.5.5.3	Daily Huddles, as needed (Internal)	2	320 days	Mon 5/4/20	Fri 8/6/21	Acct Mngr[1%],AC[1%],BI Dev[1%],BA[1%],Data Architect[1%],Data Manag
4773	1.3.5.5.4	Weekly Project Schedule Review (Internal)	2	320 days	Mon 5/4/20	Fri 8/6/21	Acct Mngr[1%],AC[1%],BI Dev[1%],BA[1%],Data Architect[1%],Data Manag
4774	1.3.5.5.5	Weekly Risks & Issues Meeting (Internal)	2	320 days	Mon 5/4/20	Fri 8/6/21	Acct Mngr[1%],AC[1%],BI Dev[1%],BA[1%],Data Architect[1%],Data Manag
4775	1.3.5.5.6	Weekly Workstream Meeting (Internal)	2	320 days	Mon 5/4/20	Fri 8/6/21	Acct Mngr[1%],AC[1%],BI Dev[1%],BA[1%],Data Architect[1%],Data Manag
4776	1.3.5.5.7	Weekly Executive Steering Meeting (Internal)	2	320 days	Mon 5/4/20	Fri 8/6/21	Acct Mngr[1%],AC[1%],BI Dev[1%],BA[1%],Data Architect[1%],Data Manag
4777	1.3.5.5.8	Milestone: Recurring Meetings (Internal) Complete	4770,4771,4772,4	0 days	Fri 8/6/21	Fri 8/6/21	
4778	**1.3.5.6**	**Recurring Meetings with Client (External)**		**260 days**	**Tue 5/12/20**	**Thu 5/20/21**	
4779	1.3.5.6.1	Weekly Status Reporting (Client)	17	260 days	Tue 5/12/20	Thu 5/20/21	Acct Mngr[1%],BA[1%],Impl Mngr[1%],QA Mngr[1%],State[1%]
4780	1.3.5.6.2	Semi-Weekly Tu/Th PMO Huddles (Client)	17	260 days	Tue 5/12/20	Thu 5/20/21	Acct Mngr[1%],BA[1%],Impl Mngr[1%],QA Mngr[1%],State[1%]
4781	1.3.5.6.3	Weekly Planning Meeting (Client)	17	260 days	Tue 5/12/20	Thu 5/20/21	BA[1%],Impl Mngr[1%],QA Mngr[1%],Acct Mngr[1%],State[1%]
4782	1.3.5.6.4	Weekly Risks & Issues (Client)	17	260 days	Tue 5/12/20	Thu 5/20/21	BA[1%],Impl Mngr[1%],QA Mngr[1%],Acct Mngr[1%],State[1%]
4783	1.3.5.6.5	Weekly Project Schedule Review (Client)	17	260 days	Tue 5/12/20	Thu 5/20/21	BA[1%],Impl Mngr[1%],QA Mngr[1%],Acct Mngr[1%],State[1%]
4784	1.3.5.6.6	Monthly Organizational Checkpoint and Impact Analysis Update (Client)	17	260 days	Tue 5/12/20	Thu 5/20/21	Acct Mngr[1%],BA[1%],Impl Mngr[1%],QA Mngr[1%],State[1%]
4785	1.3.5.6.7	Monthly Iterative Implementation Checkpoint (Client)	17	260 days	Tue 5/12/20	Thu 5/20/21	
4786	1.3.5.6.8	Milestone: Recurring Meetings with Client (External) Complete	4779,4780,4781,4	0 days	Thu 5/20/21	Thu 5/20/21	
4787	1.3.5.7	Milestone: Project Monitor & Control Complete	4777,4785	0 days	Fri 8/6/21	Fri 8/6/21	
4788	**1.3.5.8**	**Deliverables**		**383 days**	**Mon 5/4/20**	**Thu 11/4/21**	
4789	**1.3.5.8.1**	**D070 Project Status Reporting (Weekly and Monthly)**		**383 days**	**Mon 5/4/20**	**Thu 11/4/21**	
4790	**1.3.5.8.1.1**	**Develop DED**		**7 days**	**Mon 5/4/20**	**Tue 5/12/20**	
4791	1.3.5.8.1.1.1	Review deliverable requirements	2	2 days	Mon 5/4/20	Tue 5/5/20	PM[10%],Doc Mngr[50%]
4792	1.3.5.8.1.1.2	Draft DED	4791	3 days	Wed 5/6/20	Fri 5/8/20	PM[10%],Doc Mngr[50%]
4793	1.3.5.8.1.1.3	Review DED	4792	1 day	Mon 5/11/20	Mon 5/11/20	PM[10%],Doc Mngr[50%]
4794	1.3.5.8.1.1.4	Finalize DED	4793	1 day	Tue 5/12/20	Tue 5/12/20	PM[10%],Doc Mngr[50%]
4795	**1.3.5.8.1.2**	**Internally Review DED**		**6 days**	**Wed 5/13/20**	**Wed 5/20/20**	
4796	1.3.5.8.1.2.1	Complete Contract Review	4794	2 days	Wed 5/13/20	Thu 5/14/20	PM[10%]
4797	1.3.5.8.1.2.2	Complete Peer Review	4794	2 days	Wed 5/13/20	Thu 5/14/20	Doc Mngr[10%]
4798	1.3.5.8.1.2.3	Complete QA Review	4796,4797	2 days	Fri 5/15/20	Mon 5/18/20	Doc Mngr[25%]
4799	1.3.5.8.1.2.4	Update with feedback	4798	2 days	Tue 5/19/20	Wed 5/20/20	Doc Mngr[10%]
4800	1.3.5.8.1.3	Submit for State Review	4799	1 day	Thu 5/21/20	Thu 5/21/20	PM[10%]
4801	1.3.5.8.1.4	State reviews document and provides feedback	4800	3 days	Fri 5/22/20	Wed 5/27/20	State[20%]
4802	**1.3.5.8.1.5**	**DED: Review Cycle (1)**		**4 days**	**Mon 6/15/20**	**Thu 6/18/20**	
4803	1.3.5.8.1.5.1	Update DED with feedback	4801	1 day	Mon 6/15/20	Mon 6/15/20	PM[5%],Doc Mngr[10%]
4804	1.3.5.8.1.5.2	QA review and update	4803	0.5 days	Tue 6/16/20	Tue 6/16/20	Doc Mngr[40%]
4805	1.3.5.8.1.5.3	Resubmit for State Review	4804	0.5 days	Tue 6/16/20	Tue 6/16/20	PM[10%]
4806	1.3.5.8.1.5.4	State reviews	4805	2 days	Wed 6/17/20	Thu 6/18/20	State[20%]
4807	**1.3.5.8.1.6**	**DED: Review Cycle (2)**		**5 days**	**Fri 6/19/20**	**Thu 6/25/20**	
4808	1.3.5.8.1.6.1	Update DED with feedback	4806	1 day	Fri 6/19/20	Fri 6/19/20	PM[5%],Doc Mngr[10%]
4809	1.3.5.8.1.6.2	QA review and update	4808	0.5 days	Mon 6/22/20	Mon 6/22/20	Doc Mngr[40%]
4810	1.3.5.8.1.6.3	Resubmit for State Review	4809	0.5 days	Mon 6/22/20	Mon 6/22/20	PM[10%]
4811	1.3.5.8.1.6.4	State reviews	4810	2 days	Tue 6/23/20	Wed 6/24/20	State[20%]
4812	1.3.5.8.1.6.5	State approves DED	4811	1 day	Thu 6/25/20	Thu 6/25/20	State[20%]
4813	**1.3.5.8.1.7**	**Develop Deliverable**		**13 days**	**Fri 6/26/20**	**Wed 7/15/20**	
4814	1.3.5.8.1.7.1	Create baseline from approved DED	4812	5 days	Fri 6/26/20	Thu 7/2/20	PM[5%],Doc Mngr[10%]
4815	1.3.5.8.1.7.2	Update deliverable	4814	5 days	Mon 7/6/20	Fri 7/10/20	PM[5%],Doc Mngr[10%]
4816	1.3.5.8.1.7.3	Conduct Internal Review	4815	2 days	Mon 7/13/20	Tue 7/14/20	PM[5%],Doc Mngr[10%],Impl Mngr[5%]
4817	1.3.5.8.1.7.4	Final QA Review/Update of Deliverable	4816	1 day	Wed 7/15/20	Wed 7/15/20	Doc Mngr[40%]
4818	1.3.5.8.1.8	Submit Deliverable for State Review	4817	1 day	Thu 7/16/20	Thu 7/16/20	PM[10%]
4819	1.3.5.8.1.9	State reviews document and provides feedback	4818	10 days	Fri 7/17/20	Thu 7/30/20	State[20%]
4820	**1.3.5.8.1.10**	**Deliverable: Review Cycle (1)**		**10 days**	**Fri 7/31/20**	**Thu 8/13/20**	
4821	1.3.5.8.1.10	Update deliverable with feedback	4819	3 days	Fri 7/31/20	Tue 8/4/20	PM[5%],Doc Mngr[10%]
4822	1.3.5.8.1.10	QA review and update	4821	1.5 days	Wed 8/5/20	Thu 8/6/20	Doc Mngr[40%]
4823	1.3.5.8.1.10	Submit for State approval	4822	0.5 days	Thu 8/6/20	Thu 8/6/20	PM[10%]

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ID	WBS	Task Name	Predecessors	Duration	Start	Finish	Resource Names
4824	1.3.5.8.1.10	State reviews	4823	5 days	Fri 8/7/20	Thu 8/13/20	State[20%]
4825	**1.3.5.8.1.11**	**Deliverable: Review Cycle (1)**		**10 days**	**Fri 8/14/20**	**Thu 8/27/20**	
4826	1.3.5.8.1.11	Update deliverable with feedback	4824	3 days	Fri 8/14/20	Tue 8/18/20	PM[5%],Doc Mngr[10%]
4827	1.3.5.8.1.11	QA review and update	4826	1.5 days	Wed 8/19/20	Thu 8/20/20	Doc Mngr[40%]
4828	1.3.5.8.1.11	Submit for State approval	4827	0.5 days	Thu 8/20/20	Thu 8/20/20	PM[10%]
4829	1.3.5.8.1.11	State reviews	4828	5 days	Fri 8/21/20	Thu 8/27/20	State[20%]
4830	1.3.5.8.1.12	State Provides Final Approval	4829	1 day	Fri 8/28/20	Fri 8/28/20	State[20%]
4831	1.3.5.8.1.13	Milestone: Project Status Reporting Approved	4830	0 days	Fri 8/28/20	Fri 8/28/20	
4832	1.3.5.8.1.14	Update & Deliver Report Weekly & Monthly	4831	300 days	Mon 8/31/20	Thu 11/4/21	PM[10%]
4833	**1.3.5.8.2**	**D071 Project Schedule**		**305 days**	**Thu 8/13/20**	**Tue 10/26/21**	
4834	1.3.5.8.2.1	Update Deliverable	300	5 days	Thu 8/13/20	Wed 8/19/20	PM[10%]
4835	1.3.5.8.2.2	Milestone: Project Schedule Approved	4834	0 days	Wed 8/19/20	Wed 8/19/20	
4836	1.3.5.8.2.3	Update & Deliver Bi-weekly	4835	300 days	Thu 8/20/20	Tue 10/26/21	PM[10%]
4837	**1.3.5.8.3**	**D072 Risk Register/Exception Plan**		**71 days**	**Thu 8/13/20**	**Fri 11/20/20**	
4838	**1.3.5.8.3.1**	**Develop DED**		**7 days**	**Thu 8/13/20**	**Fri 8/21/20**	
4839	1.3.5.8.3.1.1	Review deliverable requirements	429	2 days	Thu 8/13/20	Fri 8/14/20	PM[10%],Doc Mngr[50%]
4840	1.3.5.8.3.1.2	Draft DED	4839	3 days	Mon 8/17/20	Wed 8/19/20	PM[10%],Doc Mngr[50%],CMS Cert SME[10%]
4841	1.3.5.8.3.1.3	Review DED	4840	1 day	Thu 8/20/20	Thu 8/20/20	PM[10%],Doc Mngr[50%],CMS Cert SME[10%]
4842	1.3.5.8.3.1.4	Finalize DED	4841	1 day	Fri 8/21/20	Fri 8/21/20	PM[10%],Doc Mngr[50%],CMS Cert SME[10%]
4843	**1.3.5.8.3.2**	**Internally Review DED**		**6 days**	**Mon 8/24/20**	**Mon 8/31/20**	
4844	1.3.5.8.3.2.1	Complete Contract Review	4842	2 days	Mon 8/24/20	Tue 8/25/20	PM[10%]
4845	1.3.5.8.3.2.2	Complete Peer Review	4842	2 days	Mon 8/24/20	Tue 8/25/20	Doc Mngr[10%],Impl Mngr[10%],CMS Cert SME[10%]
4846	1.3.5.8.3.2.3	Complete QA Review	4844,4845	2 days	Wed 8/26/20	Thu 8/27/20	Doc Mngr[25%]
4847	1.3.5.8.3.2.4	Update with feedback	4846	2 days	Fri 8/28/20	Mon 8/31/20	Doc Mngr[10%],Impl Mngr[10%],CMS Cert SME[10%]
4848	1.3.5.8.3.3	Submit for State Review	4847	1 day	Tue 9/1/20	Tue 9/1/20	PM[10%]
4849	1.3.5.8.3.4	State reviews document and provides feedback	4848	3 days	Wed 9/2/20	Fri 9/4/20	State[20%]
4850	**1.3.5.8.3.5**	**DED: Review Cycle (1)**		**4 days**	**Tue 9/8/20**	**Fri 9/11/20**	
4851	1.3.5.8.3.5.1	Update DED with feedback	4849	1 day	Tue 9/8/20	Tue 9/8/20	PM[5%],Doc Mngr[10%],CMS Cert SME[10%]
4852	1.3.5.8.3.5.2	QA review and update	4851	0.5 days	Wed 9/9/20	Wed 9/9/20	Doc Mngr[40%],CMS Cert SME[25%]
4853	1.3.5.8.3.5.3	Resubmit for State Review	4852	0.5 days	Wed 9/9/20	Wed 9/9/20	PM[10%]
4854	1.3.5.8.3.5.4	State reviews	4853	2 days	Thu 9/10/20	Fri 9/11/20	State[20%]
4855	**1.3.5.8.3.6**	**DED: Review Cycle (2)**		**5 days**	**Mon 9/14/20**	**Fri 9/18/20**	
4856	1.3.5.8.3.6.1	Update DED with feedback	4854	1 day	Mon 9/14/20	Mon 9/14/20	PM[5%],Doc Mngr[10%],CMS Cert SME[10%]
4857	1.3.5.8.3.6.2	QA review and update	4856	0.5 days	Tue 9/15/20	Tue 9/15/20	Doc Mngr[40%],CMS Cert SME[25%]
4858	1.3.5.8.3.6.3	Resubmit for State Review	4857	0.5 days	Tue 9/15/20	Tue 9/15/20	PM[10%]
4859	1.3.5.8.3.6.4	State reviews	4858	2 days	Wed 9/16/20	Thu 9/17/20	State[20%]
4860	1.3.5.8.3.6.5	State approves DED	4859	1 day	Fri 9/18/20	Fri 9/18/20	State[20%]
4861	**1.3.5.8.3.7**	**Develop Deliverable**		**13 days**	**Mon 9/21/20**	**Wed 10/7/20**	
4862	1.3.5.8.3.7.1	Create baseline from approved DED	4860	5 days	Mon 9/21/20	Fri 9/25/20	PM[5%],Doc Mngr[10%],CMS Cert SME[10%]
4863	1.3.5.8.3.7.2	Update deliverable	4862	5 days	Mon 9/28/20	Fri 10/2/20	PM[5%],Doc Mngr[10%],CMS Cert SME[10%]
4864	1.3.5.8.3.7.3	Conduct Internal Review	4863	2 days	Mon 10/5/20	Tue 10/6/20	PM[5%],Doc Mngr[10%],CMS Cert SME[10%]
4865	1.3.5.8.3.7.4	Final QA Review/Update of Deliverable	4864	1 day	Wed 10/7/20	Wed 10/7/20	Doc Mngr[40%],CMS Cert SME[25%]
4866	1.3.5.8.3.8	Submit Deliverable for State Review	4865	1 day	Thu 10/8/20	Thu 10/8/20	PM[10%]
4867	1.3.5.8.3.9	State reviews document and provides feedback	4866	10 days	Fri 10/9/20	Thu 10/22/20	State[20%]
4868	**1.3.5.8.3.10**	**Deliverable: Review Cycle (1)**		**10 days**	**Fri 10/23/20**	**Thu 11/5/20**	
4869	1.3.5.8.3.10	Update deliverable with feedback	4867	3 days	Fri 10/23/20	Tue 10/27/20	PM[5%],Doc Mngr[10%],CMS Cert SME[10%]
4870	1.3.5.8.3.10	QA review and update	4869	1.5 days	Wed 10/28/20	Thu 10/29/20	Doc Mngr[40%],CMS Cert SME[25%]
4871	1.3.5.8.3.10	Submit for State approval	4870	0.5 days	Thu 10/29/20	Thu 10/29/20	PM[10%]
4872	1.3.5.8.3.10	State reviews	4871	5 days	Fri 10/30/20	Thu 11/5/20	State[20%]
4873	**1.3.5.8.3.11**	**Deliverable: Review Cycle (2)**		**10 days**	**Fri 11/6/20**	**Thu 11/19/20**	
4874	1.3.5.8.3.11	Update deliverable with feedback	4872	3 days	Fri 11/6/20	Tue 11/10/20	PM[5%],Doc Mngr[10%],CMS Cert SME[10%]
4875	1.3.5.8.3.11	QA review and update	4874	1.5 days	Wed 11/11/20	Thu 11/12/20	Doc Mngr[40%],CMS Cert SME[25%]
4876	1.3.5.8.3.11	Submit for State approval	4875	0.5 days	Thu 11/12/20	Thu 11/12/20	PM[10%]
4877	1.3.5.8.3.11	State reviews	4876	5 days	Fri 11/13/20	Thu 11/19/20	State[20%]
4878	1.3.5.8.3.12	State Provides Final Approval	4877	1 day	Fri 11/20/20	Fri 11/20/20	State[20%]
4879	1.3.5.8.3.13	Milestone: Risk Register/Exception Plan Approved	4878	0 days	Fri 11/20/20	Fri 11/20/20	
4880	**1.3.5.8.4**	**D073 Updated Training Management Plan**		**30.5 days**	**Tue 3/16/21**	**Tue 4/27/21**	
4881	1.3.5.8.4.1	Update Deliverable	3995	5 days	Tue 3/16/21	Mon 3/22/21	PM[5%],Doc Mngr[10%],BA[10%],AC[10%],Trainer[10%],Ops Mngr[5%]
4882	1.3.5.8.4.2	Conduct Internal Review	4881	2 days	Tue 3/23/21	Wed 3/24/21	PM[5%],Doc Mngr[10%],BA[10%],AC[10%],Trainer[10%],Ops Mngr[5%]
4883	1.3.5.8.4.3	Final QA Review/Update of Deliverable	4882	1 day	Thu 3/25/21	Thu 3/25/21	Doc Mngr[10%],PM[5%],BA[10%],AC[10%],Trainer[10%],Ops Mngr[5%]
4884	1.3.5.8.4.4	Submit Deliverable for State Review	4883	1 day	Fri 3/26/21	Fri 3/26/21	PM[10%]
4885	1.3.5.8.4.5	State reviews document and provides feedback	4884	10 days	Mon 3/29/21	Fri 4/9/21	State[20%]
4886	**1.3.5.8.4.6**	**Deliverable: Review Cycle (1)**		**10.5 days**	**Mon 4/12/21**	**Mon 4/26/21**	
4887	1.3.5.8.4.6.1	Update deliverable with feedback	4885	3 days	Mon 4/12/21	Wed 4/14/21	PM[5%],Doc Mngr[10%],BA[10%],AC[10%],Trainer[10%],Ops Mngr[5%]
4888	1.3.5.8.4.6.2	QA review and update	4887	1.5 days	Thu 4/15/21	Fri 4/16/21	Doc Mngr[10%],PM[5%],BA[10%],AC[10%],Trainer[10%],Ops Mngr[5%]
4889	1.3.5.8.4.6.3	Submit for State approval	4888	1 day	Fri 4/16/21	Mon 4/19/21	PM[10%]
4890	1.3.5.8.4.6.4	State reviews	4889	5 days	Mon 4/19/21	Mon 4/26/21	State[20%]

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ID	WBS	Task Name	Predecessors	Duration	Start	Finish	Resource Names
4891	**1.3.5.8.4.7**	**Deliverable: Review Cycle (2)**		**10 days**	**Mon 4/12/21**	**Fri 4/23/21**	
4892	1.3.5.8.4.7.1	Update deliverable with feedback	4885	3 days	Mon 4/12/21	Wed 4/14/21	PM[5%],Doc Mngr[10%],BA[10%],AC[10%],Trainer[10%],Ops Mngr[5%]
4893	1.3.5.8.4.7.2	QA review and update	4892	1.5 days	Thu 4/15/21	Fri 4/16/21	Doc Mngr[10%],PM[5%],BA[10%],AC[10%],Trainer[10%],Ops Mngr[5%]
4894	1.3.5.8.4.7.3	Submit for State approval	4893	0.5 days	Fri 4/16/21	Fri 4/16/21	PM[10%]
4895	1.3.5.8.4.7.4	State reviews	4894	5 days	Mon 4/19/21	Fri 4/23/21	State[20%]
4896	1.3.5.8.4.8	State Provides Final Approval	4890,4895	1 day	Mon 4/26/21	Tue 4/27/21	State[20%]
4897	1.3.5.8.4.9	Milestone: Updated Training Management Plan Approved	4896	0 days	Tue 4/27/21	Tue 4/27/21	
4898	**1.3.5.8.5**	**D074 Updated RTM**		**278 days**	**Mon 5/4/20**	**Tue 6/8/21**	
4899	**1.3.5.8.5.1**	**Interim RTM**		**40 days**	**Mon 5/4/20**	**Mon 6/29/20**	
4900	1.3.5.8.5.1.1	Update Deliverable	2	5 days	Mon 5/4/20	Fri 5/8/20	PM[5%],Doc Mngr[10%],BA[25%]
4901	1.3.5.8.5.1.2	Conduct Internal Review	4900	2 days	Mon 5/11/20	Tue 5/12/20	PM[5%],Doc Mngr[10%],BA[25%]
4902	1.3.5.8.5.1.3	Final QA Review/Update of Deliverable	4901	1 day	Wed 5/13/20	Wed 5/13/20	Doc Mngr[40%],Impl Mngr[5%],BA[25%]
4903	1.3.5.8.5.1.4	Submit Deliverable for State Review	4902	1 day	Thu 5/14/20	Thu 5/14/20	PM[10%]
4904	1.3.5.8.5.1.5	State reviews document and provides feedback	4903	10 days	Fri 5/15/20	Fri 5/29/20	State[20%]
4905	**1.3.5.8.5.1.6**	**Deliverable: Review Cycle (1)**		**10 days**	**Mon 6/1/20**	**Fri 6/12/20**	
4906	1.3.5.8.5.1.6	Update deliverable with feedback	4904	3 days	Mon 6/1/20	Wed 6/3/20	PM[5%],Doc Mngr[10%],BA[25%]
4907	1.3.5.8.5.1.6	QA review and update	4906	1.5 days	Thu 6/4/20	Fri 6/5/20	Doc Mngr[40%],Impl Mngr[5%],BA[25%]
4908	1.3.5.8.5.1.6	Submit for State approval	4907	0.5 days	Fri 6/5/20	Fri 6/5/20	PM[10%]
4909	1.3.5.8.5.1.6	State reviews	4908	5 days	Mon 6/8/20	Fri 6/12/20	State[20%]
4910	**1.3.5.8.5.1.7**	**Deliverable: Review Cycle (2)**		**10 days**	**Mon 6/15/20**	**Fri 6/26/20**	
4911	1.3.5.8.5.1.7	Update deliverable with feedback	4909	3 days	Mon 6/15/20	Wed 6/17/20	PM[5%],Doc Mngr[10%],BA[25%]
4912	1.3.5.8.5.1.7	QA review and update	4911	1.5 days	Thu 6/18/20	Fri 6/19/20	Doc Mngr[40%],Impl Mngr[5%],BA[25%]
4913	1.3.5.8.5.1.7	Submit for State approval	4912	0.5 days	Fri 6/19/20	Fri 6/19/20	PM[10%]
4914	1.3.5.8.5.1.7	State reviews	4913	5 days	Mon 6/22/20	Fri 6/26/20	State[20%]
4915	1.3.5.8.5.1.8	State Provides Final Approval	4909,4914	1 day	Mon 6/29/20	Mon 6/29/20	State[20%]
4916	1.3.5.8.5.1.9	Milestone: Updated RTM Approved	4915	0 days	Mon 6/29/20	Mon 6/29/20	
4917	**1.3.5.8.5.2**	**Final RTM**		**40 days**	**Tue 4/13/21**	**Tue 6/8/21**	
4918	1.3.5.8.5.2.1	Update Deliverable	1168,1054,4082	5 days	Tue 4/13/21	Mon 4/19/21	PM[5%],Doc Mngr[10%],BA[25%]
4919	1.3.5.8.5.2.2	Conduct Internal Review	4918	2 days	Tue 4/20/21	Wed 4/21/21	PM[5%],Doc Mngr[10%],BA[25%]
4920	1.3.5.8.5.2.3	Final QA Review/Update of Deliverable	4919	1 day	Thu 4/22/21	Thu 4/22/21	Doc Mngr[40%],BA[25%],Ops Mngr[5%]
4921	1.3.5.8.5.2.4	Submit Deliverable for State Review	4920	1 day	Fri 4/23/21	Fri 4/23/21	PM[10%]
4922	1.3.5.8.5.2.5	State reviews document and provides feedback	4921	10 days	Mon 4/26/21	Fri 5/7/21	State[20%]
4923	**1.3.5.8.5.2.6**	**Deliverable: Review Cycle (1)**		**10 days**	**Mon 5/10/21**	**Fri 5/21/21**	
4924	1.3.5.8.5.2.6	Update deliverable with feedback	4922	3 days	Mon 5/10/21	Wed 5/12/21	PM[5%],Doc Mngr[10%],BA[25%]
4925	1.3.5.8.5.2.6	QA review and update	4924	1.5 days	Thu 5/13/21	Fri 5/14/21	Doc Mngr[40%],BA[25%],Ops Mngr[5%]
4926	1.3.5.8.5.2.6	Submit for State approval	4925	0.5 days	Fri 5/14/21	Fri 5/14/21	PM[10%]
4927	1.3.5.8.5.2.6	State reviews	4926	5 days	Mon 5/17/21	Fri 5/21/21	State[20%]
4928	**1.3.5.8.5.2.7**	**Deliverable: Review Cycle (2)**		**10 days**	**Mon 5/24/21**	**Mon 6/7/21**	
4929	1.3.5.8.5.2.7	Update deliverable with feedback	4927	3 days	Mon 5/24/21	Wed 5/26/21	PM[5%],Doc Mngr[10%],BA[25%]
4930	1.3.5.8.5.2.7	QA review and update	4929	1.5 days	Thu 5/27/21	Fri 5/28/21	Doc Mngr[40%],BA[25%],Ops Mngr[5%]
4931	1.3.5.8.5.2.7	Submit for State approval	4930	0.5 days	Fri 5/28/21	Fri 5/28/21	PM[10%]
4932	1.3.5.8.5.2.7	State reviews	4931	5 days	Tue 6/1/21	Mon 6/7/21	State[20%]
4933	1.3.5.8.5.2.8	State Provides Final Approval	4927,4932	1 day	Tue 6/8/21	Tue 6/8/21	State[20%]
4934	1.3.5.8.5.2.9	Milestone: Updated RTM Approved	4933	0 days	Tue 6/8/21	Tue 6/8/21	
4935	**1.3.5.8.6**	**D075 Updated Project Management Components**		**30 days**	**Wed 7/28/21**	**Wed 9/8/21**	
4936	1.3.5.8.6.1	Update Deliverable(s)	602FS+12 mons	5 days	Wed 7/28/21	Tue 8/3/21	PM[5%],Doc Mngr[10%],Ops Mngr[10%]
4937	1.3.5.8.6.2	Conduct Internal Review	4936	2 days	Wed 8/4/21	Thu 8/5/21	PM[5%],Doc Mngr[10%],Ops Mngr[10%]
4938	1.3.5.8.6.3	Final QA Review/Update of Deliverable	4937	1 day	Fri 8/6/21	Fri 8/6/21	Doc Mngr[40%],Ops Mngr[25%]
4939	1.3.5.8.6.4	Submit Deliverable for State Review	4938	1 day	Mon 8/9/21	Mon 8/9/21	PM[10%]
4940	1.3.5.8.6.5	State reviews document and provides feedback	4939	10 days	Tue 8/10/21	Mon 8/23/21	State[20%]
4941	**1.3.5.8.6.6**	**Deliverable: Review Cycle (1)**		**10 days**	**Tue 8/24/21**	**Tue 9/7/21**	
4942	1.3.5.8.6.6.1	Update deliverable with feedback	4940	3 days	Tue 8/24/21	Thu 8/26/21	PM[5%],Doc Mngr[10%],Ops Mngr[10%]
4943	1.3.5.8.6.6.2	QA review and update	4942	1.5 days	Fri 8/27/21	Mon 8/30/21	Doc Mngr[40%],Ops Mngr[25%]
4944	1.3.5.8.6.6.3	Submit for State approval	4943	0.5 days	Mon 8/30/21	Mon 8/30/21	PM[10%]
4945	1.3.5.8.6.6.4	State reviews	4944	5 days	Tue 8/31/21	Tue 9/7/21	State[20%]
4946	**1.3.5.8.6.7**	**Deliverable: Review Cycle (2)**		**10 days**	**Tue 8/24/21**	**Tue 9/7/21**	
4947	1.3.5.8.6.7.1	Update deliverable with feedback	4940	3 days	Tue 8/24/21	Thu 8/26/21	PM[5%],Doc Mngr[10%],Ops Mngr[10%]
4948	1.3.5.8.6.7.2	QA review and update	4947	1.5 days	Fri 8/27/21	Mon 8/30/21	Doc Mngr[40%],Ops Mngr[25%]
4949	1.3.5.8.6.7.3	Submit for State approval	4948	0.5 days	Mon 8/30/21	Mon 8/30/21	PM[10%]
4950	1.3.5.8.6.7.4	State reviews	4949	5 days	Tue 8/31/21	Tue 9/7/21	State[20%]
4951	1.3.5.8.6.8	State Provides Final Approval	4945,4950	1 day	Wed 9/8/21	Wed 9/8/21	State[20%]
4952	1.3.5.8.6.9	Milestone: Updated Project Management Components Approved	4951	0 days	Wed 9/8/21	Wed 9/8/21	
4953	1.3.6	Milestone: Project Monitor & Control	4755,4756,4757,4	0 days	Fri 7/2/21	Fri 7/2/21	
4954	1.4	Milestone: Phase 1: DDI Complete	22,4953	0 days	Fri 7/2/21	Fri 7/2/21	
4955	**1.5**	**Phase II: CMS Certification**		**406 days**	**Mon 5/4/20**	**Wed 12/8/21**	
4956	**1.5.1**	**CMS R1 - Project Initiation Milestone Review**		**99 days**	**Mon 5/4/20**	**Tue 9/22/20**	
4957	1.5.1.1	Provide State Goals and Objectives	2	1 day	Mon 5/4/20	Mon 5/4/20	State[20%]

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ID	WBS	Task Name	Predecessors	Duration	Start	Finish	Resource Names
4958	1.5.1.2	Deliver State Goals and Objectives to IV&V	4957	1 day	Tue 5/5/20	Tue 5/5/20	State[20%]
4959	1.5.1.3	Provide MITA Concept of Operations	4958	1 day	Wed 5/6/20	Wed 5/6/20	State[20%]
4960	1.5.1.4	Deliver MITA Concept of Operations to IV&V	4959	1 day	Thu 5/7/20	Thu 5/7/20	State[20%]
4961	1.5.1.5	Develop MITA State Self-Assessment and MITA Roadmap	4960	1 day	Fri 5/8/20	Fri 5/8/20	State[20%]
4962	1.5.1.6	Deliver MITA State Self-Assessment and MITA Roadmap to IV&V	4961	1 day	Mon 5/11/20	Mon 5/11/20	State[20%]
4963	1.5.1.7	Develop MMIS Concept of Operations	4962	1 day	Tue 5/12/20	Tue 5/12/20	State[20%]
4964	1.5.1.8	Deliver Develop MMIS Concept of Operations to IV&V	4963	1 day	Wed 5/13/20	Wed 5/13/20	State[20%]
4965	1.5.1.9	Develop Implementation Advanced Planning Document	4964	1 day	Thu 5/14/20	Thu 5/14/20	State[20%]
4966	1.5.1.10	Deliver Implementation Advanced Planning Document to IV&V	4965	1 day	Fri 5/15/20	Fri 5/15/20	State[20%]
4967	1.5.1.11	Develop State Security Policies and Security Plan	4966	20 days	Mon 5/18/20	Mon 6/15/20	State[20%]
4968	1.5.1.12	Deliver State Security Policies and Security Plan to IV&V	4967	1 day	Tue 6/16/20	Tue 6/16/20	State[20%]
4969	**1.5.1.13**	**Develop Privacy Impact Analysis**		**71 days**	**Mon 5/4/20**	**Wed 8/12/20**	
4970	1.5.1.13.1	Define Use PII or PHI	2	10 days	Mon 5/4/20	Fri 5/15/20	State[10%]
4971	1.5.1.13.2	Identify Sources of PII or PHI	4970	10 days	Mon 5/18/20	Mon 6/1/20	State[10%]
4972	1.5.1.13.3	Define Legal Environments	4971	10 days	Tue 6/2/20	Mon 6/15/20	State[10%]
4973	1.5.1.13.4	Define Information Sharing	4972	10 days	Tue 6/16/20	Mon 6/29/20	State[10%]
4974	1.5.1.13.5	Define Privacy and Security Standards for Business Partners	4973	10 days	Tue 6/30/20	Tue 7/14/20	State[10%]
4975	1.5.1.13.6	Define Incident Handling Procedures	4974	10 days	Wed 7/15/20	Tue 7/28/20	State[10%]
4976	1.5.1.13.7	Define Privacy and Security Awareness Programs	4975	10 days	Wed 7/29/20	Tue 8/11/20	State[10%]
4977	1.5.1.13.8	Deliver Privacy Impact Analysis to IV&V	4976	1 day	Wed 8/12/20	Wed 8/12/20	State[10%]
4978	1.5.1.14	Milestone: Develop Privacy Impact Analysis Complete	4977	0 days	Wed 8/12/20	Wed 8/12/20	
4979	1.5.1.15	Provide RFP	4978	1 day	Thu 8/13/20	Thu 8/13/20	State[10%]
4980	1.5.1.16	Deliver Draft RFP to IV&V	4979	1 day	Fri 8/14/20	Fri 8/14/20	State[10%]
4981	1.5.1.17	Deliver Project Management Plan to IV&V	602	1 day	Fri 8/14/20	Fri 8/14/20	CMS Cert SME[1%]
4982	1.5.1.18	Provide Schedule / Milestones	4981	1 day	Mon 8/17/20	Mon 8/17/20	CMS Cert SME[1%]
4983	1.5.1.19	Delivery Schedule/Milestones and Burn-down Charts to IV&V	4982	1 day	Tue 8/18/20	Tue 8/18/20	CMS Cert SME[1%]
4984	1.5.1.20	Provide Risk Register Exception Plan	4983	1 day	Wed 8/19/20	Wed 8/19/20	CMS Cert SME[1%]
4985	1.5.1.21	Deliver Risk Register Exception Plan to IV&V	4984	1 day	Thu 8/20/20	Thu 8/20/20	CMS Cert SME[1%]
4986	**1.5.1.22**	**Develop MECT Checklist for CMS R1**		**26 days**	**Mon 8/17/20**	**Tue 9/22/20**	
4987	1.5.1.22.1	Identify MECT Checklists for Certification	4981	5 days	Mon 8/17/20	Fri 8/21/20	CMS Cert SME[10%],State[10%]
4988	1.5.1.22.2	Develop MMIS IV&V Programmatic Checklist	4987	20 days	Mon 8/24/20	Mon 9/21/20	CMS Cert SME[20%],State[20%]
4989	1.5.1.22.3	Develop Program Integrity Checklist (MMIS Module)	4987	20 days	Mon 8/24/20	Mon 9/21/20	CMS Cert SME[20%],State[20%]
4990	1.5.1.22.4	Develop Standards and Conditions Checklist (MITA Module)	4987	20 days	Mon 8/24/20	Mon 9/21/20	CMS Cert SME[20%],State[20%]
4991	1.5.1.22.5	Develop TA Access and Delivery Checklist (MITA Module)	4987	20 days	Mon 8/24/20	Mon 9/21/20	CMS Cert SME[20%],State[20%]
4992	1.5.1.22.6	Develop TA Integration and Utility Checklist (MITA Module)	4987	20 days	Mon 8/24/20	Mon 9/21/20	CMS Cert SME[20%],State[20%]
4993	1.5.1.22.7	Develop TA Intermediary and Interface Checklist (MITA Module)	4987	20 days	Mon 8/24/20	Mon 9/21/20	CMS Cert SME[20%],State[20%]
4994	1.5.1.22.8	Develop IA Components Checklist (MITA Module)	4987	20 days	Mon 8/24/20	Mon 9/21/20	CMS Cert SME[20%],State[20%]
4995	1.5.1.22.9	Develop Performance Management Checklist (MITA)	4987	20 days	Mon 8/24/20	Mon 9/21/20	CMS Cert SME[20%],State[20%]
4996	1.5.1.22.10	Deliver MECT Checklist for CMS R1 to IV&V	4987,4988,4989,4	1 day	Tue 9/22/20	Tue 9/22/20	CMS Cert SME[20%],State[20%]
4997	1.5.1.23	Milestone: Develop MECT Checklist for CMS R1 Complete	4996	0 days	Tue 9/22/20	Tue 9/22/20	
4998	1.5.2	Milestone: CMS R1 - Project Initiation Milestone Review Complete	4968,4983,4985,4	0 days	Tue 9/22/20	Tue 9/22/20	
4999	**1.5.3**	**CMS R2 - Operational Milestone Review**		**105 days**	**Thu 12/17/20**	**Mon 5/17/21**	
5000	1.5.3.1	Milestone: CMS R2 START	4083SS-80 days	0 days	Thu 12/17/20	Thu 12/17/20	
5001	1.5.3.2	Update State Security Policies and Security Plan	5000	1 day	Thu 12/17/20	Thu 12/17/20	State[50%]
5002	1.5.3.3	Deliver State Security Policies and Security Plan to IV&V	5001	1 day	Fri 12/18/20	Fri 12/18/20	State[20%]
5003	**1.5.3.4**	**Update Privacy Impact Analysis**		**36 days**	**Mon 12/21/20**	**Thu 2/11/21**	
5004	1.5.3.4.1	Update Use PII or PHI	5002	5 days	Mon 12/21/20	Tue 12/29/20	State[20%]
5005	1.5.3.4.2	Identify Sources of PII or PHI	5004	5 days	Wed 12/30/20	Wed 1/6/21	State[20%]
5006	1.5.3.4.3	Update Legal Environments	5005	5 days	Thu 1/7/21	Wed 1/13/21	State[20%]
5007	1.5.3.4.4	Update Information Sharing	5006	5 days	Thu 1/14/21	Wed 1/20/21	State[20%]
5008	1.5.3.4.5	Update Privacy and Security Standards for Business Partners	5007	5 days	Thu 1/21/21	Wed 1/27/21	State[20%]
5009	1.5.3.4.6	Update Incident Handling Procedures	5008	5 days	Thu 1/28/21	Wed 2/3/21	State[20%]
5010	1.5.3.4.7	Update Privacy and Security Awareness Programs	5009	5 days	Thu 2/4/21	Wed 2/10/21	State[20%]
5011	1.5.3.4.8	Deliver Privacy Impact Analysis to IV&V	5010	1 day	Thu 2/11/21	Thu 2/11/21	State[20%]
5012	1.5.3.5	Milestone: Update Privacy Impact Analysis Complete	5011	0 days	Thu 2/11/21	Thu 2/11/21	
5013	**1.5.3.6**	**Update Project Management Plan**		**31 days**	**Fri 12/18/20**	**Wed 2/3/21**	
5014	1.5.3.6.1	Update Modularity Plans	5001	5 days	Fri 12/18/20	Mon 12/28/20	CMS Cert SME[20%],PM[10%]
5015	1.5.3.6.2	Update Re-use Plans	5014	5 days	Tue 12/29/20	Tue 1/5/21	CMS Cert SME[20%],PM[10%]
5016	1.5.3.6.3	Update Procurement Plan	5015	5 days	Wed 1/6/21	Tue 1/12/21	CMS Cert SME[20%],PM[10%]
5017	1.5.3.6.4	Update Quality Management Plan	5016	5 days	Wed 1/13/21	Tue 1/19/21	CMS Cert SME[20%],PM[10%]
5018	1.5.3.6.5	Update Communication Management Plan	5017	5 days	Wed 1/20/21	Tue 1/26/21	CMS Cert SME[20%],PM[10%]
5019	1.5.3.6.6	Update System Development Life Cycle	5018	5 days	Wed 1/27/21	Tue 2/2/21	CMS Cert SME[20%],PM[10%]
5020	1.5.3.6.7	Deliver Project Management Plan to IV&V	5019	1 day	Wed 2/3/21	Wed 2/3/21	CMS Cert SME[20%],PM[10%]
5021	1.5.3.7	Milestone: Update Project Management Plan Complete	5020	0 days	Wed 2/3/21	Wed 2/3/21	
5022	1.5.3.8	Update Schedule / Milestones and Burn-down Charts	5021	10 days	Thu 2/4/21	Wed 2/17/21	CMS Cert SME[25%],PM[10%]
5023	1.5.3.9	Deliver Schedule/Milestones and Burn-down Charts to IV&V	5022	1 day	Thu 2/18/21	Thu 2/18/21	CMS Cert SME[5%],PM[1%]
5024	1.5.3.10	Update Extract Risk Register Exception Plan	5023	5 days	Fri 2/19/21	Thu 2/25/21	CMS Cert SME[25%],PM[10%]

ID	WBS	Task Name	Predecessors	Duration	Start	Finish	Resource Names
5025	1.5.3.11	Deliver Extract Risk Register Exception Plan to IV&V	5024	1 day	Fri 2/26/21	Fri 2/26/21	CMS Cert SME[5%],PM[1%]
5026	**1.5.3.12**	**Consolidate Test Plans and Strategies for All Testing**		**21 days**	**Mon 3/1/21**	**Mon 3/29/21**	
5027	1.5.3.12.1	Provide Testing Strategies for All Testing	5025	5 days	Mon 3/1/21	Fri 3/5/21	CMS Cert SME[25%],Impl Mngr[25%],QA Mngr[25%]
5028	1.5.3.12.2	Provide a Bi-Directional Traceability Matrix	5027	5 days	Mon 3/8/21	Fri 3/12/21	CMS Cert SME[25%],Impl Mngr[25%],QA Mngr[25%]
5029	1.5.3.12.3	Provide Plans for Test Staging Preparations	5028	5 days	Mon 3/15/21	Fri 3/19/21	CMS Cert SME[25%],Impl Mngr[25%],QA Mngr[25%]
5030	1.5.3.12.4	Provide Test Cases added per Design	5029	5 days	Mon 3/22/21	Fri 3/26/21	CMS Cert SME[25%],Impl Mngr[25%],QA Mngr[25%]
5031	1.5.3.12.5	Deliver Consolidate Test Plans and Strategies for All Testing to IV&V	5030	1 day	Mon 3/29/21	Mon 3/29/21	CMS Cert SME[25%],Impl Mngr[25%],QA Mngr[25%]
5032	1.5.3.13	Milestone: Consolidate Test Plans and Strategies for All Testing Complete	5031	0 days	Mon 3/29/21	Mon 3/29/21	
5033	1.5.3.14	Demonstrate Working MMIS Modules	5032	2 days	Tue 3/30/21	Wed 3/31/21	BA[50%]
5034	1.5.3.15	Deliver Working MMIS Modules to IV&V	5033	1 day	Thu 4/1/21	Thu 4/1/21	BA[50%]
5035	**1.5.3.16**	**Develop Incident Management Plan**		**27 days**	**Fri 12/18/20**	**Thu 1/28/21**	
5036	1.5.3.16.1	Identify Incident Manager	5001	1 day	Fri 12/18/20	Fri 12/18/20	CMS Cert SME[25%],Impl Mngr[25%]
5037	1.5.3.16.2	Define what constitutes an Incident and Classification	5036	5 days	Mon 12/21/20	Tue 12/29/20	CMS Cert SME[25%],Impl Mngr[25%]
5038	1.5.3.16.3	Define processes for managing incident	5037	10 days	Wed 12/30/20	Wed 1/13/21	CMS Cert SME[25%],Impl Mngr[25%]
5039	1.5.3.16.4	Define processes for communication incident	5038	10 days	Thu 1/14/21	Wed 1/27/21	CMS Cert SME[25%],Impl Mngr[25%]
5040	1.5.3.16.5	Deliver Incident Management Plan to IV&V	5039	1 day	Thu 1/28/21	Thu 1/28/21	CMS Cert SME[25%],Impl Mngr[25%]
5041	1.5.3.17	Milestone: Develop Incident Management Plan Complete	5040	0 days	Thu 1/28/21	Thu 1/28/21	
5042	**1.5.3.18**	**Develop Change Management Plan**		**27 days**	**Fri 1/29/21**	**Mon 3/8/21**	
5043	1.5.3.18.1	Identify CCB	5041	1 day	Fri 1/29/21	Fri 1/29/21	CMS Cert SME[5%],Impl Mngr[5%]
5044	1.5.3.18.2	Define Categories Change Types	5043	5 days	Mon 2/1/21	Fri 2/5/21	CMS Cert SME[5%],Impl Mngr[5%]
5045	1.5.3.18.3	Define processes for Change Management	5044	10 days	Mon 2/8/21	Fri 2/19/21	CMS Cert SME[5%],Impl Mngr[5%]
5046	1.5.3.18.4	Define processes for Change Approval and Verification Process	5045	10 days	Mon 2/22/21	Fri 3/5/21	CMS Cert SME[5%],Impl Mngr[5%]
5047	1.5.3.18.5	Deliver Change Management Plan to IV&V	5046	1 day	Mon 3/8/21	Mon 3/8/21	CMS Cert SME[5%],Impl Mngr[5%]
5048	1.5.3.19	Milestone: Develop Change Management Plan Complete	5047	0 days	Mon 3/8/21	Mon 3/8/21	
5049	**1.5.3.20**	**Provide Database Design**		**7 days**	**Tue 3/9/21**	**Wed 3/17/21**	
5050	1.5.3.20.1	Provide Data Store Layout and Definition	5048	5 days	Tue 3/9/21	Mon 3/15/21	BI Architect[5%]
5051	1.5.3.20.2	Provide Logical Data Model Corresponding Physical Data Model	5050	1 day	Tue 3/16/21	Tue 3/16/21	BI Architect[5%]
5052	1.5.3.20.3	Deliver Database Design to IV&V	5051	1 day	Wed 3/17/21	Wed 3/17/21	CMS Cert SME[5%]
5053	1.5.3.21	Milestone: Develop Database Design Complete	5052	0 days	Wed 3/17/21	Wed 3/17/21	
5054	1.1.1.4.29.1	Develop Conversion Plan	5053	5 days	Thu 3/18/21	Wed 3/24/21	BI Architect[5%]
5055	1.5.3.23	Update and Provide Data Conversion / Management plan	5054	5 days	Thu 3/25/21	Wed 3/31/21	BI Architect[5%]
5056	1.5.3.24	Deliver Data Conversion / Management Plan to IV&V	5055	1 day	Thu 4/1/21	Thu 4/1/21	CMS Cert SME[5%]
5057	**1.5.3.25**	**Develop Business Continuity / Contingency / Recovery Plans**		**11 days**	**Fri 4/2/21**	**Fri 4/16/21**	
5058	1.5.3.25.1	Develop Back-up Site/ Failover Plan	5056	5 days	Fri 4/2/21	Thu 4/8/21	CMS Cert SME[5%],Impl Mngr[5%]
5059	1.5.3.25.2	Develop Testing Schedule	5058	5 days	Fri 4/9/21	Thu 4/15/21	CMS Cert SME[5%],Impl Mngr[5%]
5060	1.5.3.25.3	Deliver Business Continuity / Contingency / Recovery Plans to IV&V	5059	1 day	Fri 4/16/21	Fri 4/16/21	CMS Cert SME[5%],Impl Mngr[5%]
5061	1.5.3.26	Milestone: Develop Business Continuity / Contingency / Recovery Plans Complete	5060	0 days	Fri 4/16/21	Fri 4/16/21	
5062	1.5.3.27	Provide UAT Test Results	4082	5 days	Tue 4/13/21	Mon 4/19/21	CMS Cert SME[5%],Impl Mngr[5%]
5063	1.5.3.28	Deliver UAT Test Results to IV&V	5067	1 day	Tue 4/20/21	Tue 4/20/21	CMS Cert SME[5%],Impl Mngr[5%]
5064	**1.5.3.29**	**Provide System Design Documentation**		**31 days**	**Thu 12/17/20**	**Tue 2/2/21**	
5065	1.5.3.29.1	Provide a List of All Facilities	5000	5 days	Thu 12/17/20	Wed 12/23/20	BI Architect[5%]
5066	1.5.3.29.2	Provide Network Semantic	5065	5 days	Mon 12/28/20	Mon 1/4/21	Sys Mngr[5%]
5067	1.5.3.29.3	Provide Interface Control Document	5066	5 days	Tue 1/5/21	Mon 1/11/21	Impl Mngr[5%]
5068	1.5.3.29.4	Provide Description of each System Components	5067	5 days	Tue 1/12/21	Mon 1/18/21	Impl Mngr[5%]
5069	1.5.3.29.5	Provide Enterprise System Diagrams	5068	5 days	Tue 1/19/21	Mon 1/25/21	BI Architect[5%]
5070	1.5.3.29.6	Provide Bi-Directional Traceability Matrix	5069	5 days	Tue 1/26/21	Mon 2/1/21	BI Architect[5%]
5071	1.5.3.29.7	Deliver System Design Documentation to IV&V	5070	1 day	Tue 2/2/21	Tue 2/2/21	CMS Cert SME[20%]
5072	1.5.3.30	Milestone: Provide System Design Documentation Complete	5071	0 days	Tue 2/2/21	Tue 2/2/21	
5073	**1.5.3.31**	**Provide System Requirements Document\User Stories**		**51 days**	**Thu 12/17/20**	**Tue 3/2/21**	
5074	1.5.3.31.1	Provide Business Requirements	5000	5 days	Thu 12/17/20	Wed 12/23/20	BA[5%]
5075	1.5.3.31.2	Provide Data Requirements	5074	5 days	Mon 12/28/20	Mon 1/4/21	Data Architect[5%]
5076	1.5.3.31.3	Provide Capacity/Performance Requirements	5075	5 days	Tue 1/5/21	Mon 1/11/21	BI Architect[5%]
5077	1.5.3.31.4	Provide Security/Privacy/HIPPA Compliance Requirements	5076	5 days	Tue 1/12/21	Mon 1/18/21	Info Sec Arch[5%]
5078	1.5.3.31.5	Provide Usability Requirements	5077	5 days	Tue 1/19/21	Mon 1/25/21	BA[5%]
5079	1.5.3.31.6	Provide Maintainability Requirements	5078	5 days	Tue 1/26/21	Mon 2/1/21	BA[5%]
5080	1.5.3.31.7	Provide Interface Requirements	5079	5 days	Tue 2/2/21	Mon 2/8/21	BA[5%]
5081	1.5.3.31.8	Provide 508 Compliant Requirements	5080	5 days	Tue 2/9/21	Mon 2/15/21	Info Sec Arch[5%]
5082	1.5.3.31.9	Provide Disaster Recovery Requirements	5081	5 days	Tue 2/16/21	Mon 2/22/21	Info Sec Arch[5%]
5083	1.5.3.31.10	Provide Traceability Test Plans or Test Cases	5082	1 day	Tue 2/23/21	Tue 2/23/21	BA[5%]
5084	1.5.3.31.11	Deliver System Requirements Document \User Stories to IV&V	5083	5 days	Wed 2/24/21	Tue 3/2/21	CMS Cert SME[20%]
5085	1.5.3.32	Milestone: Provide System Requirements Document \User Stories Complete	5084	0 days	Tue 3/2/21	Tue 3/2/21	
5086	**1.5.3.33**	**Provide Product Documentation (Training and User Guides)**		**5 days**	**Thu 12/17/20**	**Wed 12/23/20**	
5087	1.5.3.33.1	Provide Operations Manuals	5000	1 day	Thu 12/17/20	Thu 12/17/20	Ops Mngr[25%]
5088	1.5.3.33.2	Provide Training Materials	5087	1 day	Fri 12/18/20	Fri 12/18/20	Ops Mngr[25%]
5089	1.5.3.33.3	Provide User Guides	5088	1 day	Mon 12/21/20	Mon 12/21/20	Ops Mngr[25%]
5090	1.5.3.33.4	Provide List of All Error Codes and Explanations in MMIS Components	5089	1 day	Tue 12/22/20	Tue 12/22/20	BA[25%]
5091	1.5.3.33.5	Deliver Product Documentation (Training and User Guides) to IV&V	5090	1 day	Wed 12/23/20	Wed 12/23/20	CMS Cert SME[20%]

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ID	WBS	Task Name	Predecessors	Duration	Start	Finish	Resource Names
5092	1.5.3.34	Milestone: Provide Product Documentation (Training and User Guides) Complete	5091	0 days	Wed 12/23/20	Wed 12/23/20	
5093	1.5.3.35	Provide Roll Out Plan	5092	1 day	Mon 12/28/20	Mon 12/28/20	Impl Mngr[25%]
5094	1.5.3.36	Deliver Roll Out Plan to IV&V	5093	1 day	Tue 12/29/20	Tue 12/29/20	CMS Cert SME[20%]
5095	1.5.3.37	Develop HIPAA Statement	5094	1 day	Wed 12/30/20	Wed 12/30/20	CMS Cert SME[20%]
5096	1.5.3.38	Deliver HIPPA Statement to IV&V	5095	1 day	Thu 12/31/20	Thu 12/31/20	CMS Cert SME[20%]
5097	**1.5.3.39**	**Update MECT Checklists for CMS R2 with Test Reports and UAT Test Results**		**10 days**	**Thu 4/8/21**	**Wed 4/21/21**	
5098	1.5.3.39.1	Update MMIS IV&V Programmatic Checklist	5062FS-8 days	10 days	Thu 4/8/21	Wed 4/21/21	CMS Cert SME[10%],State[10%]
5099	1.5.3.39.2	Update Program Integrity Checklist (MMIS Module)	5062FS-8 days	10 days	Thu 4/8/21	Wed 4/21/21	CMS Cert SME[20%],State[20%]
5100	1.5.3.39.3	Update Standards and Conditions Checklist (MITA Module)	5062FS-8 days	10 days	Thu 4/8/21	Wed 4/21/21	CMS Cert SME[20%],State[20%]
5101	1.5.3.39.4	Update TA Access and Delivery Checklist (MITA Module)	5062FS-8 days	10 days	Thu 4/8/21	Wed 4/21/21	CMS Cert SME[20%],State[20%]
5102	1.5.3.39.5	Update TA Integration and Utility Checklist (MITA Module)	5062FS-8 days	10 days	Thu 4/8/21	Wed 4/21/21	CMS Cert SME[20%],State[20%]
5103	1.5.3.39.6	Update TA Intermediary and Interface Checklist (MITA Module)	5062FS-8 days	10 days	Thu 4/8/21	Wed 4/21/21	CMS Cert SME[20%],State[20%]
5104	1.5.3.39.7	Update IA Components Checklist (MITA Module)	5062FS-8 days	10 days	Thu 4/8/21	Wed 4/21/21	CMS Cert SME[20%],State[20%]
5105	1.5.3.39.8	Update Performance Management Checklist (MITA)	5062FS-8 days	10 days	Thu 4/8/21	Wed 4/21/21	CMS Cert SME[20%],State[20%]
5106	1.5.3.39.9	Deliver MECT Checklists for CMS R2 with Test Reports and UAT Test Results to IV&V	5062	1 day	Tue 4/20/21	Tue 4/20/21	CMS Cert SME[20%],State[20%]
5107	1.5.3.40	Milestone: Update MECT Checklists for CMS R2 with Test Reports and UAT Test Results Complete	5098,5099,5100,!	0 days	Wed 4/21/21	Wed 4/21/21	
5108	**1.5.3.41**	**CMS R2 Operation Milestone Review**		**18 days**	**Thu 4/22/21**	**Mon 5/17/21**	
5109	1.5.3.41.1	Prepare for CMS Review	5107	8 days	Thu 4/22/21	Mon 5/3/21	BA[20%],CMS Cert SME[20%],Impl Mngr[20%],Ops Mngr[20%],State[20%]
5110	1.5.3.41.2	Develop CMS Presentations	5109FF	5 days	Tue 4/27/21	Mon 5/3/21	BA[20%],CMS Cert SME[20%],Impl Mngr[20%],Ops Mngr[20%],State[20%]
5111	1.5.3.41.3	Conduct Dry-run of CMS Presentations	5110	5 days	Tue 5/4/21	Mon 5/10/21	BA[20%],CMS Cert SME[20%],Impl Mngr[20%],Ops Mngr[20%],State[20%]
5112	1.5.3.41.4	Conduct CMS Review	5111	5 days	Tue 5/11/21	Mon 5/17/21	BA[20%],CMS Cert SME[20%],Impl Mngr[20%],Ops Mngr[20%],State[20%]
5113	1.5.3.42	Milestone: CMS R2 Operation Milestone Review Complete	5112	0 days	Mon 5/17/21	Mon 5/17/21	
5114	1.5.4	Milestone: CMS R2 - Operational Milestone Review Complete	5025,5034,5041,!	0 days	Mon 5/17/21	Mon 5/17/21	
5115	**1.5.5**	**CMS R3 - MMIS Certification Final Review**		**143 days**	**Mon 5/17/21**	**Wed 12/8/21**	
5116	1.5.5.1	CMS R3 START	5114	0 days	Mon 5/17/21	Mon 5/17/21	
5117	**1.5.5.2**	**Update MITA Concept of Operations**		**41 days**	**Tue 5/18/21**	**Thu 7/15/21**	
5118	1.5.5.2.1	Update Medicaid Enterprise Scope	5116	5 days	Tue 5/18/21	Mon 5/24/21	State[10%]
5119	1.5.5.2.2	Update As-Is Operations	5118	5 days	Tue 5/25/21	Tue 6/1/21	State[10%]
5120	1.5.5.2.3	Update Drivers and Enablers for Transformation	5119	5 days	Wed 6/2/21	Tue 6/8/21	State[10%]
5121	1.5.5.2.4	Update Environments	5120	5 days	Wed 6/9/21	Tue 6/15/21	State[10%]
5122	1.5.5.2.5	Update Operational Scenarios	5121	5 days	Wed 6/16/21	Tue 6/22/21	State[10%]
5123	1.5.5.2.6	Update Impact on Stakeholders	5122	5 days	Wed 6/23/21	Tue 6/29/21	State[10%]
5124	1.5.5.2.7	Update Summary of Improvements	5123	5 days	Wed 6/30/21	Wed 7/7/21	State[10%]
5125	1.5.5.2.8	Update Conditions Modularity and Reuse	5124	5 days	Thu 7/8/21	Wed 7/14/21	State[10%]
5126	1.5.5.2.9	Deliver MITA Concept of Operations to IV&V	5125	1 day	Thu 7/15/21	Thu 7/15/21	State[10%]
5127	1.5.5.3	Milestone: Update MITA Concept of Operations Complete	5126	0 days	Thu 7/15/21	Thu 7/15/21	
5128	1.5.5.4	Document MITA Technical Management Strategy	5127	10 days	Fri 7/16/21	Thu 7/29/21	State[10%]
5129	1.5.5.5	Deliver MITA Technical Management Strategy to IV&V	5128	1 day	Fri 7/30/21	Fri 7/30/21	State[10%]
5130	1.5.5.6	Document MITA Data Management Strategy	5129	10 days	Mon 8/2/21	Fri 8/13/21	State[10%]
5131	1.5.5.7	Deliver MITA Data Management Strategy to IV&V	5130	1 day	Mon 8/16/21	Mon 8/16/21	State[10%]
5132	**1.5.5.8**	**Update MITA State Self Assessment and MITA Roadmap**		**46 days**	**Tue 8/17/21**	**Wed 10/20/21**	
5133	1.5.5.8.1	Update As-Is State	5131	20 days	Tue 8/17/21	Tue 9/14/21	State[10%]
5134	1.5.5.8.2	Update To-Be State	5133	20 days	Wed 9/15/21	Tue 10/12/21	State[10%]
5135	1.5.5.8.3	Update Long Term Milestone	5134	5 days	Wed 10/13/21	Tue 10/19/21	State[10%]
5136	1.5.5.8.4	Deliver MITA Concept of Operations to IV&V	5135	1 day	Wed 10/20/21	Wed 10/20/21	State[10%]
5137	1.5.5.9	Milestone: Update MITA State Self Assessment and MITA Roadmap Complete	5136	0 days	Wed 10/20/21	Wed 10/20/21	
5138	**1.5.5.10**	**Update MMIS Concept of Operations**		**21 days**	**Thu 10/21/21**	**Thu 11/18/21**	
5139	1.5.5.10.1	Update Narrative of MMIS Components	5137	10 days	Thu 10/21/21	Wed 11/3/21	State[10%]
5140	1.5.5.10.2	Update Security / Interface and Disaster Recovery	5139	10 days	Thu 11/4/21	Wed 11/17/21	State[10%]
5141	1.5.5.10.3	Deliver MITA State Self Assessment and MITA Roadmap to IV&V	5140	1 day	Thu 11/18/21	Thu 11/18/21	State[10%]
5142	1.5.5.11	Milestone: Update MMIS Concept of Operations Complete	5141	0 days	Thu 11/18/21	Thu 11/18/21	
5143	1.5.5.12	Update Implementation Advanced Planning Document	5142	1 day	Fri 11/19/21	Fri 11/19/21	State[10%]
5144	1.5.5.13	Deliver Implementation Advanced Planning Document to IV&V	5143	1 day	Mon 11/22/21	Mon 11/22/21	State[10%]
5145	1.5.5.14	Update State Security Policies and Security Plan	5144	10 days	Tue 11/23/21	Tue 12/7/21	State[10%]
5146	1.5.5.15	Deliver State Security Policies and Security Plan to IV&V	5145	1 day	Wed 12/8/21	Wed 12/8/21	State[10%]
5147	**1.5.5.16**	**Update Privacy Impact Analysis (Security)**		**36 days**	**Tue 5/18/21**	**Thu 7/8/21**	
5148	1.5.5.16.1	Update Use PII or PHI	5116	5 days	Tue 5/18/21	Mon 5/24/21	Info Sec Arch[5%]
5149	1.5.5.16.2	Identify Sources of PII or PHI	5148	5 days	Tue 5/25/21	Tue 6/1/21	Info Sec Arch[5%]
5150	1.5.5.16.3	Update Legal Environments	5149	5 days	Wed 6/2/21	Tue 6/8/21	Info Sec Arch[5%]
5151	1.5.5.16.4	Update Information Sharing	5150	5 days	Wed 6/9/21	Tue 6/15/21	Info Sec Arch[5%]
5152	1.5.5.16.5	Update Privacy and Security Standards for Business Partners	5151	5 days	Wed 6/16/21	Tue 6/22/21	Info Sec Arch[5%]
5153	1.5.5.16.6	Update Incident Handling Procedures	5152	5 days	Wed 6/23/21	Tue 6/29/21	Info Sec Arch[5%]
5154	1.5.5.16.7	Update Privacy and Security Awareness Programs	5153	5 days	Wed 6/30/21	Wed 7/7/21	Info Sec Arch[5%]
5155	1.5.5.16.8	Deliver Privacy Impact Analysis (Security) to IV&V	5154	1 day	Thu 7/8/21	Thu 7/8/21	CMS Cert SME[5%]
5156	1.5.5.17	Milestone: Update Privacy Impact Analysis (Security) Complete	5155	0 days	Thu 7/8/21	Thu 7/8/21	
5157	**1.5.5.18**	**Update Incident Management Plan**		**17 days**	**Fri 7/9/21**	**Mon 8/2/21**	
5158	1.5.5.18.1	Update Incident Manager	5156	1 day	Fri 7/9/21	Fri 7/9/21	CMS Cert SME[25%],Impl Mngr[25%]

ID	WBS	Task Name	Predecessors	Duration	Start	Finish	Resource Names
5159	1.5.5.18.2	Update what constitutes an Incident and Classification	5158	5 days	Mon 7/12/21	Fri 7/16/21	CMS Cert SME[25%],Impl Mngr[25%]
5160	1.5.5.18.3	Update processes for managing incident	5159	5 days	Mon 7/19/21	Fri 7/23/21	CMS Cert SME[25%],Impl Mngr[25%]
5161	1.5.5.18.4	Update processes for communication incident	5160	5 days	Mon 7/26/21	Fri 7/30/21	CMS Cert SME[25%],Impl Mngr[25%]
5162	1.5.5.18.5	Deliver Incident Management Plan to IV&V	5161	1 day	Mon 8/2/21	Mon 8/2/21	CMS Cert SME[25%],Impl Mngr[25%]
5163	1.5.5.19	Milestone: Update Incident Management Plan Complete	5162	0 days	Mon 8/2/21	Mon 8/2/21	
5164	**1.5.5.20**	**Provide Change Management Plan**		**5 days**	**Tue 8/3/21**	**Mon 8/9/21**	
5165	1.5.5.20.1	Verify CCB	5163	1 day	Tue 8/3/21	Tue 8/3/21	CMS Cert SME[5%],Impl Mngr[5%]
5166	1.5.5.20.2	Provide Categories Change Types	5165	1 day	Wed 8/4/21	Wed 8/4/21	CMS Cert SME[5%],Impl Mngr[5%]
5167	1.5.5.20.3	Provide processes for Change Management	5166	1 day	Thu 8/5/21	Thu 8/5/21	CMS Cert SME[5%],Impl Mngr[5%]
5168	1.5.5.20.4	Provide processes for Change Approval and Verification Process	5167	1 day	Fri 8/6/21	Fri 8/6/21	CMS Cert SME[5%],Impl Mngr[5%]
5169	1.5.5.20.5	Deliver Change Management Plan to IV&V	5168	1 day	Mon 8/9/21	Mon 8/9/21	CMS Cert SME[5%],Impl Mngr[5%]
5170	1.5.5.21	Milestone: Provide Change Management Plan Complete	5169	0 days	Mon 8/9/21	Mon 8/9/21	
5171	**1.5.5.22**	**Provide Database Design**		**11 days**	**Tue 8/10/21**	**Tue 8/24/21**	
5172	1.5.5.22.1	Provide Data Store Layout and Definition	5170	5 days	Tue 8/10/21	Mon 8/16/21	BI Architect[5%]
5173	1.5.5.22.2	Provide Logical Data Model Corresponding Physical Data Model	5172	5 days	Tue 8/17/21	Mon 8/23/21	BI Architect[5%]
5174	1.5.5.22.3	Deliver Database Design to IV&V	5173	1 day	Tue 8/24/21	Tue 8/24/21	CMS Cert SME[5%]
5175	1.5.5.23	Milestone: Provide Database Design Complete	5174	0 days	Tue 8/24/21	Tue 8/24/21	
5176	1.5.5.24	Provide Data Conversion / Management plan	5175	5 days	Wed 8/25/21	Tue 8/31/21	BI Architect[5%]
5177	1.5.5.25	Deliver Data Conversion / Management Plan to IV&V	5176	1 day	Wed 9/1/21	Wed 9/1/21	BI Architect[5%]
5178	**1.5.5.26**	**Provide Business Continuity / Contingency / Recovery Plans**		**13 days**	**Thu 9/2/21**	**Tue 9/21/21**	
5179	1.5.5.26.1	Provide Back-up Site/ Fallover Plan	5177	1 day	Thu 9/2/21	Thu 9/2/21	
5180	1.5.5.26.2	Provide Testing Schedule	5179	1 day	Fri 9/3/21	Fri 9/3/21	CMS Cert SME[5%],Impl Mngr[5%]
5181	1.5.5.26.3	Provide Business Continuity Plan	5180	10 days	Tue 9/7/21	Mon 9/20/21	CMS Cert SME[5%],Impl Mngr[5%]
5182	1.5.5.26.4	Deliver Business Continuity / Contingency / Recovery Plans to IV&V	5181	1 day	Tue 9/21/21	Tue 9/21/21	CMS Cert SME[5%],Impl Mngr[5%]
5183	1.5.5.27	Milestone: Provide Business Continuity / Contingency / Recovery Plans Complete	5182	0 days	Tue 9/21/21	Tue 9/21/21	
5184	1.5.5.28	Provide UAT Test Results	5183	5 days	Wed 9/22/21	Tue 9/28/21	CMS Cert SME[5%],Impl Mngr[5%]
5185	1.5.5.29	Deliver UAT Test Results to IV&V	5184	1 day	Wed 9/29/21	Wed 9/29/21	CMS Cert SME[5%],Impl Mngr[5%]
5186	**1.5.5.30**	**Provide System Design Documentation**		**7 days**	**Thu 9/30/21**	**Fri 10/8/21**	
5187	1.5.5.30.1	Provide a List of All Facilities	5185	1 day	Thu 9/30/21	Thu 9/30/21	BI Architect[5%]
5188	1.5.5.30.2	Provide Network Semantic	5187	1 day	Fri 10/1/21	Fri 10/1/21	Sys Mngr[5%]
5189	1.5.5.30.3	Provide Interface Control Document	5188	1 day	Mon 10/4/21	Mon 10/4/21	Impl Mngr[5%]
5190	1.5.5.30.4	Provide Description of each System Components	5189	1 day	Tue 10/5/21	Tue 10/5/21	Impl Mngr[5%]
5191	1.5.5.30.5	Provide Enterprise System Diagrams	5190	1 day	Wed 10/6/21	Wed 10/6/21	BI Architect[5%]
5192	1.5.5.30.6	Provide Bi-Directional Traceability Matrix	5191	1 day	Thu 10/7/21	Thu 10/7/21	BI Architect[5%]
5193	1.5.5.30.7	Deliver System Design Documentation to IV&V	5192	1 day	Fri 10/8/21	Fri 10/8/21	CMS Cert SME[20%]
5194	1.5.5.31	Milestone: Provide System Design Documentation Complete	5193	0 days	Fri 10/8/21	Fri 10/8/21	
5195	**1.5.5.32**	**Provide System Requirements Document \ User Stories**		**31 days**	**Mon 10/11/21**	**Mon 11/22/21**	
5196	1.5.5.32.1	Provide Business Requirements	5194	3 days	Mon 10/11/21	Wed 10/13/21	BA[5%]
5197	1.5.5.32.2	Provide Data Requirements	5196	3 days	Thu 10/14/21	Mon 10/18/21	Data Architect[5%]
5198	1.5.5.32.3	Provide Capacity/Performance Requirements	5197	3 days	Tue 10/19/21	Thu 10/21/21	BI Architect[5%]
5199	1.5.5.32.4	Provide Security/Privacy/HIPPA Compliance Requirements	5198	3 days	Fri 10/22/21	Tue 10/26/21	Info Sec Arch[5%]
5200	1.5.5.32.5	Provide Usability Requirements	5199	3 days	Wed 10/27/21	Fri 10/29/21	BA[5%]
5201	1.5.5.32.6	Provide Maintainability Requirements	5200	3 days	Mon 11/1/21	Wed 11/3/21	BA[5%]
5202	1.5.5.32.7	Provide Interface Requirements	5201	3 days	Thu 11/4/21	Mon 11/8/21	BA[5%]
5203	1.5.5.32.8	Provide 508 Compliant Requirements	5202	3 days	Tue 11/9/21	Thu 11/11/21	Info Sec Arch[5%]
5204	1.5.5.32.9	Provide Disaster Recovery Requirements	5203	3 days	Fri 11/12/21	Tue 11/16/21	Info Sec Arch[5%]
5205	1.5.5.32.10	Provide Traceability Test Plans or Test Cases	5204	1 day	Wed 11/17/21	Wed 11/17/21	BA[5%]
5206	1.5.5.32.11	Deliver System Requirements Document \ User Stories to IV&V	5205	3 days	Thu 11/18/21	Mon 11/22/21	CMS Cert SME[20%]
5207	1.5.5.33	Milestone: Provide System Requirements Document \User Stories Complete	5206	0 days	Mon 11/22/21	Mon 11/22/21	
5208	**1.5.5.34**	**Provide Product Documentation**		**5 days**	**Tue 11/23/21**	**Tue 11/30/21**	
5209	1.5.5.34.1	Provide Operations Manuals	5207	1 day	Tue 11/23/21	Tue 11/23/21	Ops Mngr[25%]
5210	1.5.5.34.2	Provide Training Materials	5209	1 day	Wed 11/24/21	Wed 11/24/21	Ops Mngr[25%]
5211	1.5.5.34.3	Provide User Guides	5210	1 day	Fri 11/26/21	Fri 11/26/21	Ops Mngr[25%]
5212	1.5.5.34.4	Provide List of All Error Codes and Explanations in MMIS Components	5211	1 day	Mon 11/29/21	Mon 11/29/21	BA[25%]
5213	1.5.5.34.5	Deliver Documentation to IV&V	5212	1 day	Tue 11/30/21	Tue 11/30/21	CMS Cert SME[20%]
5214	1.5.5.35	Milestone: Provide Product Documentation Complete	5213	0 days	Tue 11/30/21	Tue 11/30/21	
5215	1.5.5.36	Provide HIPAA Statement	5214	1 day	Wed 12/1/21	Wed 12/1/21	Impl Mngr[25%]
5216	1.5.5.37	Deliver HIPPA Statement to IV&V	5215	1 day	Thu 12/2/21	Thu 12/2/21	CMS Cert SME[20%]
5217	1.5.5.38	Create Certification Request Letter	5216	1 day	Fri 12/3/21	Fri 12/3/21	CMS Cert SME[20%]
5218	1.5.5.39	Deliver Certification Request Letter to CMS	5217	1 day	Mon 12/6/21	Mon 12/6/21	CMS Cert SME[20%]
5219	**1.5.5.40**	**Update MECT Checklists for CMS R3 with Production Reports**		**30 days**	**Fri 7/16/21**	**Thu 8/26/21**	
5220	1.5.5.40.1	Update Program Integrity Checklist (MMIS Module) from Production	5127	30 days	Fri 7/16/21	Thu 8/26/21	CMS Cert SME[10%],State[10%]
5221	1.5.5.40.2	Update Standards and Conditions Checklist (MITA Module) from Production	5127	30 days	Fri 7/16/21	Thu 8/26/21	CMS Cert SME[20%],State[20%]
5222	1.5.5.40.3	Update TA Access and Delivery Checklist (MITA Module) from Production	5127	30 days	Fri 7/16/21	Thu 8/26/21	CMS Cert SME[20%],State[20%]
5223	1.5.5.40.4	Update TA Integration and Utility Checklist (MITA Module) from Production	5127	30 days	Fri 7/16/21	Thu 8/26/21	CMS Cert SME[20%],State[20%]
5224	1.5.5.40.5	Update TA Intermediary and Interface Checklist (MITA Module) from Production	5127	30 days	Fri 7/16/21	Thu 8/26/21	CMS Cert SME[20%],State[20%]
5225	1.5.5.40.6	Update IA Components Checklist (MITA Module) from Production	5127	30 days	Fri 7/16/21	Thu 8/26/21	CMS Cert SME[20%],State[20%]

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ID	WBS	Task Name	Predecessors	Duration	Start	Finish	Resource Names
5226	1.5.5.40.7	Update Performance Management Checklist (MITA) from Production	5127	30 days	Fri 7/16/21	Thu 8/26/21	CMS Cert SME[20%],State[20%
5227	1.5.5.40.8	Update MMIS IV&V Programmatic Checklist from Production	5127	30 days	Fri 7/16/21	Thu 8/26/21	CMS Cert SME[20%],State[20%
5228	1.5.5.40.9	Deliver MECT Checklists for CMS R3 with Production Reports to IV&V	5127	1 day	Fri 7/16/21	Fri 7/16/21	CMS Cert SME[20%],State[20%
5229	1.5.5.41	Milestone: Update MECT Checklists for CMS R3 with Production Reports Complete	5127,5220,5221,!	0 days	Thu 8/26/21	Thu 8/26/21	
5230	**1.5.5.42**	**CMS Certification Onsite Review**		**65 days**	**Fri 8/27/21**	**Mon 11/29/21**	
5231	1.5.5.42.1	Prepare for CMS Onsite Review	5229	30 days	Fri 8/27/21	Fri 10/8/21	BA[20%],CMS Cert SME[20%],Impl Mngr[20%],Ops Mngr[20%],State[20%]
5232	1.5.5.42.2	Develop CMS Presentations	5231	20 days	Mon 10/11/21	Fri 11/5/21	BA[20%],CMS Cert SME[20%],Impl Mngr[20%],Ops Mngr[20%],State[20%]
5233	1.5.5.42.3	Conduct Dry-run of CMS Presentations	5232	10 days	Mon 11/8/21	Fri 11/19/21	BA[20%],CMS Cert SME[20%],Impl Mngr[20%],Ops Mngr[20%],State[20%]
5234	1.5.5.42.4	Conduct CMS Onsite Review	5233	5 days	Mon 11/22/21	Mon 11/29/21	BA[20%],CMS Cert SME[20%],Impl Mngr[20%],Ops Mngr[20%],State[20%]
5235	1.5.5.42.5	Demonstrate Working MMIS Modules	5233	5 days	Mon 11/22/21	Mon 11/29/21	BA[20%],CMS Cert SME[20%],Impl Mngr[20%],Ops Mngr[20%],State[20%]
5236	1.5.5.43	Milestone: CMS Certification Onsite Review Complete	5234,5235	0 days	Mon 11/29/21	Mon 11/29/21	
5237	1.5.5.44	Milestone: CMS R3 - MMIS Certification Final Review Complete	5113,5131,5137,!	0 days	Wed 12/8/21	Wed 12/8/21	
5238	1.5.5.45	Milestone: Certified EDS Complete	4998,5114,5237	0 days	Wed 12/8/21	Wed 12/8/21	
5239	**1.6**	**Phase III: Solution Operation and Maintenance**		**2059 days**	**Tue 7/6/21**	**Mon 7/16/29**	
5240	**1.6.1**	**Parallel Testing**		**30 days**	**Tue 7/6/21**	**Mon 8/16/21**	
5241	1.6.1.1	Conduct Testing for Comparison	4106	25 days	Tue 7/6/21	Mon 8/9/21	State[50%]
5242	1.6.1.2	DHHR Approves of Results	5241	5 days	Tue 8/10/21	Mon 8/16/21	State[50%]
5243	1.6.1.3	Milestone: Parallel Testing Complete	5242	0 days	Mon 8/16/21	Mon 8/16/21	
5244	**1.6.2**	**Break Fix Period**		**30 days**	**Tue 7/6/21**	**Mon 8/16/21**	
5245	1.6.2.1	Update code, as needed	4106	30 days	Tue 7/6/21	Mon 8/16/21	Bi Dev[1%],Data Architect[1%],Data Manager[1%],DBA[1%],ETL Engnr[1%]
5246	1.6.2.2	Update Environment, as needed	4106	30 days	Tue 7/6/21	Mon 8/16/21	AC[1%],BI Dev[1%],BA[1%],Data Architect[1%],Data Manager[1%],DBA[1%
5247	1.6.2.3	Milestone: Break Fix Period Complete	5246,5245	0 days	Mon 8/16/21	Mon 8/16/21	
5248	**1.6.3**	**Operations Project Phase Lifecycle Reviews**		**10 days**	**Tue 7/6/21**	**Mon 7/19/21**	
5249	**1.6.3.1**	**Post-Implementation Review**		**10 days**	**Tue 7/6/21**	**Mon 7/19/21**	
5250	1.6.3.1.1	Execute Post-Implementation Review	4106	5 days	Tue 7/6/21	Mon 7/12/21	BA[20%],CMS Cert SME[20%],Impl Mngr[20%],Ops Mngr[20%],State[20%]
5251	1.6.3.1.2	Client Approves Post-Implementation Review	5250	5 days	Tue 7/13/21	Mon 7/19/21	State[20%]
5252	1.6.3.1.3	Milestone Complete Post-Implementation Review	5251	0 days	Mon 7/19/21	Mon 7/19/21	
5253	**1.6.4**	**Year 1 Operations**		**263 days**	**Tue 7/6/21**	**Thu 7/14/22**	
5254	**1.6.4.1**	**Monthly Updates**		**263 days**	**Tue 7/6/21**	**Thu 7/14/22**	
5257	**1.6.4.2**	**Annual Training**		**263 days**	**Tue 7/6/21**	**Thu 7/14/22**	
5260	**1.6.4.3**	**SLAs and Performance Standards (Monthly Reporting)**		**263 days**	**Tue 7/6/21**	**Thu 7/14/22**	
5271	**1.6.4.4**	**Deliverable Updates**		**263 days**	**Tue 7/6/21**	**Thu 7/14/22**	
5275	**1.6.5**	**Year 2 Operations**		**258 days**	**Fri 7/15/22**	**Fri 7/14/23**	
5276	**1.6.5.1**	**Monthly Updates**		**258 days**	**Fri 7/15/22**	**Fri 7/14/23**	
5279	**1.6.5.2**	**Annual Training**		**258 days**	**Fri 7/15/22**	**Fri 7/14/23**	
5282	**1.6.5.3**	**SLAs and Performance Standards (Monthly Reporting)**		**258 days**	**Fri 7/15/22**	**Fri 7/14/23**	
5293	**1.6.5.4**	**Deliverable Updates**		**258 days**	**Fri 7/15/22**	**Fri 7/14/23**	
5297	**1.6.6**	**Year 3 Operations**		**259 days**	**Mon 7/17/23**	**Tue 7/16/24**	
5298	**1.6.6.1**	**Monthly Updates**		**259 days**	**Mon 7/17/23**	**Tue 7/16/24**	
5301	**1.6.6.2**	**Annual Training**		**259 days**	**Mon 7/17/23**	**Tue 7/16/24**	
5304	**1.6.6.3**	**SLAs and Performance Standards (Monthly Reporting)**		**259 days**	**Mon 7/17/23**	**Tue 7/16/24**	
5315	**1.6.6.4**	**Deliverable Updates**		**259 days**	**Mon 7/17/23**	**Tue 7/16/24**	
5319	**1.6.7**	**Year 4 Operations**		**258 days**	**Wed 7/17/24**	**Wed 7/16/25**	
5320	**1.6.7.1**	**Monthly Updates**		**258 days**	**Wed 7/17/24**	**Wed 7/16/25**	
5323	**1.6.7.2**	**Annual Training**		**258 days**	**Wed 7/17/24**	**Wed 7/16/25**	
5326	**1.6.7.3**	**SLAs and Performance Standards (Monthly Reporting)**		**258 days**	**Wed 7/17/24**	**Wed 7/16/25**	
5337	**1.6.7.4**	**Deliverable Updates**		**258 days**	**Wed 7/17/24**	**Wed 7/16/25**	
5341	**1.6.8**	**Year 5 Operations**		**258 days**	**Thu 7/17/25**	**Thu 7/16/26**	
5342	**1.6.8.1**	**Monthly Updates**		**258 days**	**Thu 7/17/25**	**Thu 7/16/26**	
5345	**1.6.8.2**	**Annual Training**		**258 days**	**Thu 7/17/25**	**Thu 7/16/26**	
5348	**1.6.8.3**	**SLAs and Performance Standards (Monthly Reporting)**		**258 days**	**Thu 7/17/25**	**Thu 7/16/26**	
5359	**1.6.8.4**	**Deliverable Updates**		**258 days**	**Thu 7/17/25**	**Thu 7/16/26**	
5363	**1.6.9**	**Year 6 Operations (Option Year)**		**257 days**	**Fri 7/17/26**	**Thu 7/15/27**	
5364	**1.6.9.1**	**Monthly Updates**		**257 days**	**Fri 7/17/26**	**Thu 7/15/27**	
5367	**1.6.9.2**	**Annual Training**		**257 days**	**Fri 7/17/26**	**Thu 7/15/27**	
5370	**1.6.9.3**	**SLAs and Performance Standards (Monthly Reporting)**		**257 days**	**Fri 7/17/26**	**Thu 7/15/27**	
5381	**1.6.9.4**	**Deliverable Updates**		**257 days**	**Fri 7/17/26**	**Thu 7/15/27**	
5385	**1.6.10**	**Year 7 Operations (Option Year)**		**258 days**	**Fri 7/16/27**	**Fri 7/14/28**	
5386	**1.6.10.1**	**Monthly Updates**		**258 days**	**Fri 7/16/27**	**Fri 7/14/28**	
5389	**1.6.10.2**	**Annual Training**		**258 days**	**Fri 7/16/27**	**Fri 7/14/28**	
5392	**1.6.10.3**	**SLAs and Performance Standards (Monthly Reporting)**		**258 days**	**Fri 7/16/27**	**Fri 7/14/28**	
5403	**1.6.10.4**	**Deliverable Updates**		**258 days**	**Fri 7/16/27**	**Fri 7/14/28**	
5407	**1.6.11**	**Year 8 Operations (Option Year)**		**258 days**	**Mon 7/17/28**	**Mon 7/16/29**	
5408	**1.6.11.1**	**Monthly Updates**		**258 days**	**Mon 7/17/28**	**Mon 7/16/29**	
5411	**1.6.11.2**	**Annual Training**		**258 days**	**Mon 7/17/28**	**Mon 7/16/29**	
5414	**1.6.11.3**	**SLAs and Performance Standards (Monthly Reporting)**		**258 days**	**Mon 7/17/28**	**Mon 7/16/29**	
5425	**1.6.11.4**	**Deliverable Updates**		**258 days**	**Mon 7/17/28**	**Mon 7/16/29**	

ID	WBS	Task Name	Predecessors	Duration	Start	Finish	Resource Names
5429	1.6.12	Milestone: End of Solution Operations & Maintenance Phase	5247,5252,'	0 days	Mon 7/16/29	Mon 7/16/29	
5430	**1.7**	**Phase IV: Contract Closing**		**220 days**	**Tue 6/5/29**	**Wed 4/10/30**	
5431	**1.7.1**	**Turnover Closeout**		**220 days**	**Tue 6/5/29**	**Wed 4/10/30**	
5432	**1.7.1.1**	**Disposition Project Phase Lifecycle Reviews**		**10 days**	**Tue 6/5/29**	**Mon 6/18/29**	
5433	**1.7.1.1.1**	**Disposition Review**		**10 days**	**Tue 6/5/29**	**Mon 6/18/29**	
5437	**1.7.1.2**	**Turnover Process Planning**		**70 days**	**Mon 6/18/29**	**Tue 9/25/29**	
5438	1.7.1.2.1	MILESTONE: Begin Turnover	5436	0 days	Mon 6/18/29	Mon 6/18/29	
5439	1.7.1.2.2	Assign Turnover Process Resources	5438	15 days	Tue 6/19/29	Mon 7/9/29	Acct Mngr[10%],Ops Mngr[10%],State[10%]
5440	1.7.1.2.3	Meet with Vendor to discuss and review Vendor Turnover Plan and timing	5438	10 days	Tue 6/19/29	Mon 7/2/29	Acct Mngr[10%],Ops Mngr[10%],State[10%],Vendor[10%]
5441	**1.7.1.2.4**	**Gather all Documentation**		**70 days**	**Tue 6/19/29**	**Tue 9/25/29**	
5447	**1.7.1.2.5**	**Turnover Training planning**		**40 days**	**Tue 6/19/29**	**Mon 8/13/29**	
5451	**1.7.1.3**	**Turnover Process**		**200 days**	**Tue 7/3/29**	**Wed 4/10/30**	
5457	1.8	Milestone: WV EDS Implementation Complete	4787,4954,5012,'	0 days	Wed 4/10/30	Wed 4/10/30	

Work Breakdown Structure (WBS)

Figure 105. High Level WBS

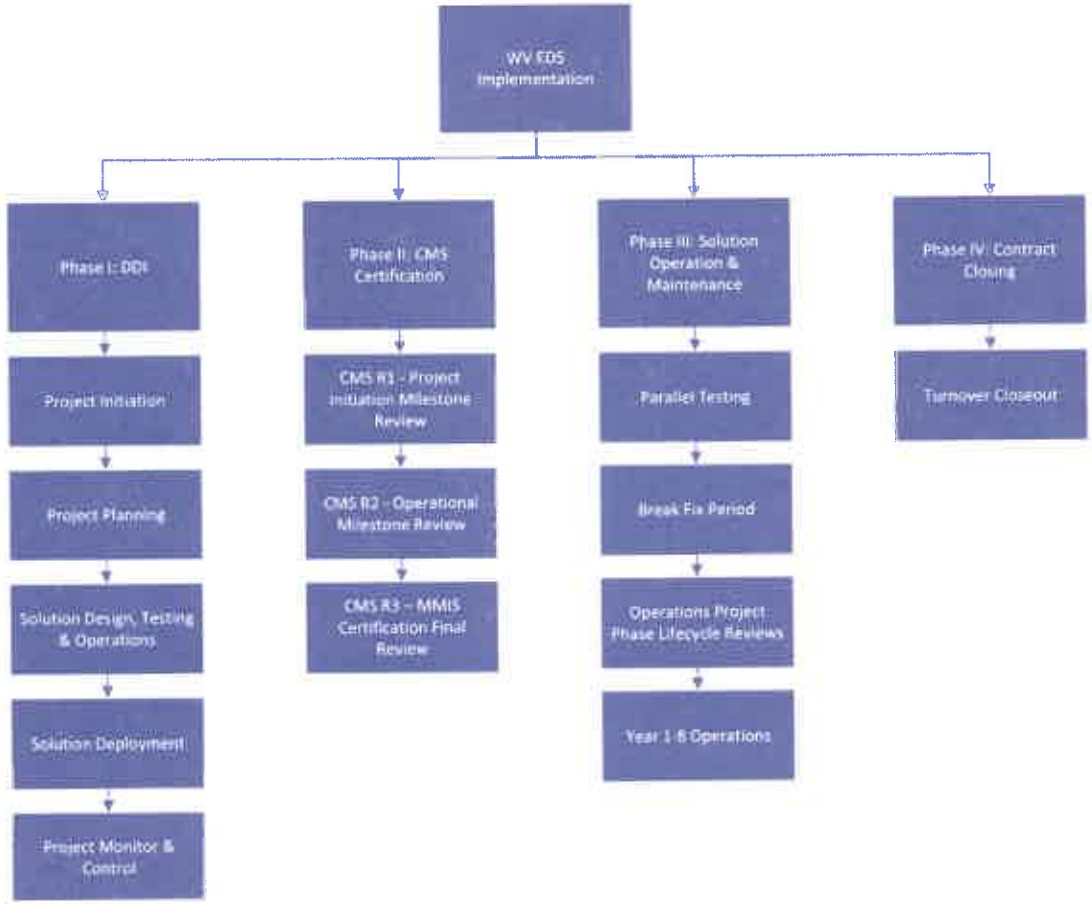


Figure 106. WBS Details

WBS Level	WBS Code	Project Phase	Project Name (Initiative)	Activity Name	Description	SDLC
1	1	overall	all	WV EDS Implementation	This is the overall project, including DDI and the later stages such as operations.	Full Project
2	1.3	DDI	all	Phase I: DDI	This element represents the Design, Development, and Implementation (DDI stage) of the project. All tasks under this element outline what needs to be implemented during DDI.	DDI
3	1.3.1	DDI	all	Project Initiation and Project Planning	Initiation & planning for the whole DDI phase	Initiation & Planning
4	1.3.1.1	DDI	Project 1-6	Project 1-5: Project Kickoff	Kickoffs for each of the 6 workstreams (sub-projects)	Initiation
4	1.3.1.2	DDI	all	Deliverables	Deliverables in this section include: Kickoff meeting materials; PMP (subsections for Management of: Change, Communication, Cost, Human Resources, Modularity & Reusability, Quality, Documentation, Risks & Issues, Schedule, Scope, Stakeholders, Staffing, plus Project Work Plan); Reconciliation Plan, Facility Management Plan, Case Management Solution Creation Process (SCP) Workflow	Initiation
3	1.3.2	DDI	all	Solution Planning	Solution planning for each of the workstreams are in this section.	Planning
4	1.3.2.1	DDI	Project 1	Project 1: EDS Platform and Data Mining Tools Configuration	Planning for EDS Platform & Data Mining tools	Planning
4	1.3.2.2	DDI	Project 2	Project 2: EDS Implementation	Planning for EDS Implementation	Planning
4	1.3.2.3	DDI	Project 3	Project 3: Analytics, BI, and Reporting Implementation	Planning for Analytics, BI & Reporting	Planning
4	1.3.2.4	DDI	Project 4	Project 4: I-Sight Upgrade	Planning for I-Sight upgrade	Planning
4	1.3.2.5	DDI	Project 5	Project 5: J-SURS Implementation	Planning for J-SURS	Planning
4	1.3.2.6	DDI	all	Deliverables	Deliverables in this section include: Data Management Plan, Incident Management Plan, Master Test Plan, Privacy Impact Analysis, Requirements Gap Analysis Document, Requirements Management Plan, Requirements Specification Document (RSD), Requirements Traceability Matrix (RTM), Safeguard Procedures Report, Security Plan, Security, Privacy & Confidentiality Plan, System Backup & Record Retention Plan, System Requirement Document (Backlog)	Planning
3	1.3.3	DDI	all	Solution Design, Testing, and Operations	Solution design, testing and operations for each of the workstreams are in this section.	Design, Test, Ops
4	1.3.3.1	DDI	Project 1	Project 1: EDS Platform and Data Mining Tools Configuration	Solution design, testing and operations for EDS platform & data mining	Design, Test, Ops
4	1.3.3.2	DDI	Project 2	Project 2: EDS Implementation	Solution design, testing and operations for EDS implementation	Design, Test, Ops
4	1.3.3.3	DDI	Project 3	Project 3: Analytics, BI, and Reporting Implementation	Solution design, testing and operations for analytics, BI & reporting	Design, Test, Ops
4	1.3.3.4	DDI	Project 4	Project 4: I-Sight Upgrade	Solution design, testing and operations for I-Sight	Design, Test, Ops
4	1.3.3.5	DDI	Project 5	Project 5: J-SURS Implementation	Solution design, testing and operations for J-SURS	Design, Test, Ops

4	1.3.3.6	DDI	all	Deliverables	Deliverables in this section include: Business Process Models (BPMs), Capacity Plan, Configuration Management Plan, Data Conversion Plan (plus Test Cases & Test Results), Database Design Document & Data Models, Detailed System Design Document, Disaster Recovery & Business Continuity Plan, Federal Certification & Review Management Plan, Interface Inventory, Load & Stress Test Cases & Test Results, Operational Readiness Plan, ORT Scripts, ORT Results, Regression Test Cases & Test Results, Reports & Forms Inventory, System Integration Plan, System Integration Test Cases & Test Results, Training Management Plan, UAT Cases, UAT Results & Letter	Design, Test, Ops
3	1.3.4	DDI	all	Solution Deployment	Solution deployment for each of the workstreams are in this section	Deploy
4	1.3.4.1	DDI	Project 1	Project 1: EDS Platform and Data Mining Tools Configuration	Solution deployment for EDS platform & data mining	Deploy
4	1.3.4.2	DDI	Project 2	Project 2: EDS Implementation	Solution deployment for EDS implementation	Deploy
4	1.3.4.3	DDI	Project 3	Project 3: Analytics, BI, and Reporting Implementation	Solution deployment for analytics, BI & reporting	Deploy
4	1.3.4.4	DDI	Project 4	Project 4: i-Sight Upgrade	Solution deployment for i-Sight	Deploy
4	1.3.4.5	DDI	Project 5	Project 5: J-SURS Implementation	Solution deployment for J-SURS	Deploy
4	1.3.4.6	DDI	Project 2-5	Project 2-5: Deployment	Solution deployment for projects 2-5 deployment	Deploy
4	1.3.4.7	DDI	all	Deliverables	Deliverables in this section include: Cutover Play Book, Federal Review Supporting Documentation, Implementation Certification Letter, Implementation (Rollout) Plan, Operations Change Management Plan, Operational Milestone Review, Production Screenshots, Reports & Data for Certification, Report Distribution Schedule, Solution Health Monitoring Plan, System Operations Plan, System & User Documentation, Training Materials, Training Report, Training Schedule, Turnover & Closeout Management Plan	Deploy
3	1.3.5	DDI	all	Project Monitor & Control	Project monitoring and control for the entire DDI phase is in this section.	Monitor & Control
4	1.3.5.4	DDI	all	Implementation SLAs and Performance Standards	Tasks for SLAs and performance standards during monitoring and control	Monitor & Control
4	1.3.5.5	DDI	all	Recurring Meetings (Internal)	Recurring meetings for the internal Watson Health team	Monitor & Control
4	1.3.5.6	DDI	all	Recurring Meetings with Client (External)	Recurring meetings with the state	Monitor & Control
4	1.3.5.7	DDI	all	Deliverables	Deliverables in this section include: Project Status Reporting (weekly & monthly), Project Schedule (updates), Risk Register/Exception Plan, Updated Training Management Plan, Updated RTM, Updated Project Management Components	Monitor & Control
2	1.4	CMS Certification	CMS	Phase II: CMS Certification	CMS certification tasks are in this section	CMS Certification
3	1.4.1	CMS Certification	CMS	CMS R1 - Project Initiation Milestone Review	Part 1 tasks for CMS certification	CMS Certification
3	1.4.3	CMS Certification	CMS	CMS R2 - Operational Milestone Review	Part 2 tasks for CMS certification	CMS Certification

3	1.4.5	CMS Certification	CMS	CMS R3 - MMIS Certification Final Review	Part 3 tasks for CMS certification	CMS Certification
2	1.5	Operations	Operations	Phase III: Solution Operation and Maintenance	Solution operation and maintenance tasks are in this section	Operations
3	1.5.1	Operations	Operations	Parallel Testing	Parallel testing after go live	Operations
3	1.5.2	Operations	Operations	Break Fix Period	Break fix period after go live	Operations
3	1.5.3	Operations	Operations	Operations Project Phase Lifecycle Reviews	Lifecycle reviews after go live	Operations
3	1.5.4	Operations	Operations	Year 1 Operations	Tasks for year 1 of operational support	Operations
3	1.5.5	Operations	Operations	Year 2 Operations	Tasks for year 2 of operational support	Operations
3	1.5.6	Operations	Operations	Year 3 Operations	Tasks for year 3 of operational support	Operations
3	1.5.7	Operations	Operations	Year 4 Operations	Tasks for year 4 of operational support	Operations
3	1.5.8	Operations	Operations	Year 5 Operations	Tasks for year 5 of operational support	Operations
3	1.5.9	Operations	Operations	Year 6 Operations (Option Year)	Tasks for year 6 of operational support	Operations
3	1.5.10	Operations	Operations	Year 7 Operations (Option Year)	Tasks for year 7 of operational support	Operations
3	1.5.11	Operations	Operations	Year 8 Operations (Option Year)	Tasks for year 8 of operational support	Operations
2	1.6	Closing	Closing	Phase IV: Contract Closing	Contract closing phase is in this section	Closing
3	1.6.1	Closing	Closing	Turnover Closeout	Tasks for turnover & closeout	Closing

APPENDIX 3 SAMPLE REPORTS

Eligibility and Enrollment - Plans

Figure 107. Eligibility and Enrollment - Plans



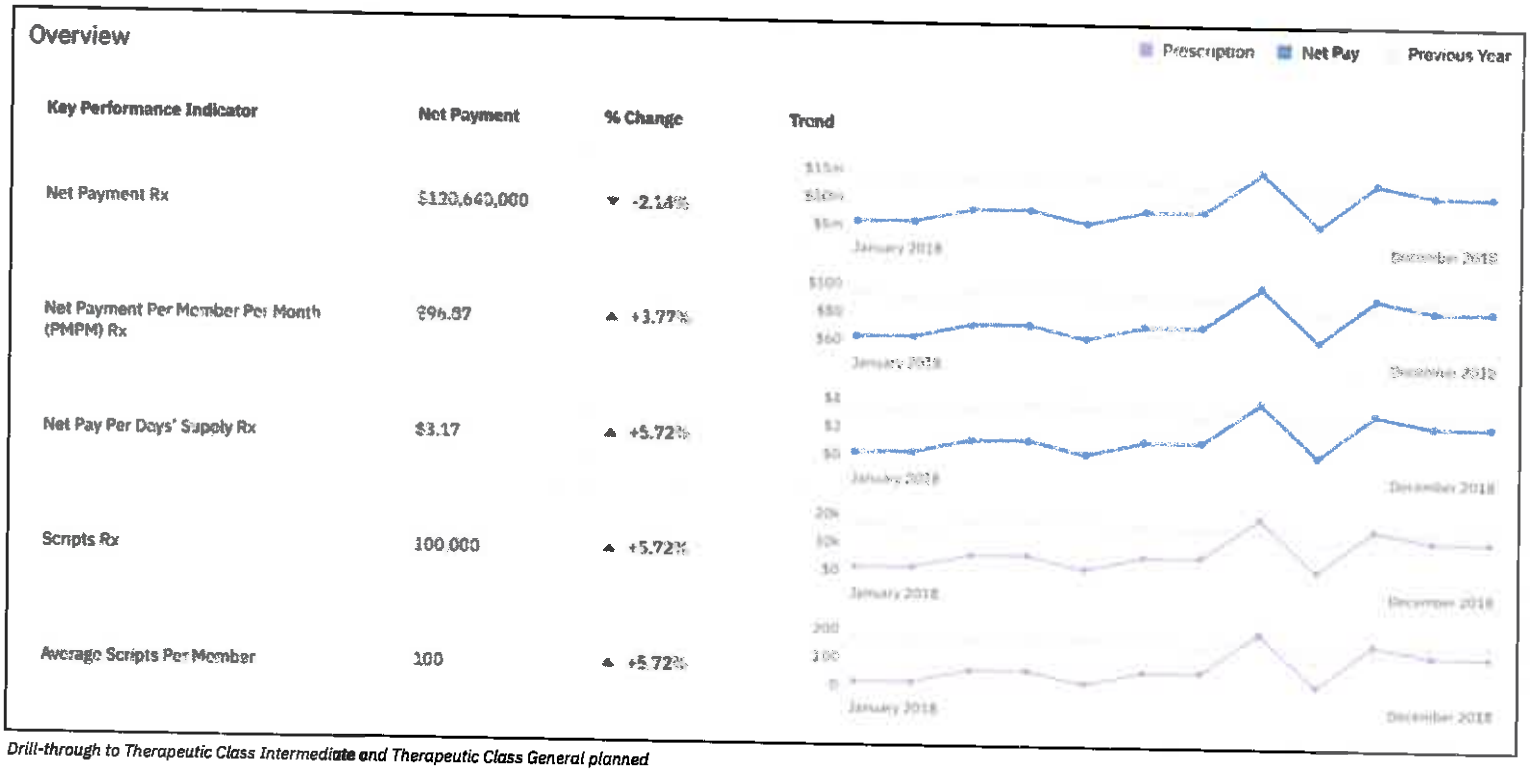
Utilization – Inpatient – Drill Through

Figure 108. Utilization – Impatient – Drill Through



Utilization – Pharmacy

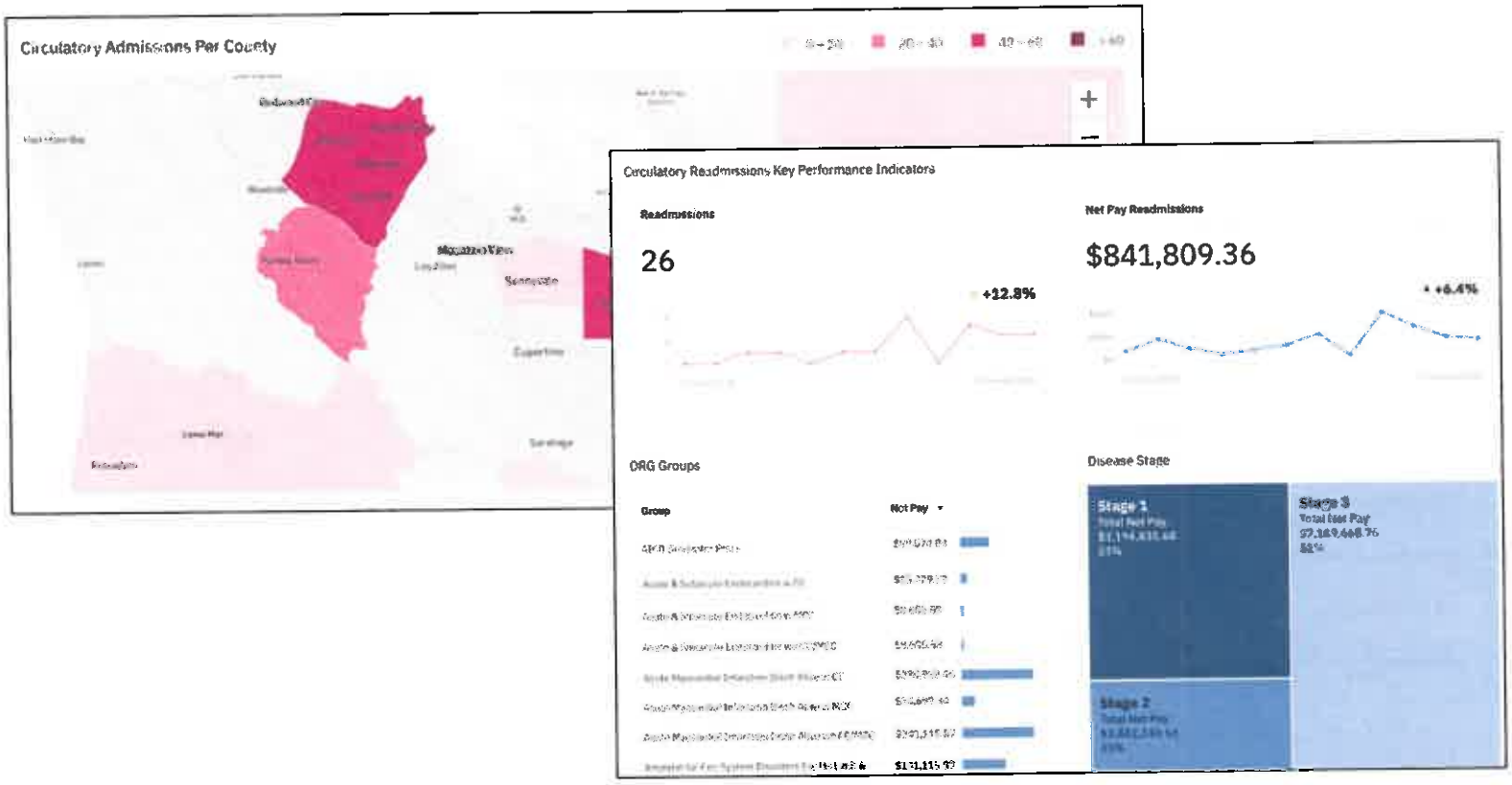
Figure 109. Utilization - Pharmacy



Drill-through to Therapeutic Class Intermediate and Therapeutic Class General planned

Admissions – MDC Drill Through

Figure 110. Admissions – MDC Drill Through



Quality Measures – Annual Comparison

Figure 111. Quality Measures – Annual Comparisons

