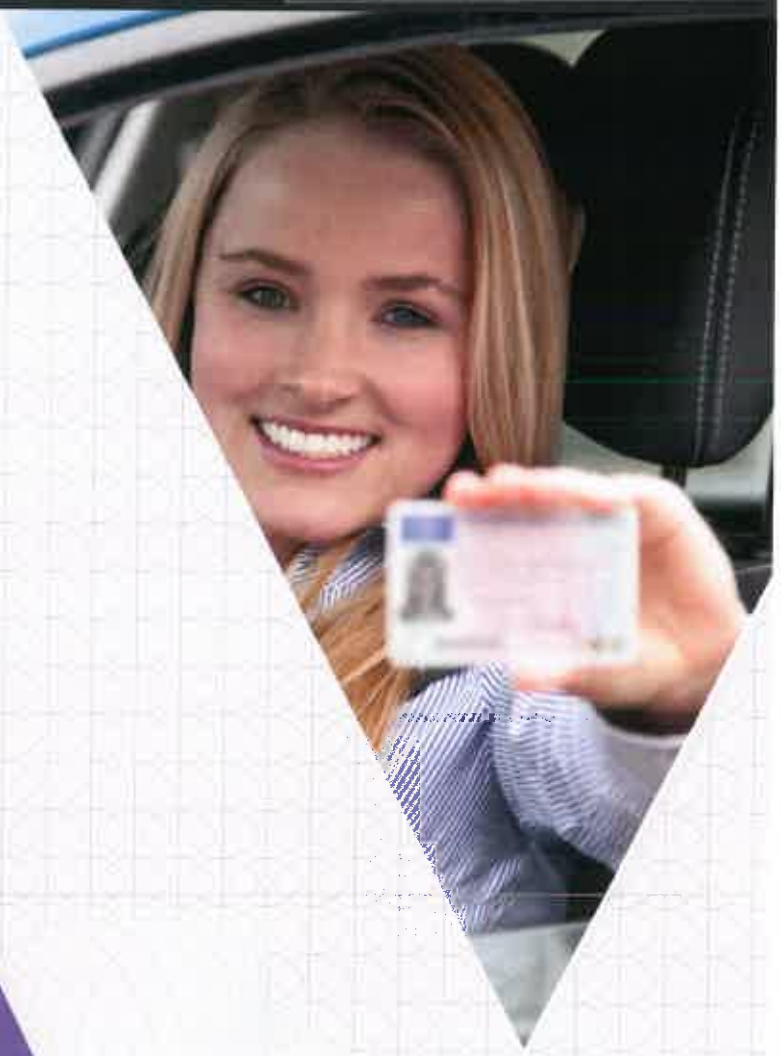
VALID

THE SECURE SIDE OF INNOVATION



RFP RESPONSE

West Virginia DMV
Driver's License
and Credential
Issuance System

(dmvLICENSE)
CRFP DMVI 800000001

June 29, 2018

Valid USA
2621 Corrinado Court
Fort Wayne, IN 46802
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260-407-1177

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GLOSSARY AND DEFINITIONS

API – Application Programming Interface – a set of subroutine definitions, protocols, and tools for building application software and integrating to other software platforms.

BioLink ID – BioLink ID is VALID's web-based, image capture, case management, and biometric investigation tool.

Buckets - Buckets are containers used to organize flags. The Buckets correspond to different security roles in WebLink ID, ensuring the correct users review information related to the flags that fall within their area of expertise or responsibility.

CDS – Card Design Standard or Card Design Specification

CIDS – Central Image / Demographic Data

CIF – Central Issuance Facility provided by Valid for the secure production and shipping of all credentials

CIS – Credential Issuance System

CPF – Card Personalization Facility

DCM – Data Conversion and Migration

DED – Deliverable Expectation Document

DIA – Digital Image Access and Exchange Portal

Gate – Checkpoints in the card issuance workflow that stop a card from being processed. Each gate processes different types of flags.

Gate Flag (Flag) – Each gate flag in a sequence must be resolved before the card can move to the next gate. When a card application has successfully passed through all of the gates, it is automatically sent for production, and the card is mailed to the customer. All gate flags must be reviewed and resolved in order to issue the card.

HSA – High Security Area

HSM – Hardware Service Module

ICAO – International Civil Aviation Organization standard check for photos, which is the standard applied to passport photos. This check examines the photo for facial characteristics and irregularities such as smiles, eyes, brightness, blur, and cropping.

ICW – Image Capture Workstation or Workflow, depending on context.

IIS – Internet Information Services

INCITS – International Committee for Information Technology Standards – an ANSI accredited standards development body.

JSON – JavaScript Object Notation – a lightweight, data interchange format.

JCS – Job Control System. This is the nerve center of the personalization facilities which creates release sheets, machine control files, consumes audit files, and hosts the card test procedures.

JIRA – Developed by Atlassian, this is software tracking tool for system defects and issues used for project management.

JMETER – a load testing tool to analyze and measure system performance

KEK – Key Encryption Key

LMK – Local Mailer Key

PCI – Payment Card Industry

PDPS – Problem Driver Pointer System

PGP – Pretty Good Privacy – a publicly-available, encryption program that uses the public key approach

PDPS – Problem Drivers Pointer System – for existing license holders

PIER – Post Implementation and Evaluation Review.

PMI – Project Management Institute

RIDM – Risk Identification and Management

RTM – Requirements Traceability Matrix

SAS – Security Accreditation Scheme

SAVE – Systematic Alien Verification for Entitlements

SIT – System Integration Testing

SSRS – SQL server Reporting Services – Microsoft's server-based report generating software system

SSOLV – Social Security Onliine Verification

Transaction – Any action executed in BioLink ID that is tracked and recorded (e.g. enrollment, 1:1 matching, 1:N matching, etc.), making it possible for administrators to view a list of transactions.

UAT – User Acceptance Test

UI – User Interface.

WBS – Work Breakdown Structure

WebLink ID – A web-based enrollment and workflow solution that deploys on premise to customer-hosted data centers or hosted at a VALID data center.

PREAMBLE

Valid has strived to exactly follow the instructions established in the RFP. We have tried to present the question / item statement from the WVDMV's RFP, and then respond, using color as distinctive separator as to which was the query and which was the response.

EXECUTIVE SUMMARY

Valid USA, Inc. (Valid) is pleased to respond to the West Virginia DMV (WVDMV) regarding its RFP for a Driver's License and Credential Issuance solution. We have carefully examined the RFP objectives, scope of solution required, and desired business outcomes as well as the specific project requirements; and we are confident our proposed solution meets or exceeds DMVs requirements for performance, security, quality, and delivery schedule.

We will provide the DMV a comprehensive, secure software solution configured to match your preferred workflow processes and preferences. Our front-end software applications for enrollment and vetting applicants and back-end applications for managing and reporting credential lifecycle will seamlessly integrate with the DMV's internal systems to enable up-to-date and accurate operational visibility and status reporting. Data services and reporting offered will include: real-time status updates and dashboards, comprehensive logging reports, printed card images, and other card processing information as required.

We recognize how critically important it is for public-facing organizations, such as the DMV, to provide uninterrupted, high-quality services to its residents. Therefore, we have developed a unique program to ensure simultaneous dual-facility operations for card production and personalization to support your program. Each of our card personalization facilities has more than enough capacity to support all of the DMV's ID/DL volume at peak demand. We will split the daily ID/DL demand from the DMV between two card personalization sites. In the event of any unplanned interruptions at a given facility, the full DMV production demand will shift to the second facility seamlessly. This program will minimize operational risk for the DMV.

Valid is uniquely positioned to offer the DMV a fully-integrated supply chain of identification card materials, services, and products. We own and operate the vertical stack of hardware, software, and services that includes card stock manufacturing within our secure environments. This provides the DMV unmatched security, flexibility and assurance that all of the DMV's secure card stock and consumable components are always properly controlled.

Our product approach to custom configured ready-made solutions provides the DMV with a flexible and obsolescence-free solution. This approach, combined with our experience with similar programs and our efficient delivery, enables us to implement the proposed solution in the time frame available for this project, all while ensuring the solution meets the DMV's exact needs.

Our implementation approach is custom configured to seamlessly integrate the DMV's operations and our organizations to reduce risk, and to ensure an on-time high-quality delivery.

Highlights of our implementation strategy include:

- Our Senior Management Team brings West Virginia DMV decades of management experience, as well as Identification Card industry experience and lessons learned resulting in a lower risk implementation.
- Our "best practices" project management methodology is repeatable, time tested, and collaborative, ensuring that the solution proposed is delivered on time and with the highest quality.
- We will work collaboratively and transparently with the DMV. Our philosophy is to work together towards the greater goal of the DMV objectives and treat project issues, regardless of where they reside, as common challenges to resolve together.
- We have assigned an experienced Project Manager with a deep and skilled project team behind him. This Project Manager will serve as the overall implementation leader and primary point of contact for the DMV. He will work with the DMV to ensure a smooth implementation as well as provide ongoing support after the implementation is complete.
- Our Operations and support teams will be engaged throughout the development and implementation processes to ensure a smooth transition between deployment and service/support phases of the program.
- Valid promises 100% company-wide commitment to the DL/ID System project throughout the entire contract term. We commit to fully staff a dedicated DMV team with US-based resources available to mitigate risks and reduce critical paths as needed.

Valid understands that this system is integral to carrying out the DMV's mission of providing the residents of West Virginia with the highest level of customer support, security and public safety. The West Virginia DL/ID System project will have the highest visibility throughout Valid. We will earn, develop, and maintain a trusted relationship with the DMV while becoming its partner and placing West Virginia DMV's interests above all else.

The sections within our response demonstrate full understanding and compliance with each DMV requirement; provide further details concerning our proposed solution including implementation and support; and outline the specific benefits to the DMV. We appreciate that budget constraints, increasingly sophisticated security threats, and increased public service demands place stress on government agencies. Our proposal mitigates those factors and offers the DMV the best overall value through cost savings, enhanced security, and the highest quality obsolescence-proof solution.

Sincerely,

Michael Fox
Vice President, Chief Commercial Officer
Valid USA, Inc.

ATTACHMENT A

Provide a response regarding the following:

- Firm and Staff Qualifications and Experience in completing similar projects
- References
- Staff certifications of degrees applicable to this project
- Proposed staffing plan
- Descriptions of past projects completed entailing:
- The location of the project
- Project manager name and contact information
- Type of project
- Project goals and objectives/where and how they were met

Staff Qualifications and Experience

Valid is a global leader in innovative identity management systems. Our company has been performing secure printing since 1957. From driver's licenses to smart cards to transit cards and employee IDs, we have provided hundreds of clients with low-risk, obsolescence-free, secure solutions.

Valid has successfully issued more than 100 million ID/DL cards and deployed more than 1,400 enrollment workstations across 13 government agencies globally. Valid directly owns and operates four US card production and personalization facilities staffed by 500+ professionals, in over 505,000 square feet of production space. 261,000 square feet of this space is dedicated to secure card manufacturing and personalization.

Our software products include robust, modern browser-based platforms that span the identity continuum: capture and data enrolment, biometric analysis and case management, data verification and vetting, and card issuance and credential lifecycle management. Additional services include data management and business intelligence.

Valid has successfully issued more than 100 million ID/DL cards

We manufacture our own secure card stock and personalize cards at company owned and operated central issuance facilities. We also operate our own data centers and failover facilities for disaster recovery, thereby eliminating unplanned interruptions at primary facilities. Our fully-integrated identification card supply chain is unique and offers the state of West Virginia DMV tremendous value by reducing risk and providing greater overall security and flexibility.

Valid has a long and rich history of successful implementations for identification card solutions. In our US facilities, Valid currently issues approximately one million secure cards per month and can scale capacity as needed to easily produce ten times that amount.

Our fully-redundant, US-based production facilities are certified by Visa, MasterCard, and Discover, in meeting the security standards set by the Payment Card Industry (PCI) Security Standards Council. As manufacturers of driver's license IDs and financial cards for many large, US institutions, we leverage our experience to the fullest to provide maximum value and security to our government clients and programs.

We have produced over 94 million Visa Cards and 28 million MasterCards for our banking customers, and 40 million Starbucks gift cards for their 19,000+ stores. We have produced over 100 million ID/DL cards for clients in the US and throughout the world. In the last 12 months we have produced over 2 million driver's licenses and ID cards for state of WA Department of Licensing.

References

Valid submits the following four similar projects as evidence of its experience:

Washington Department of Licensing Central Issuance System Project

Project Description

The statewide driver's license and ID issuance project for the State of Washington Department of Licensing (WA DOL) was completed on schedule and on time. This program has the capacity to produce over 3 million DLs and IDs annually.

Valid's software solution was fully integrated with the Washington DOL back office systems and was deployed at 56 field offices across the state. The solution set includes software and hardware to enroll, verify, create, and manage identity credentials for the state's residents. In the next phase of this program, Valid's software solution will be fully integrated with FAST Enterprise's back office solution to be deployed before the end of 2018.

Valid implemented a Central Issuance System (CIS) solution, which enables the efficient capture of customer data, images and signatures, and accurately combines and maintains a record of these items. The effort supports a 1:1 and a 1:N biometric matching process; and rapidly delivers highly secure licenses and identification cards to the state's customers through the card release and production processes.

In Washington, Valid supports image investigation, remote issuance and photo verification processes, administrative interfaces, document re-issuance, and "flagging" of records with exception conditions.

Washington's CIS solution is Real ID compliant. WA chose to apply REAL ID compliance to enhanced driver's licenses (EDLs) and enhanced identification cards (EIDs). A key deliverable of the WA program was successful conversion of over 20 million legacy records from their previous vendor.

Reference | Contacts

Brad Benfield
Phone: 360-902-3850
Email: BBenfield@DOL.WA.GOV
Brad is the Assistant Director, Programs and Services Division (PSD)

Joshua Johnston
Phone: (360) 902-4084 or (360) 664-1882
Email: JJohnston@DOL.WA.GOV
Joshua is the Project Sponsor for the Washington DOL implementation.

Project Manager: Kevin Pohl | (260) 407-1179 | Kevin.Pohl@Valid.com | 2621 Corrinado Ct., Fort Wayne, IN 46808

The US Territory of Guam

Project Description

The US Territory of Guam has a population of approximately 160,000 and produces about 50,000 driver's licenses and IDs annually. Since 2008, Valid has partnered with Guam to produce secure credentials for the territory.

In 2013, Valid developed for Guam the first version of WebLink ID, the first web-based ID product to be certified by the American Association of Motor Vehicle Administrators [AAMVA] for the three REAL ID web portals: VLS, USPASS and SSOLV. Valid's current solution is integrated into Guam's back-end systems and is deployed at both Guam DMV locations. The solution includes hardware (document scanners, printers, cameras, and signature capture devices) and software to create and manage identity credentials for Guam's residents.

Valid's most recent project is bringing Guam's solution into full compliance with the REAL ID Act. With a targeted go-live date of September, 2018, this upgrade will include the following enhancements: 1:1 and 1:N biometric matching, integration with the AAMVA portals for real-time validation of identity, verification of lawful status and social security number, and production of REAL ID-compliant credentials. Valid's solution supports image investigation, remote issuance, photo verification processes, administrative interfaces, and document re-issuance.

Reference | Contacts

Marie M. Benito
Phone: (671) 635-1816
Email: Marie.Benito@revtax.guam.gov
Marie M. Benito is the Deputy Director of the Guam Department of Revenue and Taxation, which has authority over the Motor Vehicle Division. Ms. Benito is the Executive Sponsor of the REAL ID compliance project and is working closely with the Valid management team.

Project Manager: Kevin Pohl | (260) 407-1179 | Kevin.Pohl@Valid.com | 2621 Corrinado Ct., Fort Wayne, IN 46808

Regional Transportation Authority (RTA) | Illinois

Project Description

The Illinois Regional Transportation Authority (RTA) is charged with financial oversight, funding, and regional transit planning for the Chicago region's transit operators including: The Chicago Transit Authority (CTA), Metra and Pace Suburban Bus, and Pace Americans with Disabilities Act (ADA) Paratransit. The RTA regional system serves two million riders each weekday in six counties with 7,200 transit route miles throughout Northeastern Illinois. www.rtachicago.org

Valid has provided Reduced-Fare transit card services to RTA for more than a decade. Valid prints approximately 15,000 photo ID transit cards per month, in addition to processing all paper transit card applications. Valid also manages the RTA card lifecycle, including application, approval, expiration notices and special programs.

The most recent project involved the following:

- Supported the transition of existing RTA customers to Ventra compatible cards
- Enhanced customer application processing and data entry
- Secured customer demographic information, including sensitive data
- Streamlined data transmission between RTA, CTA, Metra, and Pace

Reference Contact

Vickie L Bradley
Phone: (312) 913-3226
Email: BradleyV@RTACHICAGO.ORG
Vickie Bradley is the manager of TIC and Departmental Contracts.

Project Manager: Cindy Trueblood| (260) 407-1171 | Cindy.Trueblood@Valid.com | 2621 Corrinado Ct., Fort Wayne, IN 46808

Department of Natural Resources| Wisconsin

Project Description

The system solution used for Wisconsin DNR tracks various DNR licenses on a single card purchased by individuals rather than requiring them to carry multiple paper licenses for each activity. DNR officers can read the magnetic stripe on the card produced by Valid to verify license validity. Residents purchase card updates as new licenses each year.

With Valid's system, data files are submitted through an SFTP site and validated through USPS address verification. The cards are then personalized with the individual's demographic data, and the magnetic stripe is encoded.

- Card Design – It was critically important to Wisconsin DNR to issue a highly secure card that was also attractive and durable. Valid worked with their stakeholders to design and produce a high quality, secure card.
- *Central Issuance* – Valid prints an average of 5,000 cards per month for Wisconsin DNR in highly-secure personalization facilities protecting sensitive personal information.
- *General Software Solution* – To accommodate legacy software and Wisconsin DNR's business rules, Valid successfully created a custom configured solution using WebLink ID as the core.
- *Interfaces* – Developed and upgraded data exchange interfaces with Wisconsin DNR.
- *Reporting* – Valid has developed multiple customized reports to meet Wisconsin DNR's shifting requirements. DNR possesses the rights to pull inquiries and reports directly from the system using a secure cloud-based login.

- *Training* – Valid provided in-state and online training services for Wisconsin DNR. All training materials were provided in an electronic format. Valid applies its commitment to training to all clients.
- *Ongoing Service Support* – Quoting an email from one of the WI DNR contacts: "Valid has always been easy and accommodating, never a hassle. I really do appreciate that, immensely. I've had several calls with other states who are taking notice of what we've done and I always tell them how outstanding you've been to work with."

Reference Contact

Crystal Caputo
Phone: 608 266 0862
Email: Crystal.captuc@wi.gov

Crystal manages the customer service division for the DNR

Project Manager: Cindy Trueblood| (260) 407-1171 | Cindy.Trueblood@Valid.com | 2621 Corrinado Ct., Fort Wayne, IN 46808

Qualifications & Staffing Plan

Valid will provide WVDMV with a full-time Project Manager and support staff. Valid's Project Manager will be 100% dedicated to your project and will serve as your primary point of contact. Valid's Project Manager will coordinate all internal activity as well as those tasks that require WVDMV involvement. Our Project Plan will be comprehensive, and updated weekly, to ensure that all parties are aware of project status, and upcoming requirements.

Valid's Project Manager will manage the execution of the project in accordance with the approved project schedule through effective and efficient use of team resources. He will monitor milestone tasks as project work proceeds, and report on the status according to any proposed WVDMV status reporting guidelines.

The Project Manager will also:

- Manage stakeholder relationships and collaborate with project partners.
- Monitor project scope and budget.
- Manage, facilitate, and coordinate vendor activities and deliverables and coordinate testing activities.
- Assist in aligning training resources and schedules with internal and external users.
- Communicate status and issues in a timely fashion.
- Draft, approve and/or maintain necessary project documents.
- Coordinate with the WVDMV Project Manager.

We have chosen Kevin Pohl as the designated Project Manager for the WVDMV. Mr. Pohl has many years of experience serving as a Project Manager with an outstanding record of delivering a range of high-visibility tactical and strategic business solutions on time and within budget.

Kevin has a solid group of talented technical professionals behind him that is earmarked to support West Virginia. We have listed below our entire team's unique qualifications, resumes and where and how they will assist WVDMV during all phases of planning, implementing and maintaining a quality solution.

Project Manager

Kevin Pohl has years of project management and engineering experience. His focus is full life cycle solution implementations. He is looking forward to applying his extensive experience and project focus on this vitally important project for WVDMV.

Development Team

Led by Justin Hale, this is an exceptional team of software architecture, design and programming talent. They use the Agile software development method and SCRUM as their framework for Agile development.

The core developers that will be focused on the DMV implementation include Justin Ashworth, Amy Kissinger and Sean McCory. Justin Hale has access to additional development resources, as needed. This highly proficient team delivered a DL/ID central issuance system (CIS) for the State of Washington Department of Licensing (DOL) on time for their spring 2017 rollout as well as to the Territory of Guam.

- ***Justin Hale, Software Development Manager.*** With over 12 years of experience, Justin Hale has a stellar record of implementation successes, including extensive work with RTA, Wisconsin DNR, Guam and Washington DOL. Justin spent extensive time in Olympia, WA in a customer-facing, senior role to ensure successful delivery of that DL/ID project.

- ***Amy Kissinger, SCRUM Master.*** Amy is a SCRUM Master with 30 years' experience in development, project lead positions, and software lifecycle support. Amy was instrumental in achieving our success at the RTA and Wisconsin DNR. She has been with Valid and its predecessor, ScreenCheck, for over ten years.

- ***Justin Ashworth, Application Developer.*** With over ten years' experience in the design and creation of application software, Justin has become Valid's lead developer for web-based AAMVA integration, a skill he acquired when working with Guam and Washington DOL. Justin was also heavily involved in support for RTA and Wisconsin DNR.

- ***Sean McCory, Software Developer.*** Sean had a key role in the development of user interfaces for Washington DOL and Guam. He is talented, focused, and has excellent customer-facing skills.

Quality Management Team

Our quality management team is led by Gary Hines, who has extensive experience as a developer and tester. Gary and Sam Spring will be the focal point for all quality and configuration management activities, questions and issues. They will implement and ensure adherence to quality initiatives and be responsible for:

- Overseeing the project's quality processes.
- Facilitating ongoing quality and process improvement activities.
- Maintaining the overall quality approach for the project's processes.

They will be backed by a team of Quality specialists. Both Gary and Sam will be spending time onsite in West Virginia, working with the DMV Quality team.

- ***Gary Hines, QA Development Manager.*** With 30 years' experience as a software programmer, Gary creates and manages execution of the test plan for key Valid programs. Gary, in collaboration with the DMV test team, will direct the execution of the test cases and test scenarios.

- ***Sam Spring, QA Lead.*** Sam will be our QA Lead for the DL/ID System for the DMV. Sam Spring has over 30 years' experience in software development and testing. He was also the quality lead for Washington DOL's CIS project, and was the primary driver for troubleshooting as well as both informal and formal testing in Washington. Sam will also help to train the DMV QA team to prepare for SIT and UAT testing.

Data Conversion and Migration (DCM) Team

Our DCM team specializes in identifying, mapping, migrating, transforming and managing data from multiple legacy systems to Valid's proposed DL/ID system solution. This includes the data migration strategies, conversion sequencing, business rule application, data integrity testing, and data synchronization efforts.

- ***Allen Maskell, DCM Manager.*** With over 25 years' IT experience in software development and data management, Allen directs the efforts of our DCM team, as he did with Washington DOL. Allen is integral to the development of the DCM plans, and he will direct the analysis and design of the data migration solution, as well as the implementation and testing of the DCM efforts.

- ***Mandeep Saluja, Senior Database Administrator.*** Mr. Saluja brings over 14 years' experience in development and database administration. He provides design and implementation of databases, low-impact synchronization of data across sources, and an expertise in data conversion and migration, as reinforced for the Washington DOL implementation. Mr. Saluja is an accomplished ETL (Extract, Transform, Load) expert in converting data from multiple platforms and systems.

Card Design Team

Valid has a particularly strong card design team of highly-skilled resources to support the design and manufacture of secure, durable credentials that exceed AAMVA's most current requirements. Our credential experts use card engineering resources and industry best practices to design and produce exceptional, high quality cards. The Valid card design team has placed more than twenty of its designs into production throughout various US state agencies.

- ***Lynne Cyr, Card Design Specialist.*** Lynne offers more than 20 years' experience designing permanent and temporary card credentials and ancillary documents such as outreach brochures and law enforcement pocket guides. She is qualified in the use of JURA's Security Design product, the worldwide standard for currency, certificates and credentials, is an expert on AAMVA card requirements and brings the unique perspective of an accomplished and published artist to card design. Lynne designed the cards for WA DOL, Guam, RTA and Wisconsin DNR, as well as numerous other state jurisdictions.

- ***Rick Westenfeld, Director, Manufacturing Engineering.*** Rick offers more than 40 years' experience in engineering, operations, and R&D and is a Six Sigma Master Black Belt. Rick is an expert at all aspects of card manufacturing and card personalization, and he will direct our factory preparation for WVDMV cards. Rick will work with Lynne and the DMV to ensure a quality design with a full array of card security features, and will guide the delivery of the card production, personalization and fulfillment equipment and processes throughout the project and will oversee their continuous improvement efforts after issuance commences, as he did with WA DOL, Guam, RTA and Wisconsin DNR. Rick has built out card manufacturing and personalization facilities in Mexico, Atlanta, Boston, Fort Wayne, and Sacramento, and has delivered many issuance programs in those and other facilities.

Solutions/Product Management Team

Valid has organized itself to enable oversight and feedback function by two executives who report to the Division Vice President and Project Sponsor. The Director of Solutions and Director of Product Management have key roles in this relationship whereby they will continually garner feedback from DMV regarding its needs. They will guide the development of products and services to meet those needs. In this way, as new opportunities emerge and new technologies gain traction, they will help ensure that Valid continues to provide DMV with an obsolescence-free solution that fully meets its needs.

- ***Mike White, Director of Solutions.*** With over 20 years of technology solutions implementations, 19 of those in identity management, credential issuance or biometric solutions, Mike leads the teams responsible for client solution design, project planning, implementation, training and support. Mike's primary role is to deliver the DL/ID system solution to WVDMV's satisfaction.

- ***Kevin Freiburger, Director of Product Management.*** With over 15 years of extensive experience in marketing and software platform development, Kevin is tasked with driving Valid's product direction. Kevin maintains a coherent view of where Valid is headed, and meets extensively with customers to represent end user requirements in Valid's product vision. Kevin spent months onsite at the State of Washington Department of Licensing (DOL) as the lead solution architect for that driver's license project. The State of Washington produces over 2 million annual driver's licenses with peak season reaching 12,000 daily cards. DOL operates the same WebLink ID and BioLink ID platform which Valid has offered to the West Virginia DMV.

TEAM RESUMES

KEVIN POHL PROJECT MANAGER

VALID

Summary

Global IT project management professional with an outstanding record of delivering tactical and strategic IT and business solutions through an expertise in full life cycle solution delivery in regulated and non-regulated environments. 25 years' experience to provide a consultative approach for implementing change using knowledge in all facets of the SDLC and PMO processes.

Skills

- Full life cycle solution delivery
- Project and program management
- Portfolio management
- IT and software application development
- PMO creation and management

Experience

- Managed PMO for multinational manufacturing company.
- Managed SAP program for a multinational pharmaceutical company.
- Provided information engineering as a consultant for a multinational IT firm.
- Lead total quality management project for a national manufacturing company.

Related Employment

Valid USA - Fort Wayne, IN, 2014 – present
Project Manager responsible for management of high-visibility software solution delivery. Define leading practices for organizational delivery.
National Consulting Firms - Fort Wayne, IN, 2013 – 2016
Project Manager responsible for software solution delivery, including work and document management solutions, procurement systems, customer website portals and financial reporting systems. Define and implement SDLC processes across enterprises.
Morgan Advanced Materials - Remote, 2012 – 2013
Project Manager responsible for the creation and management of the company's first PMO. Lead the upgrade of an Enterprise Resource Planning solution across North and South America.
Lutheran Health Network - Fort Wayne, IN, 2009 – 2012
Project Manager responsible for IT and healthcare solutions across the enterprise. Created, advised, coached and mentored others in leading practices for project management and software solution delivery. Assisted the CIO on critical and confidential projects.

Education and Certifications

- **Bachelor of Arts**, Philosophy, Indiana University, Bloomington, IN
- **Candidate - Master of Science**, Information Systems, DePaul University, Chicago, IL

JUSTIN HALE SOFTWARE DEVELOPMENT MANAGER

VALID

Summary

Customer-oriented software professional who works well with cross-functional teams providing support in numerous software languages and technologies. Proven track record in managing multiple projects while providing exceptional quality, meeting time constraints, and exceeding customer expectations.

Skills

- DL / ID software systems
- Software development lifecycle (SDLC)
- Scrum / iterative development
- Solutions architecture
- Project management
- System integration specialist
- RESTful API's
- Database and software development

Experience

- Manage internal development and QA teams.
- Successful delivery of multiyear projects.
- Prioritize, plan, and track multiple projects.
- Extensive experience integrating software solutions.
- Architect high availability and fault tolerant systems.
- Deploy creative solutions to highly technical problems.

Related Employment

Valid USA - ID Division, Fort Wayne, IN, 2014 - Current
Software Development Manager responsible for a team of 10 including application developers, QA testers, and development operations engineers. Develop, implement, and debug of software solutions. Serve as technical point of contact for client development teams.
Transworks, Fort Wayne, IN, 2009 – 2014
Lead Software Developer responsible for enhancing and maintaining a large transportation management system. lead developer for UNIX satellite communication systems responsible for the coordination and implementation of software releases. Provided training and support to internal Tier 1 Help Desk.
Attero Tech, Fort Wayne, IN, 2005 – 2009
QA Engineering Manager responsible for development and support of the in-house test department for our engineering services company. The test department provided software testing, requirements gathering, test plan creation, and test execution for numerous clients. Trained and mentored non-technical employees in a variety of advanced technical concepts relating to hardware and software.

Education and Certifications

- **Bachelor of Science,** Computer Information Systems, DeVry University

AMY KISSINGER SCRUM MASTER

VALID

Summary

Software Engineer with over 30 years of experience in full lifecycle software development in various business environments. Resourceful and detail-oriented with skilled problem solving skills and ability to multi-task.

Skills

- Software development
- Software design and troubleshooting
- Customer service
- Training and documentation

Experience

- Provide business, technical and software support.
- Define business, functional and technical requirements to improve processes.
- Effectively communicate solutions to technical and non-technical audiences.
- Train staff and prepare documentation for customers and the internal card production department.

Related Employment

Valid USA, Fort Wayne, IN, 2014 - Current
Scrum Master, Development Team, managing product development and release schedule.
Screencheck North America, Fort Wayne, IN 2008 – 2014
Scrum Master, Development Team, responsible for managing the product development and release schedule.
Transworks, Fort Wayne, IN 2003 - 2008
Project Lead, EDI Department, serving as liaison with customers to ensure a successful implementation of the interfaces.
Dana Distribution Center, Churubusco, IN 1996 – 2008
Software Developer responsible for design and development of real time inventory tracking system.
Tokheim Corporation, Fort Wayne, IN 2002 – 2002
Software Developer responsible for developing firmware using Embedded C++ for the 8051 XA to support a new type of fueling valve.
Dana Spicer Axle Corporation, Fort Wayne, IN 1986 – 1996
Software Developer responsible for design and development a real time inventory tracking system. This system saved $36 million in excess inventory and reduced inventory by 30%.

Education and Certifications

- **Bachelor of Science,** Computer Technology, Purdue University, Fort Wayne, Indiana

JUSTIN ASHWORTH APPLICATION DEVELOPER

Summary

A detail-oriented software professional who provides an extensive understanding of industry best practices, software design philosophies, and system integration techniques. Proven history of building and deploying exceptional quality applications while maintaining client schedule expectations.

Skills

- C#/.NET
- Javascript
- Java
- HTML/CSS
- Solutions architecture
- RESTful API design
- Database optimization and development

Experience

- Successful delivery of multiyear projects.
- Architect high availability and fault tolerant systems.
- Design and build complex systems of interoperability.
- Debug and implement solutions to resolve system issues.

Related Employment

Valid USA, ID Solutions - Fort Wayne, IN, 2014 - present
Application Developer responsible for the design and creation of system architecture and components. Maintain and improve code quality.
NCCI Inc., Data Solutions – Boca Raton, FL, 2015 – 2016
Software Developer responsible for design and creation of systems for data acquisition and validation.
Maintained an extensive legacy codebase. Designed and implemented metrics for improving code quality and architectural integrity.
Vision Database Systems - Jupiter, FL, 2007 - 2015
Software Developer responsible for planned and management of large software endeavors, including client support and solutions.
Designed and developed ID card management software and tools.

Education and Certifications

- **Bachelor of Science**, Computer Science, Florida Atlantic University, Magna Cum Laude
- **Associate of Arts**, Palm Beach State College
- Oracle Certified SQL Expert

SEAN MCCORY SOFTWARE DEVELOPER

VALID

Summary

Software development professional who works well in a team-oriented environment providing design, development, and support. Build software solutions that meet clients' needs that are fault tolerant, of excellent quality, and timely.

Skills

- DL / ID Software Development
- RESTful API's
- Sever Side / Client Side Software Development
- Database Development
- Software Integration
- Software Architecture
- Agile Paradigm / SCRUM Methodology of Development

Experience

- Delivered multiyear projects on time.
- Work with clients to build solutions for their needs moving forward.
- Integrate software on clients' systems.
- Protect PII of individuals managed in our software.
- Architect high availability and fault tolerant systems.
- Build tests to aid in detection of software malfunctions.

Related Employment

Valid USA - ID Division, Fort Wayne, IN, 2014 - Current
Software Developer responsible for design, programming, and testing solutions for client needs. Work directly with clients with implementation, and debugging issues that occur.

Ivy Tech Community College, Fort Wayne, IN, 2011-2014
Student Tutor responsible for tutoring students in computers, mathematics, and sciences. Maintained computers and printers in the computer labs and fix student's personal computers.

Education and Certifications

- **Associate of Applied Science,** Computer Information Systems, Ivy Tech Community College

GARY HINES QA DEVELOPMENT MANAGER

VALID

Summary

Functional/Technical Lead with 30+ years of analyst/developer/QA experience in the aerospace, defense, and identity industries. Proven track record in all phases of the software and systems engineering lifecycle, from business use case analysis to solution architecture, design, implementation, integration/test, maintenance, and program closeout.

Skills

- Software requirements analysis, design and testing
- Software coding/unit testing
- Test case and test scenario authoring
- System integration testing
- User Acceptance Testing support

Experience

- Transforms customer requirements into solution architectures, implementations and test code.
- Captures software requirements in UML models and readable, unambiguous English; generates requirements and testing documents.
- Provides clarification and direction to software implementers and testers.
- Performs troubleshooting, informal testing and formal testing.

Related Employment

Valid USA (formerly ScreenCheck North America), Fort Wayne, IN 2012 - Current
QA Development Manager responsible for software QA testing of WebLinkID, a web application supporting enrollment into ID card/credential systems, including DHS/AAMVA REAL ID-compliant cards, with interfaces to external verification portals and to hardware devices such as webcams, cameras, scanners, signature panels and card printers.
Raytheon Company (formerly Magnavox Electronic Systems Company), Fort Wayne, IN 1985 – 2011
Principal Systems Engineer with responsibilities in all phases of the aerospace/defense software and systems engineering lifecycle, from software requirements analysis to design, implementation, integration/test, maintenance, and program closeout.

Education and Certifications

- **Master of Science**, Computer Science, Ball State University, Muncie, IN
- **Bachelor of Science**, Mathematics/Computer Science, Purdue University, Fort Wayne, IN
- **Master of Arts**, English, University of Arizona, Tucson, AZ
- **Bachelor of Arts**, English, Ball State University, Muncie, IN

SAMUEL S SPRING QA LEAD

Summary

Thirty plus years of systems integration and development. Experience with design, development, integration, training, deployment, maintenance, retrofit and decommissioning of components, assemblies, subsystems and systems. Duties included aspects of system, hardware, software test and quality engineering.

Skills

- Requirements development and management
- Software testing
- Customer support and training
- Hardware testing

Experience

- Design and construct test facilities.
- Develop test programs, methodologies, processes, plans and procedures.
- Develop system and software level requirements.
- Design and prototype mechanical components.
- Perform on-site systems integration and customer support.
- Maintained a Top Secret clearance for over 20 years.

Related Employment

Valid USA, Fort Wayne, IN, 2016 - Present
QA Lead responsible for mechanical and software testing, and systems engineering. Responsible for integration testing, solution evaluation, and design of Valid USA's driver license and ID issuance control solution for the state of Washington. Involved with trouble shooting complex integration issues to include TCP traffic through load balancers and redirects.
Raytheon, Fort Wayne, IN 1999 – 2016
System Engineer responsible for integration, verification and validation (IV&V). Responsible for development, dry run and execution of system sell off procedures for software and hardware requirements pertaining to Command and Control (C2/C4ISR) software, integrated COTs components, and simulation and war gamming subsystem. Lead initiatives for automating human interface testing. Supported process, procedure, and quality reviews/audits such as CMMI, ISO, safety, laboratory audits, and Raytheon Gate Reviews.
Boeing (former division of Rockwell International), Little Mountain, UT 1986 – 1999
Systems Engineer, Test Engineer and Physicist for Little Mountain, Utah, Flash X-ray. Designed test setups, instrumentation, and analysis for various defense weapon system customers. Designed the lab components including 480VAC lab UPS system.

Education and Certifications

- BS, EET, DeVRY Institute of Technology, Columbus OH
- Emergency Medical Technician, State of Indiana

ALLEN MASKELL DIRECTOR, DCM OPERATIONS

Summary

Over 17 years' experience in data management, processing, aggregation, and warehousing. Extensive knowledge of database systems, designs, and implementation. Management of solution developers, system architects, software developers, and client-side staff. Management of database services group maintaining databases for fortune 500 companies.

Skills

- Access and SQL Server database and application development
- NCOA, merge/purge, and postal presort programming and marketing
- Installation and maintenance of MS Server 2003 with MS SQL Server
- Network installation, maintenance and troubleshooting of both hardware and software

Experience

- Manage team of 40+ developers and CSRs in meeting the needs of over 70 data clients.
- Extensive experience in data aggregation.
- Extensive experience in database migration from a data integrity point of view.

Related Employment

Valid USA Lisle, IL 1997 - Present
Director of DCM Operations responsible for development and implementation of products and project strategies for clients. Create processes to streamline client processing. Coordinate resources to meet project time requirements. Work with clients directly to best implement solutions.
Progress Newspapers and Printers, Downers Grove, IL March 1997 – June 1997
Reporter responsible for communication with clients to fulfill print needs, including the Village of Downers Grove.

Education and Certifications

- **Bachelor of Science,** Electronics Engineering Technology, DeVry Institute of Technology, Lombard Illinois

MANDEEP S. SALUJA DATABASE ADMINISTRATOR

Summary

12+ years of experience in development and administration of Microsoft SQL Server. Worked as lead data architect for relational and data warehouse databases. ETL and business intelligence development in different business domains.

Skills

- OLTP and OLAP database design
- Data conversion, migration, and administration
- Business Intelligence development – cubes, reporting
- .net application development
- Database server implementation planning.
- Data modeling tools: ER-Win, Toad, Visio
- Expert in Transact-SQL
- Microsoft Certified System Engineer (MCSE)

Experience

- Implement business logic and batch processing in backend using stored. procedures and functions.
- Extract, transform, and load (ETL) data between homogenous and heterogeneous systems using SQL tools.
- Create multidimensional cubes using the SQL server analysis.
- Provide SQL server reporting, database administration, and implementation of security on high availability in cluster environment.

Related Employment

Valid USA, Lisle IL, 2015- present
Database Administrator responsible for design and implementation of OLTP and OLAP databases, ETL processes, business intelligence cubes and reports for internal and external projects. Administration of enterprise database servers and database security.
Merchant Fleet Rosemont IL, 2014 - 2015
Data Architect and Administrator responsible for data modeling of enterprise data warehouse, DW ETL process development using SSIS and SQL scripts and database administration.
Wintrust Bank Rosemont IL, 2011 - 2014
Data Architect Lead Provided architecture on many different financial projects including financial risk related reporting.
Amerigroup, Virginia Beach VA – 2010 – 2011
Programmer Analyst responsible for ETL development vaccination notification to states and insurance clients. Used SSIS packages to consume the information from different sources.

Education and Certifications

- **Bachelor in Technology** (Computer Science and Engineering), BBS engineering college Fatehgarh Sahib, India
- **MBA,** Marketing, Apeejay Institute of Management, Jalandhar India

LYNNE CYR SECURITY DESIGNER/CARD DESIGN SPECIALIST/PRINT PRODUCTION

Summary

Sr. Graphic Designer with strong project management skills and client relations for card design. Expertise in detail print production, organizing and scheduling projects while executing client demand.

Skills

- Experienced with Excentro security design program, incorporating fine detail and non-counterfeit card designs and detailed feature sheets.
- Experienced with Jura banknote and currency security design program, incorporating fine detail and non-counterfeit designs.

Experience

- Awarded a certificate for Honorary State Trooper from the State of Alabama for an outstanding completion of the driver license, brochure, and web page delivery program.
- Lead person in developing a training procedure book for security design using AAMVA guidelines.
- Expert in brochures, logos, catalogs, packaging design and print production.

Related Employment

Valid USA, Belleview, FL, 2013 - Present
Security Designer responsible for designs of non-counterfeit security cards and documents. Provide card design documentation support to the Bids and Proposals team. Ensure all card requirements are met and are in compliance for state RFPs and AAMVA standards.
Merit Advertising Corp. Ocala, FL, 2007 - Present
Graphic Designer responsible for brochures, logos, catalogs, packaging design, web design, flash animation and print production.
Digimarc Corp. Burlington, MA, 2001 - 2007
Sr. Graphic Designer/Security Designer responsible for management and organization of fast pace bid and delivery program project flow for driver licenses.
The Image Factory Leominster, MA, 1997-2001
Graphic Designer responsible for packaging design, brochure creation, catalogs, logos and illustrations for production and print.

Education and Certifications

- **Bachelor of Science,** Certificate in Web Design, (Magna Cum Laude), Fitchburg State College
- Web Design Certificate
- Jura Security Design Program incorporating banknote quality.
- MacAcademy, Cambridge, MA

RICK WESTENFELD DIRECTOR OF MANUFACTURING ENGINEERING

VALID

Summary

Over forty years' experience as an engineer and manager of engineering, manufacturing, and research and development organizations in the production of make-to-inventory, make-to-order, and engineer-to-order stock products. Experience developing the production solutions for almost thirty over-the-counter, central issuance, and hybrid secure document issuance programs.

Skills

- Technical writing focused primarily on test methods, standard operating procedures, and product and process specifications
- Quality management including structured problem solving and continuous improvement
- Project management utilizing Microsoft Project
- Adobe Photoshop, Minitab statistical analysis, Microsoft Office product suite including Visio and Project

Experience

- Assist all VALID locations in their continuous improvement and waste reduction efforts. This work includes use of the six sigma and lean manufacturing toolsets.
- Create preliminary designs for equipment and materials in support of new contracts or bid responses.
- Evaluate new card manufacturing and material technologies, particularly as they apply to secure identity documents. Recommend adoption of suitable technologies.

Related Employment

Valid USA, Lisle, IL, 2014 - present
Director of Manufacturing Engineering responsible for product and process development and improvement supporting all VALID USA Locations.

MorphoTrust USA (L-1 Secure Credentialing Division and Digimarc ID Systems), Fort Wayne, IN, 2005 - 2014
Director responsible for "standing up" and testing secure document production facilities, training factory personnel, overseeing start-ups and improvement efforts.

Rea Magnet Wire Company, Fort Wayne, IN, 1984 - 2005
Engineering management, plant manager, business unit manager, technical director. Responsible at one time or another for all manufacturing and engineering aspects of Rea's Engineered Wire Products Division.

Phelps Dodge Magnet Wire Company, Fort Wayne, IN, 1974 - 1984
Responsible for product and process development and improvement at a project level and as a manager. Technical consultant to Phelps Dodge International. Engineering representative to SIPTEC, an international consortium of magnet wire manufacturers.

Education and Certifications

- **Bachelor of Science (ACS certified),** Purdue University, Fort Wayne, Indiana
- Six Sigma Black Belt, General Electric trained, Rea Magnet Wire Company certified

MIKE WHITE DIRECTOR OF SOLUTIONS AND IMPLEMENTATIONS

VALID

Summary

Over 20 years in the identity industry, performing multiple roles such as implementation, systems, and product management, technical support, solutions design. Experienced in designing and implementing new solutions for early adopters, such as smartcard platforms in the 1990s, and mobile device identification solutions and biometric verification solutions in the early 2000s.

Skills

- Manage and facilitate needs analysis and requirement gathering activities for custom solutions to be deployed globally
- Deploy solutions using industry standard project management methodologies
- Managed design, development, deployment and lifecycle of multiple hardware products, supporting SDKs and middleware layers generating over 50 million USD per year

Experience

- Managed the design and deployment of the ScreenCheck's WebLink ID 1.0 driver's license platform to the US Territory of Guam, while adjusting RealID standards and AAMVA compliance changes.
- Deployed the Chicago U-PASS program allowing students form over 60 universities access to Chicago's public transportation.
- Co-authored the WebLink ID 1.0 web based enrollment and card production software specification in 2012.

Related Employment

Valid USA, Fort Wayne, IN, 2016 – Present
Director of Solutions on Implementations responsible for management of VALID USA's solutions portfolio, including internally developed software products, third party hardware or software products, integration and deployment methodologies. Manage the Solutions team.
Crossmatch, Jupiter, FL, 2014 – 2016
Product Manager responsible for the market position and management of the company's primary product line, and its design, roadmap, supporting utilities and packages.
ScreenCheck North America, Fort Wayne, IN 2012 - 2014
Product and Project Manager responsible for redesign of the existing application to support targeting the US driver's license and photo ID market.
Vision Database Systems, Jupiter, FL, 2003 - 2012
Product and Project Manager responsible for managing existing product offerings and aligning opportunities for integrated solutions.

Education and Certifications

- **Associate in Arts,** Information Systems, Florida State University
- Checkpoint Scrum Master (PSM I) and Professional Scrum Product Owner (PSPO I) Certified

KEVIN FREIBURGER DIRECTOR, PRODUCT MANAGEMENT

VALID

Summary

Over ten years in the identity industry performing multiple functions from sales engineering and implementation support to current roles of product management and solution configuration.

Skills

- Technical product management
- Multi-year and multi-application roadmap, requirements, and market analysis
- Expertise in web and mobile platforms and high-level application architecture design
- Large-scale requirements gathering and solution configuration for multi-year, multi-million dollar integrated identity system projects

Experience

- Leading the Valid delivery of its driver's license and ID card solution for the State of Washington Department of Licensing (DOL).
- Managed user requirements and software delivery for the State of New Jersey employee ID application.
- Managed user requirements and software delivery for Cubic Transportation Systems, inc.
- Co-authored the initial software specification for the first generation web-based ID platform in 2009, and second in 2012.

Related Employment

Valid USA, Fort Wayne, IN, 2013 - Present
Director of Product Management responsible for management of product portfolio and roadmap for the Identity Solutions business unit. The product portfolio includes multiple web-based identity enrollment and biometrics applications, image capture hardware, and card printing products and services.

ScreenCheck North America (Acquired by Valid), Fort Wayne, IN, 2009 – 2013
Managing Partner, Vice President responsible for analysis of identity industry verticals and end user segments and geographic markets to align sales and distribution strategies with high-growth products required by the market. Managed delivery of first generation web-based software.

Polaroid Corporation, (Acquired by ScreenCheck), Fort Wayne, IN, 2004 – 2009
Vice President of Sales & Services responsible for spearheading the initiative to invest in web-based software technology, full product launch in Q2 2009.

Education and Certifications

- **Bachelor of Science,** Business Administration, Indiana University
- Pragmatic Marketing Certified, Level Six (PMC-VI)
- Scrum Master (PSM I) and Professional Scrum Product Owner (PSPO I) Certified

ATTACHMENT F

Privacy Policy

WV Division of Motor Vehicles Contract Privacy Policy

1. That the Agency is the record owner of and maintains electronic Driver Licensing and Motor Vehicle information, including Personal Information and Sensitive Personal Information as defined in the federal Driver Privacy Protection Act ("DPPA") and the Uniform Motor Vehicles Records Disclosure Act (§17A-2A-1 et seq.) ("UMVRDA");

2. That pursuant to § 17A-2A- 7(a)(1), the Driver Licensing and Vehicle Information is available for release from the Agency to a governmental agency including any entity acting on behalf of a governmental agency in carrying out its function;

3. That the Agency will permit to the Vendor computer inquiry access to the Mainframe System, if necessary, using unique employees accounts, except those records which the AGENCY has been directed not to disclose pursuant to West Virginia Code or federal law as amended, by the person about whom the record is kept;

4. That the Vendor will use the information obtained hereunder only for the purpose set forth in their Statement of Work and made a part hereof, in compliance with federal and state privacy laws and the Privacy Program attached to and made part of this Agreement;

5. The Vendor agrees to reimburse the AGENCY, its agents, officers and employees for all claims, loss, damage, injury and liability asserted against the AGENCY, and any of their agents, officers and employees resulting from the negligent, criminal or willful wrongful use or misuse of the information provided to the Vendor on the part of the Vendor, its agents, officers, employees, contractors or a third party;

6. The Vendor assumes full responsibility for the care, custody, control, disclosure and use of the information provided to it by the AGENCY pursuant to this Agreement. The Vendor agrees to ensure that the disclosure of information received from the AGENCY complies with this Agreement. The Vendor assumes full responsibility for its disclosure of information pursuant to all Federal and State laws governing the disclosure and protection of such information, including but not limited to, the Federal Fair Credit Reporting Act (Law 91058), Driver's Privacy Protection Act, (Public Law 103-322 at 18 U.S.C. 123), the amendment to the Driver Privacy Protection Act, (Section 350 of Public Law 106-69), the West Virginia Uniform Motor Vehicle Records

Disclosure Act, hereinafter the WVURDA (W. Va. Code 17A-2A-1 et seq.), the Privacy Act of 1974, Computer Act 1987, the Federal Information Security Management Act of 2002

(FISMA P.L. 107-347, December 17, 2002), the FIPS Publication 199, Standards for Security Categorization of Federal Information and Information Systems, FIPS Publication 200, Minimum Security Requirements for Federal Information and Information Systems, OMB Circular A- 130, Management of Federal Information Resources, Appendix III, Security of Federal Automated Information Resources, November 28, 2000, MST SP 800-44 Version 2, Guidelines on Securing

Public Web Servers, and MSP SP 800-14 Generally Accepted Principles and Practices for Security Information Technology Systems and W. Va. Code § 17C-5A-3, all as amended;

7. That the Vendor shall immediately contact the AGENCY upon its discovery that the Vehicle or Driver owner address information provided to it has been released, used or disclosed in violation of this Agreement, in violation of any federal law, in violation of West Virginia law or upon the filing of any claim or complaint for misuse or release of the AGENCY's Vehicle Licensing Information made against the Vendor or against the AGENCY. Immediate notification for any privacy breach means that the Vendor will notify the AGENCY by calling 304.926.0708. by calling the West Virginia Office of Technology at 304.558.9966 or 877.558.9966 and by notifying the AGENCY in writing within 24 hours if it discovers that personal information provided under this Agreement has been used, disclosed or are being used in violation of the Agreement, or state or federal laws. Immediate notification for any privacy breach of Social Security Numbers. if applicable. means that the agency will notify the Social Security within one hour of the breach by calling the SSA's National Network Service Center toll free at 877-6974889;

8. The Vendor will provide the name, title and telephone number of its designated Security Administrator, as well as a photo copy of the Administrator's state issued driver's license or non-driver identification, to AGENCY before any records are accessed. The Security Administrator will be the employee of the Vendor who is responsible for access and use of any AGENCY records. The Security Administrator be the employee of the Vendor who is responsible for requesting log-on identification numbers from the AGENCY and to whom the AGENCY may provide log-on identification numbers. The Security Administrator is responsible for the security of all log-on identification numbers assigned to the Vendor and will ensure that the assigned logon identification numbers and passwords are not exchanged or shared with any other person(s) or entities. Additionally, the Security Administrator is responsible for ensuring that every Vendor employee with access to the records completes a Confidentiality Agreement and returns it to the AGENCY prior to use of the AGENCY records. All Confidentiality Agreements are made a Dart of this Agreement. If the Security Administrator or any employee of the Vendor leaves the employ of the Vendor or changes job duties and no longer requires access to AGENCY records as part of their official job the Security Administrator will immediately notify the AGENCY. The access log-on code for the employee will be cancelled. Prior to issuing a log-on number for a new employee, the Security Administrator will submit a signed Confidentiality Agreement from that employee which will become an addendum to this

Agreement. Nothing in this Agreement authorizes the Vendor to have more than seven hundred and twenty-nine (729) log-on access numbers at a time. Within 30 days of

separation or transfer. the Security Administrator will notify the AGENCY of any authorized user who no longer needs access to our records and may make a request to authorize a new log-on access number on a one for one basis

9. The Vendor may not use any information provided hereunder for any purpose not listed in this Agreement without prior approval of the AGENCY;

10. The Vendor agrees that it will not use any information contained in or derived from the records accessed from AGENCY for the purposes of marketing, surveys or solicitation;

11. The Vendor is specifically prohibited from releasing, selling, assigning or otherwise transferring information from AGENCY records to any unauthorized person, firm, association, corporation or government agency without permission in writing from the AGENCY;

12. The Vendor agrees to immediately notify the AGENCY of any claim asserted against the Vendor because of any use of the information provided pursuant to this Agreement. The Vendor agrees that AGENCY shall retain all ownership rights to the information provided pursuant to this Agreement or derived therefrom. The Vendor will enter personal information that it will verify with the AGENCY records. The Vendor agrees that it shall only use, store or combine data as authorized under state and federal law. The Vendor will only release information to the minimum necessary extent to execute its duties under state and federal law and in accordance with this Agreement. Provided. nothing in this Agreement prevents the Vendor from creating a database of personal information obtained from other sources;

13. The Vendor will take all reasonable precautions to protect against unauthorized access or release of AGENCY data records, confidential records or confidential information in its custody;

14. The Vendor agrees that any breach of this Agreement or unlawful use, sale or release of AGENCY records in any form by the Vendor or any of its clients will result in the immediate termination of this Agreement without prior notice to the Vendor. The Vendor agrees to reimburse to AGENCY all reasonable costs and attorney fees by the Vendor of its unlawful sale, release or use of any of AGENCY records;

15. This Agreement shall remain in full force and effect unless canceled by either party upon thirty (30) days written notice or anytime with the mutual consent of both parties. This Agreement shall terminate immediately upon discovery that any information provided to Vendor by the AGENCY has been used or disclosed in violation of this Agreement, State or Federal law. This Agreement shall terminate immediately if changes in West Virginia or Federal law prohibit the AGENCY WVDMV from releasing the information accessed by this Agreement;

16. The Vendor and its employees, agents, contractors, subcontractors, assigns and heirs who will have access to the provided AGENCY records agree to read the Privacy Program. All personnel who will have access to the AGENCY's records must sign a Confidentiality Agreement prior to access of AGENCY records. Vendor employees who will have access to the Agency's records must submit a copy of their government-issued photo ID or driver's license with photograph. Failure to comply with this provision will affect deadlines required by the Vendor to access AGENCY records. The Vendor agrees that failure to submit Confidentiality Agreements from all Vendor employees who will access AGENCY's records

constitutes a breach of the Agreement and the Vendor agrees that the AGENCY may terminate the Agreement without consequence to AGENCY on that basis;

17. The Vendor hereby agrees that it will only access Personally Identifiable Information, hereinafter PII, as required to perform its duties under the Agreement. The Vendor understands that it is required to secure the PII that it accesses as part of this Agreement and to ensure that it is not accessed by unauthorized individuals, or released to any other persons, companies or entities. The Vendor agrees that it will not allow its employees to share account access information or passwords;

18. The Vendor agrees that it will not release or allow access to AGENCY records to any person or company outside the United States of America;

19. This document, together with the Vendor's Statement of Work, the completed Vendor Employees' Confidentiality Agreements with photo IDs and the List of Vendor employees who will have a unique access account assigned to that individual will constitute the entire Agreement between the parties;

20. This agreement is not assignable by the Vendor;

21. Venue of any lawsuit filed by any party arising in whole or in part out of this Agreement shall be in the Circuit Court of Kanawha County; and

22. This Agreement may only be revised or amended in writing by mutual consent of both parties or with 30 days' prior written notice by either of the parties.

Vendor:

Valid USA

Authorized Signature:

MICHAEL K. FOX

Date: June 25, 2018

ATTACHMENT H

PII Acknowledgement

PII Acknowledgement

The Vendor understands that this Agreement requires access to Personally Identifiable Information or PII found within the WVDMV's records. Personally Identifiable Information includes any information that can identify a person, including, but not limited to the name, address, social security number, driver's license number, date of birth, photograph, computerized image, telephone number, medical information or disability information of any person or organization found in DMV records.

The Vendor understands that any PII obtained from the WVDMV's records is subject to the federal Driver Privacy Protection Act and the West Virginia Uniform Records Disclosure Act, hereinafter WVURDA found at West Virginia Code §17A-2A-l, et seq. A copy of the WVURDA is attached and made a part of this Agreement.

The Vendor and its' employees, agents, contractors, subcontractors, assigns and heirs agree to read the WVURDA, and all personnel who will have access to the WVDMV's records must sign a Confidentiality Agreement prior to access to PII found within the WVDMV's records. Failure to comply with this provision may affect deadlines required by the Vendor. The Vendor agrees that failure to submit Confidentiality Agreements from all Vendor users of the WVDMV's records constitutes a breach of the Agreement and the WVDMV may terminate the Agreement without consequence to WVDMV on that basis. To complete the Confidentiality Agreement, the Division's Privacy Program must be reviewed by each user. Copies of the Division's Privacy Policy and the Confidentiality Agreement are attached and are made part of this Agreement.

The Vendor hereby agrees that it will only access PII as required to perform its duties under the Agreement. The Vendor understands that it is required to secure the PII that it accesses as part of this Agreement and to ensure that it is not accessed by unauthorized individuals or released to any other persons. companies or entities.

The Vendor agrees to keep all personal and non-personal information accessed from testing applicants and WVD'M.V confidential and protected from intentional and unintentional disclosure;

The Vendor acknowledges that authorized access or transactions provide no right to possession or ownership by the Vendor to the WVDMV's data records or to the records of the testing applicants at any time;

The Vendor shall not access or retain any data submitted by testing applicants or by the WVDMV for any reason other than the information that it is required to retain under this Agreement in its transaction logs; The Vendor will ensure that it does not aggregate information or create any databases to information which it has access, including WVDMV's data and data submitted by

testing applicants for the purposes of building comprehensive data records or for any other purpose;

The Vendor will take all reasonable precautions to protect against unauthorized access or release of WVDMV data records, confidential records or confidential information in its custody;

The Vendor will follow the notification requirement if it discovers that information or services provided under this Agreement have been disclosed or are being used in violation of the federal Driver Privacy Protection Act, the West Virginia Records Disclosure Act, the federal Privacy Act of 1974 or any other state or federal laws. The Vendor shall also immediately notify the WVDMV within 24 hours by telephone at 304.558.2723 and by facsimile machine at 304.558.1987 as well as the West Virginia Office of Technology at 304.558.9966 or 877.558.9966 if it discovers that personal information provided under this Agreement have been disclosed or are being used in violation of the Agreement, or state or federal laws;

AGREED:

Michael K. Fox	Vice President, COO
Printed Name	*Title*
	June 25, 2018
Signature	***Date***

ADDENDUM ACKNOWLEDGEMENT FORM

Purchasing Division
2019 Washington Street East
Post Office Box 50130
Charleston, WV 25305-0130

State of West Virginia
Request for Proposal
33 – Service - Misc

Proc Folder: [redacted]
Doc Description: Addendum No 4 RFP to provide Drivers Licenses and ID Cards
Proc Type: Central Master Agreement

Date Issued	Solicitation Closes	Solicitation No	Version
2018-06-21	2018-07-02 13:30:00	CRFP 0802 DMV1800000001	5

BID RECEIVING LOCATION
BID CLERK
DEPARTMENT OF ADMINISTRATION
PURCHASING DIVISION
2019 WASHINGTON ST E
CHARLESTON WV 25305
US

VENDOR
Vendor Name, Address and Telephone Number:
Valid USA
2031 Corporate Court
Fort Wayne, IN [redacted]
Phone: 260 407 1177

FOR INFORMATION CONTACT THE BUYER
Melissa Pettrey
(304) 558-0094
melissa.k.pettrey@wv.gov

Signature X [signature] FEIN # 27-0539358 DATE June 25, 2018

All offers subject to all terms and conditions contained in this solicitation

Page : 1 FORM ID: WV-PRC-CRFP-002

[redacted]

The West Virginia Purchasing Division is soliciting proposals for the agency, the West Virginia Division of Motor Vehicles, (WVDMV) to provide the secure production and distribution of driver license and identification cards ("DL/ID") per the attached specifications, terms and conditions, and documentation.

INVOICE TO	SHIP TO
MANAGER DIVISION OF MOTOR VEHICLES PURCHASING/ACCOUNTS PAYABLE 1317 HANSFORD ST CHARLESTON WV25301 US	MANAGER DIVISION OF MOTOR VEHICLES PURCHASING/ACCOUNTS PAYABLE 1317 HANSFORD ST CHARLESTON WV 25301 US

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
1	Driver's license / ID card	0 [redacted]	EA		

Comm Code	Manufacturer	Specification	Model #
53121902			

Extended Description :
Driver's license & ID card production

INVOICE TO	SHIP TO
MANAGER DIVISION OF MOTOR VEHICLES PURCHASING/ACCOUNTS PAYABLE 1317 HANSFORD ST CHARLESTON WV25301 US	MANAGER DIVISION OF MOTOR VEHICLES PURCHASING/ACCOUNTS PAYABLE 1317 HANSFORD ST CHARLESTON WV 25301 US

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
2	Year one hourly programming	0 [redacted]	HOUR		

Comm Code	Manufacturer	Specification	Model #
81111504			

Extended Description :
Year one hourly programming

INVOICE TO	SHIP TO
MANAGER DIVISION OF MOTOR VEHICLES PURCHASING/ACCOUNTS PAYABLE 1317 HANSFORD ST CHARLESTON WV25301 US	MANAGER DIVISION OF MOTOR VEHICLES PURCHASING/ACCOUNTS PAYABLE 1317 HANSFORD ST CHARLESTON WV 25301 US

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
3	Year two hourly programming	0.00000	HOUR		

Comm Code	Manufacturer	Specification	Model #
81111804			

Extended Description :
Year two hourly programming

INVOICE TO	SHIP TO
MANAGER DIVISION OF MOTOR VEHICLES PURCHASING/ACCOUNTS PAYABLE 1317 HANSFORD ST CHARLESTON WV25301 US	MANAGER DIVISION OF MOTOR VEHICLES PURCHASING/ACCOUNTS PAYABLE 1317 HANSFORD ST CHARLESTON WV 25301 US

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
4	Year three hourly programming	0.00000	HOUR		

Comm Code	Manufacturer	Specification	Model #
81111804			

Extended Description :
Year three hourly programming

INVOICE TO	SHIP TO
MANAGER DIVISION OF MOTOR VEHICLES PURCHASING/ACCOUNTS PAYABLE 1317 HANSFORD ST CHARLESTON WV25301 US	MANAGER DIVISION OF MOTOR VEHICLES PURCHASING/ACCOUNTS PAYABLE 1317 HANSFORD ST CHARLESTON WV 25301 US

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
5	Year four hourly programming	0.00000	HOUR		

Page : 3

Comm Code	Manufacturer	Specification	Model #
81111804			

Extended Description :
Year four hourly programming

INVOICE TO	SHIP TO
MANAGER DIVISION OF MOTOR VEHICLES PURCHASING/ACCOUNTS PAYABLE 1317 HANSFORD ST CHARLESTON WV25301 US	MANAGER DIVISION OF MOTOR VEHICLES PURCHASING/ACCOUNTS PAYABLE 1317 HANSFORD ST CHARLESTON WV 25301 US

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
6	Year five hourly programming	8.00000	HOUR		

Comm Code	Manufacturer	Specification	Model #
81111804			

Extended Description :
Year five hourly programming

INVOICE TO	SHIP TO
MANAGER DIVISION OF MOTOR VEHICLES PURCHASING/ACCOUNTS PAYABLE 1317 HANSFORD ST CHARLESTON WV25301 US	MANAGER DIVISION OF MOTOR VEHICLES PURCHASING/ACCOUNTS PAYABLE 1317 HANSFORD ST CHARLESTON WV 25301 US

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
7	Year six hourly programming	8.00000	HOUR		

Comm Code	Manufacturer	Specification	Model #
81111804			

Extended Description :
Year six hourly programming

Page : 4

INVOICE TO	SHIP TO
MANAGER DIVISION OF MOTOR VEHICLES PURCHASING/ACCOUNTS PAYABLE 1317 HANSFORD ST CHARLESTON WV25301 US	MANAGER DIVISION OF MOTOR VEHICLES PURCHASING/ACCOUNTS PAYABLE 1317 HANSFORD ST CHARLESTON WV 25301 US

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
9	Year seven hourly programming	0.00000	HOUR		

Comm Code	Manufacturer	Specification	Model #
81111504			

Extended Description :
Year seven hourly programming

INVOICE TO	SHIP TO
MANAGER DIVISION OF MOTOR VEHICLES PURCHASING/ACCOUNTS PAYABLE 1317 HANSFORD ST CHARLESTON WV25301 US	MANAGER DIVISION OF MOTOR VEHICLES PURCHASING/ACCOUNTS PAYABLE 1317 HANSFORD ST CHARLESTON WV 25301 US

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
9	Year eight hourly programming	0.00000	HOUR		

Comm Code	Manufacturer	Specification	Model #
81111504			

Extended Description :
Year eight hourly programming

INVOICE TO	SHIP TO
MANAGER DIVISION OF MOTOR VEHICLES PURCHASING/ACCOUNTS PAYABLE 1317 HANSFORD ST CHARLESTON WV25301 US	MANAGER DIVISION OF MOTOR VEHICLES PURCHASING/ACCOUNTS PAYABLE 1317 HANSFORD ST CHARLESTON WV 25301 US

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
10	Year nine hourly programming	0.00000	HOUR		

Page : 6

Comm Code	Manufacturer	Specification	Model #
81111804			

Extended Description :
Year nine hourly programming

INVOICE TO	SHIP TO
MANAGER DIVISION OF MOTOR VEHICLES PURCHASING/ACCOUNTS PAYABLE 1317 HANSFORD ST CHARLESTON WV25301 US	MANAGER DIVISION OF MOTOR VEHICLES PURCHASING/ACCOUNTS PAYABLE 1317 HANSFORD ST CHARLESTON WV 25301 US

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
11	Year ten hourly programming	0.00000	HOUR		

Comm Code	Manufacturer	Specification	Model #
81111804			

Extended Description :
Year ten hourly programming

ADDENDUM ACKNOWLEDGEMENT FORM
SOLICITATION NO.: DMV1800000001

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)

[X]	Addendum No. 1	[ ]	Addendum No. 6
[X]	Addendum No. 2	[ ]	Addendum No. 7
[X]	Addendum No. 3	[ ]	Addendum No. 8
[X]	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 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.

Valid USA
Company

Authorized Signature

June 25, 2018
Date

NOTE: This addendum acknowledgement should be submitted with the bid to expedite document processing.

CENTRAL ISSUANCE

Solution Introduction

Valid offers an integrated identity management platform, that enables jurisdictions to perform all necessary tasks to capture data and images for applicant enrollment; to evaluate, screen, and confirm the collected identity data; and to issue a secure credential and manage its ongoing lifecycle. Valid's proposed solution includes WebLink ID and BioLink ID, our own web-based software products, which will be hosted in the state's Data Center. The solution includes all hardware needed for enrollment, all software needed for front and back office needs, all integrations with existing systems, and the production of secure credentials at Valid's production facilities.

- **WebLink ID enrollment** workflows feature an easy-to-use camera tower, signature tablet, and document scanner. It captures and stores photos and signatures, biometric data (optional), and identity breeder documents. The software and hardware are tightly integrated for incredibly fast applicant processing with no device manipulation by the DMV staff. The workflow's look and feel, required tasks, task sequencing, and business rules are configurable and user friendly which reduces the training burden on staff. The DMV front office users will enjoy working the modernized Valid solution.

- **WebLink ID gated issuance** and release readiness is optional and configurable, and it improves front and back office workflow at the DMV, if implemented. Many legacy applications, reports, and business processes are candidates for consolidation into WebLink ID which reduces burden on the DMV staff to maintain documentation and IT support for those solutions, and it lowers required training for new hires.

  For example, Valid implemented an intricate gated issuance (Release Readiness) WebLink ID process at the State of Washington Department of Licensing (DOL) which automates and streamlines the processing of issuances with exception flags. DOL worked exceptions from a series of reports before WebLink ID gated issuance, and it required human intervention to stop, restart, and permanently hold issuances.

  After DOL's WebLink ID implementation, the Valid solution handles a complex, multi-gate issuance vetting process driven by various exception flags including: (1) biometric fraud review resulting from one-to-many process; (2) possible fraud exceptions applied by front office DOL staff; (3) 1-time special mailing for enhanced driver licenses; (4) address verification; (5) CDLIS-PDPS; (6) AAMVA verification systems; (7) record response; (8) document review; (9) restricted license; (10) 24-hour administrative hold. This is automated in WebLink ID and software users research the case and release the exception flags from WebLink ID gate workflows.

  WebLink ID gated issuance optionally includes a biometric review sub-process. Valid offers its robust BioLink ID biometric engine with case management and investigation tools for the proposed solution. It integrates with WebLink ID's issuance process. WVDMV administrators define exception flag quantity and types (including biometric review), flag processing

sequence, and flag-to-gate mapping (issuance queues available to staff to resolve exceptions).

- **WebLink ID card management** workflows available to WVDMV back office staff include real-time factory status updates for better insight into card issuance timing. This integration also displays front and back card images to WV users captured by the printer's QC camera module representing the final produced card vs. a rendered image of its theoretical appearance.

- Card management functions are optional and configured by WebLink ID user roles. DMV staff can view (download, print, and email directly from the app) the final produced card and templates (for example temporary letters with card image for lost issuance scenarios), and manage its lifecycle to terminate, reissue, and return cards.

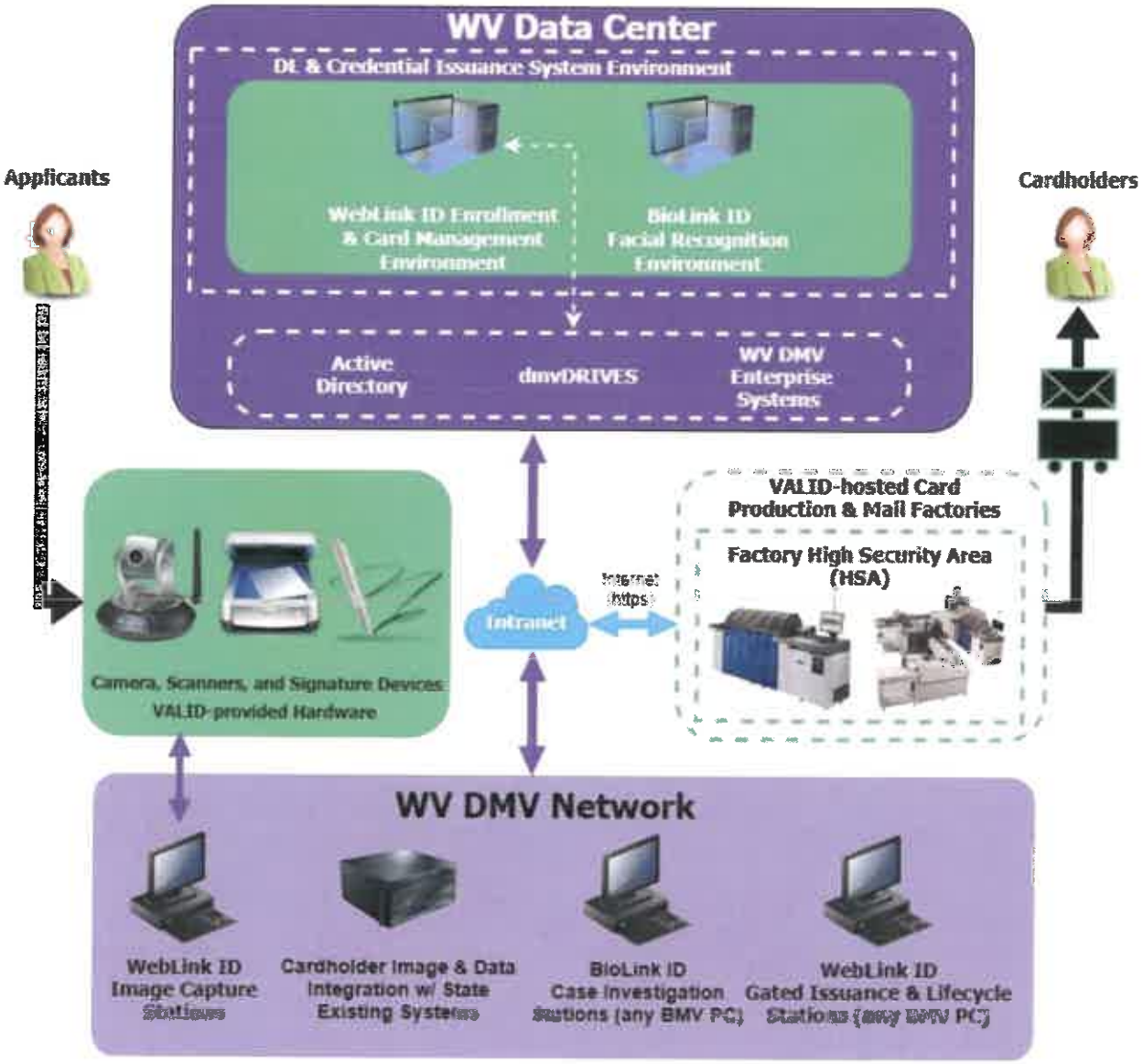
- **Secure card issuance** occurs from two primary Valid facilities (factories). Valid proudly offers it as the industry's most innovative solution regarding high availability and disaster recovery (DR). Each factory produces a share of the daily WVDMV volume while both facilities independently have capacity to deliver 100%+ daily volume if needed.
  Contrast daily production from two facilities (each having capacity for 100%+ volume) with the typical model for DR: primary site with a failover backup. It presents tremendous problems for the DR site: insufficient staff training, unexercised equipment, inadequate standard operating procedures, scarce or missing inventory for job completion, and many more. These concerns are completely removed by the Valid solution. The State of Washington Department of Licensing (DOL) sleeps well knowing that Valid issues its cards daily from two redundant, secure facilities, and the WVDMV will share that same production continuity guarantee if a Valid facility ever faces an unanticipated disaster scenario.

  Valid obsesses about physical and logical security: every facility, software product, and process executed within Valid has security embedded. Valid manufactures and personalizes financial cards for large bank issuers and SIM cards for major telecom network operators. These markets require its partner manufacturers to undergo compliance audits for physical and logical security. Valid typically performs a third-party audit every month, and it has numerous compliance certifications stemming from these audits: ISO / IEC 27001:2013; Payment Card Industry (PCI DSS); Service Organization Control (SOC) 2 Type II; GSMA Security Accreditation Scheme (GSMA SAS) Class 1; Visa, MasterCard, Discover, and American Express. Additionally, Valid operates with seven full-time guards and one supervisor monitoring secure operation; fire detection; and intrusion (physical and logical) detection: CCTV, motion sensor, glass break detectors, and card readers. Valid grants facility ID card access using least-privileged methodology, and the card access system has dual controls, "hold open" and "dead-man alarms."

WVDMV Solution Overview

The proposed Valid solution utilizes WebLink ID and BioLink ID as the cornerstone for the issuance process. Valid develops its software applications as products and not custom, one-off applications. Therefore, software proposed for WVDMV is widely deployed in multiple markets and hundreds of implementations. The solution diagram below displays a high-level view with WebLink ID and BioLink ID

driving the issuance process with Valid-provided capture hardware deployed locally within WVDMV offices. The Valid hosted factory (shaded blue) performs the central issuance card production, and Valid staff operate a third application called Job Control System. It drives the factory process and integrates tightly with WebLink ID, but WVDMV staff never function in it. These three applications constitute the heart of the Valid Driver's License and ID Card production solution.



Facial Recognition Use Case

Facial recognition (FR) augments applicant identity assessment and provides potential fraud alerts before the issuance process is finalized through biometric verification. There are three common biometric workflow types used by jurisdictions during the issuance process:

1. 1:1 – newly captured image compared against the known subject's last enrolled image
2. 1:R – newly captured image compared against the known subject's image history (all)
3. 1:N – newly captured image compared against all images of all subjects within the database (deduplication)

The first two workflows are verification transactions which enhance the applicant screening process. The applicant enters the DMV office for an issuance service and declares her identity, and the system compares the captured photo against that known identity's previous photo (1:1) or all (1:R). This amplifies the current DMV techniques to verify an individual for a renewal service. The biometric verification (1:1 and 1:R) will not occur for those receiving a first issuance (or have no photos on record). The third workflow is an identity transaction, and it mitigates multi-identity fraud. The applicant enters the DMV office for an issuance service and declares her identity. The newly captured photo might be a first issuance, or even a legitimate renewal, using the declared identity. The verification workflows (1:1 and 1:R) pass without issue. However, what if this applicant previously received a WVDMV credential using a different established identity? The 1:N comparison of the newly captured photo against all photos for all subjects will trigger a potential fraud (the photo for the new issuance matches a photo used previously for a different identity). The issuance is flagged for biometric review. This is one fraud use case that 1:N prevents and there are many more.

Valid Facial Recognition

The Valid solution includes a facial recognition (FR) system. System administrators configure this optional step in the workflow. Legislative changes or other drivers may prevent biometric review of applicants. This does not present a problem; Valid configured its solution so that biometric processing turns on and off without disrupting the overall issuance process.

Valid offers BioLink ID to the WVDMV which features biometric analysis and matching, fraud investigation tools and case management, and a robust application programming interface (API) which integrates BioLink ID with WebLink ID. There are several primary integration points between WebLink ID and BioLink ID.

- The first occurs when front office operators capture a photo within the WebLink ID enrollment workflow for those applicants with declared identities. The captured photo auto-enrolls (without operator intervention) into the BioLink ID engine which executes a verification transaction (1:1 or 1:R or both), and WebLink ID presents that result to the operator within the enrollment workflow. WVDMV establishes a front office business process which drives one or more options within the WebLink ID workflow. The system supports 1:1 and 1:R override permissions (additional benefit: overrides are logged and auditable; and WVDMV system administrators define the system roles and the associated permissions available to those roles); or users apply exception flags for potential fraud; or another business process defined by WVDMV.

- The next WebLink ID and BioLink ID interface occurs after the 1:N identity transaction (deduplication) occurs. The system supports a real-time 1:N (at time of WebLink ID photo capture) or a batch (typically overnight) 1:N transaction. WVDMV drives this configuration; typically most customers choose overnight batch 1:N transactions for various customer service reasons, such as: processes do not exist in the front office for staff to handle potential fraud, front office users are not trained investigators, and more. Regardless when the 1:N occurs, WebLink ID internally marks the issuance as 1:N pending after it captures a photo and enrolls it into BioLink ID. This prevents the issuance from moving to the next stage until it receives the biometric 1:N update from BioLink ID.

  Meanwhile BioLink ID executes the 1:N, and it updates WebLink with its two possible results: 1) The issuance passed the 1:N deduplication (all subjects and all images). 2) It failed the 1:N process. Successful 1:N transactions drive WebLink ID to move the issuance forward through its additional, optional downstream gated issuance processes and workflows. WebLink ID marks those issuances that fail the 1:N process for biometric review; it will not move the issuance forward until the photo and identity are adjudicated by WVDMV staff.

- A highly trained team reviews the failed 1:N queue the following day (if exercising the BioLink ID 1:N nightly batch option) using BioLink ID. Its queues for potential fraud review, investigation tools, and case management are highly optimized for ease of use. Valid organized the queues and tools for speed which enables investigation teams to adjudicate potential fraud cases efficiently to quickly empty pending review queues. It features a masterful user interface that offers multiple investigation tools to compare the subject photo with candidate photos the system returned as potential fraud. These tools include:
  (1) varying views including side-by-side, image overlap (up/down and left/right), tile selection, and image blend
  (2) image enhancement features
  (3) pins & measurements; and many more.

  The investigator then closes the case making final judgement to allow (false positive) or halt (legitimate fraud) the issuance, and the case moves into the BioLink ID case management history.

- The investigator's judgment drives the last WebLink ID and BioLink ID interface. The case judgment auto-updates the issuance status in WebLink ID which previously held it pending the biometric review. WebLink ID now moves it forward through the downstream issuance process if the investigator allowed it, or permanently holds it if the investigator marked it fraudulent.

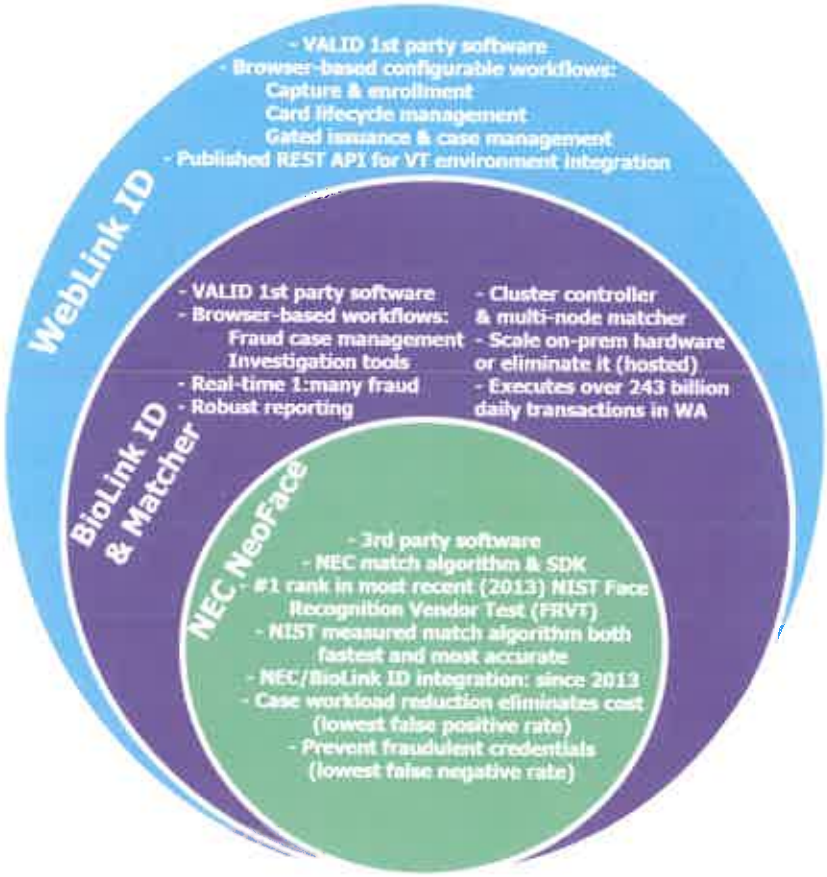
Valid Software: Proven Scale + NEC Partnership

The proposed WVDMV solution includes the Valid built WebLink ID and BioLink ID which also operate at the State of Washington Department of Licensing (DOL) and many other non-driver license customers.

WebLink ID drives the enrollment and issuance for up to 20K cards/day at DOL, and the WebLink ID database contains 31MM total issuance records. Valid also leveraged its massive WebLink ID APIs to

create a highly integrated system at the request of DOL. WebLink ID integrates with multiple stakeholders in the State of Washington: Secretary of State, Washington State Police, U.S. Customs and Border Protection (CBP reads Enhanced documents at the Canada and U.S. border and queries WebLink ID), Washington Courts and Department of Corrections, and several DOL-systems: queueing system at licensing offices, DMV driver record management software, address verification service, and countless more.

BioLink ID features biometric fraud investigation tools and case management for DOL, and offers a hyperscale matcher application: web services, cluster controllers, and multi-node matchers. It processes over 243 billion daily transactions for DOL against an 18 million biometric photo database. Its pristine architecture provides fault tolerance, high availability, and load balancing throughout the various server components. The application also supports additional biometric modalities beyond facial recognition if WVDMV wishes to extend its biometric processing in the future to iris or another modality.



BioLink ID integrates the #1 rated facial recognition algorithm tested by the National Institute of Standards and Technology (NIST) in its most recent Facial Recognition Vendor Test (FRVT) from 2013. NIST tested algorithms offered by the leading providers: NEC, Toshiba, Cognitec, 3M/Cogent (Gemalto), Idemia (formerly Morpho), and others. NIST rated the NEC algorithm #1 in accuracy and speed. DOL experienced a significant drop in facial recognition false positive investigations when converting from its legacy issuance provider to Valid, and this decreased the overhead placed on the investigation team.

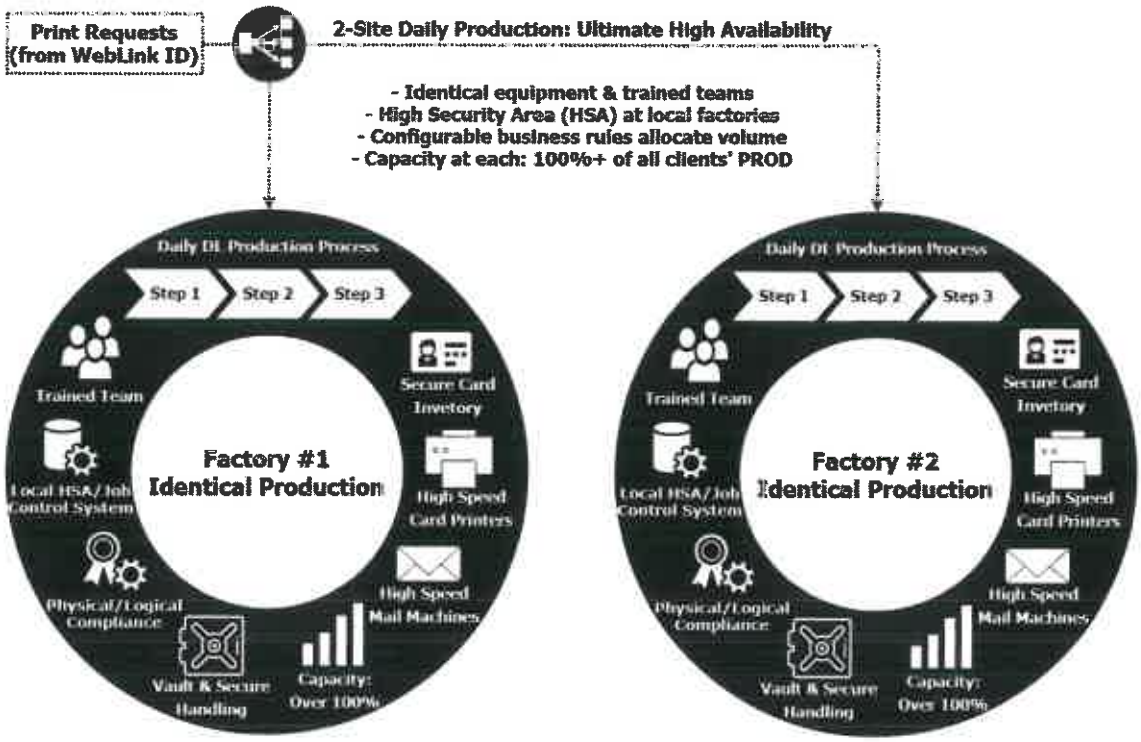
Valid will always support the leading algorithm provider(s) to offer its clients. However, the BioLink ID matcher engine is algorithm agnostic; it supports multiple algorithms from multiple providers. The leader today is NEC, but Valid offers technology to support top algorithms from other providers if someone else is king.

Valid confidently offers WVDMV its WebLink ID, BioLink ID, and NEC solution knowing its scale. The deployed system supports load balancing and a redundant, fault tolerant high availability architecture. The systems have experienced no SLA unexpected downtime at DOL.

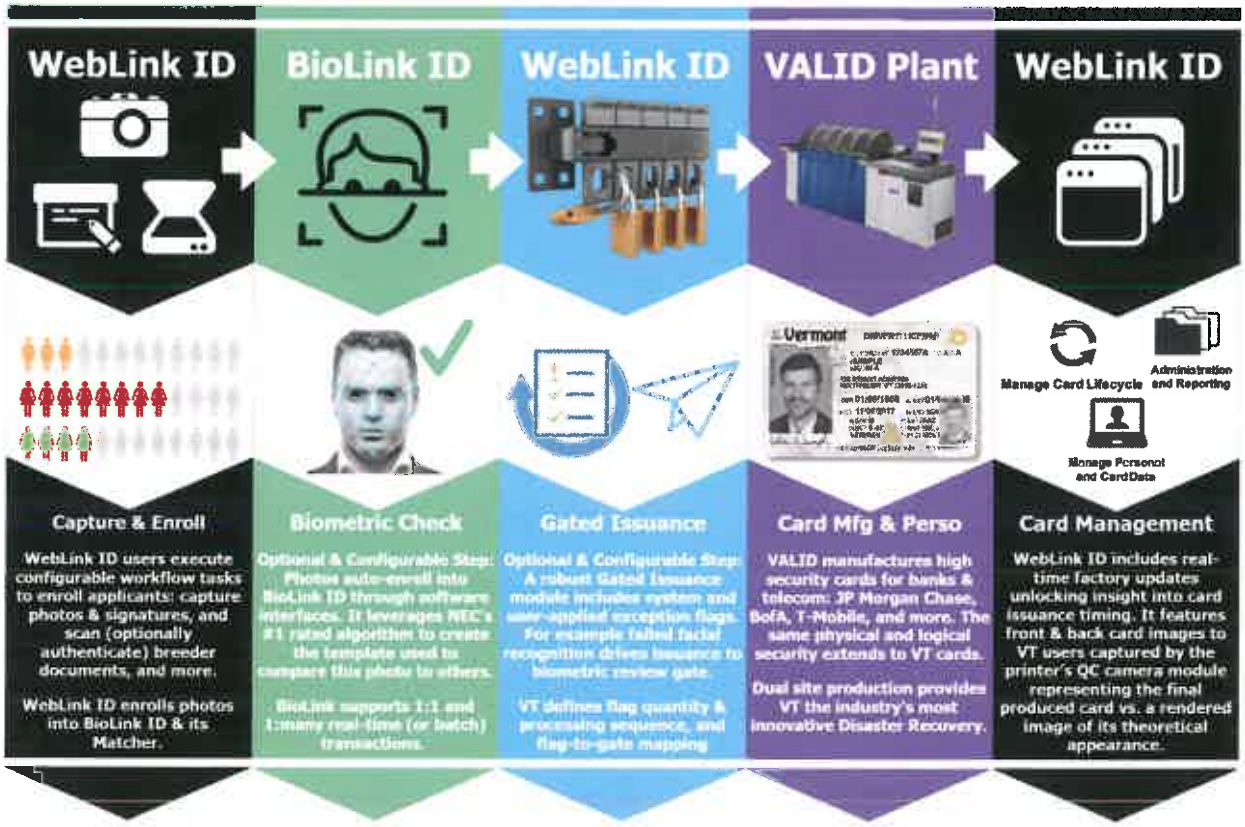
Issuance Flow and Secure Card Production Factories

WebLink ID and BioLink ID are the system pillars within the WVDMV solution. WebLink ID features flexible workflow modularity for applicant enrollment, identity vetting and adjudication including optional gated issuance with biometric review, and card management to issue credentials and manage its lifecycle. BioLink ID supports the process with its facial recognition engine and investigation tools for WebLink ID's gated issuance biometric review subcomponent.

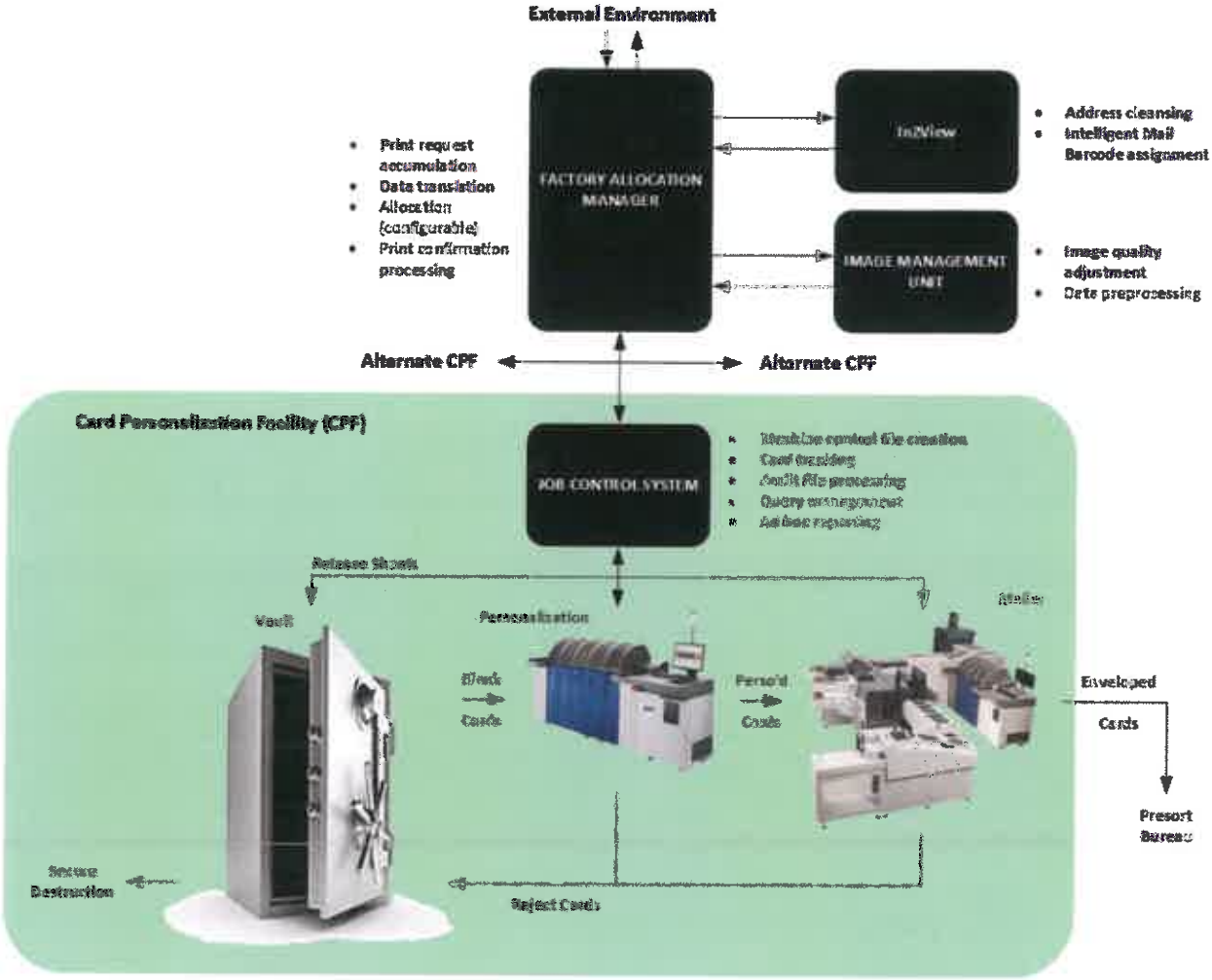
Secure card issuance occurs from two primary Valid facilities (factories). Valid proudly offers the industry's most innovative solution for high availability and to mitigate risks of disaster recovery (DR). Each factory produces a share of the daily WVDMV volume while both facilities independently have capacity to deliver 100%+ daily volume if needed.



The typical issuance process:



- DMV users execute WebLink ID enrollment workflows to capture data, images, and documents.
- BioLink ID performs the biometric analysis, and updates WebLink ID with the result.
- WebLink ID moves the issuance through a series configurable gates checking for exception flags and data accuracy.
- WebLink ID sends the print request with data payload after passing all gates to the two Valid factories for daily printing and mailing. The factory process integrates tightly with WebLink ID and sends it real-time updates providing better insight into card issuance timing for WVDMV back office WebLink ID workflow users. The factory sub-process to the issuance flow is shown below.



- The back office WebLink ID card management workflows enable users to view front and back card images captured by the printer's QC camera module representing the final produced card vs. a rendered image of its theoretical appearance. Other optional card management functions driven by roles and permissions: view, download, print, and email the final card images and other templates (example temporary documents or certification letters); expedite, hold, reissue, and return cards; and many more tasks.

Section 4, Subsection 4.1 - REAL ID Compliance Objectives

Section 4, Subsection 4.1.1 - Vendor should describe what specifications they would propose to address the REAL ID Act of 2005 standards, and how their solution will meet the initial "Photo First" requirements providing compliance with those standards. The Agency is requesting an in-depth description of how this can be handled in real time", which should consist of a detailed system diagram illustrating server (physical/virtual) locations and onsite equipment at each Agency location.

Vendor Response: COMPLIANT

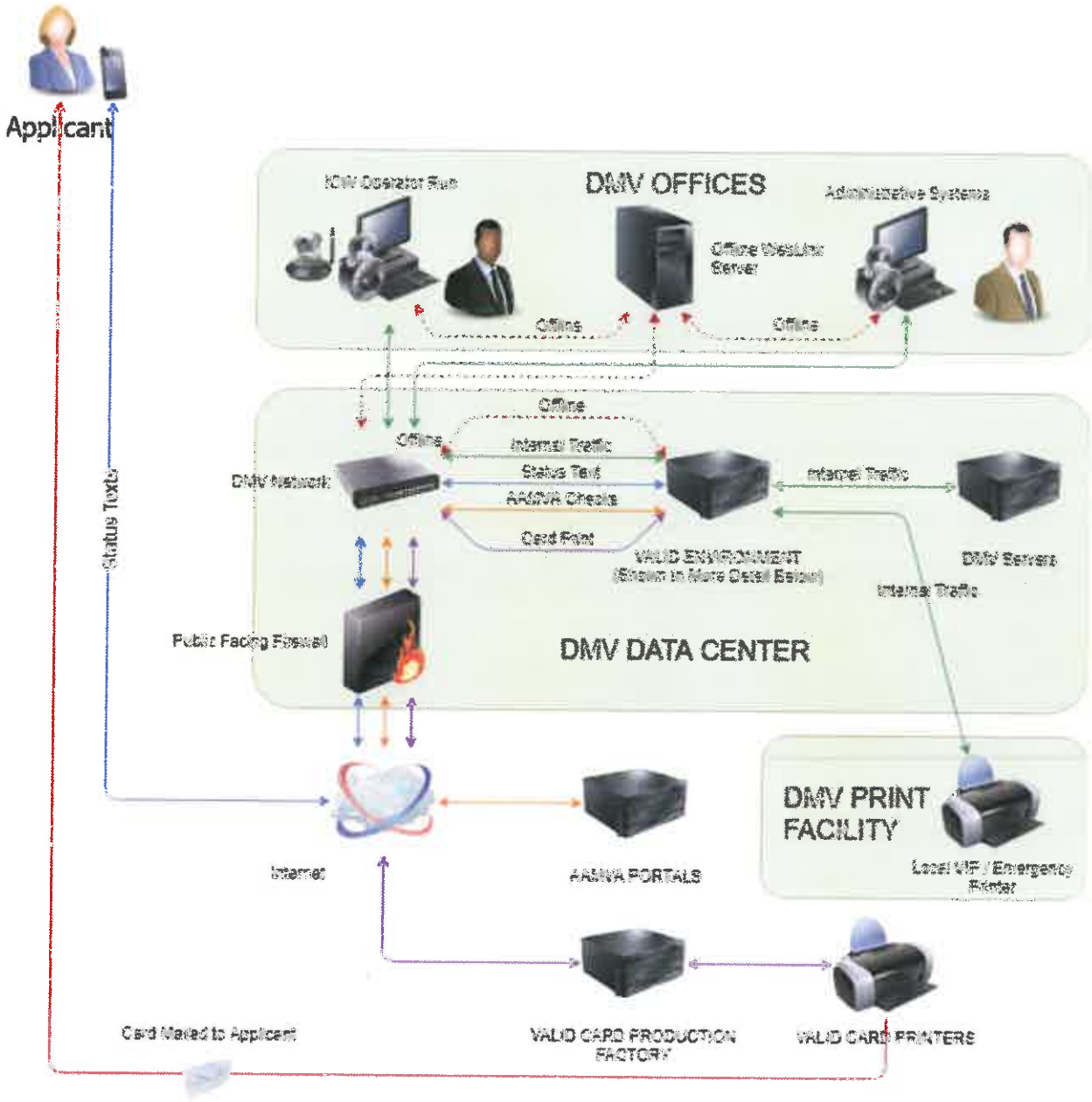
Valid is proposing a complete solution for the state of West Virginia. The solution is fault tolerant, redundant and highly available. It will utilize virtual machines provided by the state, and state-provided computers in the DMV offices. Valid will provide all hardware needed to integrate with the state's computers, to conduct enrollment. This hardware consists of camera, scanner, and signature capture devices needed to collect the appropriate images required to meet Federal guidelines for REAL ID issuance, as well as West Virginia driver's license and ID cards.

To best meet REAL ID requirements, Valid suggests a workflow which allows the operator to capture a photo of the applicant, before even identifying who the applicant is. This photo can then be matched to an existing person's record or added to a new person's first application.

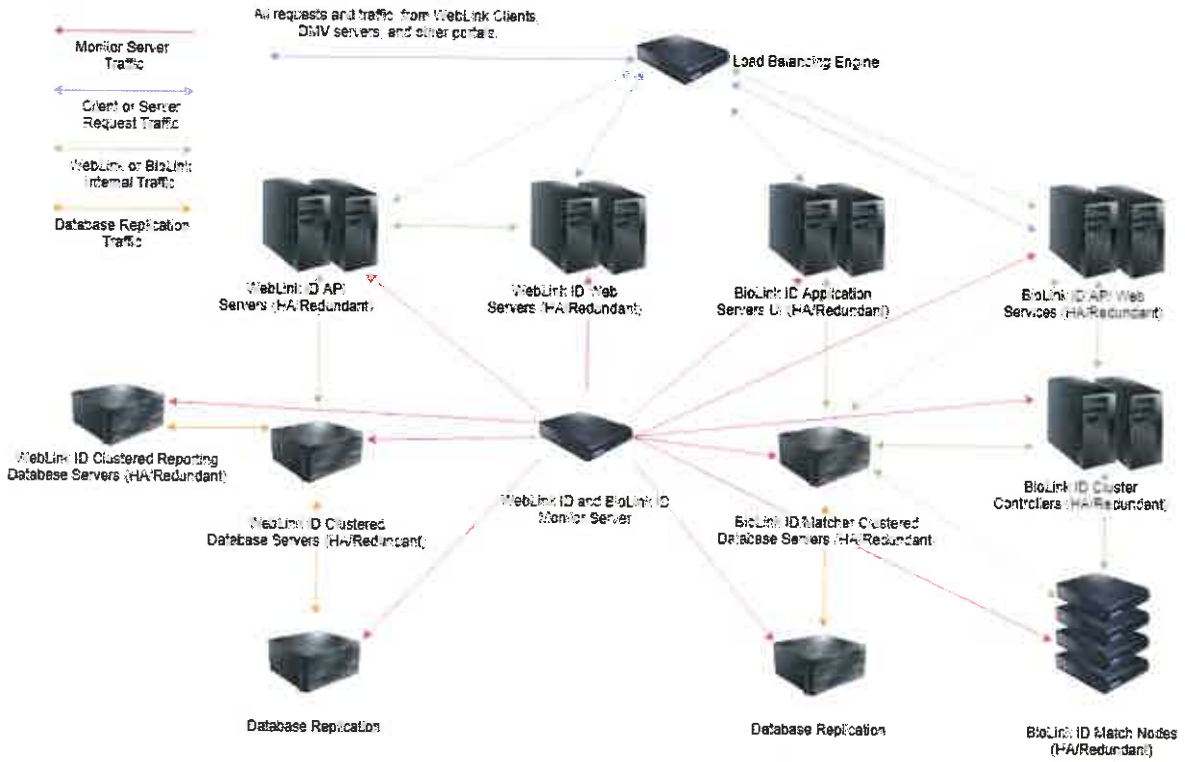
Valid's proposed solution will conduct real-time verification of applicant data against the appropriate AAMVA portal. US-PASS, SSOLV and VLS portals help verify information required by REAL ID, specifically Proof of SSN, Proof of Lawful Status, and, in the case of US PASS, Proof of Identity. The AAMVA State-to-State portal will potentially be available for the state to utilize, and Valid's proposed solution can conduct the state-to-state look ups.

Valid is proposing a solution which will keep the customer informed of the status of their application once they have completed the enrollment process. Should the applicant provide a phone number or email address, application status updates can be sent to the customer as they occur in real-time between the environments, including the Valid production environment.

Valid's proposed solution includes a multi-modal biometric engine capable of enrollment, matching and case management solution. This application is designed to help ensure the individual requesting a credential is not already in the system (REAL ID constraint) under a different record, as well as to help prevent accidental improper credential issuance. When a photo is taken, following ICAO image analysis, the photo is sent for enrollment into the image database, and a 1:1 check is performed to determine if the applicant had registered at the DMV previously. Additionally, applicant's photos will be run against the database (1:N) to verify they do not exist tied to a different record, prior to allowing the credential to be released for issuance.



The "Valid Environment" depicted above, is showing in more detail below. This proposed Valid solution offers WV DMV a highly available (HA), and redundant environment that includes a load balancing engine, the application servers, service servers, database servers, matching engine, and cluster controllers. The environment proposed also includes reporting servers, such that reports are not run on production servers (lest the report impact production resources) as well as the servers needed for replication to and from the offline server stores.



The Valid proposed solution is designed to ensure fast system response and maximum uptime.

Section 4, Subsection 4.1.2 - Vendor should describe any available alert and notification mechanisms within their system, to "flag" image comparison and document authentication issues associated with the image captured during the "Photo First" process, in relation to the image currently on file (One-to-One, or One-to-Many, comparisons). This is intended for the purposes of reducing, or eliminating, the potential for identity fraud. This would generate a notification to the Agency's Investigation, Security and Support Services Unit ("IS&S"), identifying a potential security risk.

Vendor Response: COMPLIANT

WebLink ID contains a state of the art facial recognition system that integrates seamlessly with its card issuance functionality and sends all newly captured photos to the facial recognition engine for a quality check before allowing the user to continue with an application. WebLink ID and BioLink ID incorporate automatic and manual controls to meet ICAO standards for photo quality, standards compliance, and fraud investigation alongside enabling a customer service representative to retake any photo that fails to meet the CSR's or ICAO quality standards.

WebLink ID interface displays notifications for biometric quality, ICAO photo quality and potential fraud. If a photo fails for any reason, such as "left eye covered", "blurry" or "not a match" against one-to-one or one-to-many comparisons, it alerts the operator that the photo may not be able to create a facial recognition template and offers the options to recapture or to continue despite a potentially 'unenrollable' image.

The ICAO photo quality notification shows the image captured and the reasons it failed the quality check metrics. These failed parameters are accompanied by numeric values related to the parameter or parameters in question. The operator is able to trigger a recapture or override the quality check because some subjects may never be able to pass. The same is true for 1:1 verification checks and overrides.

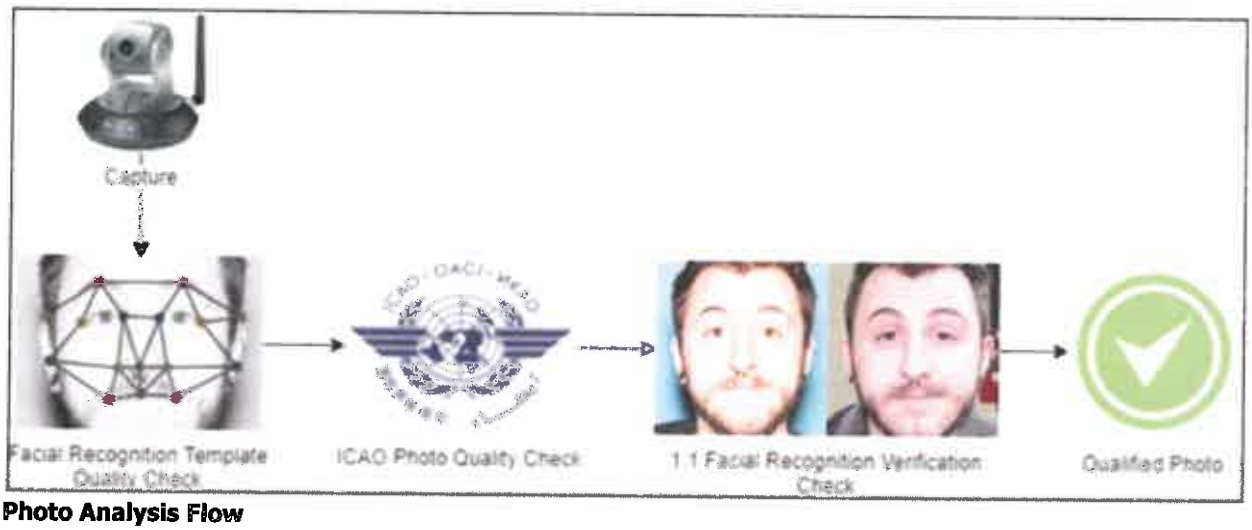


Photo Analysis Flow

WebLink ID utilizes configurable ICAO quality checks for cropping, it measures and positions all photos relative to eye location, adjusts for tilted faces, brightens or dims images; corrects for color, contrast, and saturation, removes red-eye, automatically focuses to correct for blur, coordinates a flash with the capture of the photo, and produces high resolution media ready for facial recognition matching.

Section 4, Subsection 4.2 - Central Issuance Facility Objective

Section 4, Subsection 4.2.1 - Vendor should describe a secure method allowing mobile device notifications for 'FOR FEDERAL' applicants, detailing the status of their credential from application to receipt.

Vendor Response: COMPLIANT

Should the state choose to implement a notification service to the customer, updating them of status changes to their application, Valid proposes the use of an SMS or text messaging service. This service would allow messaging to customer provided cell phones and text messaging devices. When a change to an application's status is received, depending on the status, a notification can be sent in real time, to the customer's listed number. The message updating the status will be defined and agreed upon, such that the messaging is clear to the customer. As Valid's solution is a service based, transactional, real-time system, creating an output message due to a status change transaction is inherently built into the system. Valid will integrate with existing or provide a new text messaging service based on the state's requirements.

Section 4, Subsection 4.2.2 - Vendor should describe a method for electronic notification to the Agency which proves that the applicant has accepted delivery of the 'FOR FEDERAL' Driver's License or ID. Vendor should describe this process, including all security measures to be implemented.

Vendor Response: COMPLIANT

Similar to the messaging service discussed above, system messages will be generated and will be logged for each system transaction. In the event the customer has opted for a 'Federal' driver's license, and due to the tracking placed on the mailing, notification from the USPS of delivery and signature will be received automatically as a transaction into the Valid database, and the application's status will be updated accordingly. In the event of a 'Received by Customer' status update, a notification can be issued via email, or other such method to the defined user group requiring these updates. The type, frequency, and delivery method of this update can be defined by the state and will be implemented by Valid.

Vendor should describe the process for Agency designated personnel to inspect the central issuance facilities during the life of the contract.

Vendor Response: COMPLIANT

Valid's ID/DL credentials are produced at High Secure Areas (HSAs) within Valid's secure personalization factories and we welcome inspection visits from our customers. These visits enable Valid to showcase our many capabilities and the extensive physical and logical security inherent in our Card Personalization Factories (CPFs).

Valid employs 7 full-time guards and one supervisor who monitor each Card Personalization Facility while secure operations are being conducted. While operations are shut down, Valid's factories use a third-party service who monitors for fire and intrusion. Inside Valid's HSA's there are CCTV, motion sensors, glass break detectors, and card readers. Access is managed by ID access cards; and access is granted on least-privileged methodology. The card access system has dual controls, "hold open" and "dead-man alarms." Each full-time employee is assigned a set of credentials that can be traced back to them.

If WVA DMV wishes to inspect one of our facilities, throughout the life of the contract, we only require the following: with 48 hours' advance notice, submit a list of names and contact information of the WVA representatives who will be attending the facility inspection. They will be pre-registered and must show two forms of ID upon arrival. They will need to follow our visitor rules and guidelines, which will require a Valid escort at all times. The notice requirement is mandated by our PCI certifications. We hope you agree that these are reasonable precautions to maintain our security.

Valid maintains a Security Plan that addresses the physical security of our Card Personalization Facilities. It is a confidential document; but authorized DMV readers are welcome to review it.

Section 4, Subsection 4.3 - Card Images

Section 4, Subsection 4.3.1 - Vendor should describe how cards printed at the secure central issuance facility will be imaged (front and back) after printing and before being attached to the card carrier. Card images should be stored as JPG files as part of the credential issuance system (CIS), and should be retrievable as part of the customer's central issuance record.

Vendor Response: 

Valid's solution complies with this request. Card images are used as part of our issuance process, and they are stored as part of the transaction, as JPG files. These files are made available for viewing in WebLink ID once captured, and they can be retrieved as part of the customer's central issuance record.

Section 4, Subsection 4.4 - Card Design

Section 4, Subsection 4.4.1 - While the specific designs for each card type will be determined during the planning phase after contract award. The Vendor should propose a solution for the FOR FEDERAL Driver's License and a FOR FEDERAL Identification Card for evaluation, based on 2016 AAMVA DL/ID Card Design Standard (http://www.aamva.org/2016CardDesignStandard/) and West Virginia Code § Chapter 17B Motor Vehicle Driver's License (http://www.legis.state.wv.us/wvcode/Code.cfin?chaE17b&art=1)

Vendor Response: 

Valid's WVDMV solution takes advantage of Valid's end-to-end printing, card body production and personalization capabilities. Let us explain:

- The REAL ID Act of 2005 (the Act) imposes a number of requirements on states wishing to issue compliant documents. Only a few of these requirements are related to the physical document itself. Most of the requirements are related to the issuance process. For example, § 37.11(a) requires that an image for each applicant be captured and retained, even if a document is not issued. This is commonly interpreted as the "photo first" requirement. In § 37.13(b)(1), an applicant's SAVE (Systematic Alien Verification for Entitlements) status must be verified and in § 37.13(b)(2) an applicant's Social Security number must be verified before issuance. AAMVA has provided a Full Compliance Checklist Template enumerating fully thirty-nine requirements that a jurisdiction must meet to be fully compliant with the Act. Only seven of the listed requirements apply to the physical DL/ID card itself.
- In Valid's proposed solution, REAL ID documents would only be centrally-issued from two of Valid's secure personalization facilities. § 37.41 requires a documented security plan be in place. These plans call for secure destruction of spoilage, waste, and collateral materials such as used printer ribbons.

- AAMVA DL/ID Card Design Standard describes nine threat categories against which jurisdictions must protect themselves from. Falsification of documents by cannibalizing them or altering them in an effort to promote an ID, for example, to a DL is a serious concern. Valid's proposed solution attacks this weakness at a fundamental, core stock level. REAL ID documents will have different artwork for adult and minor versions of driver's licenses and identification cards. The same constructions and security features will be present in all cards, but the artwork used to produce them will vary from card type to card type, making the path for a fraudster to promote a document to a higher form very difficult.

Developing a new card design is one of the most critical components of the DL/ID delivery project. Reaching consensus on visual elements and security features is a collaborative effort among Valid, the WVDMV design team, and other state stakeholders whose input must be considered. In every central issuance project, collateral items such as temporary licenses, card carriers, inserts and even envelopes need to be considered. Therefore, design activities begin soon after contract award and proceed stepwise with incremental reviews and approvals until all components have been designed, proofed and approved.

Our Card Design team will work closely with WVDMV to insure all requirements have been met, including meeting the most current release of the AAMVA DL/ID Card Design Standard as well as any jurisdiction-specific requirements.

In addition to AAMVA, a number of sanctioning bodies have promulgated ID standards including ISO/IEC, ANSI/INCITS and ICAO. Valid will help WVDMV navigate this alphabet soup to insure that image capture, sizing and placement, endorsements, restrictions and even card service life meet expectations, as we have done for other state agencies in the past.

After the card design and any manufacturing and/or personalization customizations have been finalized and tested, we will provide sample cards, which WVDMV may submit for testing under AAMVA's Courtesy Verification Program.

A common requirement of most sanctioning bodies is that adult cards and minor cards must be oriented differently. We will produce two formats for most of the specified card types – a vertical (portrait) format for those under twenty-one (21) years of age, and a horizontal (landscape) format for those over twenty-one (21). The cards will all display the headers, data arrangements, and security features cited by WVDMV. Further, Valid will create additional designs as negotiated for employee badges, access cards, handgun permits, etc.

Section 4, Subsection 4.4.2 - Vendors card design solution should include a version number.

Vendor Response: COMPLIANT

Valid's Card Design solution approaches versioning from two perspectives. The first perspective, AAMVA's, requires that the version, signified by the revision date, be printed on the face of the card and be included within the PDF417, 2D barcode printed on the back of the card. This revision date changes whenever there is significant change made in the card design. The second perspective, exclusively Valid's, is that the job number of the press run used to perform the security printing is embedded in a specific location in the microprint. This embedded data serves as an additional security feature in that only WVDMV and Valid will know the valid job numbers.

Section 4, Subsection 4.5 - Card Carriers

Section 4, Subsection 4.5.1 - The Vendor should provide at least one (I) card carrier design.

Vendor Response: COMPLIANT

As part of the card design phase of the project, Valid's Card Design team will work closely with WVDMV to design a carrier for the ID/DL cards produced at the Central Issuance facilities. This carrier can contain graphics and variable messaging in addition to the required data such as the mailing address and Intelligent Mail barcode.

Section 4, Subsection 4.5.2 - System should affix the credential to the appropriate card carrier.

Vendor Response: COMPLIANT

The mailing systems used by Valid read the 1D barcode printed on the card and a 1D barcode printed on the carrier, immediately prior to affixing the card to the carrier. If the two barcodes do not match, the card is not affixed and the mailer immediately stops. It cannot be restarted until the error is corrected. To date, Valid has not experienced a single card/carrier mismatch since that equipment was placed into production.

Section 4, Subsection 4.5.3 – Adhesive used to affix the card carrier should be strong enough to hold the card through the mailing process but be easily removed by the applicant.

Vendor Response: COMPLIANT
In Valid's mailing systems, a double-sided adhesive label is used to affix the card to the carrier. The adhesive on the paper side of the label is more aggressive than the adhesive on the card side of the label. This enables the applicant to easily remove the card from the carrier without residue remaining on the card. One end of the label has no adhesive applied so that in the unlikely event that the label adheres to the card instead of the carrier, the edge of the label can be easily lifted to remove it.

Section 4, Subsection 4.5.4 - Changes to the card carrier designs should be allowed two (2) times per year.

Vendor Response: COMPLIANT
Valid's carrier designs include certain data fields as would be expected for mailing – names, addresses, etc. Certain discretionary fields, barcodes and images can be added whose content can be passed to the mailing system at the time the machine control files are created. This enables a significant level of variability without making an actual design change. During the card design phase of the project, Valid's Card Design team will develop a carrier design that meets WVDMV's requirements and which will enable future modification with minimal effort. Valid can readily accommodate such changes to the card carrier designs twice per year.

Section 4, Subsection 4.6 - Card Durability

Section 4, Subsection 4.6.1 - Card materials should have a guaranteed life of five (5) years against breakage or significant deterioration or degradation of the data on the front and back of the card.

Vendor Response: COMPLIANT
In 2012, the International Organization for Standardization (ISO) released standard ISO/IEC 24789-1 and 24789-2 for Card Service Life. In 2015, the American National Standards Institute (ANSI) and the International Committee for Information Technology Standards (INCITS) released their corresponding standard 440-2015, Card Durability/Service Life. The standards are similar and provide guidance for objectively estimating card service life based on a handful of predictive tests including flex life, abrasion resistance, and fade resistance, amongst others. In general, the longer the required service life, the higher the expected performance in each predictive test. Valid periodically submits typical cards for independent, third party testing, and on the basis of those tests, can state confidently that the construction offered in this proposal is suitable for card service life in excess of five years, and will hold up against breakage, significant deterioration or data degradation on the front and back of the card.

Section 4, Subsection 4.6.2 - For any individual card not lasting the five (5) years, the Vendor's sole liability should be to provide a credit to a subsequent invoice.

Vendor Response: COMPLIANT
Valid fully understands the DMV's concern, and will provide a replacement card to WVDMV at no cost, via a credit to a subsequent invoice, for any card lasting less than five (5) years.

Section 4, Subsection 4.7 - Quality Assurance (QA)

Section 4, Subsection 4.7.1 - The Vendor QA process should guarantee that 100% of all cards mailed will be free from any defect in printed data or card design features, incorrect data, incorrect card type, and card materials must be free from any material defect.

Vendor Response: COMPLIANT
Valid's quality efforts may be loosely divided into two groups – preventive, which are thought of as Quality Assurance (QA) and containment, which are thought of as Quality Control (QC). Both are equally important. QA includes all of the efforts the company makes to prevent the creation of defective cards. QC includes all of the efforts the company makes to detect defective cards, if they do occur, through testing and quality checks. QC also serves to verify that the efforts made as part of the QA process are effective.

Valid's QA efforts are centered primarily on product and process design. Our objective is to create card production and personalization processes that are robust and inherently defect free. These efforts include vendor appraisal, design reviews, process mapping, Failure Mode and Effects Analysis and extensive training and preproduction simulation and testing. Each product and/or process follows a carefully designed, gated release process. Each "gate" consists of a formal review against design objectives for that gate. If the design objectives have not been satisfied, the gate is not passed and the release process stops – awaiting resolution of the non-conformances. Only after the product and/or process has been fully vetted is it released for supervised production.

Valid's QC efforts are centered around fully integrated process management. Everything we do is a repeatable process. That is, inputs are gathered, acted upon, and outputs are created. Sometimes the inputs and outputs are physical – they can be seen and touched. Sometimes the inputs and outputs are simply information. In all cases, they are measured and tested for conformance to specification, and for "likelihood". In other words, whether or not the output under consideration conforms to specifications, based on previous measurements, is the current measurement statistically likely. If it is not, that becomes an indicator that the process in question requires further examination. Valid strives to ensure that process outputs are always as predicted by carefully controlling process inputs, monitoring process outputs as indicators that process inputs are, in fact, under control. We utilize manual inspections and measurements at key points in each workflow, as well as automated, camera-based inspections where appropriate. For example, camera-based inspection modules are installed in central issue personalization equipment that perform visual inspections of key fields, automatically diverting any cards that fail to conform to specification.

As a result of the above efforts, Valid states with 99.99% certainty, that all cards mailed will be free from any defect in printed data or card design features, incorrect data, incorrect card type, and card materials will be free from material defects.

Section 4, Subsection 4.7.2 - The Vendor QA process should ensure that the correct image is printed on the card and that the image quality meets or exceeds ICAO standards.

Vendor Response: COMPLIANT

Primary portraits and ghost portraits for centrally issued cards are verified by camera-based inspection modules contained within each personalization system. After all personalization operations have been performed, a camera system examines the card. It captures an image of the printed portrait, converts it to a grey scale image, identifies the edges in the grey scale image, rescales the captured image to the same size as the source image and compares the edges in the two images. If the number of pixels that do not correspond exceeds a configurable threshold, the image is deemed "different" and the card is rejected.

Source image

As good as it is, camera-based inspection is not perfect and occasionally, defects that are readily apparent to the human eye are overlooked by the camera. For this reason, every card is manually inspected after it has been personalized and inspected by the camera-based inspection system. In this way, Valid's QA process ensures that the correct image is printed on the card and that the image quality of each card produced meets or exceeds ICAO standards.

Converted Image with Edges

Section 4, Subsection 4.7.3 - The Vendor QA process should guarantee that 100% of card carrier forms produced will be of high quality with professional printing, as determined by the Agency.

Vendor Response: COMPLIANT

One of the precepts of Valid's card manufacturing and personalization processes is that cards be handled as little as possible. Handling induces damage – scratches, smudges, fingerprints, etc. Handling is also an opportunity for mismatches – data mismatches within a card and card/carrier mismatches. We strive to never touch the card and carrier once they have been merged in the mailing system and can only achieve this by:

- Use high-resolution carrier printers. Valid operates state-of-the-art high-speed, high density inkjet printers.
- Use only high-quality carrier paper. Valid uses heavy weight, paper suitable for offset printing.
- Use automated card and carrier matching technology. Valid's mailing systems compare the card's 1D barcode to a corresponding barcode printed on the carrier immediately, prior to affixing to verify the card and carrier match.
- Use sensors in the mailing system's inserter to detect double feeds, insertion errors, incorrect materials, etc.

As a result of the above efforts, all card carrier forms produced will be of high quality with professional printing, as determined by the Agency.

Section 4, Subsection 4.7.4 - Card Carrier form should not be smudged, wrinkled, torn, or otherwise damaged during the production process.

Vendor Response: 

Valid will not mail out any card carrier that is smudged, wrinkled, torn or otherwise damaged during the production process. Our QA process will monitor the card carriers for defects as they go through the imaging, card affixing and mailing steps. Any card carrier that doesn't meet standard or was damaged during production process will be discarded and replaced.

Section 4, Subsection 4.7.5 - Envelopes for card mailing should be secure, properly sealed, and not smudged, wrinkled, torn, or otherwise damaged in the production process.

Vendor Response: 

Valid will provide WVDMV secure, properly-sealed envelopes. Our QA process will monitor the envelopes for defects as they go through the sealing and mailing steps. We will not send any envelopes to the USPS that are smudged, wrinkled, torn, or otherwise damaged.

ON-PREMISE

Section 4, Subsection 4.8 - Facility Image & Signature Capture Workstation ("ICW") Objectives

Section 4, Subsection 4.8.1 - Vendor should explain the entire process their proposed solution will use to handle new applicants. This should include how the information will be collected, both digital and physical documents, and the equipment required to produce the secure temporary DL/ID, and the material used.

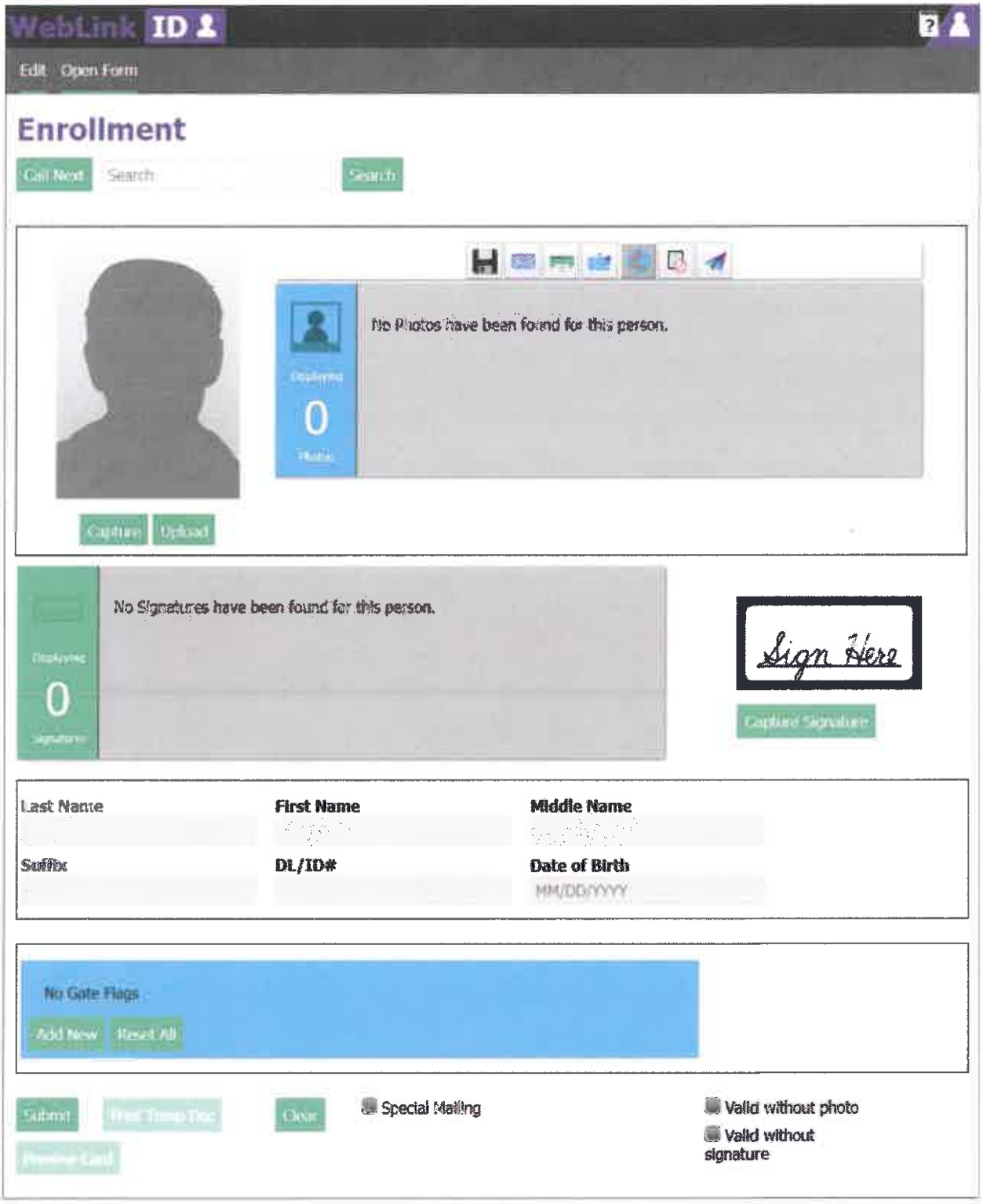
Vendor Response: 

The Valid proposed solution is a customizable workflow engine. Valid will work with the DMV to define the steps for enrollment, in the order in which the DMV decides is the best process for its operations and customer flow. The enrollment process can be broken down into the following steps, beyond the photo first requirement of REAL ID, can occur in any order the DMV desires.

1) Capture of initial photo.
    a. Customer, upon approaching the workstation, has their photo taken. This does not have to be the final photo, but can be an initial image retained.
    b. The photo is processed to ensure it is a good image using ICAO standards as a guideline for image quality.
2) Customer identified.
    a. The DMV employee will attempt to identify the customer, what service they are visiting

for, and do they already have a record on file.
   b. If a record already exists, the operator can begin with data from that record, minimizing the need for duplicate data entry.
   c. If it is a new customer, data entry begins.
3) Data entry.
   a. The employee will add all demographic data pertinent to the customer's requested service type.
   b. Each service type (ID, DL, 'For Federal' ID or DL, temporary, etc.) might have different data requirements.
4) Documents and Proofs
   a. All appropriate documents for the service type will be scanned into the web application.
   b. Documents which have data that can be verified through an existing AAMVA portal, will have that data manually entered and tied to the image of the document provided.
   c. Execution of the verification of those documents can proceed once the data is entered i.e. once the SSN card is scanned, and the SSN is entered, the AAMVA SSOLV portal can be utilized to verify the SSN.
5) Additional Image and Signature Collection
   a. It is common for signatures to be gathered as part of the application finalization process.
   b. A customer facing form is presented on the signature table, for the customer to acknowledge and sign. This form can include legal attestations, voter information, organ donor options, and other agreements the state might wish the customer to attest to, before executing a digital signature.
   c. In the event the initial photo was not properly taken, or was not of decent customer preparedness, a final photo can be taken, ICAO and 1:1 verified, and then sent for enrollment into the facial recognition engine.

Once the above steps have been accomplished, as well as any additional steps the state might wish to implement, the customer's record will be sent on to the gated issuance process. Gated issuance will control additional back end verifications needed before the record can be sent to print. The Valid solution allows for these processes to be aligned with what the DMV wishes to occur, in which order. As detailed in 4.8.3 below, the hardware required consists of a camera solution, a signature pad, and a sheet fed document scanner.


WebLink ID
Edit Open Form
Enrollment
Call Next
Search
Search
No Photos have been found for this person.
0
Capture
Upload
No Signatures have been found for this person.
0
Sign Here
Capture Signature
Last Name
First Name
Middle Name
Suffix
DL/ID#
Date of Birth
MM/DD/YYYY
No Gate Flags
Add New
Reset All
Submit
Clear
Special Mailing
Valid without photo
Valid without signature

Section 4, Subsection 4.8.2 - Vendor should describe the capabilities of the proposed image capture device. Description should include:

4.8.2.1 How live video of the applicant will be displayed.

Vendor Response: COMPLIANT
WebLink ID displays a live video of the applicant before an image is captured. This enables the DMV operator to ensure that the picture is aligned and looks correct.

4.8.2.2 How the employee can perform configuration ICAO checks and how these results will be returned to the employee

Vendor Response: COMPLIANT
Our proposed solution includes a software enhancement that provides a series of automatic ICAO checks, and then captures ICAO-compliant images, with minimal operator intervention. For example, if there is an issue such as a photographed subject looking away from the camera, or if his or her face is covered with hair or a hat, then the automatic ICAO checks will flag that for the operator.

The image above has a red outline around the person, signifying an error, in this case it is a hat detection.

4.8.2.3 How an employee can recheck for ICAO compliance after manual adjustments

Vendor Response: COMPLIANT
WebLink ID enables WVDMV employees to accept the image once all ICAO checks are successful. Failed

ICAO checks enable operators to make manual adjustments by recapturing the photo or overriding the failed check (option: allow only Supervisors to override the failed transaction) and save the failed photo. Once a WVDMV employee has made manual adjustments, he/she must recheck for ICAO compliance.

4.8.2.4 How checks will be configurable to allow the Agency's system administrator to select the specific ICAO checks to be enabled.

Vendor Response: COMPLIANT

The ICAO (ISO 19794-5) capture plug-in produces high-quality, consistent images, making the facial recognition algorithm more accurate during 1:N comparisons. BioLink ID supports ICAO compliance checks that are configurable to enable the WVDMV system's administrator to select the specific ICAO checks to be enabled, and to ensure that manually-uploaded images are consistent.

4.8.2.5 How checks will be configurable to allow the Agency's system administrator to select the specific ICAO checks where overrides are allowed.

Vendor Response: COMPLIANT

Within the ICAO (ISO 19794-5) capture plug-in, all checks are configurable to enable the WVDMV system's administrator to select the specific ICAO checks where overrides are allowed. These checks can be enabled or disabled, as well as thresholds set (for the checks that support thresholds). These values are system wide, with local override options, such that each camera can be adjusted. These values require administrative access to be adjusted, as they should not be employee set values.

Section 4, Subsection 4.8.3 – DMVI - Vendor should explain the process and provide a detailed list of hardware the proposed solution will use to capture images and signatures when communication with the central image/demographic system is off-line. The system should be able to link new data and images to existing records when communication with the sender is restored.

Vendor Response: COMPLIANT

Valid's proposed solution, as highlighted in 4.8.1 above, uses a single web-based application to enroll the applicant's data and required photo, signature, and document images. The web application communicates with the hardware on the ICW listed below. Should the state wish to separate the hardware, such that photo capture occurs on a different workstation than signature or document capture, the customizable workflows support this differentiation.

The following hardware is required for the implementation of the Valid-proposed solution. The items listed are needed for the Image Capture and Enrollment stations.

Camera Tower (image might not be representative of tower provided)	

Offering exceptional speed, quality and ease of use for moderate to high-volume image capture. Includes:

- **Secure Capture tower**: A secure, durable design housing an 8-megapixel digital camera and high-intensity flash.
- **Photo software:** Intuitive software application that automates capture and cropping processes.

Specifications	
Physical Dimensions	• Tower: 13" x 32" • Base plate: 8" x 8"
Weight	22.0 lbs. (10.0 kg)
Flash Life	Designed for 250,000 flashes
Flash Recycle Time	• 5-second maximum for retakes • 20-second enrollment cycle
Effective Flash Distance	6 – 15 feet
Camera Resolution	8 megapixels
Non-skid Base Surface	Security mounting at base of unit for bolting to countertop or desk
Power Source	100/120 VAC 60 Hz
Connectivity	USB 2.0 high-speed compatible
Operating Conditions	• 60° F to 95° F • 20% to 80% relative humidity (non-condensing)
Safety	• National Recognized Test Lab (NRTL) for US • Safety Counsel for Canada

Topaz T-LB57GC	

The Topaz SigGem® Color 5.7 is an advanced electronic signature pad with 5.7 inch, full-color TFT VGA (640x480) LCD that captures and display. With the Topaz SigGem® Color 5.7 we can provide interactive text, graphics, and pen-tap hotspots and checkboxes to enable citizens to navigate screens, read agreements, and select preferred options before signing. This is an advanced electronic signature pad with a large, rugged signing area for long life; it has full-color LCD display to support customization; has high quality biometric and forensic capture features; and it captures and displays 'electronic ink' under the pen tip to produce a natural signature.

Valid selected the Topaz SigGem® Color 5.7 for this project in order to combine an interactive LCD signature capture system with the rich color text and graphics, because we believe DMV will need its citizens to be able to view text, data and graphics as well as gather from them accurate information and signatures.

Specifications	
Sensor Type	• Tempered glass surface • Rated to 2 million signatures • High-performance E/M digitizer
Pen Type	• Active low-power, rugged E/M • Battery-less • 1024 pressure level option
Resolution & Conversion Rate	• Exceeds industry standards • Programmable PPI
Data Encryption	AES optional, FIPS-197 compliant
Dimensions	Small Footprint (7.2" x 6.6" x 2.1" sloping)
Signing Area	4.6" x 3.4"

Xerox DocuMate 3125 Scanner	

The Xerox® DocuMate® 3125 color desktop scanner Automatic Document Feeder (ADF) handles everything from business cards to A4/Letter size documents. The small footprint and fits comfortably on any desk (especially when folded closed).

Specification	
Image Enhancement Technology	Visioneer Acuity
Weight	5.1 lbs.
Simplex or Duplex	Duplex (two side scanning)
Interface	USB 2.0 (3.0 compatible)
Optical Resolution	600 dpi
ADF Capacity	50 sheets (20 lb. paper)
Visioneer OneTouch Technology (PC)	Yes
Duty Cycle	3000 pages/day
ADF Maximum Paper Size	8.5" x 38"
Dimensions	11.2" x 6.5" x 6.7"
Output Bit Depth	• 24-bit color • 8-bit grayscale
Light Source	LED
Drivers	• PC: TWAIN, WIA, ISIS • Mac: TWAIN, ICA
Supported Operating Systems	• Windows 10, 8, 7, Vista (OneTouch 4) • Windows XP (SP2)
Imaging Sensor	Contact Image Sensor
Paper Thickness/Weight	13 to 32 lbs.
Power Supply	External
Power Consumption (active)	≤ 30 Watt

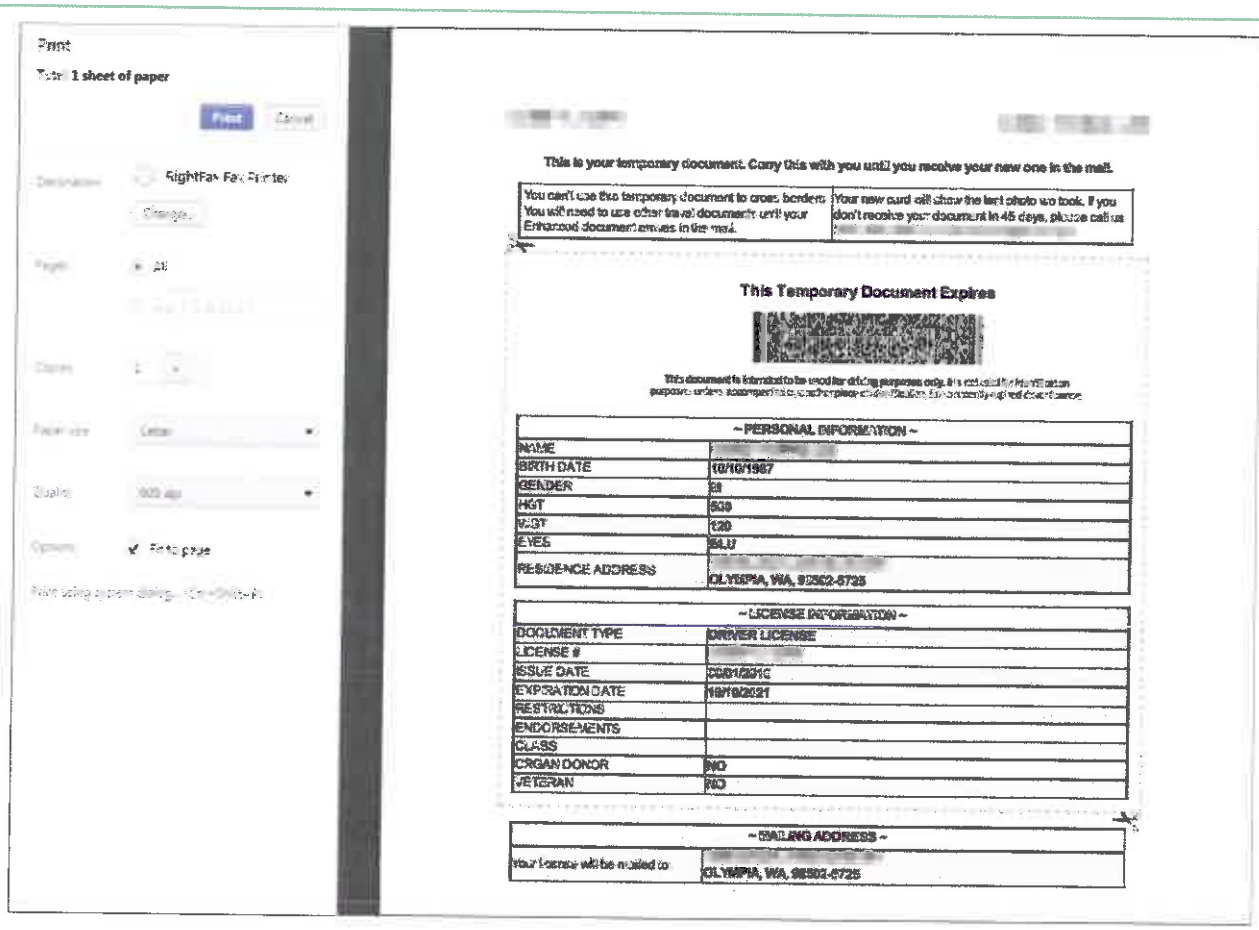
Power Supply Input Voltage	100 – 240 V~
Power Supply UK/Europe Plugs	Yes
Power Consumption (standby)	< 10 (<5.3 in power-safe mode) Watt
Speed @ 300 dpi, b&w, grayscale, or color	25 ppm / 46 ipm
Speed @ 200 dpi, b&w or color	40 ppm / 70 ipm

Section 4, Subsection 4.9 - Secure Temporary DL/ID

Section 4, Subsection 4.9.1 - Vendor solution should produce a secure temporary driver's license with the applicant's image and signature.

Vendor Response: COMPLIANT

The Valid solution features the ability to produce a secure, temporary driver's license credential with the applicant's image and signature. The design of the secure temporary credential will be defined by the state, and should follow the REAL ID guidelines as to not be representative of the final credential (no picture of what the driver's license will look like). The image shown below is of a redacted temporary id, which contains the AAMVA 2-D barcode. Image of person and signature could be added.



Section 4, Subsection 4.9.2 - Vendor solution should print a temporary DL/ID from the Vendor' s image and signature capture workstation or from a Vendor web application accessed from the Agency's workstations.

Vendor Response: COMPLIANT

Valid can print a temporary driver's license from its image capture workstation, or via a web-application accessed from the Agency's workstations. No specialized printing equipment will be required to print our proposed secure temporary driver's credential. Temporary driver license credentials will be printed in black and white using a standard laser printer provided by Valid.

Section 4, Subsection 4.9.3 - If the print request is triggered from the ICW, the printing of the temporary DL/ID should be automatic and should not require employee action.

Vendor Response: COMPLIANT

Valid agrees with the above statement. Valid's solution enables automatic printing of a temporary approved credential, without user intervention. Additionally, Valid has developed the business logic to define the temporary credential's validity dates.

Section 4, Subsection 4.9.4 - In event of a printing error, the Vendor solution should include a function for reprinting the temporary DL

Vendor Response: COMPLIANT
In the event that a reprint of the temporary credential is needed, Valid's solution includes a function that enables the reprint of that temporary credential, easily and effortlessly. WebLink ID logs each temporary document printed by a DMV user including reprinted temporary documents. The action for each print or reprint is displayed in the WebLink ID Card Management workflow which displays each issuance's complete lifecycle: front office actions for image capture and any applicable ICAO and 1:1 overrides; temporary document(s) printed; facial recognition success or failure; other gated issuance activity; and real-time Valid-hosted factory production information.

Section 4, Subsection 4.10 - Consumables for Secure Temporary DL

Section 4, Subsection 4.10.1 - Vendor should provide a system for electronically ordering and tracking the secure paper stock for use in each of the Agency's 27 locations.

Vendor Response: COMPLIANT
Valid agrees it will provide either a common API interface for inventory system data requests, or daily inventory system data publications to a defined data store for access by WVDMV reporting and auditing systems. In this way we can enable the efficient ordering and tracking the secure paper stock for each location. The type and frequency of the requests will drive the best interface type for WVDMV, these requirements will be defined during the appropriate project phase.

4.11 Signature Capture

Section 4, Subsection 4.11.1 - Vendor solution should allow for the capture of a true representation of the applicant's written signature.

Vendor Response: COMPLIANT
WebLink ID captures true representations of the applicants' written signatures using a Topaz signature tablet. WebLink ID stores signatures as standard Windows image formats.

Section 4, Subsection 4.11.2 - Vendor solution should allow applicant to clear and sign again.

Vendor Response: COMPLIANT

Our solution, WebLink ID, enables the applicant the ability to clear and sign again. It is very easy to do. Refer to the following applicable step within WebLink ID.

Click the Capture button.

The applicant signs their name on the signature pad. When the person is done signing their name, the output displays. If the signature is not acceptable, or the entire signature was not captured, select the Capture button again.

Section 4, Subsection 4.11.3 - Vendor solution should display a live signature on the workstation for the employee to view.

Vendor Response: COMPLIANT

During capture, the WVDMV employee can view the signature captured for acceptance or re-capture, as necessary. The image shown above in 4.11.2 is what the employee will see within the application, on their screen.

Section 4, Subsection 4.11.4 - Vendor solution should allow employee to freeze and accept signature on the workstation, over-riding the clear selection on the signature pad.

Vendor Response: COMPLIANT
The captured signature can be viewed by the WVDMV employees on their workstations; it can be frozen once accepted; and it can be exported. Additionally, the WVDMV employee has the ability to override the clear selection on the signature pad to complete the transaction in case there is no signature or it is not accepted by the system.

Section 4, Subsection 4.11.5 - Vendor solution should allow employee to clear signature to allow the applicant to Sign again.

Vendor Response: COMPLIANT
WVDMV employee has the ability to clear the applicant signature by clicking on the "Capture" button within the WebLink ID New Signature screen.

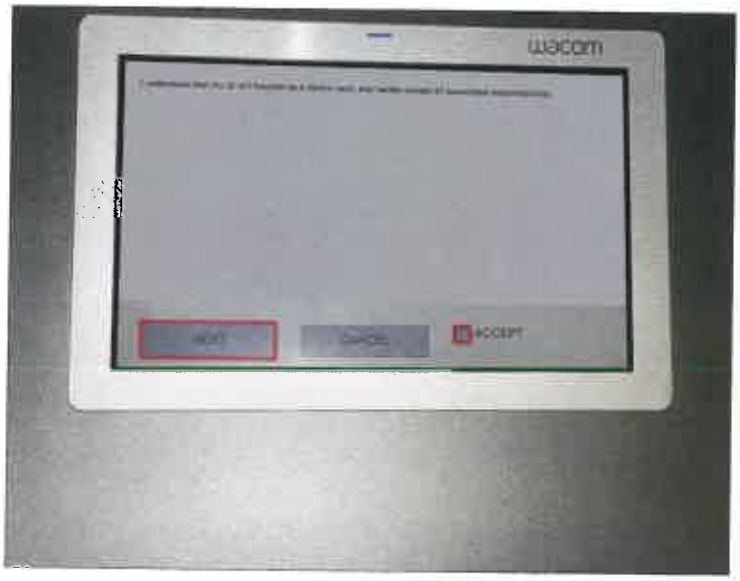
The New Signature dialog box re-displays.

Section 4, Subsection 4.11.6 - Vendor solution should allow employee to select "Unable to Sign" for those applicants who are unable to provide a signature.

Vendor Response: COMPLIANT
WebLink ID supports a 'valid without signature' option which removes the applicant's need to sign. Selecting this option is a logged event, to provide visibility to WVDMV.

Section 4, Subsection 4.11.7 - Vendor solution should allow for the display and recording of responses to questions prompted on the signature capture device.

Vendor Response: COMPLIANT
Valid's proposed signature solution is capable of displaying text and questions on the device, and it can record those entries as part of the application. Thus, the WVDMV can select an array of display text and queries to prompt the applicant, as needed.



4.12 Credential Issuance System (CIS) Objectives

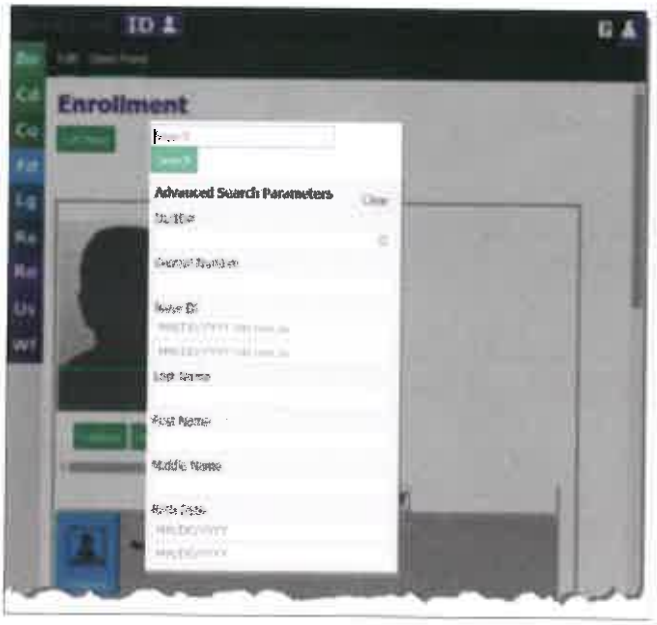
Section 4, Subsection 4.12.1 - Vendor should describe how their proposed solution will handle image and data retrieval for business related inquiries. This description should include:

4.12.1.1 How wildcard searches can allow for all data elements, including first character searches. Search results should be returned in a format that allows for easy sorting and selection of individual records to view.

Vendor Response: COMPLIANT

Valid's solution provides simple and advanced searching. With a simple search an employee can enter data into the search field (shown at the top of the window below) and execute a search against previously defined fields. This search does handle wildcard searches utilizing a special character, definable by the state (%, *, $ etc.).

Additionally, the employee can search a single field or combination of fields for a set of values, as shown in the advanced search window below. The operator is searching ONLY the last name field for the name 'spring', but could also enter 'j' into the first name field, searching for all records where first name begins with 'j' and last name begins with 'spring'.



4.12.1.2 How the application can allow for easy navigation between the search results list, individual detail records, and back to the search results list without searching again.

Vendor Response: COMPLIANT

Valid's solution fully complies with this requirement. Results of search criteria, or search results windows, can be modified to display the information (and images) needed for the operator to identify the proper record. Additionally, the search results window can be further filtered by each visible column of data, without needing to execute an additional search. The information visible on the search results window is configurable by the state.

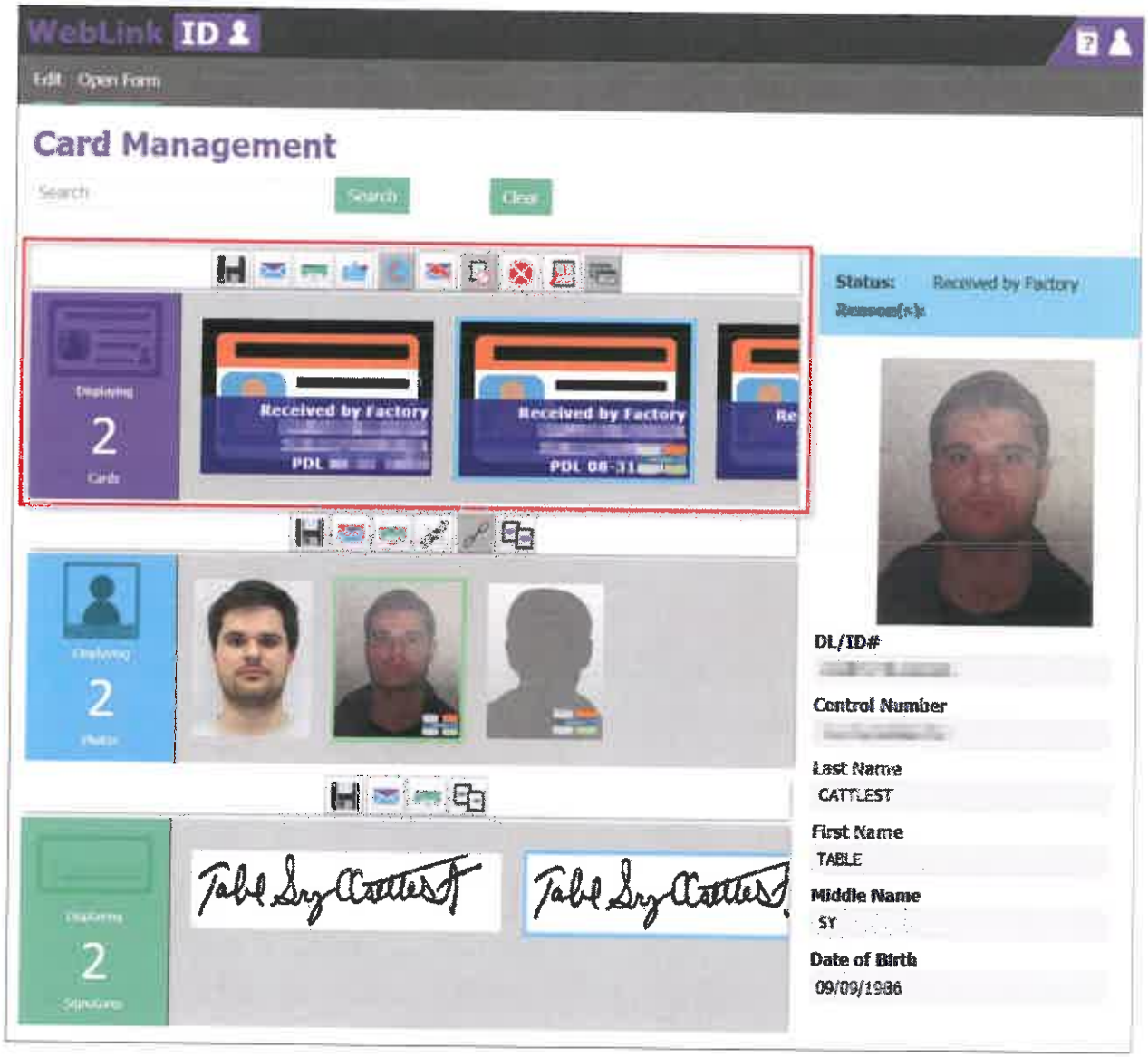
Search Results

WEST123456	235565345	EDL-RENEW	West	Adam	Ray	07/10/1991	1234 Dark Night Lane	1 BatCave Court	A123E
VTSAMPLE133	987654321	98	ACOSTA	MARICELA		10/10/1980	133 State Street		
ANTIQTC221NQ	33030694D1059	37	ANTIQUE	TUFTED	CHAIR	08/16/1978	DFSINTEG	DFSINTEG	
NAMEAAC421Q5	33030694D0941	33	NAME AND DOB	AGAIN	CHANGED	11/25/1958	DFS	PO BOX 456	

4.12.1.3 How the record detail screen can default to display data for the most recent issuance but allow selection of detail for historical issuances.

Vendor Response: COMPLIANT

Valid's solution fully complies with this requirement. The screenshot shown displays the current record, however the operator can select any previous record by simply clicking on the image of the previous cards, in the 'card history' window on the screen, which is the top row next to the purple box on the left. The card selected is the second card, highlighted in blue, with details about the issuance showing on the right hand side.



Section 4, Subsection 4.12.2 – Recovery from Power Outages or Communication Failures

Vendor should describe how their proposed solution will recover after power outages or communication failures. This description should include:

4.12.2.1 How in-process transactions in system queues will be able to restart.

Vendor's Response: COMPLIANT

In the event of a power failure, Valid agrees that software settings will be retained and will return to current settings displayed prior to the power failure. All regularly required statistical and audit transactions regarding applications in progress will be restored and will continue to function as if no interruption had occurred.

Valid's solution is designed such that interruption (power or otherwise) does not lead to a loss of progress when processing a credential application. In-process transactions in system queues will be restarted after power-up with no loss of transactions or data.

When a change is affected on the credential application, it is immediately saved and replicated to the other system in the cluster, and to the disaster recovery (DR) environment. Should the operator's system lose power, and they switch to a new workstation, the application data entered from the previous workstation will be immediately available. If the DMV branch office loses power, all applications being processed will be accessible when the office comes online again. As the data will be redundant between the primary production facility and the DR environment, if the primary facility loses power or connectivity, transactions can continue against the DR environment.

When the operator systems come online again, as Valid does not cache information on the client machines. The operator simply searches for and opens the application that was being worked when the power outage occurred. Search options can be defined by the State to include, but are not limited to, name, ID, DOB, to other credential applicant data.

Application software on the client machine is limited to the web browser, as such, the need to restart the browser can be removed, and it can be added to the start-up menu on the workstations.

In the event of a power outage in the data center, Valid provides UPS solutions, which give the servers time to shut down gracefully. When the data center receives power, the servers will restart, and all services, applications, and synchronizations will begin without DMV IT's need for involvement. No Valid service required for production will be executed manually or require manual intervention because of an outage.

As this is a web-based environment, the central server clusters contain the required statistical information, so that a single site or client system outage will not affect the accuracy of the statistical or audit data being collected.

4.12.2.2 How the system will roll back, if a transaction cannot be restarted.

Vendor Response: COMPLIANT

At each step of the enrollment process, the application data is committed to the data store. If there were a scenario where the transaction could not be started, this would be a database failure, not a web-application failure. Using appropriate and agreed upon backup and restore procedures for databases, incremental or full restores would be the restoring lost data. However, as the database architecture Valid deploys is redundant and replicated it would require all the database engines to fail for a transaction to not be able to be restarted.

4.12.2.3 How pending data will be stored locally and uploaded to the image server, once power or communication is restored.

Vendor Response: COMPLIANT

As depicted in section 4.1 system diagrams, Valid's proposed solution includes an 'Offline' server for each DMV office the state requires. The 'Offline' server will host the web-based application, and a local data store, which will collect the application data when the connection to the primary data center is lost. The 'Offline' server will constantly monitor connection status, and will replicate any data collected during offline processes to the primary solution database once online connectivity is regained. This process will a happen seamlessly without the need for operator intervention.

In the event of enrollment duplication, a person intentionally visits multiple locations knowing the system is down, or applications previously entered, but not finalized and duplicated with applications created during offline time windows, the Valid solution's facial recognition engine will catch the duplicate records. Back office staff will be provided the appropriate tools to decide which record is appropriate, if any, to allow issuance.

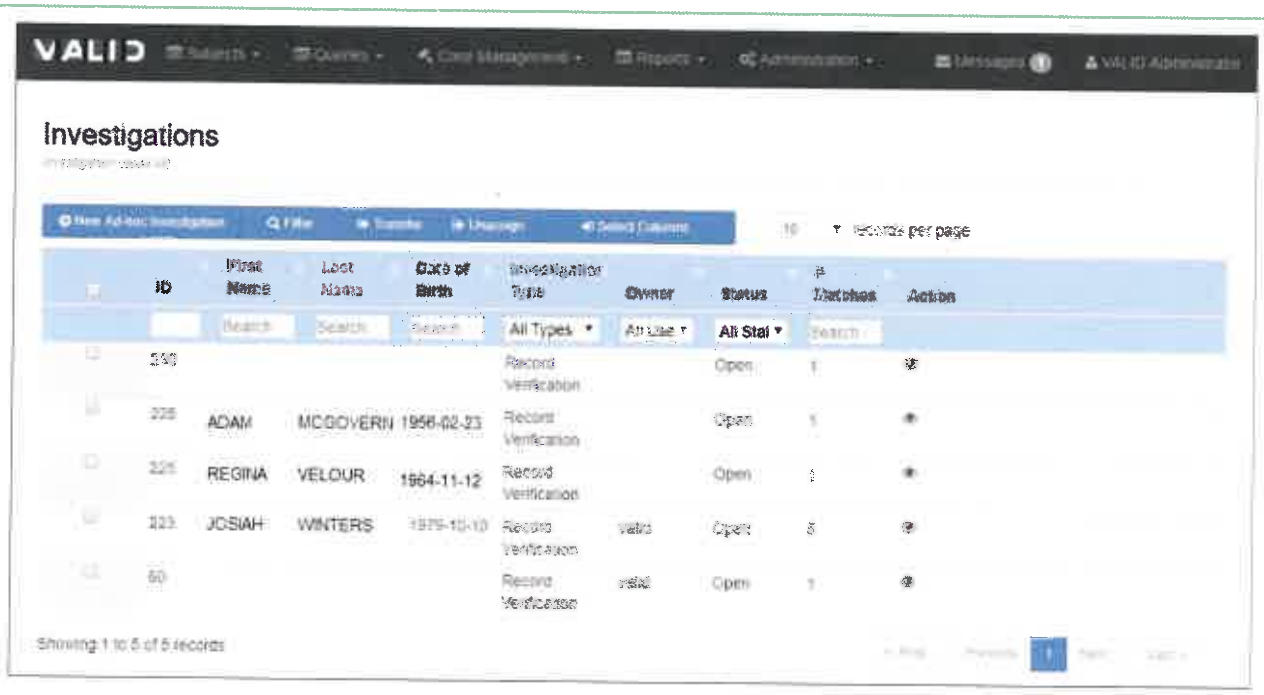
Section 4, Subsection 4.12.3 – Review and Fraud Case Management

Vendor should describe how their proposed solution will handle Review and Fraud Case Management. This description should include:

4.12.3.1 How the solution can provide a multi-tiered workflow for the manual review of match and non-match records, including priority queues.

Vendor Response: COMPLIANT

The Valid solution fully enables multi-tiered case management. Supervisors can assign or take control of facial recognition (FR) cases; and operators can work from a general queue or take ownership of a case, and can move case(s) to their own personal queue. In this way, operators can manually review both match and non-match records, including priority queues.



4.12.3.2 How all expedited records that have matches can go to a separate priority queue for same day manual review.

Vendor Response: COMPLIANT

The Valid solution can comply with this requirement for same day, manual review, by creating a queue for all record matches with an expedited flag. Working this queue can be controlled by permissions.

4.12.3.3 How all match and non-match records can display the facial image, signature and demographic information formatted in such a way as to highlight the differences in data between the records.

Vendor Response: COMPLIANT

The workflow interfaces can be configured to display any/all information requested, such as the facial image, signature or demographic information of both match and non-match records, in a customizable layout to best fit a given use case, such as highlighting the differences in data among the records. Below is an example of a case analysis showing limited fields. The fields and images displayed are configurable.

Section 4, Subsection 4.12.4 – Image Enrollment Management

Vendor should describe how the proposed solution will manage manual image enrollment applications. This description should include:

Vendor Response: COMPLIANT

Access to the manual image enrollment application will be controlled by username and password login with validation of appropriate permissions. The solution allows for ad-hoc or manual queries to be executed for investigative purposes, as well as adding those manual queries to the permanent collection, and including additional demographic data about the image.

4.12.4.1 How the Vendor solution will allow images that were not captured by the image and signature capture workstation to be uploaded to the system for comparison against images in the database.

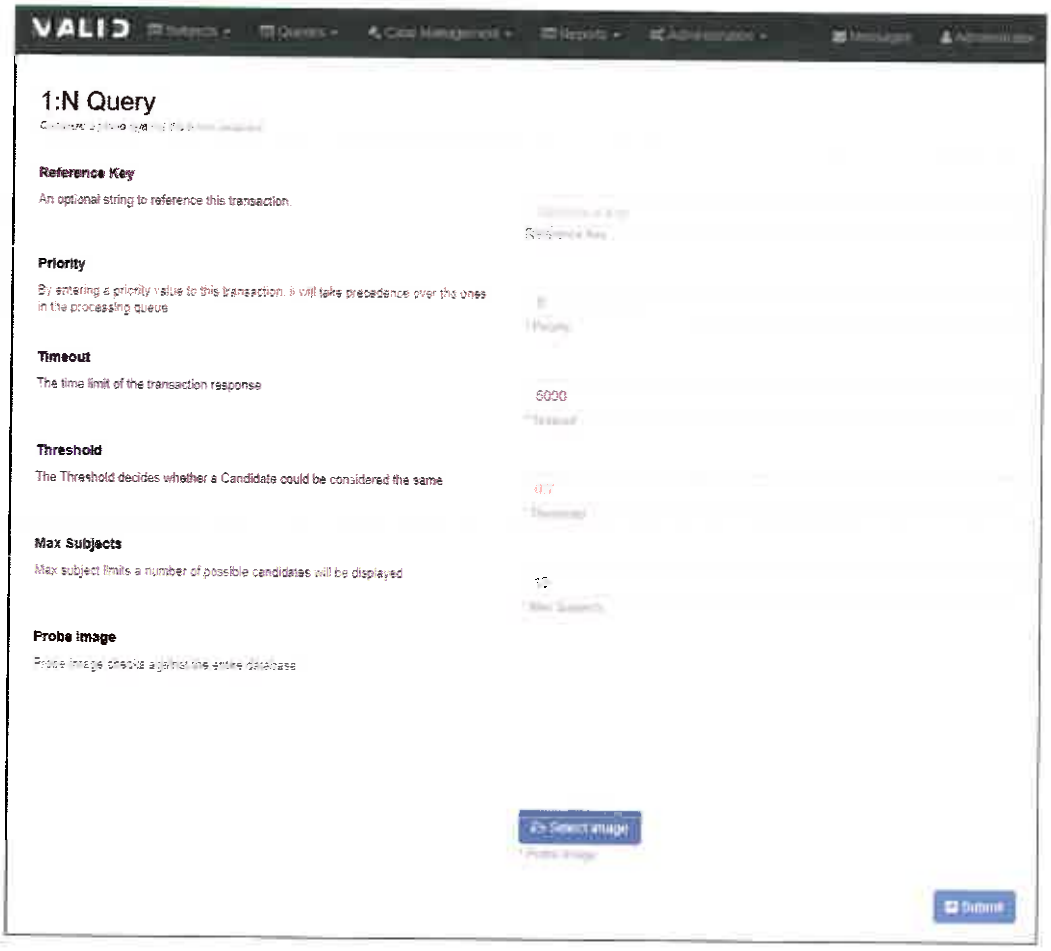
Vendor Response: COMPLIANT

The solution supports the ability to conduct ad-hoc image analysis and matching within its operator toolset. Images can be uploaded and instantly ran in a 1:N query, and adjudicated similar to applicant case management.

4.12.4.2 How the system will allow images of various file types to be uploaded into the manual enrollment application, including JPG, GIF, TIF, PNG, and BMP.

Vendor Response: COMPLIANT

The solution natively supports multiple image file types: PNG, JPEG, TIF, and BMP, and allows for quality and size variance. Below is a screenshot of how an ad-hoc or manual image can be loaded into the system for analysis:

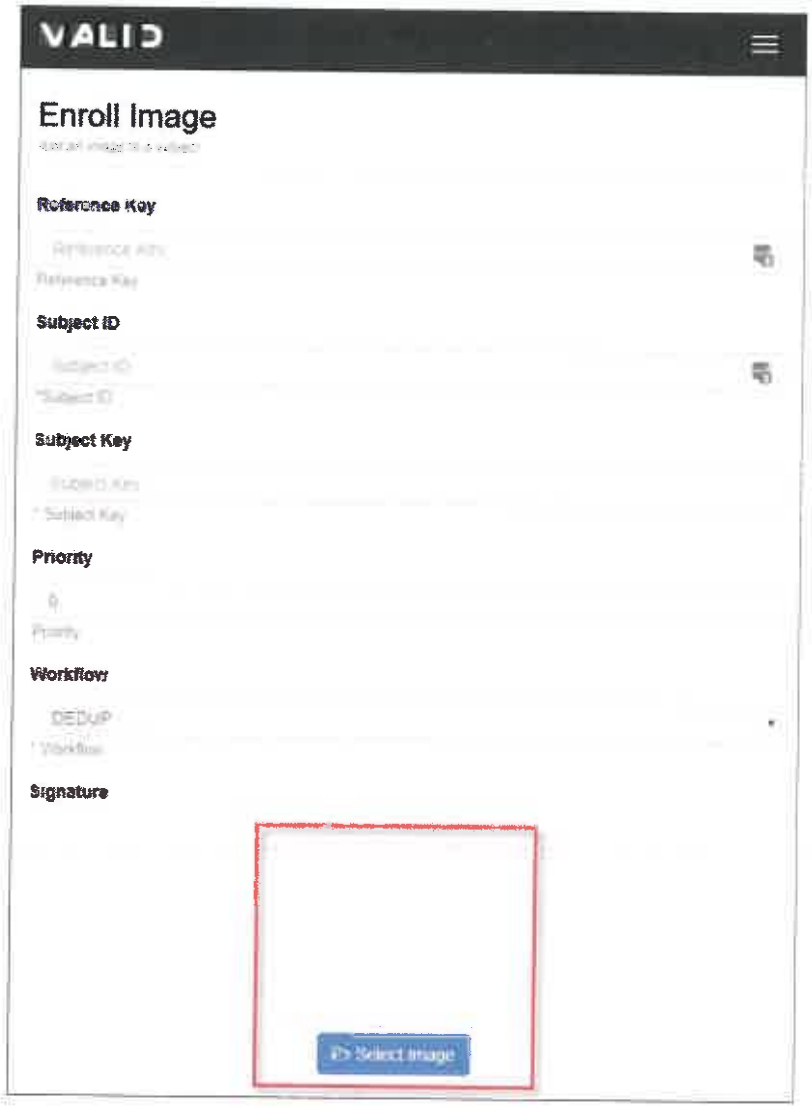


4.12.4.3 How the system will allow user to choose to keep uploaded images permanently enrolled in the facial recognition system with appropriate demographic data.

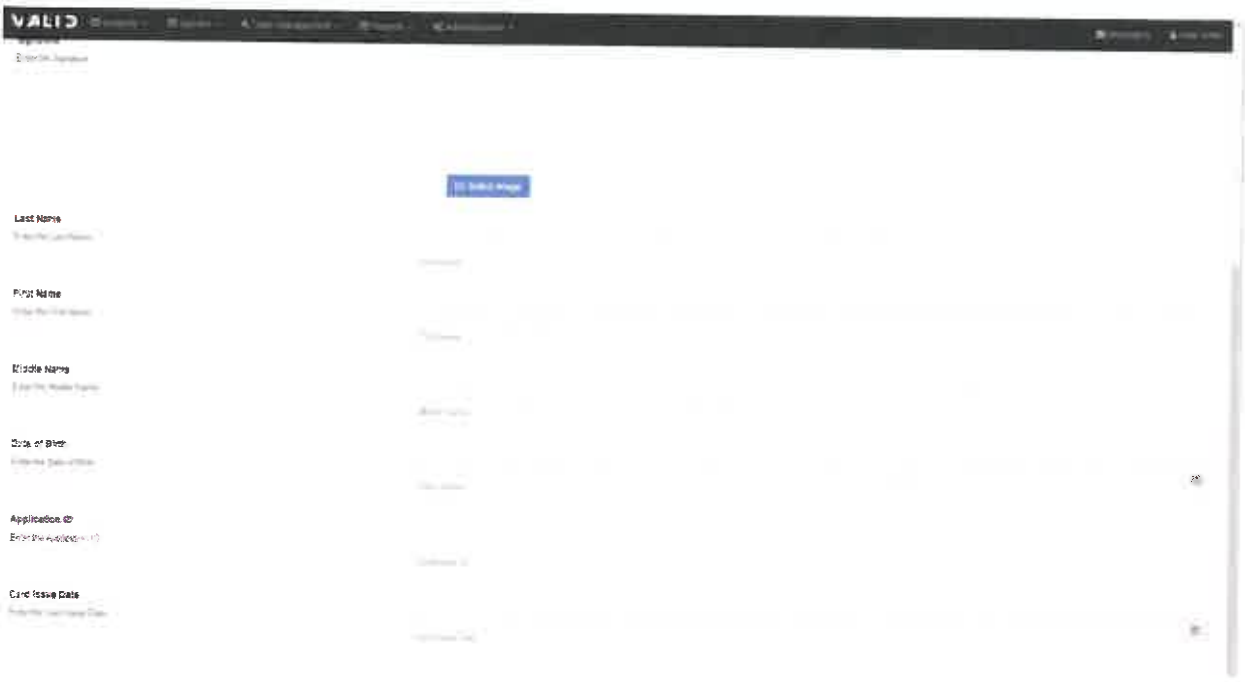
Vendor Response: COMPLIANT

Images can be enrolled using the enroll image option shown below, and the fields allowed or required can be set by the state (shown in the second image below).

Enrolling an image:


VALID
Enroll Image
Reference Key
Subject ID
Subject Key
Priority
Workflow
DEDUP
Signature
Select Image

Fields for enrolling an image:



Section 4, Subsection 4.12.5 - Vendor should describe the applications reporting capabilities, including description and examples of all standard system reports.

Vendor Response:
WebLink ID features a Reports module. System Administrators grant access to the individual reports on a role-by-role basis. The canned report allows a user to search and filter the list (date range, values, etc.), and then export the results (if the System Administrator allows that configuration) to an Excel or .CSV file, print it as a pdf, or e-mail it directly from the application.

WebLink ID contains canned reports which can be expanded to include WVDMV's canned reports list. Following is list of canned reports configured for another customer:

1. 1:1 Override Report
2. Agency ID Card Report
3. Enhanced License Statistics Report
4. Identity Not Verified Report
5. Issuance Transactions Statistical Report
6. Original CDL Documents Report
7. Records Not Enrolled in FR Report
8. Gated Issuance Check Detail Report and Gated Issuance Statistical Report

Additionally, BioLink ID canned reports will include those requested by WVDMV. Example customer-requested canned reports in BioLink ID:

1. Internal Upload Image Report
2. External Upload Image Report
3. Enrollment Statistics Report
4. Case Resolution Report
5. Ad-Hoc Transactions Report
6. Investigation Cases by Queue Report

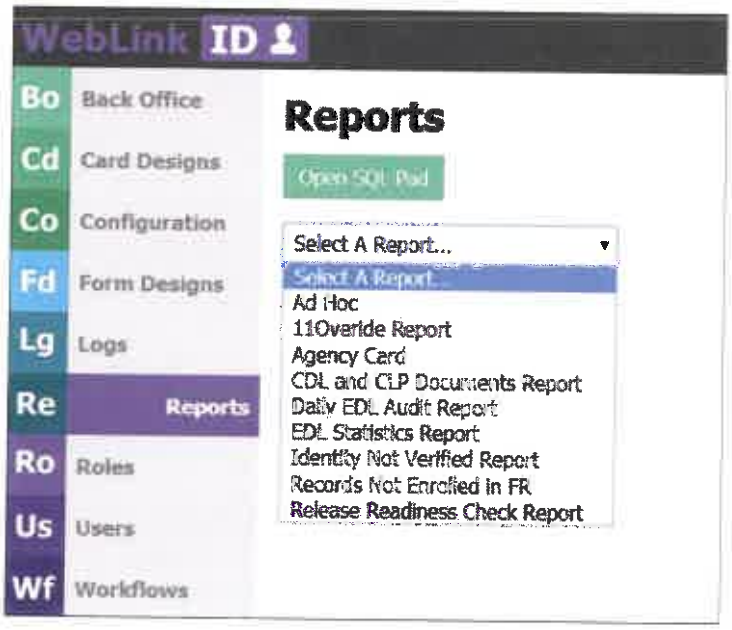
Report Design Overview

Audience and Frequency

All reports are targeted for users of the applications and don't require SQL queries to change the parameters (periodicity, sorting, etc.) of the reports. All reports can be run as scheduled tasks or on-demand.

Report Navigation in WebLink ID

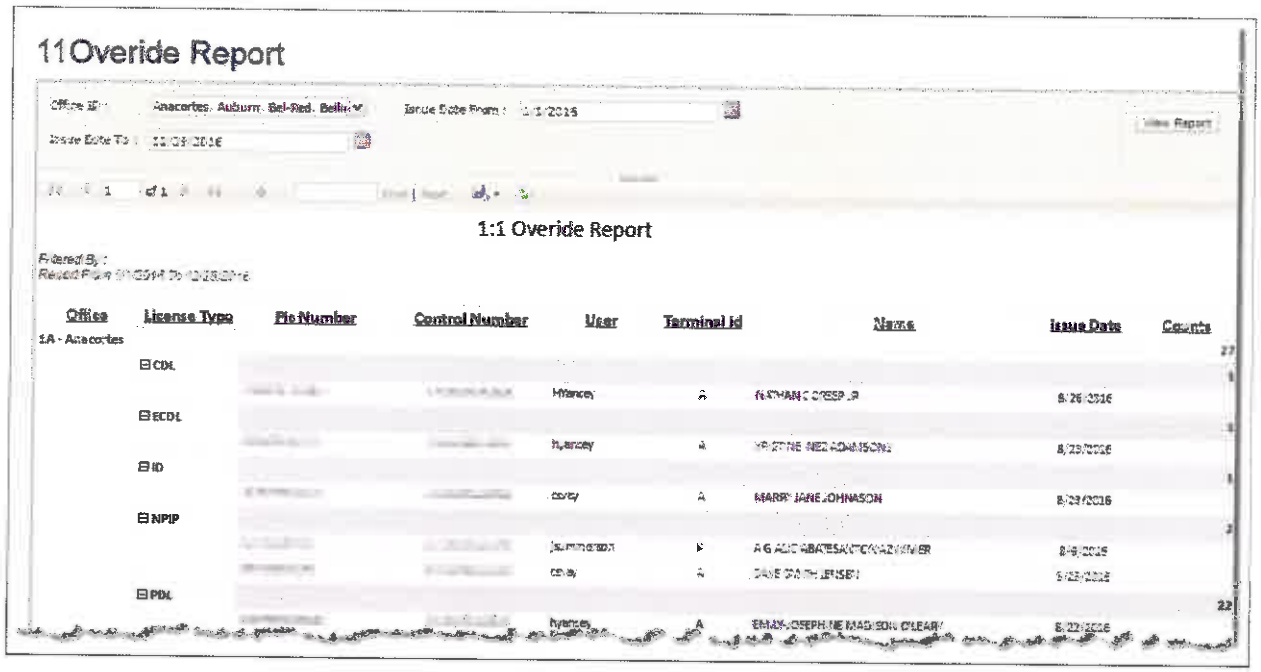
WebLink ID user interface contains a reports module located on the left-hand navigation pane. Available canned reports will be listed and can be launched directly be clicking on the report title.



The WebLink ID UI top navigation menu includes a link to launch its reports.

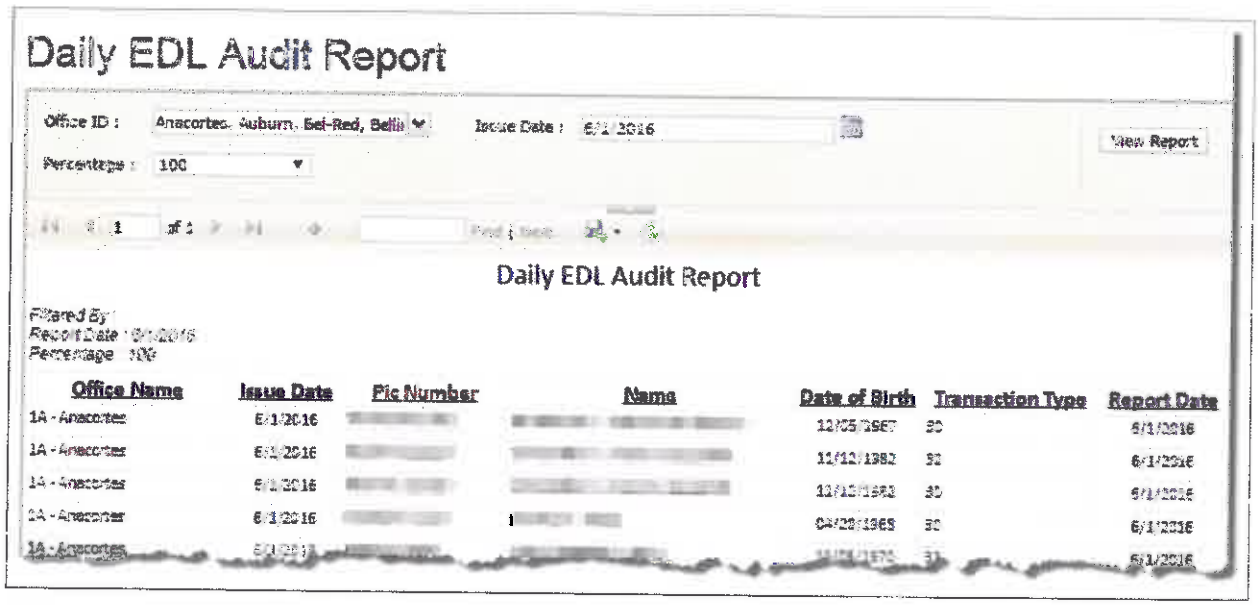
Sample Reports in WebLink ID:

1:1 Override Report



Agency Card Report

EDL 5 Percent Audit Report



Daily EDL Audit Report

Office ID : Anacortes, Auburn, Bel-Red, Bellin | Issue Date : 6/1/2016 | View Report

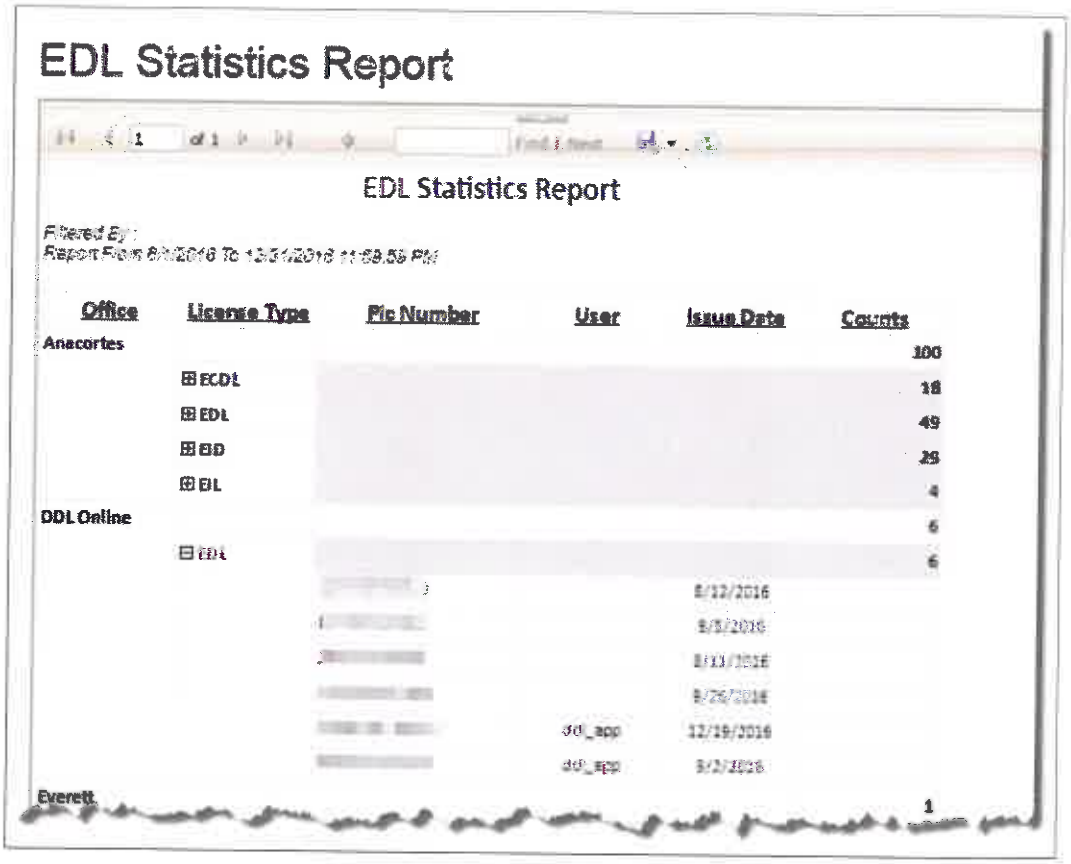
Percentage : 100

Daily EDL Audit Report

Filtered By:
Report Date : 6/1/2016
Percentage : 100

Office Name	Issue Date	Pic Number	Name	Date of Birth	Transaction Type	Report Date
1A - Anacortes	6/1/2016			12/05/1967	30	6/1/2016
1A - Anacortes	6/1/2016			11/12/1982	30	6/1/2016
1A - Anacortes	6/1/2016			12/15/1983	30	6/1/2016
1A - Anacortes	6/1/2016			04/28/1965	30	6/1/2016
1A - Anacortes	6/1/2016			11/28/1975	31	6/1/2016

Enhanced License Statistical Reports:



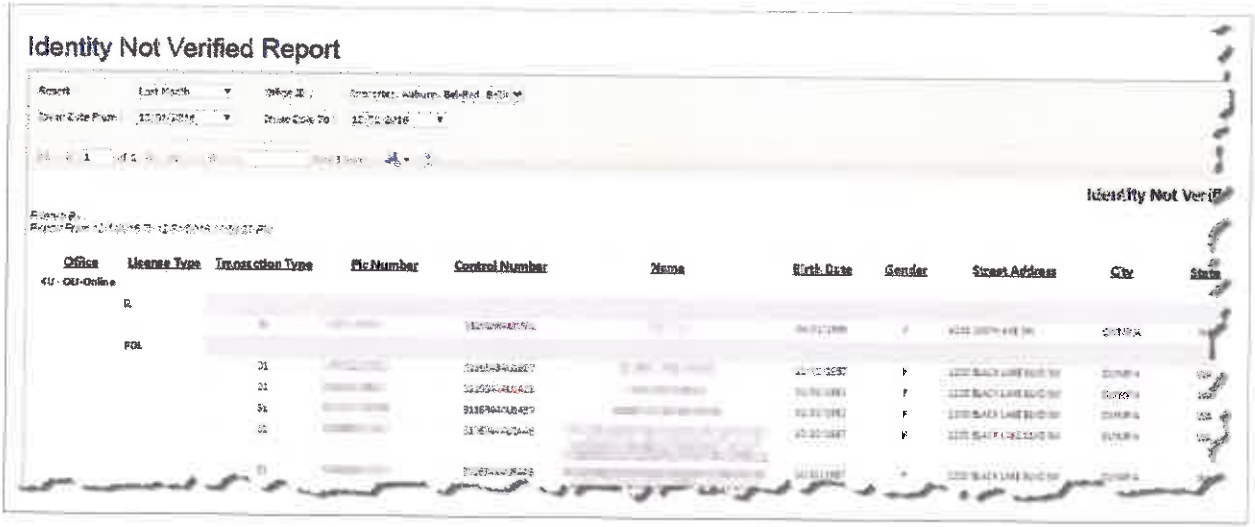
EDL Statistics Report

EDL Statistics Report

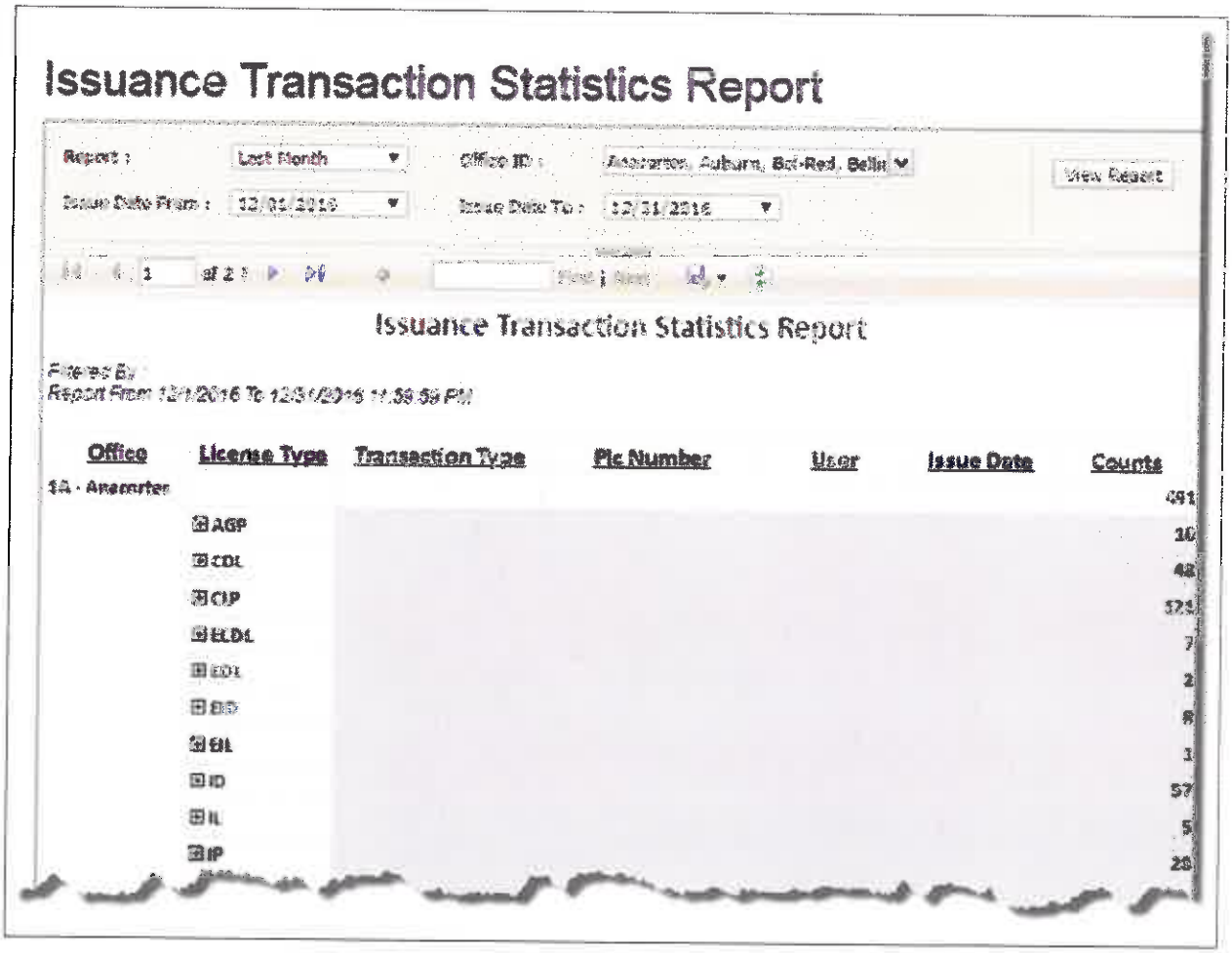
Filtered By:
Report From 6/1/2016 To 12/31/2016 11:59:59 PM

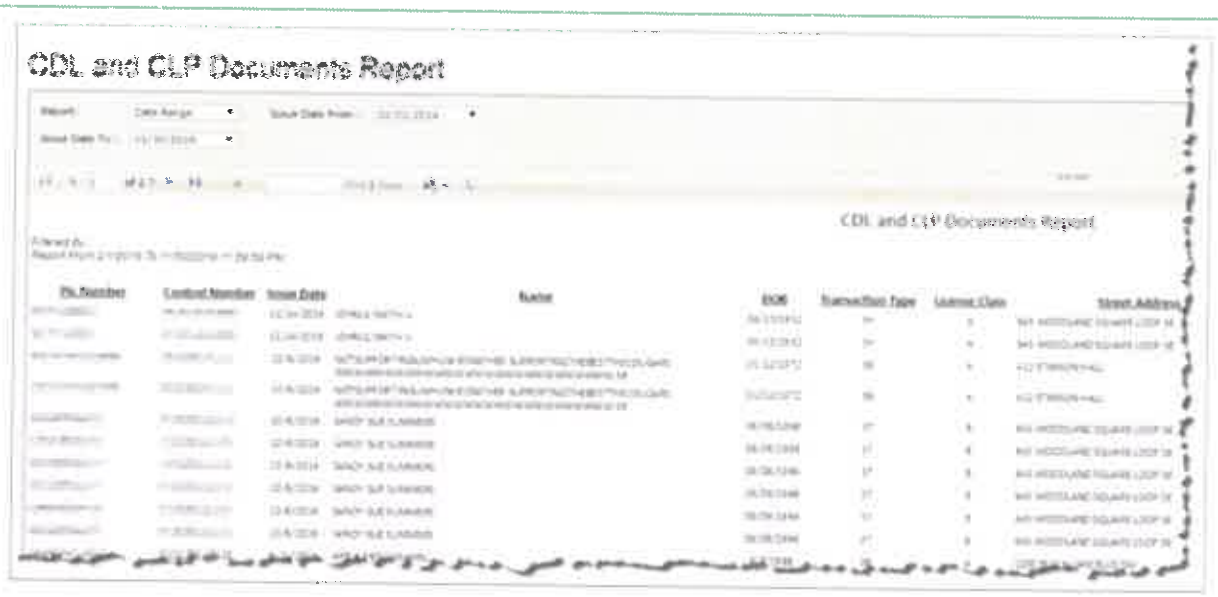
Office	License Type	Pic Number	User	Issue Date	Counts
Anacortes					100
	⊞ ECDL				18
	⊞ EDL				49
	⊞ EID				29
	⊞ EIL				4
DDL Online					6
	⊟ EDL				6
				8/12/2016	
				8/8/2016	
				8/11/2016	
				8/26/2016	
			dd_app	12/19/2016	
			dd_app	8/2/2016	
Everett					1

Identity Not Verified Report



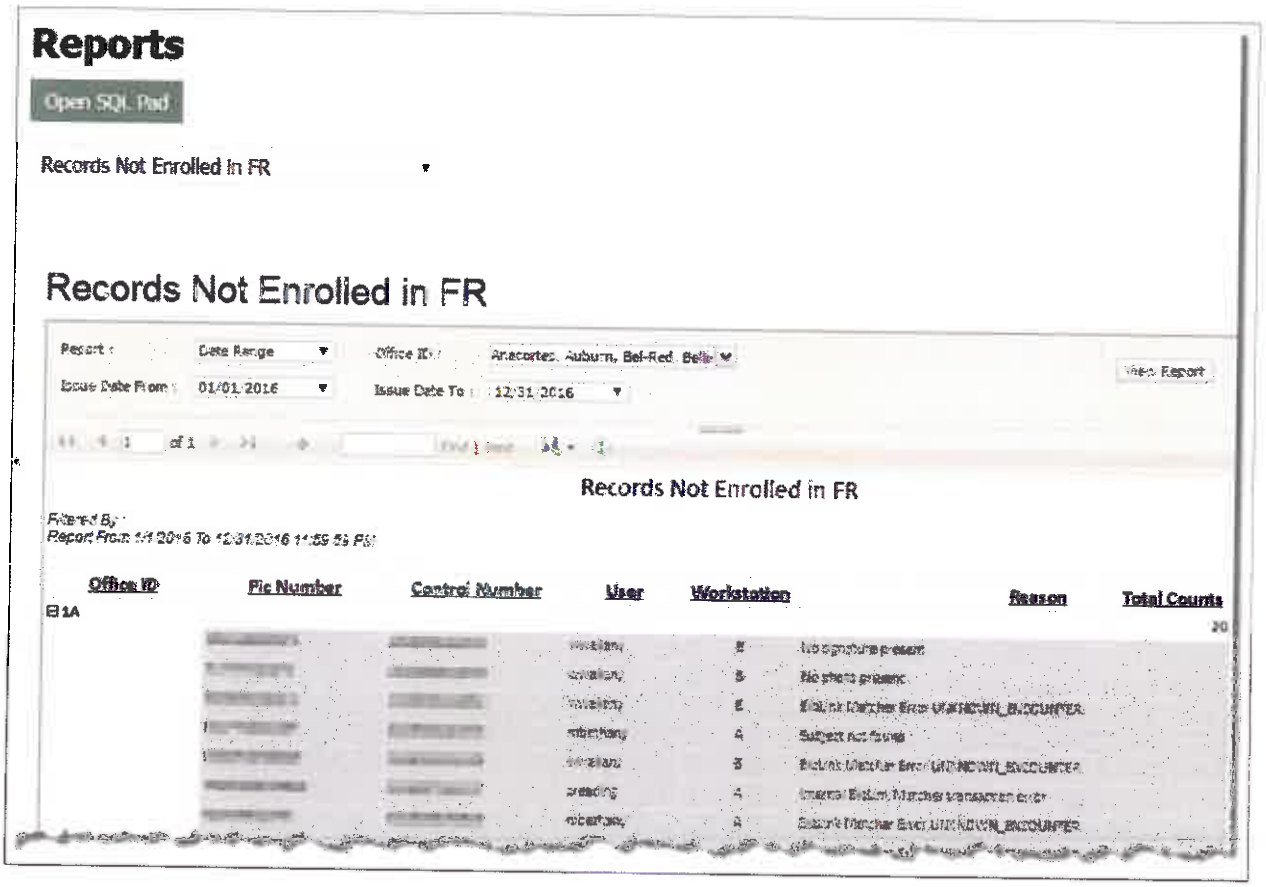
Issuance Transactions Statistical Report



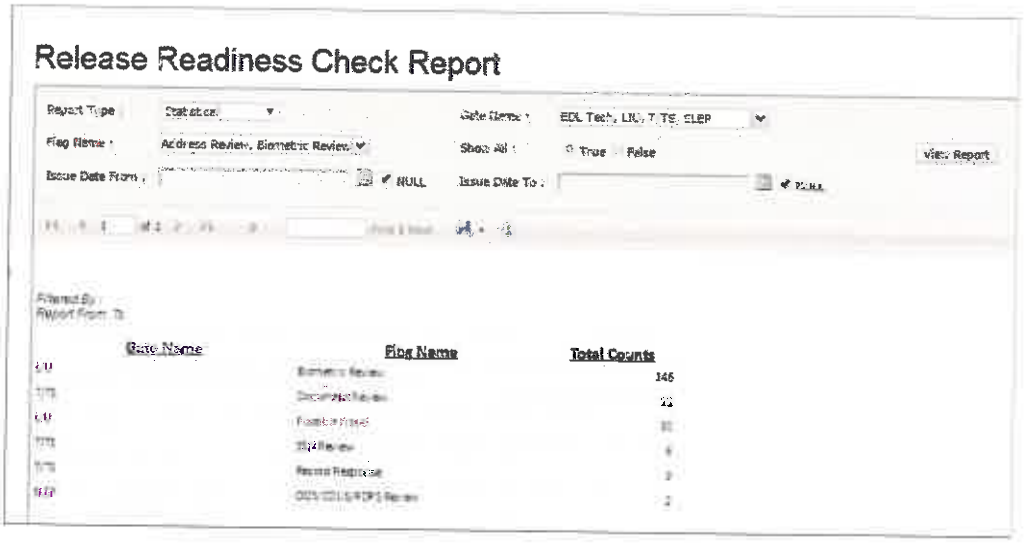

CDL and CLP Documents Report

CDL and CLP Documents Report

Records Not Enrolled in FR Report



Gated Issuance Detail Report and Gated Issuance Statistical Report



Data Elements and Format in BioLink ID

BioLink ID reports are similar in look and feel (columns may change from report to report).

Case Resolution Report

Investigator: [illegible]

Date	Case ID	PIC	Control Number	Last Name	First Name	Middle Name	Date of Birth	Status
[illegible]	[illegible]							Pending
12/06/2016	[illegible]							Pending
12/07/2016	50641	[illegible]	31162231A1445	[illegible]	[illegible]			Pending
12/07/2016	50642	[illegible]	31162231A1445	[illegible]	[illegible]			Pending
12/07/2016	[illegible]	[illegible]	31162231A1445	[illegible]	[illegible]			Pending
12/16/2016	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	Pending
01/06/2017	[illegible]							Pending
01/06/2017	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Pending
[illegible]	[illegible]							Pending
01/11/2017	[illegible]	[illegible]	[illegible]	Last Name	First Name	Middle Name	2017-01-01	Pending
						Quantity		10

Investigator: [illegible]

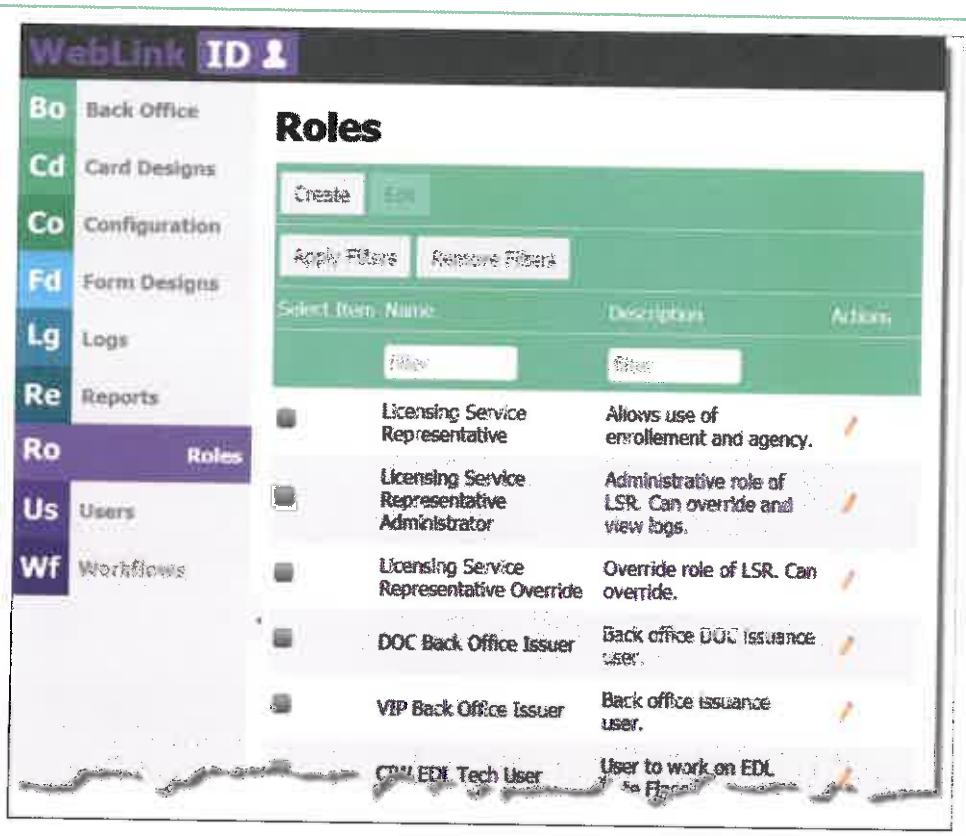
Date	Case ID	PIC	Control Number	Last Name	First Name	Middle Name	Date of Birth	Status
[illegible]	[illegible]							Fraud
01/06/2017	[illegible]	[illegible]	[illegible]	SPRING	[illegible]		[illegible]	Fraud
01/06/2017	[illegible]	[illegible]		SPRING	[illegible]		[illegible]	Cleared
01/06/2017	[illegible]	[illegible]	[illegible]	SPRINGS	[illegible]		[illegible]	Cleared
						Quantity		4

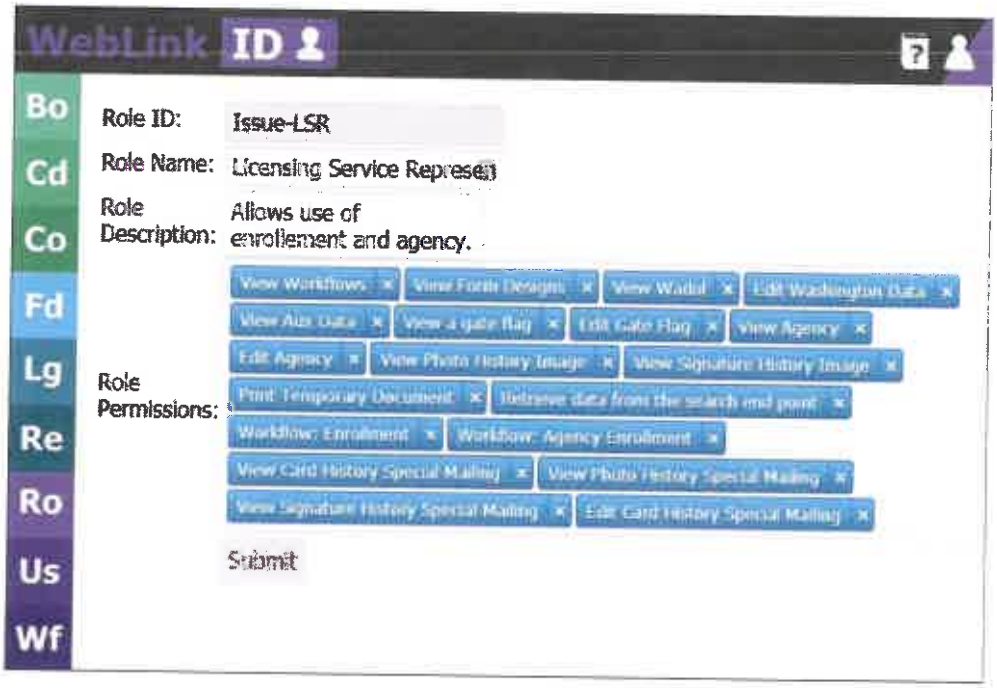
General Summary	14

Security

Reports available through WebLink ID and BioLink ID user interfaces leverage the SSRS web services to execute the SQL and stored procedures on the database. SSRS and SQL Server DBs can be hosted by WVDMV in its data center with added security and only available to certain IP ranges.

Valid's solution deployment includes role and permission testing which validates the security controls concerning reports. All reports have permission attributes in the applications. WebLink ID and BioLink ID roles contain these permission attributes and users belonging to those roles have access to the reports. Management of roles and permissions is available in the user interface to System Administrators. Following are screenshots of WebLink ID Roles screens.





WebLink ID Role permission screens

4.12.5.1 – Custom Reports
How, in addition to any standard reports the solution offers, proposal should allow Agency to add a determined number of custom reports at no additional charge over the life of the contract.

Vendor Response: COMPLIANT
Valid will provide an ad-hoc reporting tool which provides WVDMV the capability to design, run, and save ad-hoc queries and reports in Power BI Gateway. We will provide WVDMV the option to define up to 10 additional custom reports, over the life of the contract, at no additional charge to WVDMV.

Our ad-hoc reporting tool can query the various tables and data stores utilized in WebLink ID, add fields to the report, define custom queries, store the report for future use, and store data from the query. Reports can also be scheduled to run and output sent via e-mail or pushed to a document share (FTP or other).

Valid and WVDMV will detail specific reporting functionality during the requirements phase of the project. As WebLink ID is a customizable solution, reports can be defined within the administrative toolset available to System Administrators or authorized users. Users and groups can be given access to reports designed within the system.

Valid and WVDMV will detail specific reporting functionality and standard available reports during the requirements phase of the project. If WVDMV determines a need for more than ten (10) custom reports over the life of the contract, those additional reports will be provided for a fee, that will be negotiated based on the number of programming hours needed to write the report.

4.12.5.2 How can the Agency generate custom ad hoc reports?

Vendor Responses:
Valid will provide an ad-hoc reporting tool which provides WVDMV the capability to design, run, and save ad hoc queries and reports in Power BI Gateway. We will allow WVDMV the option to define up to 10 additional custom reports, over the life of the contract, at no additional charge to WVDMV.

Our ad-hoc reporting tool can query the various tables and data stores utilized in WebLink ID, add fields to the report, define custom queries, store the report for future use, and store data from the query. Reports can also be scheduled to run and output sent via e-mail or pushed to a document share (FTP or other).

Valid and WVDMV will detail specific reporting functionality during the requirements phase of the project. As WebLink ID is a customizable solution, reports can be defined within the administrative toolset available to System Administrators or authorized users. Users and groups can be given access to reports designed within the system.

4.12.5.3 How reports displayed for view on the screen can be printable and properly formatted.

Vendor Response: COMPLIANT
WebLink ID is a customizable solution; reports can be defined within the administrative toolset available to System Administrators or authorized users. Users and groups can be given access to reports designed within the system. All created reports will display for view on the screen and will be printable and properly formatted. Report data will be displayed on screen in such a way as to limit the need to navigate through multiple pages.

4.12.5.4 How the report data can be displayed on screen in such a way as to limit the need to navigate through multiple pages.

Vendor Response: COMPLIANT
WebLink ID is a customizable solution; reports can be defined within the administrative toolset available to System Administrators or authorized users. Users and groups can be given access to reports designed within the system. All created reports will display for view on the screen and will be printable and properly formatted. Report data will be displayed on screen in such a way as to limit the need to navigate through multiple pages.

Section 4, Subsection 4.12.6 – Confirmation File

Vendor should return a confirmation file to the Agency upon receipt of the standard production print files.

Vendor Response: COMPLIANT
Valid will return a confirmation file to WVDMV upon receipt of the standard production print files.

Section 4, Subsection 4.12.7- Confirmation Files

Confirmation files should include the number of print received for Validation by the Agency against the number of print requests sent.

Vendor Response: COMPLIANT
As each card completes the production process, a Print Confirmation file is created containing relevant data describing the result of the process. The file will contain the CardID (1D barcode number), processing result (COMPLETED, FAILED or CANCELLED), time stamps, and any other statistics agreed upon by Valid and WVDMV, including the number of print requests received for validation by WVDMV against the number of print requests sent. These files are uploaded to WebLink iD via its interface to the production system, and are inserted into its relational database. The database format is a relational SQL database and the WebLink ID workflow software tool will only require a web browser to operate.

SYSTEM ADMINISTRATION

Section 4, Subsection 4.13 - User Account Management

Section 4, Subsection 4.13.1 - Vendor should describe the account management functions as part of their

system administration module. This description should include:

Valid's proposed solution is capable of integrating with either a Windows Active Directory or an LDAP user management solution, preventing the need for DMV IT to manage another application's set for user IDs, password policy, and roles. Should the state wish to keep the Valid solution as a stand-alone engine, User, Group, Role and Password Policy can be managed inside the application.

4.13.1.1 How you may view last login date/time for each user.

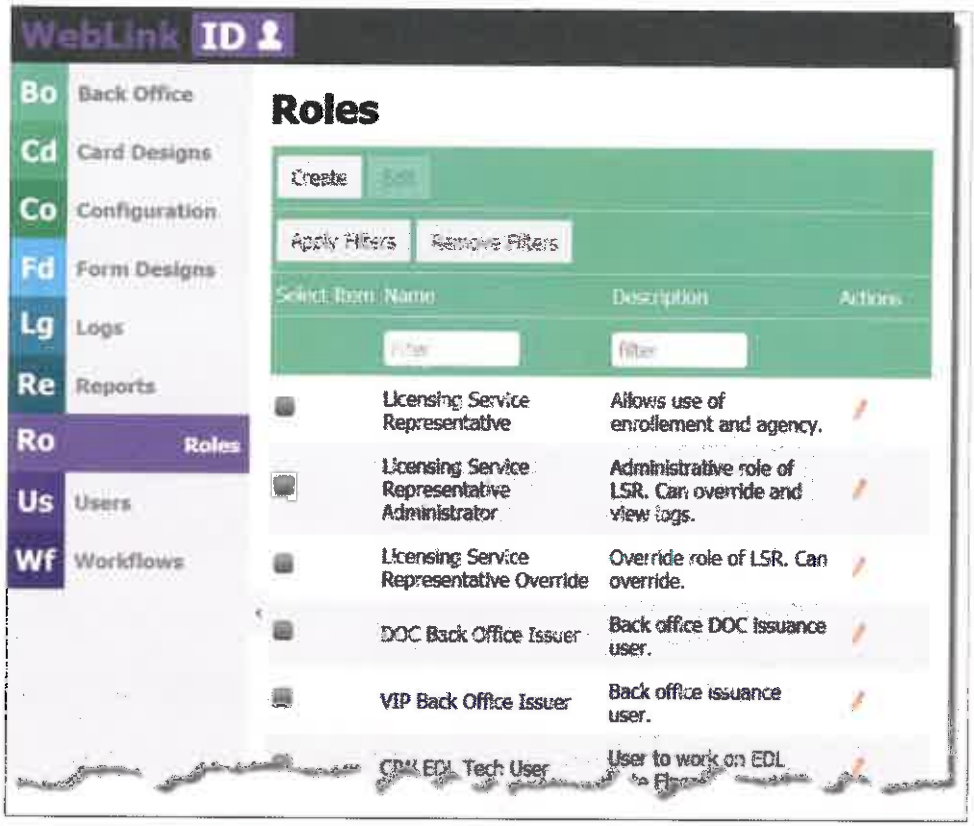
Vendor Response: COMPLIANT

Any time an employee accesses the system, the event is logged. Any time a record is accessed by an employee, the event is logged. These types of logs are best viewed through administrative reports, accessible by approved staff, at any time within the application.

4.13.1.2 How to manage user permissions.

Vendor Response: COMPLIANT

Active Directory, LDAP, or internal users are assigned to roles. Each role includes a series of permissions, and the roles themselves are completely customizable by the state. During the design and configuration phase of the project, Valid will work with the state to create the roles necessary for its user base, and ensure those roles fit the expected use cases. Below is a screenshot of the role manager interface.



4.13.1.3 How the ability to view partial or full SSN data in all applications will be achieved based on permissions or role.

Vendor Response: COMPLIANT

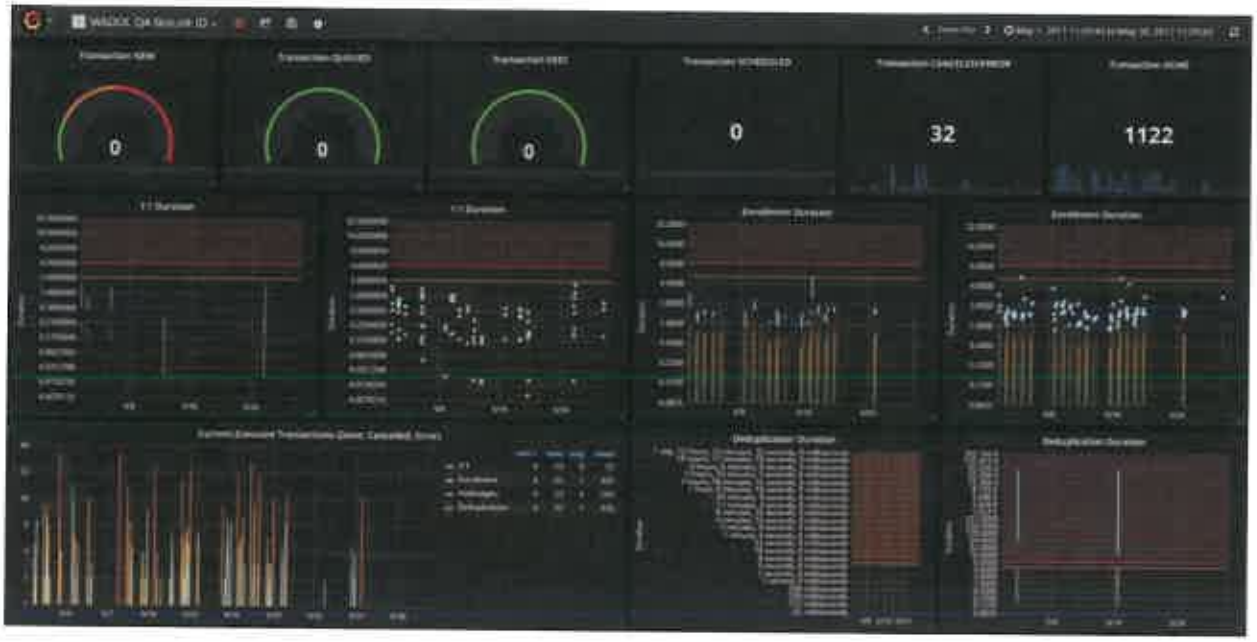
Our WebLink ID solution can be configured to allow access to unmasked SSNs to only those WVDMV personnel who have a need to know it, for the purpose of providing specific deliverables, and who have been specifically authorized by WVDMV to have such access. All other employees would be limited to masked SSNs even as they are typed into the application.

Section 4, Subsection 4.14 - System Usage Dashboard

Section 4, Subsection 4.14.1 - Vendor should describe how the system administration module may display the current view of system usage including items such as:

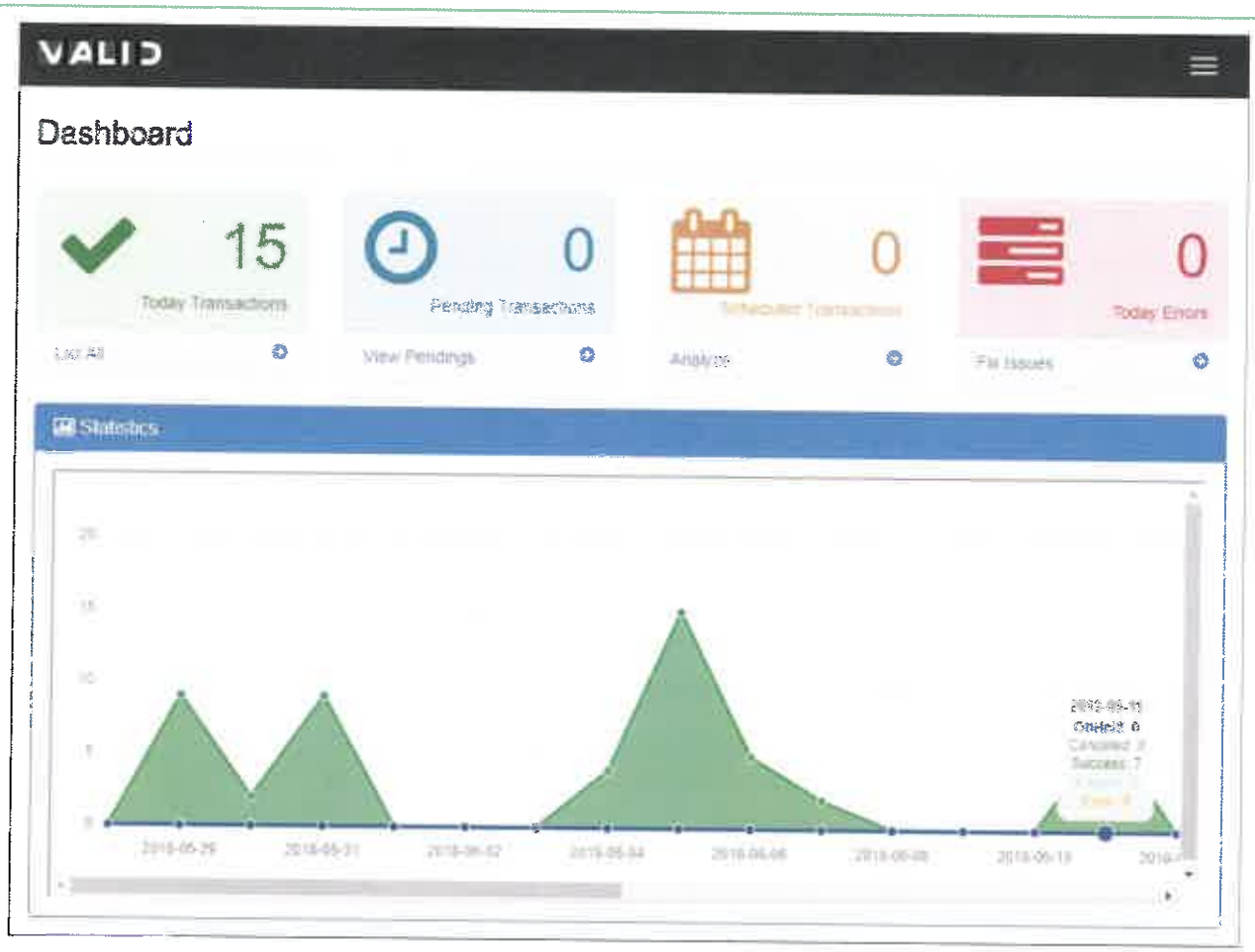
4.14.1.1 Number of users currently logged into FRS & ICW applications

Valid's solution has a robust, configurable dashboard interface. Depending on the operator or administrator's needs custom dashboards can be configured. The image shown below is of a dashboard tracking transaction load, transaction counts, enrollment times, deduplication times, and can easily track other metrics such as active users, transactions per office, etc.



4.14.1.2 Number of records pending in all queues in FRS

The facial recognition engine, includes its own dashboard, shown below. This dashboard outlines Scheduled, Pending, Completed and Error transaction counts. This is the default entry screen into the facial recognition engine, so FR operators have a clear view of the system status.



4.14.1.3 Central production facility statistics.

Similar to the other dashboards, the factory production dashboard can be configured to show any number of statistics, similar to what is shown below, which shows resolved gated flags, records received by the factory and number of transactions performed.

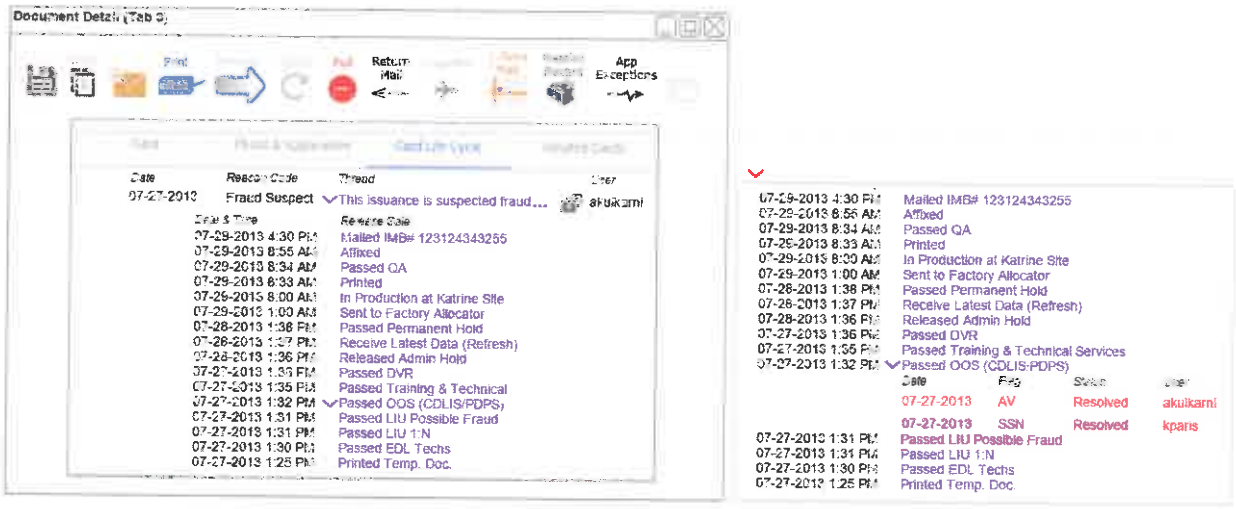
Vendor Response: COMPLIANT
Valid's solution can display all the above-requested information in the management workflows.

Section 4, Subsection 4.15 - Management of Central Issuance Records

Section 4, Subsection 4.15.1 - Vendor solution should allow for status queries on individual card print records.

Vendor Response: COMPLIANT
Valid's card production system has the capability to track and record the status of any credential order from receipt to final disposition. We will provide WVDMV with a portal, WebLink ID, to request the status of any order, or WVDMV can utilize WebLink ID's web service to query the status from another system. During the system design phase, Valid and WVDMV will define the various statuses of credential orders. We will then update the credential order based on the current card status. For example: Order Received, Order Processed Without Error, Order Being Printed, Order Ready for Mail, Order in the Mail.

The following is a complete lifecycle overview for one of our current WebLink ID clients. The statuses do not apply to WVDMV, but display the powerful nature of WebLink ID's lifecycle management.



WebLink ID Card Lifecycle. *WebLink ID maintains a complete lifecycle for card and order status. It can be viewed from the WebLink ID User Interface or queried by another system using a WebLink ID API.*

Section 4, Subsection 4.15.2 - Vendor solution should allow for holds to be placed on individual card print records prior to the start of processing.

Vendor Response: COMPLIANT
BioLink ID features a web-based user interface to perform case management, and it contains a suite of investigation tools. WVDMV may optionally choose to exercise this module, and it is included in the

base solution provided by Valid. It can be integrated as a Gate 1 flag to the back office process for holds on individual card print records and issuance approvals.

Section 4, Subsection 4.15.3 - Vendor solution should allow for priority flags to be set on individual card print records which must trigger expedited processing.

Vendor Response: COMPLIANT
Valid's Card Production System will enable expedited print requests. WebLink ID contains a flag for special handling in its user interface, and the operator can apply a reason code that supports the WVDMV-defined special handling scenarios. WVDMV staff can use the WebLink ID workflow to flag the record and WebLink ID's data contract with *dmv*DRIVES (or another WVDMV application) can also support the flag and reason code. This enables WVDMV to flag the record in its system without having to open WebLink ID, if it chooses.

The flag in WebLink ID's production system enables the card to be routed through special handling processes including delivery carrier, location handling, as well as card destruction instructions. In addition to the three required special handling requests, we can accommodate other requests in the future by simply adding logic to the special handling array.

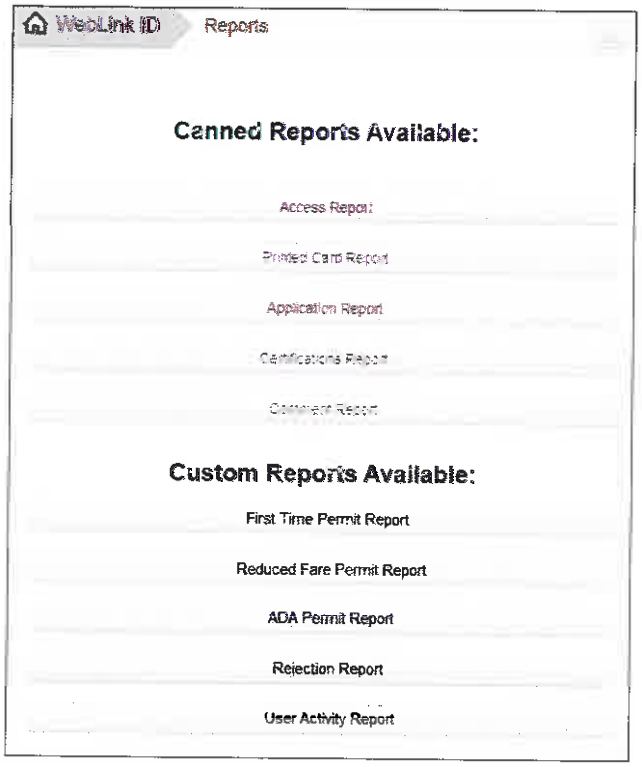
Section 4, Subsection 4.15.4 - Vendor solution should allow for tracking information, to be available for expedited print request records.

Vendor Response: COMPLIANT
Shipment tracking information can be provided through the WebLink ID interface; this will support expedited print request records.

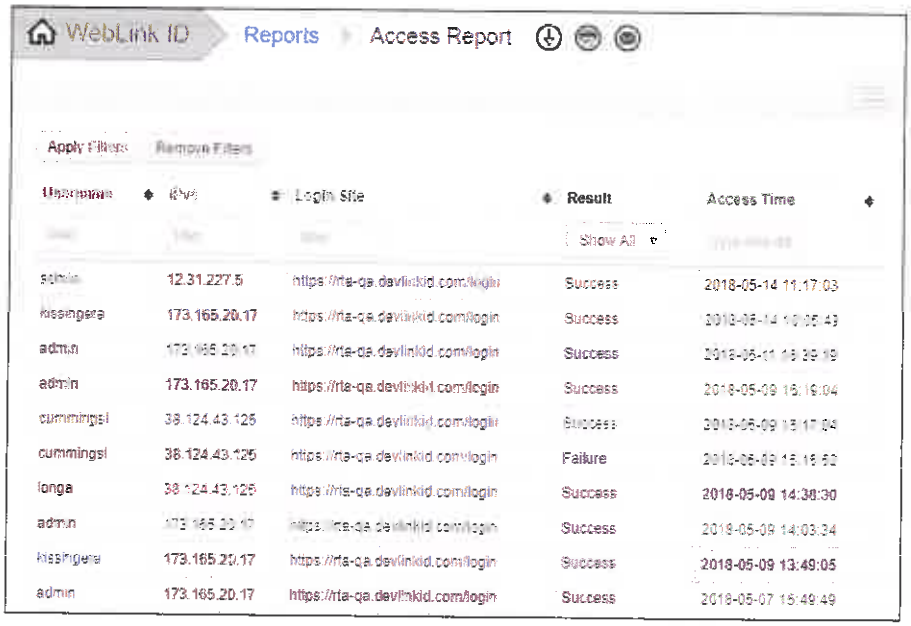
Section 4, Subsection 4.16 – Reports

Section 4, Subsection 4.16.1 - Vendor solution should capture audit data for all images, data captured, and temporary DLs produced and made available in detail and summary reports.

Vendor Response: COMPLIANT
Valid's solution complies with this request and provides a range of reports that can be customized to WVDMV's needs.



Report Examples



Section 4, Subsection 4.16.2 - Vendor solution should produce daily reconciliation reports.

Vendor Response: COMPLIANT
Valid's solution fully complies with this request. Valid provides daily reconciliation reports.

Section 4, Subsection 4.16.3 - Vendor solution should be able to request reports for specific date or date ranges.

Vendor Response: COMPLIANT
WebLink ID and BioLink ID provide the capability of establishing specific dates covered by its reports.

Section 4, Subsection 4.16.4 - Vendor solution should print to Agency network printers.

Vendor Response: COMPLIANT
Reports can be accessed within the system by authorized users to print on the WVDMV network laser printer, or reports can be distributed automatically through e-mail or file distribution

Section 4, Subsection 4.17 - Controlled Use

Section 4, Subsection 4.17.1 - Vendor solution should be able to log unauthorized attempts to access the system software.

Vendor Response: COMPLIANT
All unauthorized attempts and successful access through workstations are logged. Record of the logs can be provided to WVDMV if required.

Section 4, Subsection 4.18 - Protection

Section 4, Subsection 4.18.1 - Vendor solution should have security protection to prevent unauthorized access.

Vendor Response: COMPLIANT
A strong password protection policy is a key component of Valid's logical security solution, which prevents unauthorized access to the workstation.

Section 4, Subsection 4.19 - Data Management

Section 4, Subsection 4.19.1 - The system administration module should include data management

functions. Describe how these data management functions will address:

4.19.1.1 Removing records with data or image errors

Vendor Response: COMPLIANT
Valid's solution set includes the ability to remove or mark records as needed and defined as part of the configuration of the system. These transactions are logged, and users with appropriate roles can view the audit trail.

4.19.1.2 Marking records that are to be used for testing purposes

Vendor Response: COMPLIANT
Valid's solution set includes the ability to remove or mark records as needed and defined as part of the configuration of the system.

4.19.1.3 Access to system audit logs

Vendor Response: COMPLIANT
These transactions are logged, and users with appropriate roles can view the audit trail.

Section 4, Subsection 4.20 - Audit functions

Section 4, Subsection 4.20.1 - Vendors solution should store the username for every transaction completed on the image and signature capture workstation. Re-authentication upon the printing of each temporary driver's license may be needed and should be configurable.

Vendor Response: COMPLIANT
WebLink ID logs the users who conduct the transactions. If the WVDMV's business rules require the re-authentication of a user, prior to conducting a temporary print, this can be configured in the workflow.

Section 4, Subsection 4.21 - Equipment installation

Section 4, Subsection 4.21.1 - To minimize clutter, prevent damage, and prevent easy removal, the Vendors solution should consist of only the workstation components that are necessary for capturing the applicant's image, validating DL credentials and signature.

Vendor Response: COMPLIANT
Valid will design a site installation plan that completely defines the site installation, and will be reviewed and approved by WVDMV early in the project definition. Once the site installation plan is completed and approved, we will execute the plan and provide status reports as required. Only the workstation

components that are necessary for capturing the applicant's image, which validate the DL/ID credentials and signatures, will be located on the counter or desk.

Valid understands that the Agency requires document scanning of all feeder documents as well as document verification of driver's licenses and passports. Additionally, to validate DL credentials, our solution will read and display the information from the 2D barcode, listing the 'field description with the corresponding value from the 2D barcode as well as the validation of all level 1 and level 2 card security features.

CARD DESIGN AND SECURITY FEATURES REQUIREMENTS

Section 4, Subsection 4.22 - Secure Temporary Driver's License and ID's

Section 4, Subsection 4.22.1 - Vendor should explain how their solution will produce a secure temporary driving credential for applicant use while waiting for the card to be printed at the secure central production facility; including any secure consumables, such as laminate, and/or paper, and recommended printing equipment.

Vendor Response: COMPLIANT

The temporary driver license credential contains a suite of security options to prevent copying, even though it is intended to have a short-term duration. Valid will provide temporary driver license credentials with its proven security printing technology on paper. Secure elements will be present in the credential to allow the verification of the document's authenticity, such as:

- Secure cotton-based paper with color micro-fibers
- Guilloche patterns
- Anti-copy patterns
- Line modulation in the background
- 1D and 2D barcode
- Redundant variable data print

The final design of the interim license and specific paper type will be determined and approved during the detail design phase of the project.

Valid plans to use secure paper to support the temporary driver's license credentials.

Section 4, Subsection 4.23 - Card Design Changes

Section 4, Subsection 4.23.1 - Vendor should describe how they propose handling security format changes to cards made post-implementation, based on reported or identified security gaps.

Vendor Response: COMPLIANT
Valid owns the entire vertical card issuance stack from card blank production to personalization through affixing, inserting and mailing. This allows us to respond quickly and efficiently to new threats and technologies without depending on third party vendors. Over the life of the contract, Valid will coordinate closely with WVDMV to review threats from fraudsters and/or revisions to AAMVA's minimum card design standards and develop appropriate card changes. Valid and our integrated card team is fully capable of implementing card format changes, subject to inventory management considerations within 30 days of WVDMV's approval of the proposed change(s).

PROJECT MANAGEMENT

Section 4, Subsection 4.24 – Project Management

The Vendor project manager should be involved in every detail of the project from start to finish. High-level oversight will not be acceptable.

Vendor Response: COMPLIANT
Valid will provide WVDMV with a full-time Project manager. Valid's Project Manager will be fully dedicated to your project and will serve as your primary point of contact. The Project Manager will coordinate all internal activity as well as those tasks that require WVDMV involvement. Our Project Plan will be comprehensive, and updated weekly, to ensure that all parties are aware of project status, and upcoming requirements.

Valid's Project Manager will manage the execution of the project in accordance with the approved project schedule through effective and efficient use of team resources. He will perform the following duties:

- Manages stakeholder relationships and collaborates with project partners.
- Monitors project scope and budget.
- Manages, facilitates, and coordinates vendor activities and deliverables and coordinates testing activities, and facilities and system testing activities.
- Assists in aligning training resources and schedules with internal and external users.
- Communicates status and issues in a timely fashion.
- Drafts, approves and/or maintains necessary project documents.
- Coordinates with the WVDMV Project Manager.

Section 4, Subsection 4.25 – Project Phases

The Vendor project manager should follow project phases from project initiation through acceptance, including requirements gathering and analysis. The Vendor project manager should be prepared and capable of facilitating requirements gathering meetings with the Agency staff.

Vendor Response: COMPLIANT
Valid understands and accepts that the requirements listed in this document are not a complete listing of requirements, and additional requirements will arise as the projects is implemented.

The Valid Project Manager will monitor milestone tasks as project work proceeds, and will report on the status according to any proposed WVDMV status reporting guidelines. These milestones provide the basis for managing the project schedule; therefore, Valid requires that the PM include the progress in the weekly status reports. The following is a summary of the nine (9) phases involved with managing the entire project, from initiation to acceptance.

Project Management Delivery Approach

The delivery approach consists of nine phases.

1. Project Initiation and Kickoff:

Valid plans to formally on-board its project team before the Project Kickoff event. At project kickoff Valid will introduce its implementation methodology; and it will garner from WVDMV the information it needs to rapidly complete Delivery Expectation Documents (DEDs) for its plans and reports; and upon the DED approvals by WVDMV, Valid will produce the plans and reports. Additionally, Valid will work with WVDMV to validate the project schedule, and create a baseline solution.

2. Discovery & Data Gathering Phase:

WVDMV and Valid will conduct discovery and data gathering to determine the fit/gap of the DL solution against the WVDMV business and technical requirements. WVDMV enterprise data integration requirements involving systems that will be affected by implementing the new solution will be discussed in detail and adhered to. This will be accomplished via a series of Joint Application Design (JAD) sessions.

3. System Design Phase:

Valid will develop designs around discovery results. It will identify interfaces, extensions and reports to be developed, as well as provide the tools and utilities needed to meet the WVDMV enterprise data integration requirements. Both parties will thoroughly analyze the WVDMV business and technical requirements during these design and review sessions.

4. Card Design Phase

The Card Design Phase is separate from the System Design and it has few dependencies regarding start date. However, our experience has shown that it is best to start the card design process early in the project in order to have the time to explore layout options. This phase will include card layout concepts, card design specifications, production of the first article cards, an 'all permutations' data test, creation of test cards, first article overlays, and final card proofs and approvals as well as collateral including carriers, envelopes, inserts, training brochures, etc. This effort will also include sending the final card to the AAMVA for their review.

5. Build and Configuration Phase:

This phase addresses the build and configuration of the WVDMV Solution, develops the interfaces, extensions and reports, and addresses the WVDMV enterprise data integration requirements. This phase also determines if there are any additional requirements that may not have been accounted for in prior sessions. As each system module is completed, it undergoes initial unit and integration testing.

This phase will include the acquisition and setup of workstations and servers, as we prepare for the testing and Validation phase.

6. Testing and Validation Phase:

During this phase, the completed system undergoes system, performance, security, user acceptance, and intensive parallel testing. The go-ahead for system cut-over is tied to the successful completion of parallel testing, and it includes the resolution of all critical (Level 1) and moderate (Level 2) defects determined during the User Acceptance Test (UAT). Data migration and system integration occurs before this phase is initiated. During the Testing and Validation Phase Valid will complete its site surveys of the DL office sites to provide WVDMV with sufficient time to make adjustments to the sites, if necessary.

7. Training Phase:

Valid's Training will address the needs of the business and technical staff, as well as any other system user. The training is delivered at appropriate points during the course of the project. It will be staggered for the business offices so that the WVDMV staff will receive just-in-time training prior to delivery of its equipment.

8. Transition and Deployment Phase:

During this phase, the system cut-over activities are executed. Cutover to Production will occur in stages, starting with the approved pilot and continuing through state-wide implementation. Upon completion of production sign-off, the warranty period begins.

After cutover is complete, Valid recommends a brief review period to address any adoption issues and negative user experiences with the implemented WVDMV Solution. Additionally, this period can be used to examine the workflows and processes that were designed and configured into the DL Solution for opportunities of improvement, and ensure that the transfer of knowledge to WVDMV's technical and operational resources are completed. At this time, Valid will conduct a series of interviews, and make evaluations, observations and recommendations regarding any potential suggested improvements. This is referred to as a Post-Implementation Evaluation Review (PIER).

9. Project Close-out Phase:

Immediately after cutover phase, Valid will provide production team support to WVDMV. Valid will begin the transition from the Valid implementation team to WVDMV operational support team, and will formally transition WVDMV to Valid's Support and Maintenance Services and Card Production Services organizations. Valid will perform a set of project closure activities to complete the project.

Section 4, Subsection 4.26 – Technical Design Details

The Vendor project manager should be involved in the technical details of the design, development, and testing phases of the project, and should not expect the Vendor technical lead to fully manage those activities.

Vendor Response: COMPLIANT

Valid's Project Manager will manage and be responsible for the technical details of the design, development, and testing phases of the WVDMV project.

Following is a brief overview, which will deliver a reliable WVDMV solution that complies with the RFP requirements, and meets the software standards of the Valid Software and Quality Assurance development process. The System Testing and Validation Phase is divided into four stages, as follows:

- Unit testing
- Functional testing
- Integrated system testing
  - End-to-end system testing
  - Pre-acceptance testing
- Acceptance Testing
  - User Acceptance Test (UAT)
  - Pilot
  - Rollout

Valid's Project Manager will work with the designated WVDMV Project Manager to define, formalize, and administer a thorough Test Plan, and to manage, measure, and validate the delivered system. Valid's Project Manager and WVDMV's Project Manager will define proposed test environments that enable comprehensive verification of all the required features, functionality, and hardware.

Section 4, Subsection 4.27 - Communication

Section 4, Subsection 4.27.1 - The Vendor project manager should manage the work by establishing and maintaining communications with all groups related to the project. The activities of the Vendor's project team should be directed, coordinated, and communicated with the Agency Project Manager to ensure that the project progresses per the project work plan and is completed on schedule.

Vendor Response: COMPLIANT

In conjunction with WVDMV, Valid will define the communication requirements for the WVDMV project and how information will be disseminated among stakeholders. This plan sets the communications framework throughout the project, and will serve as a guide for all project communications. The Valid Project Manager will establish and maintain communications with the WV stakeholders throughout the project. The Valid PM will coordinate the activities of the Valid project team with the WVDMV PM.

Section 4, 4.27.2 - The Vendor project manager should communicate with the Agency project manager daily for resolution of issues, decisions, or just to report project status.

Vendor Response: COMPLIANT

Valid understands the importance of daily, ongoing communications between the WVDMV PM and the

Valid PM; and Valid is committed to achieving exceptional communications and project transparency via daily discussions between the two PMs. We believe that this will help ensure an efficient resolution of issues, an effective method to render decisions, and a collaborative way to update each other on project status.

Section 4, Subsection 4.28 - Status Reporting

Section 4, Subsection 4.28.1 - During project design and implementation, Vendor's Project Manager should facilitate weekly project status reviews to ensure measurable progress is being achieved and the Vendor's project team is following the agreed upon work plan.

Vendor Response: COMPLIANT
Valid will provide weekly project status reports, and then will facilitate weekly project status reviews. The weekly project status reports will be submitted to WVDMV at least one full day prior to the scheduled weekly review meeting.

Section 4, Subsection 4.28.2 - Additional meetings should be scheduled as required by the Agency Project Manager or the Vendor. The Vendor's Project Manager and personnel should be available to provide information, reports, or audits as required by the Agency Project Manager.

Vendor Response: COMPLIANT
Valid will participate in any meetings required by the WVDMV PM; and will provide required information, reports, or audits, as requested by the WVDMV PM.

Section 4, Subsection 4.28.3 - The following deliverables should be included prior to each status meetings:

4.28.3.1 Updated project work plan indicating progress for each task

Vendor Response: COMPLIANT

The Valid Project Manager will update the project work plan continuously, and will indicate the progress of the work plan tasks with each status report.

4.28.3.2 Identify and report the status of all tasks that have fallen behind schedule, the reason for the delay, the projected completion date and project impact

Vendor Response: COMPLIANT
As part of the ongoing status reporting, the Valid Project Manager will identify any and all tasks that have fallen behind; and he will provide the reasons why the trailing tasks have been delayed, their new forecasted completion dates, and the impact to the project. In addition, the Valid Project Manager will

provide Valid's remediation plans, if needed, to speed up the delayed tasks.

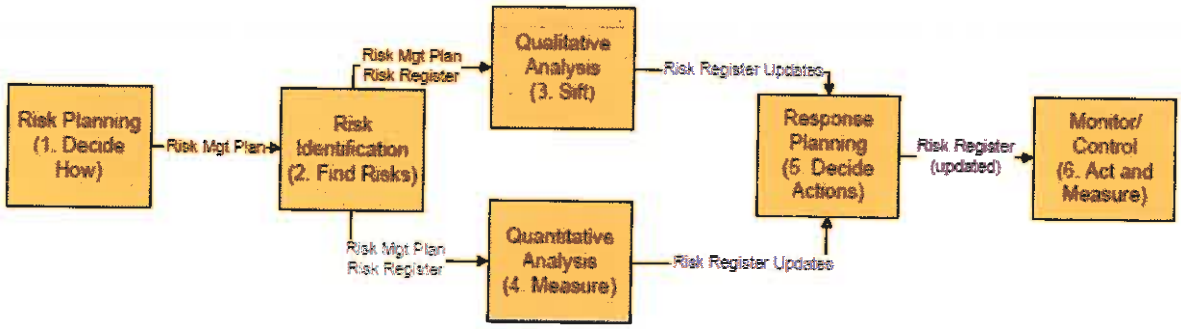
4.28.3.3 Identify and summarize all risks and problems identified by the Vendor, which may affect the project:

Vendor Response: COMPLIANT

Valid is delighted to see that WVDMV focuses on project risks as risk assessment fully discloses the sensitivity of the project to its participants. As a result, targets and contingencies can be set at correct levels, contracts can be negotiated with an accurate understanding of potential challenges, and risk mitigation strategies can be created in advance. Risk assessment improves teamwork by increasing openness, honesty, and understanding within the project team. Valid always includes a risk review section in its weekly and monthly reports.

Risk identification involves the project team, appropriate stakeholders, suppliers, and includes an evaluation of environmental factors, organizational culture and the Project Management Plan including the project scope, schedule, cost, or quality. Careful attention is given to the project deliverables, assumptions, constraints, WBS, estimates, resource plans, and other documents.

The following figure illustrates the process of identifying, analyzing, responding to, and monitoring and controlling risks. It begins with deciding how Valid performs risk management. The next step is to identify risks and then to perform risk analysis to determine the highest priority risks. Quantitative analysis assigns a value to only high priority risks. Next, decide what actions will be taken for each risk. Finally, monitor and control the project risks.



Risk Management Plan

This figure further decomposes each risk management process and shows how those processes interact with each other. It illustrates how each process communicates risk information to all teams and consults with the teams to plan, identify, analyze and plan responses for risks.

For each risk identified, we will state the impact (high, medium or low), the likelihood of occurrence (high, medium or low), the risk owner (every risk is assigned to an individual), the risk trigger, and the risk strategy (acceptance, mitigation, avoidance, etc.). The actions to be taken, the individuals who will take the actions, and the time required to implement are all part of the risk strategy. Valid will identify all personnel, equipment, facilities, and resources of WVDMV that will be required for Valid to perform the project work plan tasks at least two (2) weeks in advance of the need.

Problem resolution is separate from risk analysis. Problem logs will be kept to identify the issue and a full remediation plan to resolve them. We view issues as potential barriers to success. Valid will document specific procedures that Valid will employ to manage issues, including issue detection, documentation, validation, assignment of an issue owner, resolution, and exit criteria. All issues will be tracked to resolution. When appropriate, issues will be tied back to deliverables.

4.28.3.3.1 For each risk and issue, the action and person(s) responsible for mitigating the risk and resolving the issue, and the time required to implement avoidance and/or mitigation actions.

Vendor Response: COMPLIANT

For each major risk, one of the following approaches will be selected to address it:

Avoid	Eliminate the threat or condition or to protect the project objectives from its impact by eliminating the cause.
Mitigate	Identify ways to reduce the probability or the impact of the risk.
Accept	Nothing will be done.
Contingency	Define actions to be taken in response to risks.
Transfer	Shift the impact of a risk to a third party together with or (buy insurance, outsourcing, etc.).

For each risk to be mitigated, the Project team identifies ways to prevent the risk from occurring or reduce its impact or probability of occurring. This may include prototyping, adding tasks to the Project Plan, adding resources, etc. Any secondary risks that result from risk mitigation response is documented and follows the same risk management protocol as the primary risks.

Mitigation planning defines an approach for controlling and minimizing the impact of a risk.

Risk Mitigation Reviews and Team Communication

Valid's Project Manager will hold weekly risk review meetings with the WVDMV project team as a significant agenda item on the weekly program review. In addition to the weekly risk reviews, Valid's program manager will also hold detailed and focused formal risk assessment review meeting at the beginning of each new phase of the project. Key members of both Valid's and the WVDMV project teams participate in these meetings. Each meeting includes brief examinations of all outstanding risks, identification of new risks, and updating the risk log. Additional risk assessment review meetings are scheduled if a triggering event occurs or becomes more likely to occur.

Valid's Project Manager is the central point of communication with regards to risks and will hold regular meetings to review all project risks identified. The Project Manager coordinates risk management activities with the WVDMV project team. He also tracks and records all information on risks and mitigation actions in the Risk Identification and Management (RIDM) Log which will be reviewed during

Valid and WVDMV meetings and also posted to the Project Artifact repository.

Complex Risk Mitigation Strategies

In the case of complex or poorly understood risks, determining an appropriate mitigation strategy may sometimes require additional, preliminary tasks. In such cases, the additional tasks are added to the project schedule after consultation with the Project Manager.

Tasks for all risks to be mitigated are entered in the Project Schedule with start dates, finish dates, and assigned resources. These tasks are tracked to closure in the project schedule, and regularly communicated to the WVDMV, just as any other scheduled task.

Valid's PMI-based risk management methodology is designed to identify and mitigate both high impact and high probability risks early in the project to avoid late project significant risk realization. An example of this method is an early identification of solution architecture risks and development of risk mitigation plans such proof of concept activities.

4.28.3.3.2 For each risk and issue identified, state the impact to the project schedule discuss and identify all personnel, equipment, facilities, and resources of the Agency that will be required for the Vendor to perform the project work plan tasks at least two (2) weeks in advance of the need.

Vendor Response: COMPLIANT

The Risk Identification and Management (RIDM) log captures all information—description, type, component, etc.—about the identified risks in the project, providing complete information in a single location in an easily accessible format. Valid's Project Manager maintains the log throughout the project.

Following is a list of potential risks we have identified for the project. This list will be expanded and work in collaboration with WVDMV.

Identification			Assessment				Mitigation		
Risk ID	Example Risk Description	Risk Type	Classification	Probability	Priority	Impact	Mitigation Action Plan	Owner	Status
1	Schedule Slips	Planning	Mitigate	Highly Likely	High	Major	Thorough project planning process with sufficient stakeholder input to identify the correct task durations and network logic.	Project Managers	
2	Scope Creep	Scope	Mitigate	Highly Likely	High	Major	Disciplined application of the Change	Project Managers	

							Management Process.		
3	Insufficient Resources Assignments	Resource	Mitigate	Highly Likely	High	Major	Resource plan development with explicit assignments to specific tasks and time periods.	Project Managers	
4	Technical Requirements Definition	Technology	Mitigate	Likely	High	Severe	Thorough functionality and interface evaluation. Detailed deliverable documentation.	Technical Managers	
5	Undocumented Stakeholder Expectations	User Acceptance and Adoption of the System	Mitigate	Likely	High	Moderate	Disciplined application of the Stakeholder Management Plan. End user engagement during the course of the project.	Project Managers	
6	WV DMV Policy and/or Legislative Change introduced during project rollout.	Technology	Acceptance	Low Likelihood	Medium	Moderate	Monitor and forecast. Configurable nature of solution allows for policy change. Analyze change for impact and timing.	Project Sponsors and Project Managers	
7	Legacy Capture System and Camera Tower SDK Specifications undocumented.	Dependencies	Acceptance	Likely	High	Moderate	Manage risk through careful system migration exercise. Engage legacy system team members for collaborative risk identification session.	Technical Managers	

Section 4, Subsection 4.29 - Project Work Plan Objective

Section 4, Subsection 4.29.1 - The Vendor should describe in the response a draft project work plan that includes project phases and milestones from project initiation through fill implementation (i.e., planning, analysis, design, development, testing, deployment, and operations).

Valid will provide formal Validation testing for all supported environments.

Vendor Response: COMPLIANT
The enclosed draft project work plan (i.e., project schedule) addresses the project phases from project initiation through project completion. We have highlighted the recommended milestones in red. We have also identified Valid's deliverables, and cited who is responsible for each task. Of course, this remains a draft schedule; Valid will want to collaborate with WV DMV to adjust the draft project schedule in accordance with the wishes of WV DMV.

Please refer to Project Schedule in Appendix 2 at the end of this proposal.

Section 4, Subsection 4.30 - Test Plan Objective

Section 4, Subsection 4.30.1 - The Vendor should describe how they will develop, implement, and maintain a test plan, subject to the Agency's approval, in accordance with industry standards to manage testing and defect tracking for providing an efficient error correcting process to be used in system and user acceptance testing ("UAT").

Vendor Response: COMPLIANT
Valid maintains a professional Quality Assurance team that oversees all its testing, which is formal, structured, and documented. Valid will develop and maintain test data repositories, in accordance to the requirements of WVDMV. We use comprehensive test plans with detailed test scripts. Valid will submit all test plans and testing results to WVDMV, and invite WVDMV to participate in our testing, if it wishes. Valid will provide WVDMV with weekly progress reports of our testing. In the case of User Acceptance Testing, we will support WVDMV's testing.

Valid will provide formal Validation Testing for all supported environments. Our process will ensure that each testable element will meet the specified requirements. Our process includes identifying, tracking, and resolution of all issues. We will maintain test data repositories, as agreed upon. We will conduct periodic quality and progress reviews with appropriate WVDMV personnel; and we will track progress in our weekly reports. We will maintain a record of solution component approvals by WVDMV, and verify all applicable completion criteria.

The following discussion explains how Valid goes about testing.

Objectives

Valid's testing objectives include testing the quality of all the elements of the CIS and Validating that the CIS is ready for Production. Further, we ensure that the following objectives are met without Level 1 (very serious) or Level 2 (moderate) Defects:

- The CIS meets all WVDMV's business and technical requirements;
- The CIS is successfully integrated end-to-end with the components within the CIS, as designed;
- All Interfaces to third-party systems operate as designed;
- The CIS meets WVDMV's security requirements and its data integration requirements; and,

- The CIS meets the performance standards.

All of Valid's testing includes the following tasks:

- Document the environment plan for each test type;
- Formulate test conditions and cases for each test type;
- Establish a test data plan;
- Align testing with the Requirements Traceability Matrix (RTM);
- Identify test data for each test type;
- Finalize the test scripts for each test; and,
- Prepare for test execution.

Components of Valid's Testing Activities

Test Conditions and Cases

The test team will use test requirements identified in the individual Test Plan to create test conditions, test cases, and test sets. We expect the RTM requirements to be derived from the use cases of the system (i.e., the functional or business requirements) and the technical (nonfunctional) requirements. We plan to analyze with WVDMV its customer-level requirements so we can translate them into implementable and testable requirements.

Test conditions are testable functional and non-functional attributes of the applications, interfaces, reports, and end-to-end flows. Test cases are grouped by test condition. A test case is a detailed description of the related test condition with unique input and output specifications. Both Valid and invalid test cases may be created for each test condition. It is possible to have multiple test cases for each test condition. The expected result specifies the anticipated outcome of the test case and must be identifiable, quantifiable, and written in enough detail to warrant a "pass" or "fail" rating. All of the test conditions and test cases will be captured within the test management tool.

Test Scripts

Initial drafts of the test scripts are created by Valid during the design stage; and they can be further refined by WVDMV and Valid as the design sessions continue, as well as during Build and Configuration. As applicable, test sets are a set of tests that are grouped for a specific test cycle. These may include all of the tests within a test stage (if applicable) or a subset depending on the scope of the test cycle. Test scripts and any test sets will be captured and maintained by Valid within the test management tool. In connection with performance testing and regression testing, the test scripts will be created within the specific toolset for that activity.

Test Environments

A test environment sufficient to support the testing requirements will be created during the Implementation and testing activities. Test environment requirements include accommodating the applications, interfaces and extensions, as well as the supporting transactional data.

Test Data

Valid will provide the initial set of test data based on scrambled or de-identified data provided by WVDMV. WVDMV's SMEs can supplement the test data as needed, and would be responsible for Validating the data prior to test execution. The test data plan will specify how data will be generated (*e.g.*, new synthetic data or normalized production-quality data), updated, refreshed, and controlled. All testing documentation will be provided to WVDMV.

Valid will submit for WVDVM a comprehensive Test Plan to manage the testing and defect tracking. Valid will provide WVDMV with an error correcting process to be used in the system testing and in UAT.

Section 4, Subsection 4.31 - Test Plan

Section 4, Subsection 4.31.1 - The test plan should include all the following:

Vendor Response: COMPLIANT
Valid understands that testing is a critical component of any successful implementation. As such, we will provide a comprehensive Test Plan that will address each test stage requested above.

Test Stages

Key activities will be performed during each stage of testing to enable successful progression to the next test stage. Each of the test stages details the activity, activity description, the responsible party, the tools and templates, and the project outputs. Valid plans to provide the following test stages:

- Unit Testing
- Usability Testing
- interface testing
- System Integration Testing
- Functional Testing
- Performance Testing
- Disaster Recovery Testing
- User Acceptance Testing -- Business users will be brought in from all stages of the business process to determine if the system is performing as required, and that they support the business processes. UAT is the final review by the WVDMV business side, and will lead to formal sign-off, which indicated the authorization to deploy the changes.
- Regression Testing

4.31.1.1 Unit testing — on-going development testing (Vendor)

Vendor Response: COMPLIANT
Unit testing is characterized by individual components of the system, tested in isolation. This is done on the Valid side only. However, the results will be provided to WVDMV.

4.31.1.2 Integration testing — all the pieces work together (Vendor and the Agency)

Vendor Response: COMPLIANT
A detailed, and extensive set of testing of our integrated systems occurs in 2 phases:

- Level 1 is to ensure all the pieces are connected and that the systems and the systems are 'talking'.
- Level 2 ensures all the systems are integrated successfully to provide expected results.

4.31.1.3 Usability testing — user friendly, intuitive application (Vendor and the Agency)

Vendor Response: COMPLIANT
Usability testing ensures a user friendly, intuitive application. This testing should be performed by Valid to ensure that the system meets the user requirements, and then by WVDMV to ensure that the system is intuitive and meets expectations.

4.31.1.4 Functional testing — test scenarios against requirements (Vendor and the Agency)

Vendor Response: COMPLIANT
In Functionality Testing we test scenarios against requirements. In each selected environment, the test teams will ensure the code is functional and working as expected against requirements. The testers will test increments of functionality, and will verify that the associated requirements are met.

4.31.1.5 Performance testing — stress and load (Vendor)

4.31.1.5.1 Vendor to provide mechanism to create load and stress conditions

Vendor Response: COMPLIANT
Load and Stress testing is a key part of Valid's performance testing. Its purpose is to ensure that each system Valid provides (QA and Production) can support an ID/DL load well beyond the limits of normal operations. Valid understands that this solution is mission critical, and our executing a strong load and stress test is particularly important.

Stress tests commonly put a great emphasis on robustness, availability and error handling under a heavy load – much more than would be considered correct behavior under normal circumstances. The load and stress testing will reveal our ability to maintain a solid level of effectiveness under unfavorable, "stressed' conditions. WVDMV can be assured that we will deliberately create an adverse environment to properly conduct an effective stress test and fully exercise the system's functionality within those adverse conditions.

For stress and load capacity, Valid uses a tool, JMETER, to create load and stress conditions for our WebLink ID and BioLink ID products, enabling analysis and measurement of their respective performance. This tool is cross-platform, does not require a physical installation, and doesn't need to be on the server(s) being tested. It is also very useful in measuring response times for HTTP requests. It

can include and receive payloads which we can configure from .csv (comma separate value) files which are essentially no-frills spreadsheets. We can set up to run a selected number of tests, apply the load for a configured timeframe, or run indefinitely. We can also run a specified 'ramp up' time which can assist in simulating multiple users using the system at different intervals until all users are accessing the system simultaneously. Finally, we will report successful requests in the same way that we report errors, which enables a comprehensive evaluation regarding how the system handles both load and stress.

Valid will provide WVDMV for its review and approval the results of its load and stress testing, as well as metrics attained. The following are samples of the metrics Valid uses:

Throughput metrics will specify, as applicable:

- The exact type or types of functional transactions to be measured
- The time periods during the day, week, month, and business cycle when the measurements are to be made
- The time interval allocated for executing and measuring the test results
- The minimum acceptable number of transactions to be processed during the time interval
- The anticipated method of measurement

Response-Time metrics will specify, as applicable:

- The exact types of functional transactions to be measured
- The start and end points of each measurement
- The time periods during the day, week, month, and business cycle when the measurements are to be made
- The expected numbers of logged-in and simultaneously active users, respectively
- The anticipated method of measurement
- The volume and type of simultaneous functional transactions being processed
- The maximum acceptable response time for each transaction type being measured

4.31.1.6 Testing of external interfaces — communication with other applications, databases, etc. (Vendor and the Agency)

Vendor Response: 

Interface testing includes all interfaces (end-to-end) which communications to any other applications, databases, etc. Interface testing is performed before System Integration Testing (SIT) to ensure that the interfaces work in both directions.

4.31.1.7 Continuous regression testing — on-going to determine impact of changes (Vendor and the Agency)

Vendor Response: 

Regression testing occurs when there's been any changes to the software or if the environment is changed. During this phase the Test Team will test previously tested programs, following modification,

to ensure that defects have not been introduced or uncovered in unchanged areas of the software, as a result of the changes made.

4.31.1.8 Backup and recovery testing— ability to conduct a local recovery and disaster recovery (Vendor and the Agency)

Vendor Response: COMPLIANT
Backup and local recovery – Since Valid uses two separate card personalization facilities, the backup and local recovery testing is actually a failover test to the other site, and back again.

On the WVDMV side, we understand that the IT datacenter disaster recovery will be provided by the State WV Office of Technology.

Section 4, Subsection 4.31.2 - The test plan should include schedule for when software or other changes will be deployed to the test system and testers must receive documentation of the changes.

Vendor Response: COMPLIANT
Our Project Test Plan includes a full explanation regarding how our software will be deployed to the test system, and how we document (Build Release Notes) the changes contained in each Build version. The test plan identifies when the software will be deployed and is kept in synch with the Project Schedule, which reflect all testing.

4.31.3 - The Agency requests a minimum of two (2) weeks' notice to schedule resources for UAT.

Vendor Response: COMPLIANT
Generally, Valid works with its customers to schedule a UAT at least one month in advance. Valid understands that scheduling the resources to support UAT is a non-trivial matter, and we will thoroughly plan for that event with WVDMV, providing notice of four (4) weeks or more.

Section 4, Subsection 4.32 - Test Scripts

Section 4, Subsection 4.32.1 - The Vendor should provide and execute a test script, subject to the Agency approval, prior to the implementation of equipment, configuration changes and/or software to the UAT system. the Agency should conduct testing of new equipment and/or software in UAT before any such changes are installed in production.

Vendor Response: COMPLIANT
Test scripts and any test sets will be captured and maintained by Valid within the test management tool. In connection with performance testing and regression testing, the test scripts will be created within the specific toolset for that activity.

Valid will provide the test scripts to WVDMV for its approval, prior to implementation of equipment, configuration changes and/or software to the UAT system. Valid acknowledges that WVDMV will conduct testing of new equipment and/or software in UAT system before any such changes are installed in Production.

Section 4, Subsection 4.32.2 - Full regression testing by the Vendor on the QA system should be completed before any change is deployed to the I-TAT system.

Vendor Response: COMPLIANT
Valid completely agrees that it will complete full regression testing on the QA system prior to deploying any change.

Section 4, Subsection 4.33 - Documentation for Testing

Section 4, Subsection 4.33.1 - Updated user, and/or administrator manuals should be supplied prior to the testing and acceptance phases of the project.

Vendor Response: COMPLIANT
Valid acknowledges that it will supply User and/or Administrator manuals prior to testing and acceptance phases of the project.

Section 4, Subsection 4.33.2 - Vendor should supply written test cases for the Agency resources to use during UAT.

Vendor Response: COMPLIANT
Valid agrees to supply written test cases for WVDMV resources to use during UAT.

Section 4, Subsection 4.34 - User Acceptance Testing

Section 4, Subsection 4.34.1 - The user acceptance testing (UAT) should be planned and coordinated jointly by the Vendor and the Agency project managers.

Vendor Response: COMPLIANT
Valid acknowledges that its PM will work diligently with WVDMV PM to plan and coordinate the User Acceptance Test.

4.34.2 - The Vendor should use standard defect tracking tools to track all feedback from testers. Final UAT should end when the system has met the standard of performance for a period of seven (7) consecutive calendar days, as determined by the Agency Project Manager in conjunction with the

Agency testers.

Vendor Response: COMPLIANT
Valid will use its JIRA defect tracking tool to track all feedback from testers. Valid acknowledges that the Final UAT will not end until the Valid-provided system has met the standards of performance for ten consecutive working days – as determined by the WVDMV PM in alignment with the WVDMV testers.

When the tester finds a defect within a test case, the tester will create a bug or user story linked to the test case being executed, and assign to the appropriate developer with the status of "ACTIVE". The story is not considered complete if a defect is found that is within the functionality identified in the acceptance criteria for the test case. The tester works with the developer to replicate the problem and troubleshoot the issue. Once the developer fixes the defect—the developer will change the status from "ACTIVE" to "RESOLVE" and re-assign the bug to the tester for re-test. The bug is deemed as fixed if it has passes re-retest and regression testing. The tester will change the status from "RESOLVED" to "CLOSED" and the story is considered complete when all bugs have been closed and test case can be executed fully.

The essential data items to be recorded for any bugs are:

- Title
- Status:
  - Assigned to
  - State
  - Reason
- Details:
  - Severity
  - Area
  - Backlog priority
  - Repro Steps
- History
- Links
- Attachments

Section 4, Subsection 4.34.3 - Prior to final sign-off of user acceptance testing, all stated requirements for functionality should be in place, tested, and working free of bugs or defects, and all system performance testing must be complete and must meet required performance measures.

Vendor Response: COMPLIANT
Valid acknowledges that prior to final sign-off of UAT, the stated functional requirements (documented in the Requirements Traceability Matrix) will be in place, test and free of working defects, and all system performance testing will be complete and will have met the required performance measures.

Section 4, Subsection 4.35 - Test Materials

Section 4, Subsection 435.1 - The Vendor should provide test materials at no additional cost to the Agency. This includes secure paper for testing production of the temporary DL and card materials for testing the end-to-end process through the central issuance facilities.

Vendor Response: 

Valid will provide secure paper for the testing of the temporary DLs and will provide completed cards (driver licenses) from our central issuance facilities for the testing of the end-to-end performance process.

Section 4, Subsection 4.36 - Test Systems

Section 4, Subsection 4.36.1 - The Vendor should describe how they will conduct Vendor Quality Assurance Testing.

Vendor Response:
Valid will procure and install a QA System to be installed at a Valid facility, and will be fully accessible to our QA employees. Thus, any development, enhancement, upgrade, or change will be thoroughly tested by Valid on this system prior to releasing to WVDMV for UAT.

Section 4, Subsection 4.36.2 - The Vendor should describe how they propose to facilitate Agency User Acceptance Testing prior to full system implementation, and during the first two years of the contract period, as well as being available for on-going testing and training for the life of the contract.

Vendor Response:
Valid will procure a second complete User Acceptance test system, to be installed at the WVDMV data center, accessible to WV staff who will be responsible for testing any enhancements, upgrades, or changes prior to moving them into the WVDMV Production environment. Valid understands that this system will be used for the initial UAT during the first two years of the contract period, and prior to full system implementation. Valid acknowledges that this same UA test system will be available for ongoing testing and training for the life of the contract.

Section 4, Subsection 4.37 - Training Plan Objective

Section 4, Subsection 4.37.1 - The Vendor should describe how they will develop and implement a training plan that specifies the approach and steps to be taken by the Vendor to ensure that the knowledge, skills, and abilities necessary to operate the proposed system are transferred to the Agency's Train-the-Trainers (approximately 75 employees).

Vendor Response:
Valid will develop and implement a comprehensive Training Plan that will specify its approach to ensuring a knowledge transfer in operating the new system to the WVDMV trainers. Well before the

initial conversion to the new CIS solution, and in alignment with WVDMV intentions, Valid will finalize the training program and formulate how the WVDMV trainers, functional teams, system administrators, office locations, and Help Desk staff will undergo their training. Further, Valid will present to WVDMV a training material walkthrough and then a training presentation rehearsal for the WVDMV staff to approve. An extensive list of training materials will be provided in the Training Plan. All training materials will be provided in electronic format to the Agency's employees. Valid will ensure that as we train the Agency's trainers we will transfer to them the knowledge and skills needed to operate the proposed system.

Valid has a very positive experience in the Train-the-Trainer (TTT) approach at other government agencies. Valid will deliver TTT training to all WV-designated trainers, and will detail how that will occur in the Training Plan. Valid acknowledges that the training dates for the TTT training will be determined as part of the Implementation Plan.

4.38 - Training Guide Objective

Section 4, Subsection 4.38.1 - The Vendor should describe how their training guide will be made available to all Agency employees.

Vendor Response: 

We agree to provide a Training Guide for each WVDMV employee, specific to the class content. These training guides will be job-specific. There should be separate training guides for front office operations staff, back office administration staff, and technical staff, respectively. Within the back office, there will be sub-categories of staff that need specific role-based training; and we will address that. The knowledge to be transferred differs by group, and so the training guides must reflect that.

In addition to guides for the WVDMV employees, Valid recommends the development of training tools for law enforcement to help them better understand the new DLs and IDs that will be issued.

- Law Enforcement need to fully understand the endorsements and restrictions on licenses. Thus, Valid will design wallet-sized crosswalk cards explaining endorsements and restrictions, for WVDMV to reproduce, as needed.
- To address the security features on DLs and IDs so that law enforcement officers can quickly discern potential fraud, Valid will support the WVDMV efforts to provide training information (e.g., PowerPoints) and to provide training to Law Enforcement groups, on an as-needed basis.

Section 4, Subsection 4.39 - Training Guide

Section 4, Subsection 4.39.1 - The training guide should include:

4.39.1.1 An introduction to the Digital Driver's License application systems

4.39.1.2 A layman's explanation of the function of each component of the system

4.39.1.3 Systematic operating instructions for system components

4.39.1.4 Procedures for system start-up, daily operation, and end-of-day transactions

4.39.1.5 Guidelines for maintenance, problem solving, troubleshooting, back-up, and recovery

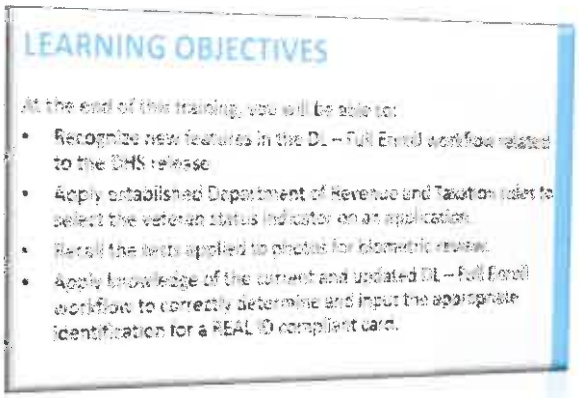
Vendor Response: 

Valid understands the importance of high-quality training materials to support WVDMV's staff during and after formal training. For all segments of the credential issuance process, Valid will develop a comprehensive set of training materials and leave-behind materials to include electronic (fully editable) and printed copy format of all training documents.

Valid will develop and deliver comprehensive training materials, specifically designed and tailored to meet the business requirements of WVDMV as configured in the credential issuance solution, covering all important business and technical functions. Valid recommends a thorough walkthrough of all draft training materials with the WVDMV prior to their final revision. This includes user guides, maintenance manuals, training aids, brochures, and quick reference guides, etc. Valid will produce the final training materials at least 60 days prior to deployment and finalization of the training schedule. All training materials are provided in in electronic formats to accommodate future changes and for reproduction and distribution.

The Training Guide is one of the deliverables of or training materials to be provided, but it is a particularly important deliverable. The Training Guide will be delivered in PDF and Microsoft Word versions. And it will include:

- An overview of the Credential Issuance System solution and description of its component parts.
- An introduction to the Digital Driver's License applications systems.
- A layman's explanation of the function of each component of the system.
- Systematic operating instructions for system components.
- Procedures for system start-up, daily operation, and end-of-day transactions.
- Guidelines for maintenance, problem solving, troubleshooting, back-up, and recovery.
- Availability of other training items:
    - Quick Reference Guides, including troubleshooting tips
    - Reference Cards
    - Online Tutorials for refresher training
    - Online Help materials
    - Data dictionary of terms



Sample training guide

Section 4, Subsection 4.40 - User Operations Manuals Objectives

Section 4, Subsection 4.40.1 - The Vendor should describe how they will provide documentation for functional specifications and user manuals for all system components.

Vendor Response:
Valid understands the importance of high-quality documentation for functional specifications and user manuals for all system components to support WVDMV's staff during and after formal training. For all segments of the credential issuance process, Valid will develop a comprehensive set of materials to include electronic (fully editable) and printed copy format of all documents. These documents will be specifically designed and tailored to meet the business requirements of the WVDMV, covering all important business and technical functions. All materials will be provided in electronic and hard copy formats.

Section 4, Subsection 4.40.2 - The Vendor should explain how user operations manuals will be made accessible as a reference document.

Vendor Response: COMPLIANT
Valid will provide one hardcopy User Operations Manual for every station that uses an image capture workstation, as well as electronic versions upon request.

Section 4, Subsection 4.41 - Technical Documentation Objective

Section 4, Subsection 4.41.1 - Vendor should explain how they will deliver and maintain technical documentation that describes the operation of all system components, including their interfaces to Agency or third-party systems. This documentation should include:

4.41.1.1 Complete Data Dictionary with all tables, fields, and values

4.41.1.2 System Architecture Diagrams

4.41.1.3 Communication Protocols

4.41.1.4 Listing of all data center equipment with DNS and IP information, operating systems, and software information including versions

4.41.1.5 Functional Specifications for the interaction of all components

Vendor Response: COMPLIANT

Valid will describe the operation of all system components, including their interfaces to WVDMV or third-party systems in a Technical Procedures Manual. This manual will include:

- Complete Data Dictionary with all tables, fields, and values
- System Architecture Diagrams
- Communication Protocols
- Listing of all data center equipment with DNS and IP information, operating systems, and software information including versions
- Functional Specifications for the interaction of all components
- Strategy for configuring the equipment
- Interface documentation
- Backup systems, data recovery
- Access permissions
- Software update schedule

As with our other training collaterals, all technical documentation will be maintained in electronic format, will be reviewed and updated at least quarterly, and will be amended with inputs from the WVDMV, system updates, and product and application software updates.

Section 4, Subsection 4.42 - Updates to Documentation Objective

Section 4, Subsection 4.42.1 - The Vendor should describe how they will supply and or update all training, operations, or troubleshooting manuals when a system is replaced, or software is upgraded creating a significant change to a process.

Vendor Response: COMPLIANT

Whenever a Valid system is replaced or Valid software is upgraded, creating significant process change, Valid will update all training, operations, or troubleshooting sections to its manuals and other

documentation. And Valid will re-distribute the changed materials to all impacted locations.

Section 4, Subsection 4.43 - Implementation Plan Objective

Section 4, Subsection 4.43.1 - The Vendor should detail their implementation plan for every component of the system. The implementation plan should ensure all equipment and system components can be installed and functional prior to the target go live date of the system.

Vendor Response: COMPLIANT
Valid agrees that it is responsible to prepare an implementation plan for every component of the system. The Implementation Plan will ensure that all equipment and system components can be installed and functional before the system's target 'go live' date. Valid will fully implement the system and all the components at all facilities in the State of West Virginia. Please see the example Implementation Plan in Appendix 1.

Valid agrees that, at a minimum, the Implementation Plan will include the following components:

- Listing of the Vendor resource for each implementation task
- Plan for conducting site surveys of all WVDMV facilities
- Schedule including delivery and installation of equipment and training
- Plan for migrating data from current image database
- Plan for installation and coordination of a minimum of three pilot facilities
- Plan for installation and deployment of all data center equipment and systems
- Plan for installation and deployment of all central issuance facility equipment and production procedures

Section 4, Subsection 4.44 On-site Training

Section 4, Subsection 4.44.1 - As part of the Vendor's Training Plan, the Vendor should describe how they will conduct on-site Train-the-Trainer instruction. This should include duration, methods, materials provided by the Vendor, materials required of the Agency and number of trainers conducting the training.

Vendor Response: COMPLIANT
We will provide on-site training at the WVDMV headquarters or other venue designated by WVDMV. Additionally, we will provide all training materials in electronic and hard copy.

Valid's train-the-trainer course with accompanying training materials will enable WVDMV trainers to become proficient with the credential producing solution in order for the trainers to adequately train end users – whether those end users are administrative, technical or operational.

Valid will provide a full train-the-trainer program designed to segment and address the needs of each

role-based constituency that the trainers will train. This is the key to the TTT program. We fully understand that one set of training doesn't work for everyone. We will provide detailed, tailored training and training support materials addressing all the role-based constituencies, so that the trainers will be successful in their efforts.

Valid's train-the-trainer program will enable WVDMC trainers to become proficient with the solution in order to adequately train end users. Valid will submit instructor course materials to be used to support the WVDMV trainers when they deliver their end-user training. Scripts will be created enabling consistent training and messaging from all trainers. In-class feedback will be used to ensure that trainers are comfortable with their mastery of the training content and their presentation skills. Valid will focus on hands-on training to increase the confidence of the trainers.

- Instructor course materials for train-the-trainer training include, but not limited to:
- Instructor course guide
- Presentation with course notes
- Participant Guide with hands-on activities
- Course evaluation forms

The Train-The-Trainer (TTT) Personnel Training Plan Requirements Table outlines and describes the requirements to be addressed for the WVDMV and their trainers.

TTT Training Plan Requirements Table

Requirement Title	Requirement Statement
Valid and Training Manager	Valid to provide a training manager (lead) to manage the overall training plan.
TTT Staff Training Plan	Valid will refine the training plan for the WVDMV's operational staff, reviewing the plan's objectives, schedule, strategies for designing and developing curricula, and supporting training materials, training environment data, and methods for implementation. The TTT Training Plan will include the following: • Method of training. • Length of training (estimate number of hours for each type of employee). • Facility requirements for training. • Detailed outline and description of each training session • List of training materials, user manuals and samples.
Training curriculum	Addresses all components required, including curricula tailored specifically to train the operations and administrative staffs and

	provides the content of the training courses including assumptions, target audience, goals, objectives, instructional materials, time frame, evaluation and accountability.
Customized Web-based Training	Valid will provide customized web-based training to meet the CIS Solution training needs.
Customized Training Materials	Valid will develop customized and comprehensive training materials for the TTT staff. Complete, comprehensive end-user training materials consisting of custom web-based trainings, a set of materials for classroom-based instruction, and for each, practice scenarios.
Quick Reference Guides	The quick reference guides have been completed and are fit for purpose.
Final revisions to end user, instructor, custom web-based trainings and printed course materials	Final revisions and edits are made to instructors, custom web-based trainings and printed course materials based on input from Valid and the WVDMV.

Valid understands that WVDMC and its employees must receive sufficient system management and operations training to provide daily operational proficiency. The training at each site will include the following:

1) Equipment/software driver information and operation
2) Trouble shooting and monitoring
3) Preventive maintenance tasks (i.e. cleaning, refills, replenishment)
4) DL/ID solution operation

Train The Trainer Training (TTT) Curriculum

The TTT Training curriculum will include the following:

- Introduction
- Equipment / Software
- Overview of the DL/ID Card Production Process
- Administrative Functions
- Photo & Signature Best Practices
- Preventive Maintenance & Troubleshooting
- Hands-On Processing
- Security Processes and Procedures
- Help Desk Procedures
- Question and Answer Session
- Training Evaluation Form
- Production Support

Section 4, Subsection 4.45 - Account Manager for Operations

Section 4, Subsection 4.45.1 - Vendor should provide the Agency one primary person who will be responsible for the long-term management of the contract and service level agreement. Explain the role the account manager will have in the escalation process for issues that cannot get resolved through normal processes and within agreed upon timelines.

Vendor Response: COMPLIANT
Valid has selected a capable, proficient Account Manager to provide long-term management of the contract and service level agreement. Valid agrees that a key role of the Account Manager for this important project is to serve as an escalation point for any issues that are not resolved within the agreed upon processes and time frames. Our Account Manager will also serve as a liaison for WVDMV with all other departments within the Valid organization.

SERVICE LEVEL AGREEMENT

Section 4, Subsection 4.46 - Replacement of Equipment / Inventory of Spares

Section 4, Subsection 4.46.1 - The Vendor should explain how their proposal will address chronic hardware issues. (Requires a support call and occurs three (3) or more times within a twelve (12) month period).

Vendor Response: COMPLIANT
For chronic or repeat issues, or if a problem affects facility operations or other issuance or retrieval operations, or it prevents or impedes proper database storage and back-up processes, even if it does not result in downtime, then Valid will immediately dispatch a system expert to the site of the central image server or facial recognition system if a problem remains undiagnosed and/or unresolved after 72 hours. Valid will provide the following service levels:

- At the time of installation, Valid will provide new equipment, and that equipment will be in good working order.
- Valid agrees to replace any hardware if its maintenance or repair problems are chronic. This effort requires a support call, if it occurs three (3) or more times within a twelve-month period.
- Valid will replace the chronically-malfunctioning equipment with new equipment.

Section 4, Subsection 4.46.2 – If a repair or maintenance problem is systemic, i.e. occurring system wide, the Vendor should provide a system wide solution, which may include statewide upgrade or replacement of all units.

Vendor Response: COMPLIANT
If a repair or maintenance problem is systemic, then Valid will provide a system-wide solution, which may include a statewide upgrade or replacement of all units.

Section 4, Subsection 4.46.3 - The Vendor should explain how their proposal will address equipment to be used as replacement units, as needed for service calls.

Vendor Response:
Valid will maintain a suitable quantity of each type of equipment to be used as replacement units or spares, as needed for service calls.

Section 4, Subsection 4.47 - Service Response Times

Section 4, Subsection 4.47.1 - The Vendor should detail their proposed service response plan for dealing with issues related to CIF, ICW, CIDS, CIS and FRS. This should include a response in the number of working hours expected after notification based on the component and severity of the fault.

Vendor Response: 

For ICW components:

We will repair or replace all (ICW) image capture workstations within the following timeframes:

- Six working hours after notification that an ICW component needs remedial maintenance, if a back-up or replacement unit is available for use on site.
- Two hours after notification that an ICW component needs remedial maintenance, if a backup or replacement unit is not available on site.

If the facility is "down", that is, unable to process applicants, we will continue to work on down equipment until the site can process. This includes non-working hours. Valid's Field Services Support team will not leave at 5pm and come back the next day without approval from the WVDMV system administrator and the facility manager.

For CIDS and FRS components:

We will repair or replace all credential issuance solutions, Central Image / Demographic System (CIDS), and Facial Recognition Systems (FRS) within the following timeframes:

- Four (4) hours after notification of a problem with the central image system or facial recognition system if the system is still available for use.
- Two (2) hours after notification of a problem with the central image system or facial recognition system if the failover is not working and the system is not available for use.

Vendor must provide emergency support24 hours per day, 7 days per week for the Central Image and FRS systems.

For CIF Components:

Valid's Card Personalization Factories (CPFs) have a built-in backup solution that enables Valid to move processing to the 2nd facility. Valid has implemented a unique solution for its customers who cannot readily absorb downtime or even the risk of downtime. At no additional charge, Valid offers a dual hot site solution. Valid uses two geographically-separated personalization factories to produce IDs/DLs – each running under 50% capacity, and each capable of receiving all of the ID/DL workload from one facility to the other – initiated within a moments' notice. This capability fully mitigates risks of major disasters and unforeseen events, but also assuages concerns over malfunctioning printers and sorters needing repair, or waiting on parts. Further, disasters are not only about equipment and facilities, but about re-staffing at the disaster site. With Valid's dual hot sites, both locations maintain a full complement of staff who know your application intimately, and who produce your ID/DLs daily.

Section 4, Subsection 4.48 - Help Desk Support

Section 4, Subsection 4.48.1 - The Vendor should explain their Help Desk capabilities and responsibilities. This should include hours of operation, response times, remote access requirements, field service technician involvement, and escalation process.

Vendor Response: 

During the entire term of the contract, Valid will provide WVDMV with a toll-free Help Desk number and email address to contact it for technical support. At a minimum, the Help Desk will operate during the following time periods:

- 7:30 am to 6:00 pm, Eastern Time Monday through Friday.
- 7:30 am to 12:30 pm, Eastern Time Saturdays
- Extended hours as needed for special events such as the West Virginia State Fair.

Within fifteen (15) minutes of the phone call or receipt of the email, a Valid representative from Valid Field Services or the Valid Help Desk will call the designated WVDMV contact to determine the exact probable.

If a problem cannot be resolved over the phone, remote access will be used to diagnose and fix the problem. If the problem cannot be fixed remotely, Valid will dispatch a field service technician to resolve the issue. Valid has a clearly defined problem escalation process; and all Valid Help Desk and Field Service personnel will be trained and knowledgeable in this process.

Section 4, Subsection 4.49 - Help Desk Reporting System

Section 4, Subsection 4.49.1 - Vendor should explain their help desk reporting system used to report, log, and track support issues, including the how the Agency will access the system, automatic tracking of issues and notification alerts, and report generation capabilities.

Vendor Response: COMPLIANT

Valid will log all support issues in a Help Desk Reporting System and updated in real time. Valid uses JIRA, a commercially available, off-the-shelf, problem resolution, and tracking system provided by Atlassian. Valid can provide WVDMV with access to the reporting system for review of open, closed, and resolved support tickets. Valid's JIRA problem resolution and tracking system is capable of automatic tracking of response times and can send alerts when issues require escalation, if response times are exceeded.

Valid's JIRA problem resolution and tracking system provides summary and detail reports on repetitive or chronic issues, open and closed tickets, maintenance performed, and average response times. Valid can report by facility for specific date range.

Section 4, Subsection 4.50 - Implementation Plan

Valid will prepare an implementation plan for every component of the system. The Implementation Plan will ensure that all equipment and system components can be installed and functional before the system's target 'go live' date. Valid will fully implement the system and all the components at all facilities in the State of West Virginia. Valid has prepared a sample Implementation Plan which is located in Appendix 1.

Section 4, subsection 4.50.1 - The implementation plan should include:

4.51.1.1 Listing of the Vendor resources for each implementation task

4.51.1.2 Plan for conducting site surveys of all the Agency facilities

4.51.1.3 Schedule including delivery and installation of equipment and training

4.51.1.4 Plan for migrating data from current image database

4.51.1.5 Plan for installation and deployment of all data center equipment and systems

4.51.1.6 Plan for installation and deployment of all central issuance facility equipment and production procedures

Vendor Response: COMPLIANT

Valid will collaborate with WVDMV to adjust the Implementation Plan to fully meet the State's needs. Valid agrees that, at a minimum, the Implementation Plan will include the following components; each bulleted item is currently shown in the sample Implementation Plan in Appendix 1 at the end of this proposal:

- Listing of the Vendor resource for each implementation task

- Plan for conducting site surveys of all WVDMV facilities
- Schedule including delivery and installation of equipment and training
- Plan for migrating data from current image database
- Plan for installation and coordination of a minimum of three pilot facilities
- Plan for installation and deployment of all data center equipment and systems
- Plan for installation and deployment of all central issuance facility equipment and production procedures

4.51.1.7 The Vendor should provide as a part of their proposal, a sample plan for the implementation and rollout of the solution to all locations, including timeline.

Vendor Response: COMPLIANT
Valid has prepared a detailed sample Implementation Plan which identifies the rollout of the solution; the timeline is shown in the Project Schedule. They are located in Appendix 1 and 2.

Section 4, Subsection 4.51 - 14 Day Pre-Post Support Plan

Section 4, Subsection 4.51.1 - The Vendor should provide a comprehensive plan for product support that consists of a 7-day period prior to and a 7-day period immediately following implementation.

Vendor Response: COMPLIANT
We will provide onsite support at each location during the installation of the Pilot facilities. We will provide support for WVDMV staff during installation and configuration of any system component. Valid will provide enhanced dedicated support for WVDMV during the first 90 days after full system is live, especially for the 7-day period prior to and a 7-day period immediately following implementation. This is detailed in the sample Implementation Plan. Later, we will transition to long-term, Help Desk/Field Services support.

Section 4, Subsection 4.51.2 - Support should be available on-site at the agency headquarters in Kanawha City. Support should be available to installation technicians and the Agency staff during installation and configuration of any system component.

Vendor Response: COMPLIANT
Valid will maintain on-site support at the agency headquarters through its Valid Field Services team. This support will be available to the Agency during installation and configuration and continuing throughout the operational period.

FACILITY MAGE & SIGNATURE CAPTURE WORKSTATION (ICW) REQUIREMENTS

Section 4, Subsection 5.1 - Vendor must install digitized image capture workstations at each of the twenty-seven (27) locations as defined in Attachment D. At the time of installation, all equipment must be new and in good working order.

Vendor Response: COMPLIANT
Valid will install digitized image capture workstations at each of the 27 locations (25 regional DMV offices and two locations in the Central Office). At the time of installation, Valid plans to utilize the state's existing ICW stations, in accordance with the state's offering of this equipment, and that equipment will be tested to ensure they are in good working order.

Section 4, Subsection 5.2 - Functional - ICAO

Section 4, Subsection 5.2.1 - Image must meet ISO/IEC 19794-5:2011 Information Technology— Biometric Data Interchange Formats — Part 5: Face Image Data or current specifications. http://www.iso.org/iso/home/store/catalogue_ics/catalogue_detail_ics.htm?csnumber=50867

Vendor Response: COMPLIANT
ISO/IEC 19794-5:2011 Information Technology – Biometric Data Interchange Formats defines a standard schema for encoding biometric data of facial portraits so as to standardize the data for use by various products. In addition to data formats, the standard describes certain characteristics of the image itself, such as pose, lighting, focus, format and resolution, amongst others. The ISO/IEC standard has been cross referenced by the International Civil Aviation Organization (ICAO) in their standard 9303, Part 3:2015. These standards have been in effect for some time and Valid is fully compliant with them.

Section 4, Subsection 5.2.2 The system must be capable of ICAO image quality checks.

ICAO Image Quality Check Features

Vendor Response: COMPLIANT

Valid has integrated ICAO image quality checks. The software can be configured to only look at certain features like pose, face, lighting, glasses etc., or the software can be configured to check all ICAO quality checks and present to the user which ones passed and which ones failed. The operator then has the option to accept the capture or retake the capture with the specific failure corrected.

Additionally, there is an administrative configuration utility to set up which ICAO quality features are required.

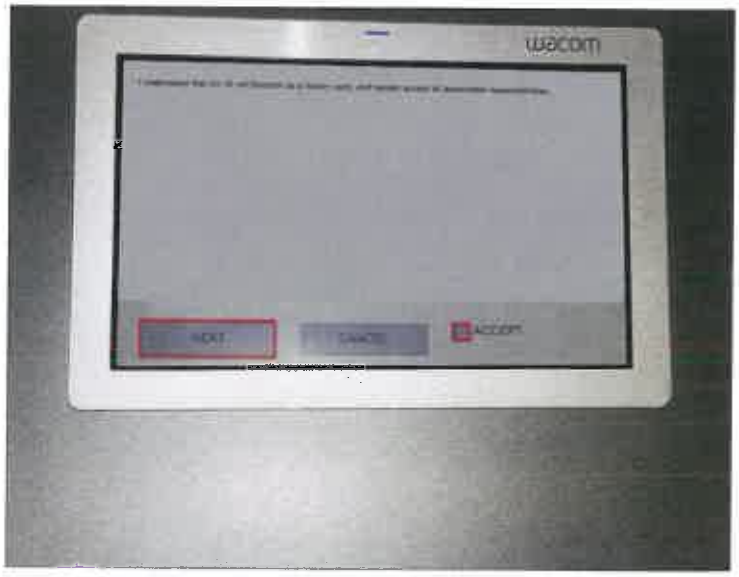
Section 4, Subsection 5.3 - Functional - Interface with Agency Internal Systems

Section 4, Subsection 5.3.1 - Must interface with the dmvFIRST Web Application, a component of dmvDRIVES, via a web service call. This interface ensures the appropriate fees are collected based on the type of credential issued.

Vendor Response: COMPLIANT
Valid's proposed solution is a web services based platform designed specifically to interface with other web services engines such as *dmv*DRIVES.

Section 4, Subsection 5.3.2 - Must display voter registration questions on the signature pad and send the returned responses to the West Virginia Secretary of State's Office, to include applicant signature, required per West Virginia Code §3-2-11.

Vendor Response: COMPLIANT
Valid's proposed solution meets these requirements. We can display voter registration questions on the signature pad and send the returned responses to the West Virginia Secretary of State's Office, including the applicant signature, as shown below:



Section 4, Subsection 5.3.3 - Must interface with the State's mainframe system, that serves as the primary driver record, ensuring the applicants status and availability to receive a credential.

Vendor Response: COMPLIANT

Valid understands that the Agency today sends a text file demographic containing the information to be printed on the credential. Valid will discuss with the Agency alternate interface methods.

Valid's WebLink ID can send and receive information from the State's mainframe system. The WebLink ID platform has multiple interfacing mechanisms with existing WVDMV data stores, applications, and services. It uses industry-standard and WVDMV chosen API toolsets and web services (RESTful JSON, SOAP, database-to-database) to streamline the movement of data through a real-time interface that is transparent to the end operator and user. The solution scales with the expected and unexpected WVDMV end-user applicant growth, and it adapts workflows and its presentation layer to accommodate upstream and downstream 3rd party system changes. WebLink ID and its corresponding web services environment are redundant and fault-tolerant, enabling continued operation and communication in the event of hardware or site failures.

Section 4, Subsection 5.3.4 - Must interface with the State's Automated Testing System, passing applicant demographic information.

Vendor Response: COMPLIANT

WebLink ID can readily send and receive testing information from the State's Automated Testing System, which uses a REST-based web-service interface (OCI).

Section 4, Subsection 5.3.5 - Must interface with West Virginia Interactive passing applicant demographic information related to multiple online solutions such as DL renewals, and employee ID applications.

Vendor Response: COMPLIANT

Our WebLink ID product can readily send and receive information with West Virginia Interactive; providing multiple online solutions. We excel at web services. Our system can easily send and receive information to and from DMV FIRST Web Application via a web service call to process customer transactions. We can interface with the WV Motor Voter system to display and send questions, responses, acknowledgments, and signature. We can send and receive information from the State's mainframe system that serves as the primary driver record. We can send and receive testing information to and from the State's Automated Testing System. And we can support receiving information from West Virginia Interactive, to provide multiple online self-service solutions. Finally, we can send and receive information to and from WVDMV EMC ApplicationXtender servers.

Section 4, Subsection 5.4. - Functional - Communication with Central Image/Demographic System

Section 4, Subsection 5.4.1 - The ICW must be capable of near real-time transfer (not just nightly batch) of demographic data and images to the central image/demographic system.

Vendor Response: COMPLIANT
The WebLink ID to BioLink ID engines operate in real-time, images collected are enrolled immediately.

Section 4, Subsection 5.4.2 - All images and data captured must be transferred to the central image/demographic system for storage even if the transaction was cancelled or not completed.

5.4.2.1 If the applicant had to cancel or was not able to compete the transaction, Vendor's solution must provide for a verification match of the applicant's image and data against the central image/demographic system upon the applicant's return to any Agency Office for completion of the licensing process.

Vendor Response: COMPLIANT
WebLink ID's workflows can readily meet this request, in accordance with AAMVA and the WVDMV's business rules.

Section 4, Subsection 5.4.3 - Images and data for incomplete transactions must be distinguishable from completed issuance records.

Vendor Response: COMPLIANT
WebLink ID's workflows can readily meet this request, incomplete applications can be flagged as such, and made available both for facial recognition searches, and for administrative review.

Section 4, Subsection 5.5 - Security - Remote Access

Section 4, Subsection 5.5.1 - Secure, remote access to Vendor staff for purposes of support will be allowed via the West Virginia Office of Technology Network Access Form (NAF) request process at no cost to the Vendor.

https://technology.wv.gov/SiteCollectionDocuments/Policies%20Issued%20by%20the%20CTO/2017/PO1021_Account Manager Sgpt2017.pdf

Vendor Response: COMPLIANT

Valid understands and accepts the remote access for our staff, for purposes of support, via the West Virginia Office of Technology Network Access Form (NAF) request process at no cost to us.

SYSTEM ADMINISTRATION REQUIREMENTS

Section 4, Subsection 5.6. - User Interface

Section 4, Subsection 5.6.1 - The solution must include a system administration module with a user interface for managing system settings.

Vendor Response: COMPLIANT
Both WebLink ID and BioLink ID provide web based, administrative management tools for system configuration.

Section 4, Subsection 5.7 - User Account Management

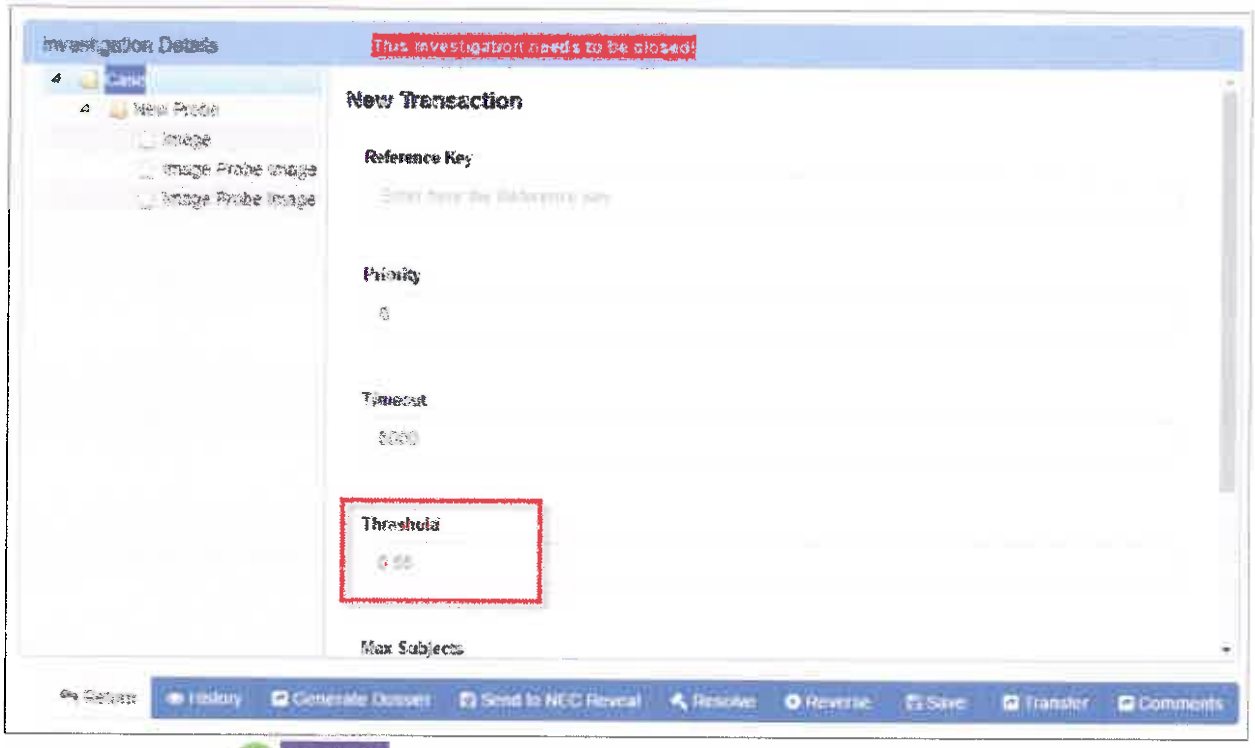
Section 4, Subsection 5.7.1 - Vendor's solution must be compatible with Windows Active Directory protocol to utilize the agencies logon credentials, managed by the Office of Technology, to manage user roles.

Vendor Response: COMPLIANT
Valid enforces password policies through Windows Active Directory. Passwords expire after 90 days, have a fixed character length, and use a combination of upper, lower case, numbers and special characters. Three failed login attempts will lock the user account. Additionally, Valid's applications are architected with the highest security standards and undergo 3rd party penetration testing annually.

Section 4, Subsection 5.8 - System Configuration

Section 4, Subsection 5.8.1 - At a minimum, the Agency must be able to configure the following settings:
5.8.1.1 Thresholds for 1: N and match or non-match results

5.8.1.2 Search limit thresholds for all applications



Vendor Response: COMPLIANT

Valid's facial recognition solution (BioLink ID) is a complete, web-based solution that includes an industry leading-facial processing, mapping and recognition engine, an intuitive, browser-based user interface, and a full suite of case management and investigation tools, all seamlessly integrated with our workflow product. BioLink ID uses leading-edge web technologies which makes it a very light cross-browser solution that is highly reliable, flexible and configurable.

BioLink ID supports both 1:1 image verification for enrollment processing comparisons, 1:N comparisons with scoring for investigative, and image de-duplication purposes. The features of BioLink ID can be enabled/disabled anytime, under a permissioning system that tracks configuration changes, all without any software updates.

One-to-many searches can be configured to run during business hours at enrollment, or in nightly batches. BioLink ID allows search limits to be set at the time of the query, and the boundary of these limits can be controlled administratively.

The hardware and software installation scales to support 1:N searches at desired speed for any sized database by simply adding more cores and RAM to the existing hardware, or by plugging new servers into the matching cluster. BioLink ID features horizontal growth capability which means that WVDMV can add more hardware to the cluster to achieve faster response times.

The hardware and software will be initially provisioned to support both 1:1 and 1:N operations at agreed upon speed for the DVS legacy image database conversion, and for expected applicant growth for the duration of the base contract.

Below is an image showing how basic match thresholds are set, this image is filtered, there are a number of other settings available to the system administrators, to refine the system to meet the states requirement:

CENTRAL IMAGE/DEMOGRAPHIC SYSTEM ("CIDS") REQUIREMENTS

Section 4, Subsection 5.9 - Hardware and Software

Section 4, Subsection 5.9.1 - All software necessary for communication between the central image/demographic system and other Vendor or Agency systems, must be provided by the Vendor.

Vendor Response: COMPLIANT

The Valid solution is designed using service oriented architecture specifically to allow the management and processing of data between multiple data sources and end points. Valid's solution utilizes web services to communicate between the web application, the database engines, the biometric engine and other systems such as AAMVA portals. Additionally, Valid understands and provides for communication to other DMV owned systems. These integrations can be accomplished real-time, using web services and APIs, in batch using file transports, or direct to database via an ODBC, ADO or other such database connection. Valid will work with the state to identify what data, in which systems is needed, and how that data will be secured, transported and audited.

Section 4, Subsection 5.9.2 - All virtual servers necessary for the central image/demographic system shall be provided by and located in the West Virginia Office of Technology data center in Charleston, West Virginia.

Vendor Response: COMPLIANT

Valid understands that WVDMV will be providing the virtual servers at the West Virginia Office of Technology data center which are necessary for the central image system.

Section 4, Subsection 5.9.3 - All data stores necessary for the central image/demographic system shall

be provided by the Agency and located in the West Virginia Office of Technology data center in Charleston, West Virginia

Vendor Response: COMPLIANT
Valid acknowledges that all data storage necessary for the central image/demographic system shall be provided by the Agency and located in the WV Office of technology data center. We understand that this data will be stored using the Agency's VNXe servers.

Section 4, Subsection 5.10 - Data Storage

Section 4, Subsection 5.10.1 - Vendor's solution must meet all policy requirements regarding the collection, storage, usage, classification, transmission, backup, and retention of data as defined by the Office of Technology Policy number POI 001, POI 006, and POI 013.
bttp://www.technoloy.wv.gov/security/Pages/policies-issued-bythe-cto.aspx

Vendor Response: COMPLIANT
Valid will store all data at the WVDMV data center to comply with the State of West Virginia statutory requirements, administrative rules, and records retention requirements.

Section 4, Subsection 5.10.2 - The central image/demographic system must store the facial image files, signature image files, demographic data, and card issuance data for every transaction through the life of the contract. This must include specific card data that will be returned from the central issuance facility.

Vendor Response: COMPLIANT
WebLink ID stores the image, application details, and order information as prescribed by WVDMV through the life of the contract. This module is configurable to store the information required by WVDMV, and the retainment policy is also configurable. Following is an example of the stored information.

Section 4, Subsection 5.10.3 - Facial image and signature files must be stored in JPEG 2000 for image compression, or standard that is an open (consensus) format, without proprietary wrappers, to ensure States can effectively use the image captures of other States as necessary.
https://www.g2Q.gov/fdsys/2kg/FR-2008-01-29/html/08-140.htm

Vendor Response: COMPLIANT
BioLink ID supports many standard image file types: JPEG, PNG, and BMP, and the quality levels and file size may vary.

Section 4, Subsection 5.10.4- The system must log and store audit data for all types of system and data

access including details of specific tasks performed and records accessed.

Vendor Response: COMPLIANT

WebLink ID logs each process executed in a workflow individually. The log entries include the user executing the process, data, time, the process executed, and the output of the process. When a folio successfully passes a milestone or gated requirement, similar logs are created despite the process potentially happening in an automated fashion. Logs are stored based on log type; data entry; and enrollment, Validation, biometric, production, and post-production processes. Investigatory and exclusionary processes are similarly logged.

Access to individual logs can be granted by user, and the logs can be searched, filed, and exported as necessary, as a reporting function or to conduct an audit if required. Audit access is similarly logged within the system, as the audit log viewers are workflows themselves.

The following is sample Audit Log screenshot.

WebLink ID Audit Log Screenshot

Section 4, Subsection 5.11 - Ownership of Data

Section 4, Subsection 5.11.1 - Vendor must sign and agree to Attachment F - WV Division of Motor Vehicles Contract Privacy Policy.

Vendor Response: COMPLIANT

Valid has signed Attachment F, WV Division of Motor Vehicles Contract Private Policy

Section4, Subsection 5.11.2 - Vendor must sign and agree to Attachment H — PII Acknowledgement.

Vendor Response: 

Valid has signed Attachment H, PII Acknowledgement

Section 4, Subsection 5.12. - Access to Data

Section 4, Subsection 5.12.1 - Access to the central image/demographic system will be restricted to individuals whose duties require such access and are authorized by the Agency.

Vendor Response: 

All access through both the web user interface and the web services interfaces are logged and users are authorized in accordance with the required authentication mechanisms for the jurisdiction.

Section 4, Subsection 5.12.2 - Secure, remote access for Vendor staff for purposes of support will be allowed via the West Virginia Office of Technology Network Access Form (NAF) request process at no cost to the Vendor.

Vendor Response: 

Valid understands and will comply with this requirement.

Section 4, Subsection 5.13 - System Performance

Section 4, Subsection 5.13.1 - The total time required from the time the image file transmit request is received by the central image/demographic system until the image file is being transmitted from the central image/demographic system shall not exceed one (1) second during the life of the contract. Total time for retrieval excludes the transmission time across any communications network.

Vendor Response: 

Valid's proposed solution can readily meet these request, search, and response times. We understand that the recommendation for RAM and storage will be agreed upon by Valid and the Agency to meet these requirements.

Section 4, Subsection 5.14 – Software Optimization

Section 4, Subsection 5.14.1 - The Vendor is responsible for any optimization to the software that is required to maintain these response times no matter how many retrieval requests are received.

Vendor Response: COMPLIANT
Valid understands and will comply with this request to maintain the response times no matter how many retrieval requests occur; and we will ensure future software scaling costs are not passed onto WVDMV.

Section 4, Subsection 5.15 - Image Migration and Volume

Section 4, Subsection 5.15.1 - Vendor's solution must provide for the migration of credential images and index information from the current Gemalto ID system to the new central image/demographic system (CIDS). Migration must result in a minimum of 98 percent usage of the current credential images. There are approximately 3 million JPG images that average 1 kbps in size each.

Vendor Response: COMPLIANT
Valid's agrees to migrate all credential images and index information from the current Gemalto ID system to the new central image/demographic system (CIDS). Valid agrees that migration will result in a minimum of 98 percent usage of the current credential images, with approximately 3 million JPG images that average 1 kbps in size each.

SECURE CENTRAL ISSUANCE FACILITY REQUIREMENTS

Section 4, Subsection 5.16 - Credential Issuance

Section 4, Subsection 516.1 - Vendor must meet the requirements of the REAL ID Act of 2005 (http://www.dhs.gov/xlibrary/assets/real-id-act-text.pdf), including any relevant security mandates, including those pertaining to personnel, with supporting documentation provided, as required.

Vendor Response: COMPLIANT
Security within our central issuance facilities meets the requirements of the REAL ID Act and Department of Homeland Security published implementation rules. Valid is Payment Card Industry (PCI) compliant; Visa, MasterCard, and American Express-certified. We currently have Global System for Mobile communications, Security Accreditation Scheme (GSM SAS) - and ISO/IEC 27002 certification. All card production facilities follow PCI standards for data, physical, and logical security. System and security are integral parts of our processes. We maintain complete configuration, change, and security audit trails throughout our systems.

Section 4, Subsection 5.17 - Communication with the Agency's Data Center - Transfer of Data

Section 4, Subsection 5.17.1 - The secure central issuance facility must communicate with the Office of Technology data center via a VPN tunnel, which hosts the Agency's mainframe, central

image/demographic system, and dmv FRST solutions.

Vendor Response: COMPLIANT
Valid's proposed solution utilizes secure communication between the DMV's data center and the Valid Production factories. Valid uses Point-to-Point IP-SEC VPN tunnel to encrypt the data in motion between the two endpoints. A Hardware Security Module (HSM) is used to generate Local Master Key (LMK). All Key Encryption Keys (KEK) are received in three parts using split knowledge and dual control process to decrypt encrypted keys received from WVDMV.

Section 4, Subsection 5.17.2 - The transfer of information must be over secure channels and all data in motion must be encrypted, for instance using SMB 3 security enhancements.

Vendor Response: COMPLIANT
Valid uses the industry standard, Pretty Good Protection (PGP), a Symantec product, with encryption for data to be transferred between endpoints, such that the data is encrypted when it is at rest. We will provide a public key and a step-by-step procedure to WVDMV to upload the data to our SFTP server located in its DMZ. The uploaded data will remain encrypted until it is loaded into the compliant SQL engine. Upon job completion, we will delete the data securely within the next 24-hour period, unless specific instructions are provided by WVDMV. Detailed procedures are available for inspection WVDMV.

Section 4, Subsection 5.18 - Card Production Data Files

Section 4, Subsection 5.18.1 - The Agency will send the standard card production data file once daily.

Vendor Response: COMPLIANT
Valid understands and accepts that WVDMV will send the standard card production data file once daily at a mutually agreed upon time.

Section 4, Subsection 5.18.2 - The Vendors solution must be capable of receiving a card production data file seven (7) days a week.

Vendor Response: COMPLIANT
Valid understands and accepts that WVDMV will send the card production data file seven (7) days per week.

Section 4, Subsection 5.19 - Management of Central Issuance Facilities

Section 4, Subsection 519.1- The Vendor shall be responsible for the complete management of the central issuance facility.

Vendor Response: COMPLIANT
Each of Valid's production locations are large, fully-staffed facilities. We are responsible for the complete management of our central issuance facilities. Valid personnel based in each facility manage operations, quality control, personnel, sales support, maintenance, logistics, and accounting. Each location is a standalone facility whose activities are coordinated at a corporate level.

Section 4, Subsection 5.19.2 - All hardware and software necessary for the operation of the secure central issuance facilities will be the responsibility of the Vendor.

Vendor Response: COMPLIANT
Valid acknowledges that it is fully responsible for all hardware and software necessary for the operation of the secure, central issuance, Card Personalization Facilities.

Section 4, Subsection 5.19.3 - All staffing and operational needs will be the responsibility of the Vendor.

Vendor Response: COMPLIANT
Valid acknowledges that it is fully responsible for all staffing and operation needs for the secure, central issuance, Card Personalization Facilities. We have the trained staffing, secure facilities, established proficiency and requisite experience to meet all the contractual compliance requirements for card product quality, security, durability, card production, and delivery of the WVDMV DL/ID cards.

Section 4, Subsection 5.19.4 - Security of the central issuance facilities will be the responsibility of the Vendor and must meet the security requirements of the REAL ID Act and any Department of Homeland Security published implementation rules.

Vendor Response: COMPLIANT
Security within our central issuance facilities meets the requirements of the REAL ID Act and Department of Homeland Security published implementation rules. Valid is Payment Card Industry (PCI) compliant; Visa, MasterCard, and American Express-certified. We currently have Global System for Mobile Communications Security Accreditation Scheme (GSM SAS) - and ISO/IEC 27002 certification. All card production facilities follow PCI standards for data, physical, and logical security. System and security are integral parts of our processes. We maintain complete configuration, change, and security audit trails throughout our systems.

Section 4, Subsection 5.20 - Standard Processing Time

Section 4, Subsection 5.20.1 - Cards must be mailed via US Postal Service, from the production facility no later than two (2) regular business days following the printing of the credential.

Vendor Response: COMPLIANT

Valid understands and will comply with WVDMV's two-day Service Level Agreement (SLA). Typically, cards will be personalized and turned over to a presort bureau to be sorted by zip code (so as to minimize postage) and commingled the same day; however, occasionally a second processing day is required. To be clear, this means the "job" (a collection of print requests) is received on Day 0 and is typically printed and turned over to Valid's presort bureau that same day. Occasionally, a job cannot be completed the same day that it is received and is completed the following day, which is Day 1. Valid has made arrangements with its pre-sort bureau to have all mail sorted and turned over to the U.S. Postal Service the same day it is picked up from Valid.

Further, Valid understands that the Service Level Agreement (SLA) requested by WVDMV is predicated upon delivery to the U.S. Postal Service (USPS). Valid's current practice is to complete jobs the same day they are received (Day 0) and to turn those jobs over to the USPS that same day. Valid's arrangement with its presort bureau is that all jobs will be sorted and turned over the same day to the USPS, who maintains an office within the presort bureau's facility

Section 4, Subsection 520.2 - Vendor must have monitoring in place to ensure card production is completed within two business days after the appropriate fraud hold period.

Vendor Response: COMPLIANT

Valid has created a Job Control System (JCS) for managing jobs as well as for tracking individual cards and mail pieces. The JCS color codes all jobs, based on configurable rules. For example, a job may be displayed in green until it is less than one day from its due date at which time it turns yellow. Past due jobs, if any, are displayed in red. The JCS provides for alerts based on performance relative to Service Level Agreement (SLA), thus providing alarms before a job becomes delinquent and allows any Valid user to create individualized status alerts by job or by class of jobs (client, source location, card type, etc.), thus facilitating monitoring of special jobs or jobs of particular interest.

Section 4, Subsection 5.20.3 - For cards not mailed within two (2) business days after the appropriate fraud hold period, Vendor must use Express Mail or other next day service for shipping the card to the applicant at no additional cost to the Agency.

Vendor Response: COMPLIANT

In the unlikely event that Valid is unable to satisfy the two business day Service Level Agreement (SLA), the cards in question will be sent via next day delivery to the applicant at no additional cost to WVDMV; however, that cost will be reduced by the customary automated, presorted postage that would have been paid to the USPS for the same delivery.

Section 4, Subsection 5.21 - Quality Assurance (QA)

Section 4, Subsection 5.21.1 - Vendor staff will be responsible for the QA checks of all items produced at the central issuance facility, including the Agency credentials, card carriers, and the process of preparing

them for mailing.

Vendor Response: COMPLIANT
Each of Valid's production locations are large, fully-staffed facilities. We are responsible for the complete management of our central issuance facilities including quality assurance. Valid personnel based in each facility manage operations, quality assurance and control, personnel, sales support, maintenance, logistics, and accounting. Each location is a standalone facility whose activities are coordinated at a corporate level.

Section 4, Subsection 5.22 - Card Mailing

Section 4, Subsection 5.22.1 - The Vendor shall be responsible for all USPS fees associated with postage and shipping.

Vendor Response: COMPLIANT
Valid understands and accepts that WVDMV will be responsible for actual USPS postage charges, for cards mailed from our central production facilities.

Section 4, Subsection 5.22.2 - The Vendor shall mail all 'FOR FEDERAL' credentials using USPS paid online ' Signature Confirmation'.

Vendor Response: COMPLIANT
Valid will mail all "FOR FEDERAL" credentials using USPS paid online 'Signature Confirmation'.

Section 4, Subsection 5.22.3 - All 'NOT FOR FEDERAL' credentials shall be mailed via USPS, using a return address specified by the Agency, unless the two-day production time is exceeded as defined in para.5.20.3.

Vendor Response: COMPLIANT
As requested, Valid will mail via USPS all "Not for Federal" credential using a return address specified by the Agency, unless the two-day production time is exceeded (as defined in para 5.20.3.).

Section 4, Subsection 5.22.4 - All envelopes shall be marked with "Return Receipt Requested" to prevent forwarding.

Vendor Response: COMPLIANT
Valid agrees to mark the enveloped cards so as to prevent forwarding. The U.S. Postal Service's

currently requires that Ancillary Service Endorsement (ASE) "RETURN SERVICE REQUESTED" be printed on the envelope, which results in a mail piece that is undeliverable as addressed will be returned to the sender (indicated by the return address) with the reason for non-delivery indicated as well as the corrected address (per USPS records at that time). This is Valid's standard mailing procedure for DLs/IDs.

Section 4, Subsection 5.22.5 - If a third-party Vendor is to be used for mail sorting, their processing time must be included in the maximum two (2) business days and the Vendor must be disclosed as a subcontractor.

Vendor Response: COMPLIANT
Valid does use a third-party Vendor to perform sorting and commingling operations. The Vendor will be disclosed as a subcontractor and their processing time will be included in the Service Level Agreement time of two days as noted elsewhere in this proposal. Valid's agreement with our current vendor is that envelopes picked up each day will be sorted, commingled and turned over to the USPS, who maintains an office inside the presort bureau's facility that same day.

Section 4, Subsection 5.23 - Card Volume

Section 4, Subsection 5.23.1 - The central issuance system must be capable of meeting yearly production needs of approximately 500,000 cards.

Vendor Response: COMPLIANT
Both of Valid's Card Personalization Facilities is each separately capable of meeting the yearly production of 500,000 cards.

Section 4, Subsection 5.23.2 - Sufficient capacity must be provided to accommodate system outages including repairs and preventative maintenance.

Vendor Response: COMPLIANT
Valid has multiple Card Production/Personalization Facilities. A standard feature of every DL/ID issuance solution is to routinely divide the production between at least two facilities. This obviates the need for a disaster recovery solution, since there are essentially at least two primary production facilities – either of which is able to assume the full load, if necessary. Further, the demand can be allocated dynamically for the purposes of load balancing or to accommodate scheduled interruptions such as maintenance, training or staffing/vacation scheduling.

Section 4, Subsection 5.24 - Billing

Section 4, Subsection 5.24.1 - All cards printed and mailed from the central issuance facilities will be

billed only after successful processing and transfer to the USPS.

Vendor Response: COMPLIANT
Valid will only bill WVDMV for cards that have been successfully processed and sent to USPS for deliver to the applicants. Invoices will be submitted to WVDMV once a month.

Section 4, Subsection 5.24.2 - Sufficient detail must be provided to allow the Agency to reconcile card counts between the invoice, the credential issuance system, and internal Agency systems.

Vendor Response: COMPLIANT
Valid's standard practice is to provide a monthly invoice listing issuances by date, job number, and card type as well as delineating postage by standard and customer-requested expedited shipments, if any. Credits resulting from returns, if any will also be listed on this invoice. During the delivery phase of the project, Valid will develop an inventory format that meets WVDMV's specific needs.

Section 4, Subsection 5.24.3 - The Agency will only be responsible for paying the cost per card for cards issued to an applicant. The Agency will not pay for cards rejected due to material or printing process defects, or for cards used for system testing.

Vendor Response: COMPLIANT
Valid's invoicing system is based on cards issued to citizens, not on cards removed from inventory or other consumption indicators. Rejected cards and cards used for testing will be tracked for inventory management and as part of our comprehensive security plan, but will not be considered in preparing monthly invoices.

Section 4, Subsection 5.24.4 – Vendor shall invoice WVDMV monthly for actual postage costs as a pass-through cost

Vendor Response: COMPLIANT
Valid agrees to invoice WVDMV monthly for the actual postage costs as a pass-through

Section 4, Subsection 4.24.5 – Vendor is to use the most cost-effective USPS product to meet the requirements of this RFP.

Vendor Response: COMPLIANT
Valid will use the most cost-effective USPS product to meet the requirements of this RFP. Further, Valid will notify the Agency of the USPS product(s) it plans to use in advance of using them.

Section 4, Subsection 4.24.6 – Vendor must submit monthly invoices to WVDMV for actual postage costs.

Vendor Response: COMPLIANT
Valid will submit monthly invoices to WVDMV for actual postage costs.

CARD DESIGN AND SECURITY FEATURES REQUIREMENTS

Section 4, Subsection 5.25 - Data on Secure Temporary Driver's License and ID's

Section 4, Subsection 5.25.1 - The secure temporary DL or D will include the same data that will be printed on the permanent, standard term card, including facial image and signature.

Vendor Response: COMPLIANT
Valid will include the same data that will be printed on the permanent, standard term card, including facial image and signature on the temporary driver's license credential. Specific fields and their locations will be determined during the Card Design phase of the project.

Section 4, Subsection 5.25.2- Must include correct expiration date of temporary credential.

Vendor Response: COMPLIANT
Valid will include correct expiration date on the temporary driver's license credential.

Section 4, Subsection 5.25.3 - Must state on face that it is a temporary credential.

Vendor Response: COMPLIANT
Valid will include "temporary credential" or equivalent on the face of the temporary driver's license credential. Specific terminology and its location will be determined during the Card Design phase of the project.

Section 4, Subsection 5.25.4- Must include statement, "Valid for operation of motor vehicle only".

Vendor Response: COMPLIANT
AAMVA recommends jurisdictions not issue temporary documents, because some individuals have attempted to use the official-looking documents to establish their identity. To prevent that, Valid will include the statement "Valid for operation of motor vehicle only" or equivalent on the temporary driver's license credential. Specific terminology and its location will be determined during the Card Design phase of the project.

Section 4, Subsection 5.25.5 - Must have a fraud-warning marker on the temporary credential, for any application that is marked for potential fraud, i.e. not meeting the facial 1:1 match.

Vendor Response: COMPLIANT

Occasionally during enrollment or during the renewal process, an applicant is encountered whose enrollment is potentially fraudulent. Rather than confront the applicant on the spot, it may be preferable to issue the temporary document – flagging the temporary document itself and alerting law enforcement personnel. WebLink supports this process. The specific marker and its location on the document will be determined during the Card Design phase of the project.

Section 4, Subsection 5.26 - Card Types

Section 4, Subsection 526.1 - Vendor's solution must produce the card types defined in Attachment G – Current Card Types, as issued by the Agency.

Vendor Response: COMPLIANT

Issuance of a system of driver licenses and identification documents is a very complex undertaking. A multitude of business rules, exceptions, and absolutes must be managed with a perfect certainty and accuracy. Unfortunately, for a counterfeiter, none of these problems apply, because they need make only one or two documents and do not need to be concerned with corner cases and unlikely combinations. Valid's proposed solution combines our strengths to offer WVDMV a powerful issuance solution that will not collapse under its own weight:

1. Valid's vertical integration into offset printing offers WVDMV access to the ultimate in physical security. Typically printing as many as 4,000 different designs a year, Valid is able to provide WVDMV as many unique designs as desired. In our proposed solution, Not-For-Federal ID cards would use a common, generic preprint design whose individual variations are created during personalization in the card printer.

2. Valid will work with WVDMV to create initial personalization designs and will provide our WebLink ID Card Designer, which can be used to create new designs or perform simple modifications such as replacing an elected official's signature in existing designs.
3. Valid's WebLink ID Workflow Designer can be used to configure or modify workflows. An individual workflow can have one to multiple documents linked to the workflow. For example, an enrollment workflow can be used to capture Not-For-Federal ID information and dispatch the print request to a local printer, whereas the same workflow can be used to capture additional information required for Federal identification documents and dispatch the print request to a central issuance printer, at the same time providing a print request for a temporary document to a local printer. Similarly, a different workflow might collect completely different information to create an employee identification badge.

At a minimum, the WVDMV solution will be designed and configured to produce all of the documents described above. Additionally, adding new document types can be completed relatively quickly and economically with the WebLink ID tools.

Issuance of REAL ID compliant documents can be a daunting task and the documents themselves, as being suitable for Federal use, are more highly sought after by counterfeiters. Valid's strategy is to physically differentiate these documents at even the preprint level so as to minimize the possibility of cannibalizing a Not-For-Federal ID so as to turn it into a Federal ID. Our proposed solution groups the twenty card types above into four broad groups – adult and minor DLs and IDs. Each of these groups will have preprint designed specifically for it with corresponding personalization layouts and would only be centrally issued. Additionally, adding new document types with the four groups can be completed relatively quickly and economically with the WebLink ID tools.

Section 4, Subsection 5.27 - Card Design

Section 4, Subsection 527.1 - Card design shall be based on 2016 AAMVA DL/ID Card Design Standard (http://www.aamva.org/2016CardDesignStandard/).

Vendor Response: COMPLIANT
Valid's solution will bring WVDMV current to the 2016 AAMVA DL/ID Card Design Standard (CDS) compliance with a durable, tamper resistant/evident card which exceeds security feature requirements for all DMV card types and formats. We will evaluate future CDS updates to proactively advise WVDMV of potential impact within 60 days of their issuance throughout the contract term.

Section 4, Subsection 5.27.2 - Card design must comply with West Virginia Code §Chapter 17B Motor Vehicle Driver's License (http://www.legis.state.wv.us.wvcode/Code.cfm?chap=17b&art=1)

Vendor Response: COMPLIANT
Valid's Card Design team will work closely with WVDMV to insure that all requirements of West Virginia Code §17B have been properly implemented, including but not limited to license classes, various

indicators such as organ donor, veteran, sexually violent predator, and age classes such as under 18, under 21, and over 21. As West Virginia's code evolves over the life of the contract, Valid will work closely with WVDMV to insure that documents issued will comply with that code.

Section 4, Subsection 5.28 - Card Materials and Security Features

Section 4, Subsection 5.28.1 - Card materials must be serialized during manufacturing.

Vendor Response: 

All cards will be serialized with a Code 128 1D barcode and with the corresponding human readable equivalent prior to placing the cards in Valid's secure, vault storage and prior to shipment to WVDMV's over-the-counter issuance locations. This serial number will be unique and will never be repeated by Valid – for West Virginia or for any other program.

Section 4, Subsection 5.28.2 - Specific card layout and design will be selected during the planning phase after contract award.

Vendor Response: 

We understand that specific card layout and design will be selected during the planning phase after contract award. Valid generates Card Design Specifications to identify all cards for detailed requirements such as graphic design and layout, security features, fonts, image quality, colors, background, bar-codes, etc. WVDMV will have final authority to determine card layout and design and acceptance of card layout and design.

Section 4, Subsection 5.28.3 - The credential must comply with 2016 AAMVA DL/ID Card Design Standard Annex B Physical Security requirements listed utp://www.aamva.01ü016CardDesignStandard/).

Vendor Response: 

Valid is very familiar with the AAMVA standards, and the three categories of security features, described in detail in Annex B. We will ensure that the WVDMV's DL/ID cards meet and exceed the 2016 AAMVA DL/ID Card Design Standard to fully protect against counterfeiting, alteration of data, duplication of the entire cards, and substitution of applicant's photo. We will work with WVDMV to select a strong set of security features in accordance with its design layout to ensure information clarity, legibility, readability, and uncompromising security.

A fully AAMVA compliant card can be produced having only fifteen security features (not including one Level 3 feature); however, such a card would be excessively vulnerable to attack. Accordingly, Valid's proposed card configuration contains thirteen (13) Level 1, twenty (20) Level 2, and two (2) Level 3 security features. Valid proposes two level three features so that in the event one is compromised, a second feature can be verified. This second feature cannot be verified without taking a specimen from

the card, thus rendering it invalid for further use.

Proactive Card Security Program

Designing a solidly secure DL/ID card is essential; and implementing and maintaining it will instill confidence and trust, as well as limit future vulnerabilities. How does the State accomplish that? After all, fraudsters will not be idle, conjuring new ways to exploit technology for their own benefit. By working with Valid in implementing a proactive card security program, together we can lessen future card vulnerabilities. We recommend the following:

- Work closely with AAMVA and Department of HS, reviewing new trends, industry best practices and strive to implement continuing improvements in all aspects of program security. Valid works closely with AAMVA and DHS, regularly participates in the AAMVA regional meetings, and is always seeking new security improvements.
- Maintain a strong security policy which includes regular monitoring of security issues, institute stringent access control measures, and monitor new standards and recommendations from both non-regulatory and regulatory bodies. Valid can provide guidance and current information in this regard.
- Work closely with law enforcement to understand what trends they are seeing and the concerns they have before potential issues become real ones.
- Perform annual card security reviews, including card vulnerability assessments. Valid is willing to assist the State in this effort.

Section 4, Subsection 5.29 - Card Design Changes

Section 4, Subsection 5.29.1 - Any changes to the card design will be handled by Change Request, approved by the agency based on an hourly rate as defined in Attachment C Cost Sheet.

Vendor Response: COMPLIANT
Valid acknowledges that it will use a Change Request, which format will be jointly approved by the Agency and Valid, to address any changes to card design. The Change Request will use the hourly rates defined in the Cost Sheet (Attachment C).

Section 4, Subsection 5.29.2 - Vendor must implement card format changes within 30 days of Change Request approval.

Vendor Response: COMPLIANT
Valid will be capable of implementing card format changes within 30 days of notice by WVDMV of the change. Valid's internal Card Design group can also provide design services to WVDMV, as well as assisting in the creation of designs for secure credentials. These design services will be placed at WVDMV's disposal.

Section 4, Subsection 5.30 - Consumables for Secure Temporary DL

Section 4, Subsection 5.30.1 - Secure paper stock to produce secure temporary DL will be provided to the Agency by the Vendor.

Vendor Response: COMPLIANT
Valid will provide WVDMV with secure paper stock to produce secure temporary DLs.

COVERT SYSTEM REQUIREMENTS

Section 4, Subsection 5.31 - The Agency requires system functionality to support the issuance of covert credentials. For security reasons, details of the desired functionality will not be provided as part of the Request for Proposal. The Agency believes that Vendors understand the needs for this type of program and will be able to address those needs appropriately during the planning and design phase of the project. Vendor must not include details of their covert systems in their response but must acknowledge that this is a required functionality that must be provided.

Vendor Response: COMPLIANT
Valid's Card Production System will allow for special handling of covert requests. WebLink ID contains a flag for special handling in its user interface, and the operator can apply a reason code that supports the WVDMV-defined special covert handling scenarios. WVDMV staff can use the WebLink ID workflow to flag the record and WebLink ID's data contract with WVDMV *dmv*DRIVES system can also support the flag and reason code. This enables WVDMV to flag the record in its system without having to open WebLink ID if it chooses.

The flag in WebLink ID's production system allows the card to be routed through special handling processes including delivery carrier, location handling, as well as card destruction instructions. In addition to the three required special handling requests, we can accommodate other requests in the future by simply adding logic to the special handling array.

MANTENANCE AND SUPPORT

Section 4, Subsection 5.32 - This is a critical system and shall be operational and fully supported 7:00 a.m. to 8:00 p.m. EST Monday through Friday, and 7:00 a.m. to 2:00 p.m. EST on Saturday.

Vendor Response: COMPLIANT
Valid systems will be operational and we will provide support to WVDMV Monday through Friday from 7:00 a.m. ET through 8:00 p.m. ET, and 7:00 a.m. ET to 2:00 a.m. ET on Saturday.

The Help Desk will be manned during any published business hours of WVDMV and will have an

automated on-call capability during non-business hours.

We use MS Dynamics CRM to log and track support issues for our client base. Issues reported receive a ticket ID, and are tracked through the system using this ID. Documentation of steps to resolve the problem for configuration or operator issues found in the case notes, which can be made publicly available through the CRM interface, enabling Help Desk Operators to disseminate the solution. We will maintain records regarding the date and time service and/or maintenance was performed and the resolution of all issues reported.

We will perform any non-emergency service, support, and upgrades during WVDMV non-business hours. We will provide a monthly reporting package including active calls, completed calls, open issues, and upcoming maintenance activities to WVDMV. We will be available for bi-monthly or other required calls and meetings to review service requests and outstanding issues.

Section 4, Subsection 5.33 - The Vendor's solution must be compatible with the networking and operating environment established by the Office of Technology at the time of award, currently consisting of:

5.33.1 Internet Explorer version: 11

5.33.2 Java version: 7

5.33.3 .NET Framework version: 4.1

Vendor Response: COMPLIANT

WebLink ID is a web-based identification software platform and the cornerstone of Valid's identity solutions. It supports Windows, Linux, and UNIX platforms operating on Apache or IIS web servers, and connects to MS SQL, MySQL, and Oracle database technologies and heavily utilizes SOAP and JSON RESTful web services for seamless integration. Its front-end browser app leverages a React JavaScript framework with HTML5 markup and CSS3 styling, and supports the latest versions of Internet Explorer 11, Mozilla, and Chrome browsers. The server-side software is services based consisting primarily of .NET (4.6.x) and Node.js services. Therefore, Valid's solution is fully compatible with the networking and operating environment established by the Office of Technology.

Section 4, Subsection 5.34 - Changes to this environment will be addressed by Change Order as this environment could change as new security vulnerabilities are identified and addressed in future updates.

Vendor Response: COMPLIANT

Valid understands and accepts that any changes to this environment will be addressed by change orders. Valid has sample change management forms it can provide to WVDMV, or work with WVDMV's own form. Together with WVDMV, we will accomplish the following:

- Develop consistent methods and tools for the change control process.
- Establish roles and responsibilities of all participants in the process.
- Support the efficient and prompt handling of all change requests.
- Provide accurate and timely information about all change requests.
- Ensure the required level of technical and management accountability, including applicable reviews and approvals of all proposed changes, are maintained for every type of change.
- Monitor the number, reason, type, and associated risk of the changes.

Section 4, Subsection 5.35 - The Vendor's solution must maintain full functionality and operations with any Office of Technology published security update within 30 days of scheduled release.

Vendor Response: COMPLIANT
WVDMV will receive the WebLink ID production release that incorporates WVDMV-specific requirements at the time of implementation. All WVDMV-specific interfaces and customizations will exist as separate source code projects with a different lifecycle managed by Valid. These are typically 'sandboxed' and utilize a WebLink ID API that rarely (if ever) changes which future-proofs compatibility between the interface and future changes in WebLink ID.
Valid will classify WVDMV's production version of WebLink ID as a "supported production version" that requires maintenance and support. Therefore, WVDMV's version will receive a patch update within thirty (30) days of any Office of Technology puplished security update.

PROJECT MANAGEMENT RESPONSIBILITIES

Section 4, Subsection 5.36 - Project Work Plan

Section 4, Subsection 5.36.1 The project work plan will be as detailed as possible with the understanding that it will be revised during the planning and initiation phase of the project.

Vendor Response: COMPLIANT
Valid understands that a good project work plan organizes the project components, and it provides an excellent management tool to guide the project. It will describe and organize the project work. Valid has enclosed a draft Project Work Plan that addresses the project phases and milestones required. It begins at contract award and continues through full implementation. It is located at the end of this proposal in Appendix 2.

Section 4, Subsection 5.36.2 - The project work plan will be a living document that must be kept up to date with tasks completed, modified, or added through the life of the project.

Vendor Response: COMPLIANT

The Project Work Plan should always be a living document, as tasks will be completed, modified or added throughout the project life. The Project Work Plan serves as a tool for keeping everyone associated with the project on track and focusing on the same details and information. Valid and WVDMV can baseline the project schedule at an agreed upon time period, and then we can periodically compare the current schedule to the baseline schedule.

Section 4, Subsection 5.36.3 - The project work plan will be used as a measurement of progress.

Vendor Response: 

Project work plans create time lines and establishing deadlines for each phase of the project. In collaboration with WVDMV, Valid can use the project work plan to factor different time-related and scheduling variables and create a clear path in which everyone is aware of the project's schedule. This approach helps keep the project on track, and provides an objective measurement of progress.

Section 4, Subsection 5.37 - Performance Testing

Section 4, Subsection 5.37.1 - Performance testing shall end when the system has met the standard of performance for a period of seven (7) consecutive calendar days. The standard of performance shall mean the system operates in conformance with the Vendor's technical and functional specifications, in conformance with this contract, and in conformance to the mutually agreed test criteria.

Vendor Response: 

Project work plans create time lines and establishing deadlines for each phase of the project. In collaboration with WVDMV, Valid can use the project work plan to factor different time-related and scheduling variables and create a clear path in which everyone is aware of the project's schedule. This approach helps keep the project on track, and provides an objective measurement of progress.

Section 4, Subsection 5.37.2 – If the System fails during a seven (7) day period, the Vendor will re-start performance testing. The testing shall continue daily until the standard of performance is met, without downtime, for a total of seven (7) calendar days.

Vendor Response: 

Valid agrees to re-start performance testing if the System fails at any time during the prescribed seven-day period. The ten-day clock will restart, and the testing will end when the standard of performance is met, without downtime, for seven consecutive calendar days.

Section 4, Subsection 5.37.3 - The Vendor is to provide the mechanism to create load and stress conditions. Metrics and results of the load and stress testing must be provided to the Agency for review and approval.

Vendor Response: 

We will use its JMETER tool to create the load and stress conditions. Valid will provide WVDMV for its review and approval the results of its load and stress testing, as well as metrics attained. The following are samples of the metrics Valid uses:

Throughput metrics will specify, as applicable:

- The exact type or types of functional transactions to be measured
- The time periods during the day, week, month, and business cycle when the measurements are to be made
- The time interval allocated for executing and measuring the test results
- The minimum acceptable number of transactions to be processed during the time interval
- The anticipated method of measurement

- Response-Time metrics will specify, as applicable:
- The exact types of functional transactions to be measured
- The start and end points of each measurement
- The time periods during the day, week, month, and business cycle when the measurements are to be made
- The expected numbers of logged-in and simultaneously active users, respectively
- The anticipated method of measurement
- The volume and type of simultaneous functional transactions being processed
- The maximum acceptable response time for each transaction type being measured

Section 4, Subsection 5.38 - Change Control Plan

Section 4, Subsection 5.38.1 - The Vendor shall develop, implement, and maintain a Change Control Plan, subject to the Agency approval, in accordance with industry standards that sets forth the procedures for controlling changes to project scope, cost, schedule, and quality requirements. The Change Control Plan shall include the procedures and entities involved with requesting, evaluating and approving changes to the project deliverables.

Vendor Response: 

Change control describes the process to identify, document, review, approve, track, and report the status of all change requests/change orders. Valid has sample change management forms it can provide to WVDMV, or work with WVDMV's own form. Together with WVDMV, we will accomplish the following:

- Develop consistent methods and tools for the change control process.
- Establish roles and responsibilities of all participants in the process.
- Support the efficient and prompt handling of all change requests.
- Provide accurate and timely information about all change requests.
- Ensure the required level of technical and management accountability, including applicable reviews and approvals of all proposed changes, are maintained for every type of change.
- Fully document all changes

- Monitor the number, reason, type, and associated risk of the changes.

Valid will create and submit to WVDMV for its approval a Change Control Plan that will comprehensively address the entire process for requesting, evaluating, and approving changes to the project deliverables. This Change Control Plan will be in alignment with industry standards that describe how to control changes to project scope, cost, schedule, and quality requirements.

Section 4, Subsection 5.38.2 - All changes must be documented. Approval must be obtained prior to any work on changes. Documented changes must have official sign-off by both the Agency and Vendor project managers and must include the reason for the change.

Vendor Response: 

Valid will document all changes to the project's scope, schedule, cost and quality requirements in accordance with the approved Change Control Plan. Valid will not implement any change without written WVDMV approval. All documented changes will have official sign-off by both WVDMV and Valid PMs, and any other designated individuals. The documentation will include the rationale for the approved change.

Section 4, Subsection 5.39 - Change Orders

Section 4, Subsection 5.39.1 - Care must be taken when evaluating the requirements and preparing the cost proposal. Change orders are rarely approved. If a scope change does occur impacting the cost or timeline of the project, the Agency Project Manager and the Agency Purchasing Office must be notified in writing immediately upon discovery and BEFORE any work takes place.

Vendor Response: 

Valid understands that if a scope change impacts the cost or timeline of this project, the WVDMV and the WM Purchasing Office will be immediately notified in writing upon discovery and prior to any work taking place. It has been our experience that most change requests are initiated by our customer, rarely by Valid.

Section 4, Subsection 5.39.2 - Change orders submitted for work that has already been completed will NOT be considered. Written approval must be obtained prior to any work that is considered outside the original scope.

Vendor Response: 

Valid does not submit change requests for work that is already completed. Valid will obtain written approval via the Change Control process, from authorized individuals, prior to performing any work that is outside of the original scope.

Section 4, Subsection 5.40 - Upgrades, Patches, Fixes, or Other System Updates

Section 4, Subsection 5.40.1 - Ongoing changes to the Vendor's systems or hardware must be documented, tested, and approved by the Agency. Any changes during the life of the contract fall under the testing criteria listed above in paragraph 4.30 thru 4.33.

Vendor Response: COMPLIANT
Valid acknowledges that WVDMV will document, test and approve any ongoing changes to the Valid system/hardware. Further, Valid acknowledges that any changes during the life of the contract will fall under the testing criteria described above.

Section 4, Subsection 5.40.2 - Implementation or release of Vendor changes to any of the Vendor's software or hardware must be scheduled and approved by the Agency.

Vendor Response: COMPLIANT
Valid will not implement or release any change to its software or hardware in support of West Virginia without scheduling the release, and only with approval of WVDMV.

Section 4, Subsection 5.40.3 - In the event of a problem with the upgrade, patch, fix, or other system updates, the Vendor shall have a plan to immediately restore the previous version or release to keep facilities in production.

Vendor Response: COMPLIANT
If there are any problems associated with the upgrade, patch or fix, then Valid will immediately restore the previous version or release to protect the Production solution.

Section 4, Subsection 5.41 - Right to Reproduce and Distribute

Section 4, Subsection 5.40.1 - All training material and documentation of this system will become the property of the Agency, which includes the right to reproduce documentation for distribution to system users and managers. All training material and documentation is subject to the Agency approval prior to use.

Vendor Response: COMPLIANT
Valid will submit all training materials and documentation to WVDMV for its approval prior to use. Valid acknowledges that all training material and all documentation of its system provided to WVDMV becomes the property of WVDMV. Thus, WVDMV will have the right to reproduce the documentation provided by Valid for distribution to system users and managers throughout WVDMV.

Section 4, Subsection 5.42 - Training Plan

Section 4, Subsection 5.42.1 - Training dates for Train-the-Trainer will be determined as part of the implementation plan. The Vendor will be responsible for delivering the training to all employees designated as Train-the-Trainers.

Vendor Response: COMPLIANT
Valid has had a very positive experience in the Train-the-Trainer (TTT) approach at other State agencies. Valid will deliver TTT training to all WV designated trainers, and will detail how that will occur in the Training Plan. Valid acknowledges that the training dates for the TTT training will be determined as part of the implementation Plan.

Section 4, Subsection 5.42.2 - The training plan will be subject to the Agency's approval.

Vendor Response: COMPLIANT
Valid will develop and implement a comprehensive Training Plan that will specify its approach to ensuring a knowledge transfer in operating the new system to the WVDMV trainers.

Well before the initial conversion to the new central issuance solution, and in alignment with WVDMV intentions, Valid will finalize the training program and formulate how the WVDMV trainers, functional teams, system administrators, office locations, and Help Desk staff will undergo their training. Further, Valid will present to WVDMV a training material walkthrough and then a training presentation rehearsal for the WVDMV staff to approve. An extensive list of training materials is provided in the Training Plan. All training materials will be provided in both hard copy and electronic format.

Section 4, Subsection 5.43 - Training Costs

Section 4, Subsection 5.43.1 - The cost of all training and training materials must be included in cost of the card. The Agency will not be responsible for vendor related travel expenses associated with installation or training at facilities.

Vendor Response: COMPLIANT
The costs for training and training materials is included in the card price. Valid acknowledges that the Agency is not responsible for Valid's travel expenses associated with installation or training at WVA facilities.

Section 4, Subsection 5.44 - Implementation Plan

Section 4, Subsection 5.44.1 - The Vendor must fully implement the system and all components at all facilities in the State of West Virginia by October 1, 2019.

Vendor Response: COMPLIANT

Valid will fully implement the system and all the components at all facilities in the State of West Virginia by October 1, 2019.

Section 4, Subsection 5.45 - Data Migration

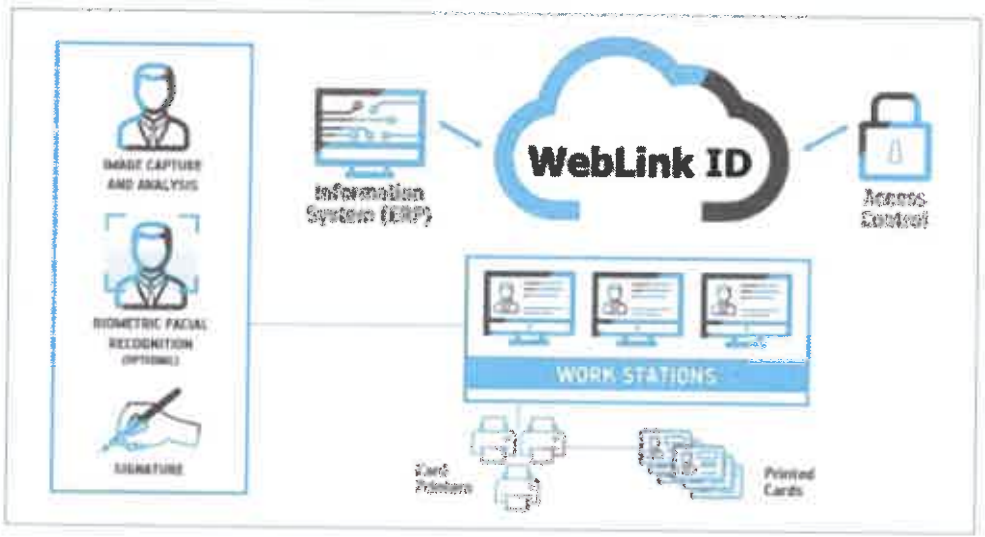
Section 4, Subsection 5.45.1- The Vendor must provide a detailed plan for migrating the data from the current MDS image database into the new central image/demographic system database.

Vendor Response: COMPLIANT

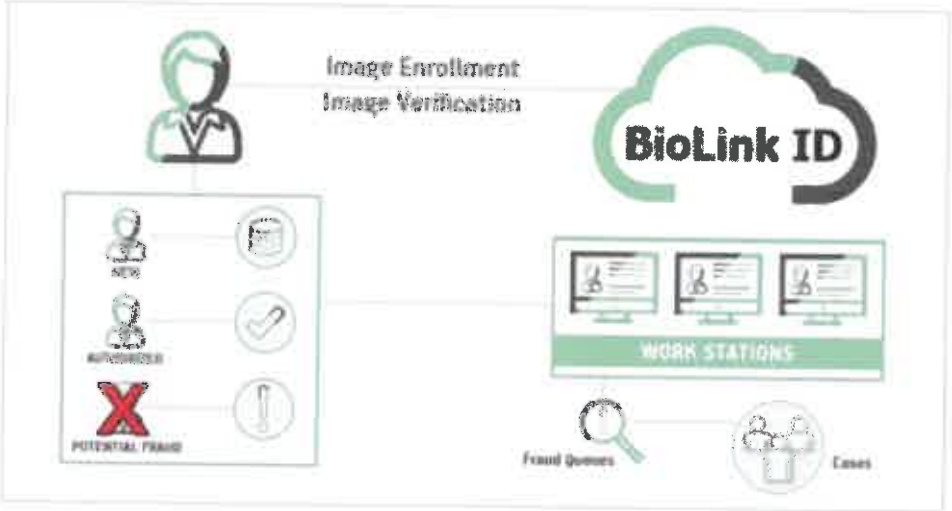
Valid agrees that it will provide a detailed plan for migrating the data from the current MIDS image database into the new central image system database. Valid acknowledges that it will be responsible for converting and migrating all data, including all images and scanned documents, from the current WVDMV image database to its new credential issuance solution. Valid will provide documentation when this is accomplished. All of this data conversion and migration activity will be part of the Valid Data Conversion and Migration (DCM) Plan. The following sections explain our DCM process.

Overview: Data Migration Plan

During the appropriate phase of the project (as determined with the WVDMV), data migration will occur, first to the QA environment; then the process will be replicated for the production environment. Migration will occur in two different fashions, as the current data will need to be migrated into two different application databases, WebLink ID and BioLink ID.



WebLink ID



BioLink ID

We recommend that the existing data should be split into application history data, and biometric or facial recognition data. Information, images, documents and signatures needed to populate the previous application history for credential holders will be imported into the WebLink ID database. This enables the applicants to properly request renewals of existing credentials, and provides the staff with the capability to view previous applications without having to use the legacy application.

Information needed for the inclusion in the BioLink ID application for facial recognition system population, which contains all previous photos and specific, agreed upon demographic information and signature images for each issuance, will similarly be processed into the BioLink ID database.

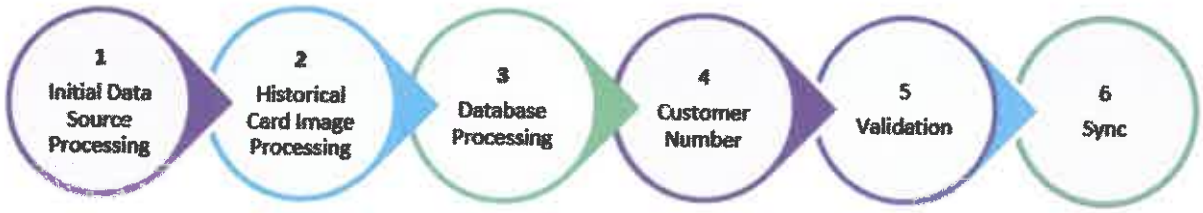
Valid will conduct an analysis of the data prior to the migration into QA environment. The analysis will highlight any possible concerns with the existing data, incomplete records, partial data sets, or records that are not complete enough to migrate. The purpose of this analysis is to allow the teams the ability to adjust or correct the problematic data prior to migration.

Migration itself will occur on the QA and Production systems in a scheduled and organized fashion, with periodic migration update reports. Following the completion of the migration, the data will be available within WebLink ID for Validation.

One of the challenges in migrating large amounts of data and records from a legacy system is directly related to systems resources required and available. Our Valid team will work with the WVDMV IT team to ensure the most efficient use of the resources available with least impact on ongoing operations.

The Six-Step Process

While the specifics of converting and migrating the WVDMV database may differ slightly, Valid generally follows a six-step process for DCM, as described below.



Step 1 - Initial data source processing

Valid will begin the raw data import process with a thorough analysis of the State's existing data. Valid's data architect will direct the creation of import scripts and a set of interim staging tables. During this initial data import, Valid converts the State's data to a new schema, importing that data into staging tables where the data is analyzed for integrity and completeness.

- Running SSIS (SQL Server Integration Services) Package to import legacy data
- Running multiple jobs in parallel maximizes performance
- After jobs complete, another job runs to truncate log files
- The data importation will include all customer records, all associated card and document images, and all customer photographs. To speed processing, Valid general uses asynchronous parallel jobs, typically using SQL Server Integration Services.

Step 2 - Initial historical card image processing

This is the full processing after testing and Validation is completed. Valid runs stored procedures to import card images if those are available. Depending on the quality of the database, Valid can generally run an average of 100+ images per second.

Step 3 - Initial database processing

Valid will transfer the appropriate data, decrypting and re-encrypting as needed.

- Use SQL replication to keep our database in sync with the WVDMV database
- Transfer data as needed from the replicated database to staging tables
- Decrypt and re-encrypt any data currently encrypted on the WVDMV database

Step 4 - Initial customer number processing

During this step, Valid will obtain a canonical list of all Valid customer identification numbers. The imported data is matched against this list and all discrepancies investigated. Duplicates are removed or re-numbered, and any non-identified records receive a new, unique number. All associated card images, document images and photographs are linked to unique identifiers. Valid will work with WVDMV to obtain a table of its records, so that it can cross-check the customer identifiers. The result of this step is a correct and validated set of unique customer records with their associated images.

- WVDMV would supply a table for DEV and QA
- Valid would store the Customer ID and /or other customer identifier
- For non-matches, Valid would supply a list to WVDMV to create customer numbers

Step 5 - Validation

During this step, all data is checked for internal consistency and all imported records are checked against the source data. For each data field, all actual data is checked for data type compliance. All data is cleaned, and extraneous characters removed. Each customer record is compared to the source record in the State's data. Any mismatches are investigated and resolved.

All historical customer photographs are enrolled into the BioLink ID facial recognition system. All photos will then be compared to reveal potential duplications or fraud.

BioLink ID's migration tools support NIST/ISO/ICAO compliance check for each legacy image imported during the data migration. The migration tools additionally support manual enhancement which aims to make poor quality images acceptable for re-enrollment. All non-NIST/ISO/ICAO images are identified during the data migration process. WVDMV may choose to migrate the images without enhancement into the new system, and the enrollment workflow will notify the operator about all non-compliant photos.

Valid and WVDMV will perform data verification of the migrated legacy source data, images, and the photo and data enrollment in the BioLink ID product.

- Use Valid applications to run automated verification tests
- Once the data is consumed by BioLink and later, WebLink, perform validation using those tools and the current vendor's applications
- Provide extracts of any migrated records to WVDMV for comparison to original data sources
- Validate imported data via a comparison of the legacy WVDMV database and the migrated database using WVDMV customer ID or other identifier
- If overlapping data fields match identically for a given customer ID, then data integrity is considered verified

Photo Processing

All photographs are compared using sophisticated algorithms to find duplicates or mismatches.

1) **Image Quality Check** – Each image to be enrolled is analyzed for quality and its suitability for facial recognition.

For image migration, additional tools are available to assist in ensuring the migrated images are of sound quality to be used for facial recognition. As cameras and photo capture technologies advance, older photos in the system might not have benefited from initial quality checks and would need to be adjusted or accounted for in the new facial recognition system.

BioLink ID features image enhancement tools to modify brightness and contrast, and apply several filters to improve the image quality for better matching scores. A tool to manually re-position the eye points (which is a common point of failure for poor quality, non-ICAO photos) enables enrollment of legacy or poor quality images into the facial recognition engine.

2) **One Time N:N** – This is a one-time process comparing each enrolled image to all other images in the database. A match may mean two different subjects have the same photograph.

BioLink ID's migration tools provides an option for database cleanse or many-to-many (N:N) de-duplication. It optionally operates in a batch or progressive mode. The progressive mode allows the deduplication to occur over time, during production or in a nightly batch, without any performance impact, taking advantage of the idle time of the matching nodes.

3) **One-Time 1:R** – This is a one-time process matching each enrolled photo against all previously enrolled images of that subject. A mismatch means the subject has two different photos and may need to be investigated.

4) **Investigation and Image Enhancement** – Any image that fails the above steps may be investigated using BioLink ID's rich toolset. Poor quality legacy images can be enhanced, and potential mismatches can be resolved using side-by-side comparisons or other tools.

Step 6 - Synchronization

Valid maintains an ongoing process to keep the new data structure synchronized with the State's data. This process ensures that all new data received by the State's existing process is replicated in the new data structure. This process will be terminated after full rollout of Valid's solution.

All existing and history customer records, including card images and card photos, are imported into Valid's WebLink ID application. Records are validated through comparing the same record in WebLink ID and in the State's source system. Any discrepancies are investigated and data correction scripts created. This step ensures that the WVDMV data and the imported files on Valid are all in full alignment, and remain so going forward.

- Keep WVDMV database in sync with SQL replication
- Import images via a scheduled SSIS job
- Import historical card images (if those exist) via a stored procedure job

- Update IDs and create relationships as necessary
- Store data for WebLink and BioLink consumption

OVERVIEW OF VALID'S DATA MIGRATION PROCESS

Previous Data Migration

During a previous driver's license project, Valid migrated 30 million records into WebLink ID and BioLink ID from a combination of legacy data sources: several databases, flat files, multiple database tables and scanned document image files. To accommodate network traffic conflicts, Valid and the client decided to cut the migration processes into smaller jobs that could be run during the business day, enabling the IT infrastructure team to accomplish their evening work. Although this extended the time it took to accomplish the migration, it enabled all parties to affect their critical path items.

Data Migration Tools

As cameras and photo capture technologies advance, older photos in the system might not have benefited from initial quality checks and would need to be adjusted or accounted for in the new facial recognition system.

BioLink ID's migration tools support NIST/ISO/ICAO compliance check for each legacy image imported during the data migration. The migration tools additionally support manual enhancement which aims to make poor quality images acceptable for re-enrollment. All non-NIST/ISO/ICAO images are identified during the data migration process. The customer may choose to migrate the images without enhancement into the new system, and the enrollment workflow will notify the operator about all non-compliant photos.

BioLink ID's migration tools provide options for database cleansing or image enhancements, e.g. many-to-many (N:N) deduplication. CPU intensive processes can be executed in a nightly batch mode to minimize performance impact on daily operations.

BioLink ID's image enhancement tool provides controls to modify brightness, contrast, and apply several filters to improve the image quality for better matching scores. Also available is a tool to manually re-position the eye points (a common point of failure for poor quality), This enables enrollment of legacy or poor quality images into the facial recognition engine.

Data Migration Recommendations

We recommend that the existing data should be split into application history data, and biometric or facial recognition data. Information, images, documents and signatures needed to populate the previous application history for credential holders will be imported into the WebLink ID database. This allows the applicants to properly request renewals of existing credentials, and enables staff to view previous applications without having to use the legacy application.

Information needed for the inclusion in the BioLink ID application for facial recognition system population (which contains all previous photos and specific, agreed upon demographic information for each photo) will similarly be processed into the BioLink ID database.

SERVICE LEVEL AGREEMENT

Section 4, Subsection 5.46 - Preventive and Remedial Maintenance

Valid acknowledges the following preventive and remedial maintenance service levels:

Section 4, Subsection 5.46.1 - The Vendor shall provide all remedial and preventative maintenance for all system components (hardware and software) including provision of all parts and labor during the term of the contract.

Vendor Response: COMPLIANT
Valid will provide all remedial and preventive maintenance for all system components (hardware and software) including provision of all parts and labor during the term of the contract.

Section 4, Subsection 5.46.2 - On-site remedial and preventative maintenance for facility equipment shall be available during facility working hours, generally between 7:00am and 8:00pm, Eastern Time, Monday through Friday, and 7:00am and 2:00pm, Eastern Time on Saturday.

Vendor Response: COMPLIANT
Valid will provide on-site remedial and preventive maintenance for facility equipment during facility working hours, generally between 7:00am and 8:00pm, Eastern Time, Monday through Friday, and 7:00am and 2:00pm, Eastern Time on Saturday.

Section 4, Subsection 5.46.3 - Preventative maintenance for the central image/demographic system and / or facial recognition system components must be completed during pre-arranged maintenance windows, generally on weekends, outside of normal business hours.

Vendor Response: COMPLIANT
Valid will complete its preventive maintenance for the central image system and/or facial recognition system components during pre-arranged maintenance windows, generally on weekends, outside of normal business hours.

Section 4, Subsection 5.46.4 - No costs related to maintenance of hardware and software, including travel time and expenses, shall be billable to the Agency. These costs must be included in the cost per card.

Vendor Response: COMPLIANT
Valid will not bill costs to WVDMV related to maintenance of hardware and software, including travel time and expenses. These costs are included in the price per card.

Section 4, Subsection 5.47 - Service Response Times

Section 4, Subsection 5.47.1 - Chronic or repeat issues — the Vendor will immediately dispatch a system expert to the site of the local image server or facial recognition system if a problem remains undiagnosed and/or unresolved after twenty-four (24) hours, and if the problem affects facility operations or other issuance or retrieval operations or prevents or impedes proper database storage and back up processes, even if it does not result in down time.

Vendor Response: COMPLIANT

For chronic or repeat issues, or if a problem affects facility operations or other issuance or retrieval operations, or it prevents or impedes proper database storage and back-up processes, even if it does not result in downtime, then Valid will immediately dispatch a system expert to the site of the central image server or facial recognition system if a problem remains undiagnosed and/or unresolved after 24 hours.

Section 4, Subsection 5.47.2 - If reported problems are not resolved within the required response times, the Vendor shall be deemed in default of these standards of performance. In such an instance, the Vendor and the Agency will determine if it is necessary to provide an alternative solution that allows operations to continue.

Vendor Response: COMPLIANT
If reported problems are not resolved within the required response times, Valid will be deemed in default of these standards of performance. In such an instance, the Vendor and WVDMV will determine if it is necessary to provide an alternative solution that enables operations to continue.

Section 4, Subsection 5.47.3 - Support issues, tickets, or calls must not be closed without confirmation from the Agency that the issue has been resolved.

Vendor Response: COMPLIANT
Valid agrees to not close support issues, tickets, or calls without confirmation from WVDMV that the issue has been resolved.

Section 4, Subsection 5.48 - System Availability

Section 4, Subsection 5.48.1 - All image capture workstations must be available during regular Agency business hours, and during extended hours for special events, as needed.

Vendor Response: COMPLIANT
Valid agrees that all image capture workstations will be available during regular WVDMV business hours, and during extended hours for special events, as needed.

Section 4, Subsection 5.48.2 - All servers used as part of the Vendor solution must be configured for automatic failover to minimize system downtime.

Vendor Response: COMPLIANT
All servers used as part of Valid's solution will be configured for automatic failover to minimize system downtime.

Section 4, Subsection 548.3 - Monthly maintenance windows for servers will be established, and the Vendor must provide notification of their intent to utilize the maintenance window no less than 1 week in advance.

Vendor Response: COMPLIANT
Valid will establish a monthly maintenance windows for servers, and it will provide notification no less than one week in advance of its intent to use the maintenance window.

Section 4, Subsection 5.48.4 - Downtime is defined as any time that any portion of the ICW or FRS systems are unavailable for normal business operations, and when the Agency approved work around is not available.

Vendor Response: COMPLIANT
Valid accepts the definition of downtime as "any time that any portion of the ICW, central issuance, or FRS systems is unavailable for normal business operations, and when an WVDMV approved work around is not available."

Section 4, Subsection 5.48.5 - Downtime will start from the time the Agency first notifies the Vendor's designated representative or Help Desk of the inoperative condition until it is returned to working order.

Vendor Response: COMPLIANT
Valid acknowledges that downtime will start from the time WVDMV first notifies the Valid-

designated representative, or Help Desk, of the inoperative condition until it is returned to working order.

Section 4, Subsection 5.49 - Help Desk Support

Section 4, Subsection 5.49.1 - During the entire term of the contract, the Vendor will provide the Agency with a toll-free Help Desk number and email address to contact the Vendor for technical support. At a minimum, the Help Desk Hours must be:

5.49.1.1 - 7:00am to 8:00pm, Eastern Time Monday through Friday

5.49.1.2 - 7:00am to 2:00pm, Eastern Time Saturdays

5.49.1.3 - Extended hours as needed for special events such as the West Virginia State Fair.

Vendor Response: COMPLIANT
During the entire term of the contract, Valid will provide WVDMV with a toll-free Help Desk number and email address to contact it for technical support. At a minimum, the Help Desk must operate during the following time periods:

- 7:30am to 6:00pm, Eastern Time Monday through Friday.
- 7:30am to 12:30pm, Eastern Time Saturdays
- Extended hours as needed for special events such as the West Virginia State Fair.

Section 4, Subsection 5.50 - Field Service Support

Section 4, Subsection 5.50.1 - The Agency must be provided with a list of all field service technicians, and the technicians must have a means of identifying themselves to the Agency staff when they arrive at the Agency location.

Vendor Response: COMPLIANT
Valid will provide WVDMV with a list of all field service technicians, with all appropriate contact information (phone, email and physical location in the State). When a field technician goes to a WVDMV location, he or she will have an identifying badge, as well as their driver's license – to provide a credential check.

Section 4, Subsection 5.50.1 - As part of the support agreement, Field service technicians will be required to set up and remove equipment for any special events, such as the West Virginia State Fair and other public demonstrations as determined by the State Governor or the Agency Commissioner.

Vendor Response: COMPLIANT
Valid's Field Service technicians will set up and remove equipment for any special events, such as the West Virginia State Fair and other public demonstrations as determined by the State Governor or the WVDMV Commissioner. Valid will need an appropriate notice to plan for these special events.

INFORMATION TECHNOLOGY REQUIREMENTS

Section 4, Subsection 5.51 - Communications

Section 4, Subsection 5.51.1 - The Agency will be responsible for data communication between the facilities and the Agency data center. Communication between the Agency data center and the central production facilities will be the responsibility of the Vendor.

Vendor Response: COMPLIANT
Valid acknowledges that WVDMV will be responsible for data communication between the facilities and the WVDMV data center. Valid will be responsible for communication between the WVDMV data center and the central production facilities.

Section 4, Subsection 5.52 - Data Storage

Section 4, Subsection 5.52.1 - All documents scanned or collected in the application or production of a credential will be stored at the State's data center to comply with the State of West Virginia statutory requirements, administrative rules, and records retention requirements.

Vendor Response: COMPLIANT
Valid will store all document, scanned or collected, and other data obtained in the application or production of a credential at the WVDMV data center to comply with the State of West Virginia statutory requirements, administrative rules, and records retention requirements.

Section 4, Subsection 5.52.2 - The data associated with this system is the property of the Agency and is not available for resale or distribution.

Vendor Response: COMPLIANT
Valid agrees that the data associated with this system is the property of WDMV, and is not available for resale or distribution.

Section 4, Subsection 5.52.3 - Data sent to the central production facility servers for card printing must be deleted no more than thirty (30) days after receipt of the print request.

Vendor Response: COMPLIANT
Valid agrees that any data sent to the Card Personalization Facility servers for card printing will be deleted no more than 30 days after receipt of the print request.

Section 4, Subsection 5.53 - Software Updates

Section 4, Subsection 5.53.1 - Major software enhancements shall be charged on an hourly basis as defined by Attachment C — Cost Sheet. These enhancements could include, but shall not be limited to, State Legislative and Federal Rule or Compliance changes.

Vendor Response: COMPLIANT
Valid agrees that any major enhancements will be charged on an hourly basis, as defined by Exhibit A - Pricing Sheet.

Section 4, Subsection 5.53.2 - The Vendor must develop and provide a formal back-out plan for all updates in the event of failure.

Vendor Response: COMPLIANT
Valid will develop and provide a formal back-out plan for all updates in the event of failure.

Section 4, Subsection 5.54 - Change to Production System

Section 4, Subsection 5.54.1 - At no time, shall anyone on the Vendor's staff make changes to the Agency production systems without coordination with the Agency, full system testing by both the Vendor and the Agency, and strict adherence to the change management process.

Vendor Response: COMPLIANT
Valid agrees that no one on its staff will make changes to the WVDMV Production systems without coordination with WVDMV, full system testing by both the Vendor and WVDMV, and strict adherence to the change management process.

Section 4, Subsection 5.55 - 14 Day Pre-Post Support Plan

Section 4, Subsection 5.55.1 - The successful completion of the 14-day, pre-post support period as determined by the Agency shall result in System Acceptance, leading to the issuance of the first Change Order.

Vendor Response: COMPLIANT
Valid will provide enhanced dedicated support for WVDMV during the first 90 days after full system is live, especially for the 7-day period prior to and a 7-day period immediately following implementation. This is detailed in the sample Implementation Plan. Later, we will transition to long-term, Help Desk/Field Services support.

The Agency will determine that the 14-day, pre-post support period is successfully completed.

Valid understands that System Acceptance will result in the issuance of a Change Order which will document that system acceptance, initiate year one's hourly programming rate, and initiate the contract term of production of DL/ID.

Section 4, Subsection 5.56 - End of Contract

Section 4, Subsection 5.56.1 - At the end of the contract, or sooner, if the contract is terminated, the Vendor must transfer all image files and data to the Agency or third-party database and delete all relevant data from their hosted servers with written approval from the Agency

Vendor Response: COMPLIANT
Valid agrees that it will transfer all image files and data to a WVDMV or third-party database at the end of the contract, or sooner, if the contract is terminated. Valid will delete all relevant data from their hosted servers with the written approval from the Agency.

****

By signing below, I 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.

Valid USA

_____

(Company)

Michael K. Fox, COO

_____

(Representative Name, Title) Signature

260-407-1177/260-483-4287

(Contact Phone/Fax Number)

June 25, 2018

(Date)

APPENDIX 1

Valid Sample Implementation Plan

1. Introduction

For a successful project, we need effective planning for the site surveys, training, data migration, transition, staff training, installation and deployment of the equipment, and the ongoing maintenance as soon as practical. Lack of effective planning and execution may lead to severe reconciliation problems and schedule attenuation. Such issues can be prevented if appropriate thought is given to plan this phase in a way that is least intrusive and in sync with the WVDMV's resources.

Implementation will start with the site surveys and will continue through transition and deployment, (which includes installation and training), and through ongoing operations and maintenance activities. This planning represents a set of detailed, sequenced tasks and activities which are performed to deploy the pre-production components to the production environment and activate them; to onboard supported systems, data, interfaces, system components, documentation and related operational support; to outline the handling, delivery and installation roles from the Pilot to the statewide deployment; to detail how Valid will ensure all maintenance activities will be performed; and to describe how all WVA requirements will be met with minimal disruption to the DMV locations.

2. Purpose

To plan the execution of activities required to successfully migrate the business operations from the current solution to the new DL/ID Credential Production system, install the equipment and train the users, and then maintain the systems.

3. Scope

This plan focuses on all requirements which must be met, and all tasks and activities to be performed to transition the West Virginia DMV from its existing DL/ID environment to its new central issuance solution, as well as the management of processes to support that effort. It includes the site survey, data conversion and migration (DCM), installation of the equipment and systems, training, preparation for and execution of the Pilot, and the statewide deployment, and all ongoing support for that deployment.

4. Valid Resource Plan

For each of the following Implementation Stages, Valid will list our people resources (name, position, % of time on task, etc.) who will participate:

- Site Surveys
- Equipment Acquisition, Preparation and Installation
- Card Personalization Factory
- Training
- Data Conversion and Migration (DCM)
- Help Desk Operations
- Transition

- Deployment (including Pilot Sites)
- Operations and Maintenance

5. Site Surveys

5.1 Purpose and Approach

The purpose of the site surveys is to ensure the proper installation of new equipment and their components by reviewing the office layout, space, lighting, Web access, electrical power, counter heights, and distances from the cameras to where the backdrop screens will be positioned.

Valid will provide a 2-person technician team who will visit each designated site and performance a site analysis or survey. WV DMV will select the sites to undergo surveys, and will help coordinate the priority and timing of the site visits. At each location, the site survey team will identify and document the following:

- Key response persons for each location (name, position, phone number, and email)
- Physical location and hours of operations (if different)
- Space available for the equipment, and whether the space will support the installation of the new equipment, including counter space and counter height.
- Space available and location of the replacement and spare parts inventory, if applicable
- Available and working electrical outlets and network connections.
- Access to the internet
- Listing of all equipment, and its component parts, to be installed at that location and any known issues.

5.2 Site Survey Report

Any limitations or conflicts will be outlined in the Site Survey Report. The Valid team will take site survey photographs and measurements to assist in planning the equipment installation, noting any abnormalities. Valid will provide new equipment measurements and equipment layouts for each office. The site survey report will record any issues or risks with respect to equipment installation.

Valid will submit the site survey report to WVDMV for each site, with a Visio-like drawing reflecting equipment locations – existing and future. Valid will provide site-specific reports within three weeks after the applicable site survey; and we will submit a final Site Survey Report of all site locations within two weeks after Valid has completed all of the LSO visits. The site surveys should provide variable input into a workflow improvement analysis.

6. Equipment Acquisition, Preparation and Installation

As part of the implementation, Valid will acquire, test, state and prepare the following sets of equipment to be deployed to the WV DMV offices:

27 x Laser printers for the temporary IDs
36 x Cameras and Flash-Secure Capture Towers
36 x sets of capture manager software

36 x ICAO-compliant cloth backdrops with mounting hardware
36 x Uninterrupted Power Supply (UPS) & additional cables
36 x Topaz Signature Gem (tablet) with 4 x5 LCD
36 x barcode scanners with gooseneck Intellistand / Document scanner

In preparation for the equipment installation, our Valid technicians will prepare and test each item of equipment, and then will transport it to the respective WV DMV office. Valid generally recommend that the equipment be installed at the DMV office immediately at the end of the business day, the night prior to the "go live" for that office. In that way, we can ensure that everything works appropriately, and is connected online, so that when the DMV staff come to work the next morning, the trainers can readily train up the staff and be prepared for customer arrival.

7. Card Personalization Factory

At our central issuance facilities, which we refer to as our Card Personalization Factories (CPFs), our equipment and process for central credential issuance is already in place. The equipment and general processes are duplicated in both CPFs as Valid provides the ability to move its DL/ID credential processing from one CPF to another, if needed; and this effectively provides our customers with full hot-site backup at all times. While each CPF is fully capable of processing separately over 100% of the credential volumes for each customer, Valid splits the daily volume between the two CPFs to provide the hot-site backup. By processing the credentials at both CPFs, both sets of our central issuance staff are thoroughly well-versed in the issuance processes and nuances associated with WVDMV's credential processing needs.

Valid is constantly monitoring its equipment, processes, and capacities anticipating growth opportunities. When it needs additional equipment it acquires it for both CPFs.

Valid will custom configure the WVDMV credentialing process to meet the WVDMV's specific requirements such as their holdback times to print, or their mailing / return mail process. As part of the implementation preparation, tailored processes will be established, be fully documented and the staff thoroughly trained. Within each CPF there will be teams of Valid production staff who will be trained to support the specific WVDMV production processes. The production processes will be tested throughout the system integration testing and UAT / regression testing. This effort is a crucial component of Valid's preparation for implementation; and it is reflected in the Project Schedule.

8. Training

8.1 Plan Overview

The Centralized Issuance Solution (CiS) is a complex, business-critical application. Given its complexity and importance, the process whereby Valid will provide training to WVDMV staff regarding new processes, workflows, and the use of the CIS is vitally important.
To help ensure that the WVDMV staff receive thorough training reflecting changes in their current processes, Valid recommends that WVDMV designate key individuals as "super users" to learn the CIS system and to align with the Valid trainers in order to explain the differences between new capabilities

and the legacy processes. The WVDMV super users would focus on the legacy processes, while Valid trainers will focus on the new capabilities of their solution.

There are five potential groups to be trained: (1) Trainers, (2) Operational staff, (3) Administrative staff (a varied and diverse group), (4) IT / Technical Staff, and (5) any external partners – such as law enforcement. This document addresses the training needs of all these groups.

8.2 Roles and Responsibilities

We will focus on the functions of WebLink ID and BioLink ID–Valid's two key CIS products.

8.2.1 Train the Trainer

Valid's train-the-trainer course with accompanying training materials will enable WVDMV trainers to become proficient with the credential producing solution in order to adequately train end users. Valid will provide a full train-the-trainer program designed to segment and address the needs of each role-based constituency that the trainers will train.

Valid will submit instructor course materials to be used to support the WVDMV trainers when they deliver their end-user training. Scripts will be created enabling consistent training and messaging from all trainers. in-class feedback will be used to ensure that trainers are comfortable with their mastery of the training content and their presentation skills. Valid will also focus on hands-on training to increase the confidence of the trainers.

Instructor course materials for train-the-trainer training include, but not limited to:

- Instructor course guide.
- Presentation with course notes.
- Participant Guide with hands-on activities.
- Course evaluation forms.

8.2.2 Operational Training

Valid will focus on the image capture workstation (ICW), and similar functions of WebLink ID. Valid will provide User Manuals, Quick Reference Guides, online training, and other training documentation, after conferring with the WVDMV. Valid will conduct the in-field pilot office deployments, as well as answer any Valid-specific questions about WebLink ID and BioLink ID.

WVDMV's responsibilities include deploying the in-house trainers, having the operational staff available for training, providing the venue for the training, and supporting the training with super users who will help explain the changes from the legacy solution to the CIS solution.

8.2.3 Administrative Training

Similar to the operational training, Valid is prepared to conduct most of the administrative staff training; however, due to the diverse nature of the administrative teams, the content of the training will differ by backoffice user group administrative staff available for training.

8.2.4 IT / Technical Training

Some of Valid's technical training will occur via OJT efforts in concert with Valid technical staff visits to WVDMV whereby the technical teams from Valid and WVDMV will work closely, and learn from each other. In addition, Valid will train the technical staff regarding the administrative functions of its two primary, integrated products – WebLink ID and BioLink ID. Moreover, Valid will formerly

train up the WVDMV QA staff regarding WebLink ID and BioLink ID so that the WVDMV QA team can better conduct QA testing at UAT. Further, Valid will support the technical team with a Procedures Manual which it will prepare, including a series of "walkthroughs" of the document to ensure its comprehensiveness and usefulness to the WVDMV technical team.

8.2.5 Law Enforcement

While this is not true "training", Valid will do its part to help educate law enforcement regarding the new IDs/DLs. Valid will make itself available to support Law Enforcement seminars or other venues in which the security features of the WVDMV's Driver's License and Identification cards will be presented. What is primarily needed is hand-out material that will assist law enforcement to better understand the changes being introduced into the WVDMV's ID/DL. Valid will help the WVDMV with the design and content of brochures or PowerPoints that WVDMV can produce and distribute, as needed.

8.3 Approach

The Training Plan tailors the curriculum and delivery across the five main target audiences: Operations personnel, Administrative personnel, IT / Technical Personnel and the external partners, such as Law Enforcement. Valid, in conjunction with the WVDMV project team staff, will develop the strategies to ensure effective and efficient training of the WVDMV staff on all components of the new DL/ID Credentialing Solution and is integrated into the WVDMV staff training program. Valid's experience at other customer sites, including templates and content, is leveraged to maximize successful adoption of the CIS Solution. The following elements are incorporated into the approach used to execute the Training Plan:

- Develop an overall training strategy in partnership with the WVDMV.
- Coincide the training schedule for the WVDMV locations with the approved installation sequence and schedule.
- Establish the training program and schedule by functional teams, system administrators, the WVDMV locations, and if desired, WVDMV Help Desk staff, prior to the initial conversion to the new system.
- Develop training materials, as determined by the WVDMV, for the CIS solution consisting of:
    - Electronic (fully editable) and printed copy formats of training documents
    - Published multi-media, web-based training

  Create materials for each of the following role-based constituencies:
    - WVDMV Trainers
    - WVDMV Operations Staff
    - WVDMV Administrative Staff
    - WVDMV Technical Staff
    - External partner(s)
    - IT / Technical staff
    - Other roles to be specified by WVDMV to support its business operations

- Develop and deliver comprehensive training materials, specifically designed and tailored to meet the business requirements of the WVDMV as configured in the new DL/ID Solution, covering all important business functions as determined by the WVDMV.
- Perform a walkthrough of all draft training materials with the WVDMV prior to their final revision. This includes User Guides, maintenance manuals, training aids, brochures, and Quick Reference Guides, etc.
- Perform a "dry run" training presentation to WVDMV staff for approval, including all training materials. The training materials will be provided in hard copy and in electronic formats.

8.3.1 Operational Personnel

The Operational Personnel Training Plan Requirements Table outlines and describes the requirements to be addressed for the public-facing (front-office) WVDMV staff.

Operational Training Plan Requirements Table

Requirement Title	Requirement Statement
Valid and Education Manager	Valid to provide a training manager (lead) to manage the overall training plan.
Operational Staff Training Plan	Valid will refine the training plan for the WVDMV's operational staff, reviewing the plan's objectives, schedule, strategies for designing and developing curricula, and supporting training materials, training environment data, and methods for implementation. The Operational Staff Training Plan will include the following: • Method of training. • Length of training (estimate number of hours for each type of employee). • Facility requirements for training. • Detailed outline and description of each training session • List of training materials, user manuals and samples.
Training curriculum	Addresses all components required, including curricula tailored specifically to operations staff and provides the content of the training courses including assumptions, target audience, goals, objectives, instructional materials, time frame, evaluation and accountability.
Customized Web-based Training	Valid will provide customized web-based training to meet this contingent's training needs.
Customized Training Materials	Valid will develop customized and comprehensive training materials for the operational staff. Complete, comprehensive end-user training materials consisting of custom web-based trainings, a set of materials for classroom based instruction, and for each, practice scenarios.

Quick Reference Guides	The quick reference guides have been completed and are fit for purpose.
Online Help Materials	Materials and content for the WVDMV to post to its website used to support end users when using the CIS Solution to reflect the CIS Solution environment and fit for purpose.
Final revisions to end user, instructor, on-line help, custom web based trainings and printed course materials	Final revisions and edits are made to end user, instructor, on-line help, custom web-based trainings and printed course materials based on input from the WVDMV.

Valid understands that WVDMV employees must receive sufficient system management and operations training to provide daily operational proficiency. The training at each site will include the following:

1) Equipment/software driver information and operation.
1) Trouble shooting and monitoring.
2) Preventive maintenance tasks (i.e. cleaning, replenishment).
3) DL/ID solution operation.

Operational Staff Training Curriculum

The Operational Staff Training curriculum will include the following:

- Introduction
- Equipment / Software
- Overview of the DL/ID Card Production Process
- Administrative Functions
- Photo & Signature Best Practices
- Preventive Maintenance & Troubleshooting
- Hands-On Processing
- Security Processes and Procedures
- Help Desk Procedures
- Question and Answer Session
- Training Evaluation Form
- Production Support

8.3.2 Administrative Personnel

Valid will deliver to the WVDMV's Administrative (backoffice) personnel training in the CIS Solution. The Administrative Personnel Training Plan Requirements Table outlines and describes the requirements to be addressed for these role-based constituencies.

Because the Administrative WVDMV staff are so diverse and specialized, training modules will be created to address each functional area in separate training sessions, in accordance with a published schedule, agreed upon by the Training Directors from the WVDMV and Valid, respectively. Valid will

focus on its two products, BioLink ID and WebLink ID.

Administrative Personnel Training Plan Requirements Table

Requirement Title	Requirement Statement
Administrative Training Plan	Refine the administrative training plan to train the WVDMV administrative personnel. The component must include and provide information on how the CIS Solution interacts with other systems operated by administrative to enable such personnel, within their area of responsibility, to maintain and support their business functions on an ongoing basis. The Training Plan will include the following: • Method of training. • Length of training (estimate number of hours for each type of employee). • Facility requirements for training. • Detailed outline and description of each training session. • List of training materials, user manuals and samples.
Conduct training to administrative personnel	Conduct training for the WVDMV administrative personnel.
Training curricula	Address all components required, including curricula tailored specifically to business personnel and provides the content of the training courses including assumptions, target audience, goals, objectives, instructional materials, time frame, evaluation and accountability.
Customized Web Based Training	For specific roles-based constituencies selected by the WVDMV, Valid will provide customized web-based trainings to meet each group's training needs.
Customized training materials	Valid will develop customized and comprehensive training materials for the operational staff. Complete, comprehensive end-user training materials consisting of custom web-based trainings, a set of materials for classroom based instruction, and for each, practice scenarios.
Quick Reference Guides	The Quick Reference Guides have been completed and are fit for purpose.
Online Help Materials	Materials and content for the WVDMV to post to its website used to support end users when using Valid's products – WebLink ID and BioLink ID – to reflect the CIS Solution environment and fit for purpose.

Final revisions to end user, instructor, on-line help, custom web based trainings and printed course material.	Final revisions and edits are made to end user, instructor, on-line help, custom web-based trainings and printed course materials based on input from the WVDMV.

The WVDMV Staff must receive sufficient system management and operations training to provide daily operational proficiency. Training can be conducted by Valid at the WVDMV Headquarters facilities and will include, but not be limited to, the following:

1. Equipment/software driver information and operation.
2. DL/ID solution operation.
3. DL/ID solution maintenance.
4. Troubleshooting and monitoring.
5. Reporting.

Administrative Staff Training Curriculum

The Administrative and In-House Field Operations Training will include the following topics/subjects:

- Introduction
- Equipment / software
- DL/ID Solution operation
- Administrative & Supervisory Functions
- Photo & Signature Best Practices
- Reports & Audit Functions
- Preventive Maintenance & Troubleshooting
- Hands-on Processing
- Security Processes and Procedures
- Help Desk Procedures and Escalation
- Questions and Answer Session

8.3.3. IT / Technical Personnel

This section addresses the Technical Team who will work with Valid to integrate this solution for testing and support the application software at their data center, and the Maintenance and Operations (M&O) staff who will support this project after it has deployed.

- ***Technical Team*** – Valid will educate and train the WVDMV's technical team on the administration, architecture, troubleshooting, and issue management and other technical aspects of the new DL/ID Solution, as requested by the WVDMV, in order to enable the

WVDMV's technical ownership following completion of the project. Valid will provide the WVDMV technical team with a Procedures Manual that it will walk-through to explain the Valid environment, how to configure and install new software updates, and how to provide ongoing support for the application.

The Technical Personnel Training Plan Requirements Table outlines and describes the requirements to be addressed for this role-based constituency.

Technical Personnel Training Plan Requirements Table

Requirement Title	Requirement Statement
IT / Technical Training Plan	Refine the technical training plan to educate and train the WVDMV technical personnel. The IT/Technical Training Plan will include: • Method of training. • Length of training (estimate number of hours for each type of employee). • Facility requirements for training. • Detailed outline and description of each training session. • List of training materials and samples including all maintenance user manuals and product specifications.
Conduct training of IT / Technical personnel	Conduct training for the WVDMV technical personnel.

Technical training will be conducted by Valid at the WVDMV Headquarters facility and will include, but not be limited to:

4) Routine information technology management tasks.
5) DL/ID solution operation, as well as an overview of the system hardware and software driver products architecture and connectivity, hardware component and system installation, hardware and software driver products problem diagnosis and resolution, software driver products distribution, etc.
6) DL/ID solution maintenance.
7) System integration and development.
8) Troubleshooting and monitoring.

IT / Staff Training Curriculum

The IT / Staff Training curriculum is as follows:

- Equipment / Software
- DL/ID Solution Operation

- Administrative & Supervisory Functions
- Routine Information technology management tasks
- Architecture and connectivity
- Hardware component and system installation
- Problem diagnosis and resolution
- Software driver products distribution
- Security Processes and Procedures
- Hands-on Processing
- Questions and Answer Session
- Evaluation Forms

8.3.4 Law Enforcement

Valid will support law enforcement and retailers by providing training tools to better understand the new IDs and DLs that will be issued.

- Law Enforcement needs to fully understand the endorsements and restrictions on licenses. Thus, Valid will help design a brochure, flier, or wallet-sized crosswalk card explaining endorsements and restrictions, which the WVDMV can print as its needs require.

- To address the security features on IDs and DLs so that law enforcement officers can quickly discern potential fraud, Valid will support WVDMV's efforts to provide training information (e.g., PowerPoints) and to provide security training to Law Enforcement groups, on an as-needed basis.

8.3.5 Other Specified Training

There are some additional training activities that must take place to ensure a cohesive, efficient operation of the CIS Solution: (1) QA Testing Training, and (2) UAT training

QA Testing Training

In anticipation of system integration testing by the WV DMV QA staff, Valid will train the DMV QA team so that they are able to navigate through WebLink ID and BioLink ID and follow the test scripts.

User Acceptance Training (UAT) Training

In support of UAT Valid will provide 'just-in-time' (JIT) training of the WVDMV staff that will support UAT. This will include UAT testers and "super users" from the operational staff(s) who will help train up others in their offices. This training should occur approximately 1-2 weeks prior to the start of UAT. The training will include how to review and use the test scenarios / test scripts and how to log any errors found. Valid will provide enough training on the WebLink ID and BioLink ID products that testers will be comfortable navigating the system in compliance with the test scripts. WVDMV will provide overarching leadership regarding the UAT Training; and Valid will provide training documentation and JIT Training of its WebLink ID and BioLink ID products.

8.4 Methods and Materials

Training typically includes a combination of training methods and materials to meet all audience needs.

All classes must contain scenario-based process flows, and clearly state the audience and purpose up front. Realistic mock-up data will be used whenever possible. Once all classes and materials have been created, Valid will provide a walk-through for the WVDMV to ensure that audience needs are being met.

The following is a list of the methods that may be used for training:

- Hands-on training (sandbox training)
- Instructor-led training (classroom training)
- Web-based training (demonstrations)
- Video instruction (including recorded video training and workflow sessions)
- Webinar training
- User Manual updates
- Articulate Storyline/Adobe Captivate (as an example) training sessions
    - Narrated presentations
    - Interactive process flow tutorials

Valid understands operational time constraints at the WVDMV locations, and recommends the use of demonstration videos as a key training support method. In addition, Valid recommends holding a one-time Webcast (approximately 30 minutes in length) that can be posted for future viewing).

Following is a list of the materials that may be used for training:

- Training plan and syllabus
- Handouts
- Operator's Guides/User's guides (PDF and Microsoft Word versions)
- Web-based training materials (demos, videos, etc.)
- Quick reference guides (including troubleshooting) (laminated)
- Presentation materials
- Training evaluation surveys

DELIVERABLES

Following are the specific deliverables for each audience type:

- Develop a training strategy for each class, and formalize that strategy into a plan. Plans will include:
    - A description of the training tasks, including its duration
    - The number of participants per session
    - A detailed list of the tasks a participant must perform
- Develop curriculum plans and training materials in electronic (printable) and web-based training formats.
- Deliver training programs in an online format to operational staff and to technicians.
- Create end-user surveys to determine the adequacy of the training courses and materials.
- Update project documents and training materials to enhance and improve them.
- Project Manager to certify that all deliverables were completed.

If significant changes are made in any new version of the new system, "refresher" training will be

provided within 30 days prior to the release of the new version.

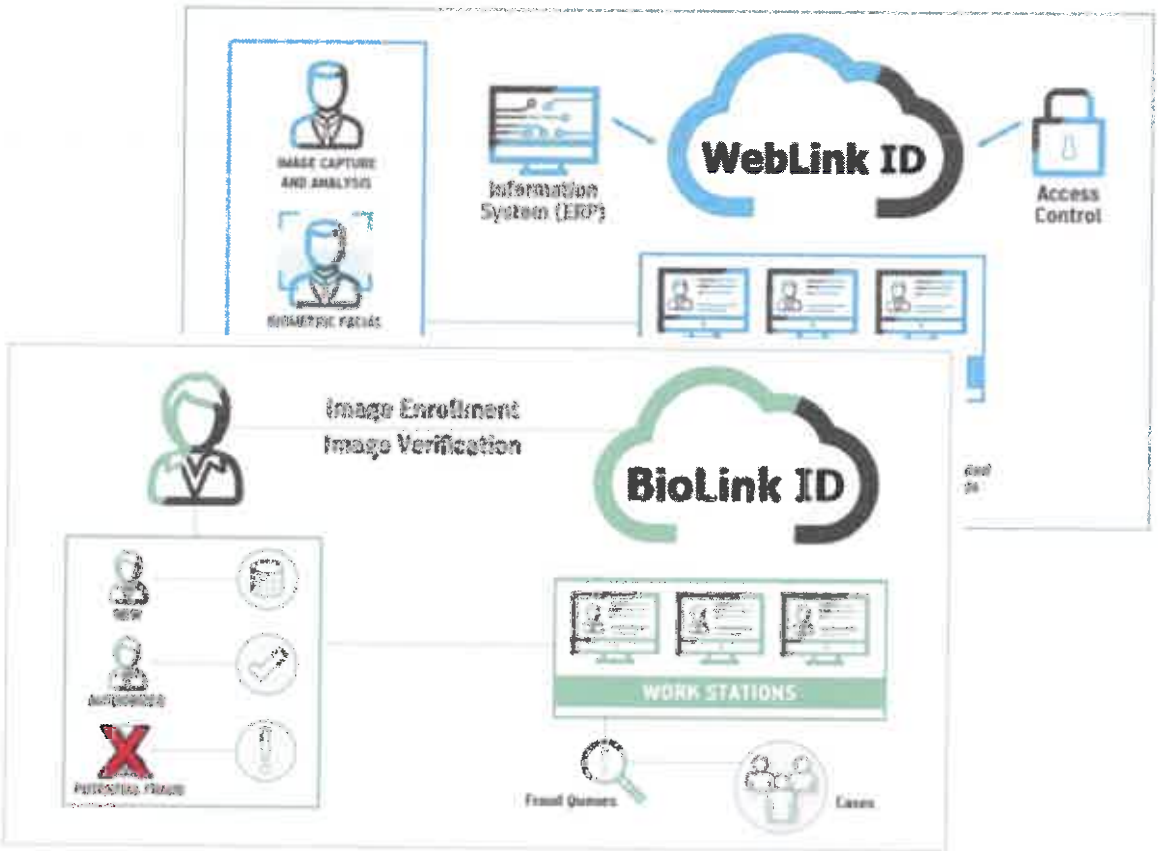
9. Data Conversion and Migration (DCM)

Valid understands that the current number of FR enrolled images to be migrated is 3 million. Valid acknowledges that it will be responsible for converting and migrating all data, including all images and scanned documents, from the current WVDMV image database in the new DL/ID Credentialing solution. Valid will provide documentation when this is accomplished. All of this data conversion and migration activity will be part of the updated Valid DCM Plan.

Valid's organization includes a dedicated data division that specializes in migration, transformation and management of data for clients looking only for those services. Valid's solution for WVDMV includes the services of an experienced Valid Data Migration team. The Migration team has managed the clean-up and migration of data set measuring in the hundreds of millions of records, and specifically has managed DL/ID migrations up to 50 million records, with roughly 20 million images.

9.1 DCM Overview

During the appropriate phase of the project (as determined with the WVDMV), data migration will occur, first to the QA environment; then the process will be replicated for the production environment. Migration will occur in two different fashions, as the current data will need to be migrated into two different application databases, WebLink ID and BioLink ID.



We recommend that the existing data should be split into application history data, and biometric or facial recognition data. Information, images, documents and signatures needed to populate the previous application history for credential holders will be imported into the WebLink ID database. This enables the applicants to properly request renewals of existing credentials, and provides the staff with the capability to view previous applications without having to use the legacy application.

Information needed for the inclusion in the BioLink ID application for facial recognition system population, which contains all previous photos and specific, agreed upon demographic information for each photo, will similarly be processed into the BioLink ID database.
Valid will conduct an analysis of the data prior to the migration into QA environment. The analysis will highlight any possible concerns with the existing data, incomplete records, partial data sets, or records that are not complete enough to migrate. The purpose of this analysis is to allow the teams the ability to adjust or correct the problematic data prior to migration.
Migration itself will occur on the QA and Production systems in a scheduled and organized fashion, with periodic migration update reports. Following the completion of the migration, the data will be available within WebLink ID for validation.
One of the challenges in migrating large amounts of data and records from a legacy system is directly related to systems resources required and available. Our Valid team will work with WVDMV IT team to ensure the most efficient use of the resources available with least impact on ongoing operations.

9.2 The Six-Step Process

While the specifics of converting and migrating the WVDMV database may differ slightly, Valid generally follows a six-step process for DCM, as described below.

Step 1 - Initial source data processing

Valid will begin the raw data import process with a thorough analysis of WVDMV's existing data. Valid's data architect will direct the creation of import scripts and a set of interim staging tables. During this initial data import, Valid converts WVDMV's data to a new schema, importing that data into staging tables where the data is analyzed for integrity and completeness.

- Running SSIS (SQL Server Integration Services) Package to import legacy source data
- Running multiple jobs in parallel maximizes performance
- After jobs complete, another job runs to truncate log files
- The data importation will include all customer records, all associated card and document images, and all customer photographs. To speed processing, Valid general uses asynchronous parallel jobs, typically using SQL Server Integration Services.

Step 2 - Initial image processing

This is the full processing after testing and validation is completed. Valid runs stored procedures to import card images if those exist. Depending on the quality of the database, Valid can generally run an average of 100+ images per second.

Step 3 - Initial database processing
Valid will transfer the appropriate data, decrypting and re-encrypting as needed.

- Use SQL replication to keep our database in sync with WVDMV database
- Transfer data as needed from the replicated database to staging tables
- Decrypt and re-encrypt any data currently encrypted on WVDMV database

Step 4 - Initial customer number processing
Valid obtains canonical list of all customer identification numbers. The imported data is matched against this list and all discrepancies investigated. Duplicates are removed or re-numbered, and any non-identified records receive a new, unique number. All associated images and artifacts are linked to unique identifiers. Valid will work with WVDMV to obtain a table of its records for cross-referencing the IDs.

- The result of this step is a correct and validated set of unique customer records with their associated images.
- WVDMV would supply a table for DEV and QA
- Valid would store the Customer ID and /or other customer identifier
- For non-matches, Valid would supply a list to WVDMV to create customer numbers.

Step 5 – Validation
During this step, all data is checked for internal consistency and all imported records are checked against the source data. For each data field, all actual data is checked for data type compliance. All data is cleaned, and extraneous characters removed. Each customer record is compared to the source record in WVDMV's data. Any mismatches are investigated and resolved.

All historical customer photographs are enrolled into the BioLink ID facial recognition system. All photos will then be compared to reveal potential duplications or fraud.

BioLink ID's migration tools support NIST/ISO/ICAO compliance check for each legacy image imported during the data migration. The migration tools additionally support manual enhancement which aims to make poor quality images acceptable for re-enrollment. All non-NIST/ISO/ICAO images are identified during the data migration process. WVDMV may choose to migrate the images without enhancement into the new system, and the enrollment workflow will notify the operator about all non-compliant photos.

Valid and WVDMV will perform data verification of the migrated legacy source data, images, and the photo and data enrollment in the BioLink ID product.

- Use Valid applications to run automated verification tests

- Once the data is consumed by BioLink and later, WebLink, perform validation using those tools and the current vendor's applications
- Provide extracts of any migrated records to WVDMV for comparison to original data sources
- Validate imported data via a comparison of the legacy WVDMV database and the migrated database using WVDMV customer ID or other identifier
- If overlapping data fields match identically for a given customer ID, then data integrity is considered verified

Photo Processing

All photographs are compared using sophisticated algorithms to find duplicates or mismatches.

1) **Image Quality Check** – Each image to be enrolled is analyzed for quality and its suitability for facial recognition.

For image migration, additional tools are available to assist in ensuring the migrated images are of sound quality to be used for facial recognition. As cameras and photo capture technologies advance, older photos in the system might not have benefited from initial quality checks and would need to be adjusted or accounted for in the new facial recognition system.
BioLink ID features image enhancement tools to modify brightness and contrast, and apply several filters to improve the image quality for better matching scores. A tool to manually re-position the eye points (which is a common point of failure for poor quality, non-ICAO photos) enables enrollment of legacy or poor quality images into the facial recognition engine.

2) **One Time N:N** – This is a one-time process comparing each enrolled image to all other images in the database. A match may mean two different subjects have the same photograph.

BioLink ID's migration tools provides an option for database cleanse, or many-to-many (N:N) de-duplication. It optionally operates in a batch or progressive mode. The progressive mode enables the de-duplication to occur over time, during production or in a nightly batch, without any performance impact, taking advantage of the idle time of the matching nodes.

3) **One-Time 1:R** – This is a one-time process matching each enrolled photo against all previously enrolled images of that subject. A mismatch means the subject has two different photos and may need to be investigated.

4) **Investigation and Image Enhancement** – Any image that fails the above steps may be investigated using BioLink ID's rich toolset. Poor quality legacy images can be enhanced, and potential mismatches can be resolved using side-by-side comparisons or other tools.

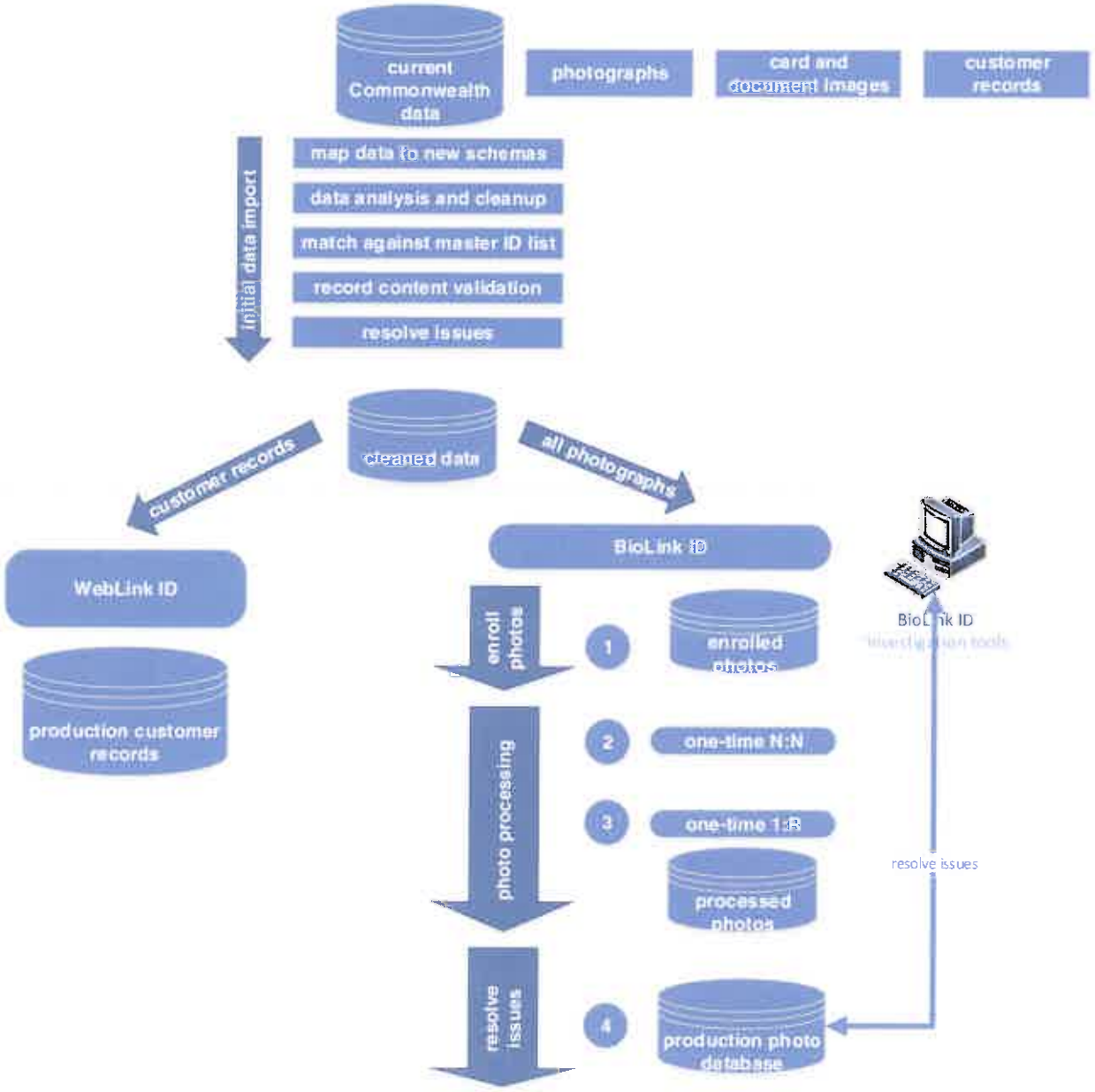
Step 6 – Synchronization

Valid maintains an ongoing process to keep the new data structure synchronized with WVDMV's data. This process ensures that all new data received by WVDMV's existing process is replicated in the new data structure. This process will be terminated after full rollout of Valid's solution.

All existing and historical customer records, including card images and card photos, are imported into Valid's WebLink ID application database. Records are validated through comparing the same record in WebLink ID and in WVDMV's source system. Any discrepancies are investigated and data correction

scripts will be created for processing the information. This step ensures that WVDMV data and the imported files by Valid are all in full alignment, and remain so going forward. The following is an overview of Valid's data migration process;

- Keep WVDMV database in sync with SQL replication
- Import images via a scheduled SSIS job
- Import historical card images (if those exist) via a stored procedure job
- Update IDs and create relationships as necessary
- Store data for WebLink and BioLink consumption



Overview of Valid's Data Migration Process

9.3 Previous Data Migration

During a previous driver's license project, Valid successfully migrated 30 million records into WebLink ID and BioLink ID from a combination of legacy data sources: several databases, flat files, multiple database tables and scanned document image files. To accommodate network traffic conflicts, Valid and the client decided to cut the migration processes into smaller jobs that could be run during the business day, enabling the IT infrastructure team to accomplish their evening work. Although this extended the time it took to accomplish the migration, it enabled all parties to meet their critical path deadlines. We recommend a similar approach by WVDMV.

9.4 Data Migration Tools

As cameras and photo capture technologies advance, older photos in the system might not have benefited from initial quality checks and would need to be adjusted or accounted for in the new facial recognition system.

BioLink ID's migration tools support NIST/ISO/ICAO compliance check for each legacy image imported during the data migration. The migration tools additionally support manual enhancement which aims to make poor quality images acceptable for re-enrollment. All non-NIST/ISO/ICAO images are identified during the data migration process. The customer may choose to migrate the images without enhancement into the new system, and the enrollment workflow will notify the operator about all non-compliant photos.

BioLink ID's migration tools provide options for database cleansing or image enhancements, e.g. many-to-many (N:N) de-duplication. CPU intensive processes can be executed in a nightly batch mode to minimize performance impact on daily operations.

BioLink ID's image enhancement tool provides controls to modify brightness, contrast, and apply several filters to improve the image quality for better matching scores. Also available is a tool to manually re-position the eye points (a common point of failure for poor quality). This enables enrollment of legacy or poor quality images into the facial recognition engine.

9.5 Data Migration Recommendations

We recommend that the existing data should be split into application history data, and biometric or facial recognition data. Information, images, documents and signatures needed to populate the previous application history for credential holders will be imported into the WebLink ID database. This enables the applicants to properly request renewals of existing credentials, and enables staff to view previous applications without having to use the legacy application.

Information needed for the inclusion in the BioLink ID application for facial recognition system population (which contains all previous photos and specific, agreed upon demographic information for each photo) will similarly be processed into the BioLink ID database.

10. Help Desk Operations

10.1 Valid Help Desk Overview

Valid will provide a toll-free, support telephone line, an email address, as well as a web-based portal for WVDMV to notify Valid of any issue(s). This support line (either phone, email, or web-based portal):

- Enables WVDMV to view status of support tickets underway and/or completed.
- Receives and triages all support calls.
- Answers calls with a live CSR during State-designated business hours. It will support WVDMV during the following hours:
  - 7:30 am to 6:00 pm, Eastern Time Monday through Friday.
  - 7:30 am to 12:30 pm, Eastern Time Saturdays
  - Extended hours as needed for special events such as the West Virginia State Fair.
- Initiates Valid field support action.
- Maintains support data in support system (ticket info—date/time, State, category, description, status, priority).
- Enables immediate troubleshooting and quick fix response.

10.2 Help Desk Reporting

The same web portal that is used for issue logging and tracking, can also provide reports, as agreed upon during design phase, for issue tracking, including both hardware and software issues.

A monthly report of hardware failure, replacement and repair services rendered will be available to the WVDMV staff. This report will outline, at a minimum, original location of the hardware, the serial number of each piece of hardware, failures reported, immediate corrective actions taken, and if needed the current disposition of the failed hardware and their locations.

10.3 Issue Troubleshooting

The Valid Help Desk will review the issue and respond to the appropriate site within 15 minutes. If the Help Desk can resolve the issue, then the trouble ticket will be closed with documented resolution. If the issue requires a technician to be dispatched to the site, then the Help Desk will continue to track the issue until resolution.

Valid will provide WVDMV an emergency call list (names, positions, phone numbers and emails) for its contacts, both primary and secondary, with escalation procedures.

Valid will provide WVDMV monthly reports on all maintenance performed on any equipment by site, including the problem, equipment issues, location of equipment, and problem issues. We will provide Help Desk support to include informational and technical assistance. Our Help Desk will troubleshoot the issue, and will support any malfunctioning equipment via the web-based, trouble ticketing system, and email throughout the project. Our trouble-tickets will describe the issue and resolution, will track and update the tickets, as well as generate reports on the issues and their timelines.

11. Transition

11.1 Objectives

- Execute "Go-Live" cutover with minimum negative impact to daily business objectives.
- Coordinate with the WVDMV to connect service delivery between DMV and Valid's personalization factories.
- Coordinate with multiple sets of stakeholders to ensure a successful transition.
- Implement processes and controls that will not interfere with WVDMV's ongoing business operations.
- Complete the data conversion and migration efforts, and thoroughly test them.
- Ensure that the administrative and technical staff are trained and ready, and they have appropriate user documentation.
- Ensure the DMV locations are ready to receive equipment to be deployed via site surveys.
- Quickly reach a stability level where the project can be handed over to the respective Operations and Maintenance teams.
- Execute cutover within established timeframe, deploy the new solution statewide, and maintain the system throughout.

11.2 Assessment

Valid will assess the resource requirements (e.g., hardware, software, and staffing), time requirements, known impact or dependencies on other projects, the physical WVDMV site locations, and other information mutually agreed upon. Valid will ensure a systemic approach to the data migration efforts. Valid will inventory and describe the operations being converted; and it will identify, track, and report all DMV operational software on supported servers. Finally, Valid will list the baseline performance attributes of the current legacy environment. As a result of these efforts, Valid can fully assess the current environment vis-a-vis the new DL/ID System environment, can identify gaps, and can assess what needs to occur to transition WVDMV from its current solution to a centralized issuance solution.

Additionally, this assessment will provide a baseline for performance levels of supported servers, processes (both online and batch), and other measurable elements of system performance for the current environment. Later, this will be used for comparison to the new DL/ID System environment to validate performance improvements. Valid will provide to the DMV proposed strategies and standards to coordinate information and solution architecture across DMV locations.

Valid will prepare a list of Valid resources that will participate in each implementation stage, e.g., site surveys, training and documentation, data conversion and migration, cutover, installation, deployment and ongoing maintenance.

11.3 Prepare

During the Test phase, the QA teams will have developed test scenarios and test scripts etc., and will have executed all the necessary testing to make sure the system fully worked. However, it is intuitively appealing to insert a preparatory stage between testing and production cutover.

Most of the activities in preparing for cutover will be finalized over the weeks leading up to the actual cutover point. During this preparation period, data can be migrated, tested, and locked down in the live system; equipment is received and prepped; back-office training is completed; and the installation

schedule is continually validated. By thoroughly preparing for the cutover, we can reduce the cutover workload and risks.

Once we get to the stage where we are ready to Go-Live, we enter a final but critical juncture where we review the likelihood of showstoppers and gauge our likelihood of success. First, we must ensure all the training meets the needs of the users. The WVDMV staff will be learning the system in a thorough way, and should be able to iron out small mishaps early on.

When we get to the actual cutover point, it is pivotal to have a detailed checklist, which must include everything that needs to happen, and it must be comprehensive and accurate. The project managers will act as the central control points, so activities must be reported back to them, and they will update the cutover plans. To sum up the above, the key to a successful cutover and deployment lies with detailed transition planning.

11.4 Planned Implementation Sequence

1 – Deployment of External Services – These are the third-party interfaces that must be maintained – such as Law enforcement, etc. These connections must be tested again just prior to Cutover.

2 – Deployment of all Back Office units – Prior to the implementation of a single pilot, the administrative and technical support teams must be fully trained and prepared to support the issuance of driver licensees.

3 – Deployment of the Pilot sites – This is where we will first issue the new identification cards and driver licenses.

4 – Deployment of the operational locations (schedule to be determined)– during this implementation, our mutual goal will be to efficiently transition the remainder of the DMV's locations in accordance with the prescribed schedule.

11.5 Stabilize

Projects should never go live without a full understanding of how they will be measured, how success will be determined, and how to define the point-of-stability. The main project objective must always be to reach a stability level where the project can be handed over to operations and maintenance (O&M) teams. We must clearly validate the key performance indicators (KPIs) that need to be met to proclaim the system stable.

11.6 Key Performance Indicators with Success Criteria

- Complete a site survey for all DMV locations, ensuring adequate room, electrical outlets, lighting (for the photos), counter heights, etc.
  Success Criteria: Any deficiencies found are addressed at least one month before Cutover date

- Complete all documentation: training documentation, user manuals and a technical procedures manual
  Success Criteria: Positive feedback from the DMV administrative staff, operational staff, and from the technical support staff

- Complete DCM operations
  Success Criteria: Thorough testing reveals a successful conversion and migration

- Ensure that the administrative and operational teams receive transitional support to keep workflow and process disruptions to a minimum
  Success Criteria: Positive survey results

- Render the Pilot locations successful
  Success Criteria: No critical or high severity open issues

- Install the WVDMV sites (in accordance with installation schedule) – once rollout begins, or meet the schedule by adjusting the rollout quantity
  Success Criteria: No critical or high severity open issues

- Ensure each DMV location has equipment installed the night prior – for each specific location
  Success Criteria: Minimal intrusion in operations of DMV locations (no complaints); and all equipment installed and working to specs

- Ensure each operational and administrative location receives adequate training and support prior to, during, and after each cutover
  Success Criteria: Administrative and operational staff are able to support the new DL/ID System solution with minimal re-training

- Ensure that all items in the Show-Stopper Report are addressed and solutions are approved by the project sponsors
  Success Criteria: No open show-stopper entries are in the report

11.7 Transition Components

a. Card Design Complete	This includes card approvals by AAMVA, and a signed Production Card Approval Document by the DMV
b. Testing Complete	Ensure that all testing–interface, system integration, performance, Disaster Recovery, and UAT/regression – are completed.
c. Card Factory Preparation	The card production equipment components are Tested. The factory allocator works flawlessly and Valid Internal Acceptance Testing was completed.
d. Production to Build	Activities to Build technical environment – infrastructure, configuration, security – are complete
e. Data Conversion & Migration	The historical data in existing system -- production (DCM) system, and card images – are all tested, consumed, and synchronized
f. Site Survey Complete	All site locations visited; and reports rendered against pre-established criteria; any discrepancies resolved
g. Training & Documentation	Must be completed for all teams (e.g., admin, Operations, DMV Help Desk, etc.); as well as all Documentation (User Guides, QRGs, etc.) completed, approved and distributed.
h. Site readiness checklist	Those steps performed to ensure project success – equipment prep, site

activities	preparation, showstopper report submitted, practice cutover completed, and entrance criteria met.
i. Production Metrics	Activities to monitor/track performance across key baseline metric readings and target measures
j. Go/No Go	Process performed via periodic checkpoints to ensure completion of critical tasks

11.8 Transition Organization, Responsibilities and Approach

11.8.1 Transition Composition

Members will include the Readiness Rollout Manager, Project Managers, Technical/Architecture Lead, Developer Lead, QA Lead, and Training Lead.

11.8.2 Responsibilities

- Direct the overall planning and coordination of the Transition and related deliverables
- Secure resources needed to plan, execute, and evaluate the Practice Cutover and Cutover
- Manage and control the execution of all Practice Cutover and Cutover tasks
- Coordinate issue resolution using predefined processes and coordinating across other resources (administrative, technical and operational) to drive analysis and resolution
- Work with respective project sponsors to ensure critical issues and barriers are resolved in a timely manner using predefined communications and escalation processes
- Coordinate and oversee activities to ensure alignment with entrance and exit criteria
- Assess potential impacts to timeline based on any issues that arise
- Ensure timely resolution of assigned issues and provide a timely status update of all issues using agreed-upon processes during rollout
- Review and identify any possible changes required to the Transition tasks and dependencies

11.8.3 Transition Approach

- Define and prioritize the transition effort components
- Define stakeholder goals and expectations
- Ensure consistent timelines, dependencies, entrance and exit criteria
- Refine high-level requirements
- Verify data conversion and migration (DCM) processes and procedures
- Validate reports and forms for operational use
- Conduct quality and progress reviews between Valid and DMV staff
- Complete all readiness steps and criteria in the Transition Readiness Assessment checklist
- The Rollout Readiness Manager and Project Managers will oversee the execution of every step in the Transition efforts.
- Provide tools and processes to synchronize master data (deltas) as necessary

- Conduct a practice cutover run (dress rehearsal) prior to 'Go Live' Cutover to validate the Transition assumptions. Test the backup and restore of the production environment during dress rehearsal

11.9 Transition Activities

11.9.1 Progress and Issues

- Log issues/bugs in JIRA (Valid's issue management solution)
- Review all issues in daily meetings

11.9.2 Transition Tasks

1	**Inventory and describe the operations being migrated**	Valid will work with DMV to determine all the operations and processes that occur during the issuance process, and site which ones will migrate or be replaced by the new DL/ID System processes
2	**Inventory, track, and report all DMV operational software on supported servers**	Prior to transitioning DMV operational software on a supported server, Valid will inventory and provide a report to DMV. Valid will not disable any functionality of the current operations until it has validated with DMV that its solution materially conforms to the SOW requirements, and only then, after DMV has authorized the disablement.
3	**List the baseline performance attributes of the current legacy environment**	Using the comprehensive list of baseline performance attributes, Valid and the DMV can validate system performance of the DL/ID System environment post-migration, and determine what adjustments, if any, need to occur.
4	**Production Card Approval Documents**	Valid will produce Production Card Approval Documents of each card type.
5	**Site Survey Successfully Completed**	All DMV sites meet pre-determined requirements for space, lighting, electrical, etc.; and a report furnished on each site to cover a sketch of where equipment and backdrop screens will be placed.
6	**Describe the documentation, methods and procedures, personnel and organization to be used in the Transition.**	Valid will coordinate with DMV to describe in detail the documentation needed (user guides, quick reference guides, etc.), methods and procedures associated with a central issuance solution, as well as a thorough description of the personnel and organization that will implement the Transition.
7	**Provide a schedule of migration activities**	The project schedule will address all migration activities; and will update those activities weekly. Valid uses MS Project and its Gantt charts for this task. It will include a detailed list of all deliverables and milestones, depict the task durations, dependencies among tasks, and show task ownership (Valid, the DMV, or another party). See Project Schedule.
8	**Roles and Responsibilities**	Valid will work with DMV to delineate the roles and responsibilities of DMV, the current contractor, and of Valid. It will coordinate with the DMV and its current vendor to prepare a Responsibility Matrix for discrete activity tasks, as part of the

		transition activities.
9	Transition Readiness Assessment Checklist	Cutover readiness assessment – is a critical planning artifact that provides a checklist of items which need to be complete prior to cutover. Items will be prioritized and integrated into the Transition.
10	Show-Stopper Report	This is another planning artifact that provides a risk assessment of issues with severities and impacts. This report will assess the current risks and provide ways to mitigate or deflect the risks so that the Transition takes place on schedule without disruption to DMV operations.
11	Completion Criteria	For each stage of the Transition, Valid will provide a definition of the completion criteria to enable an objective assessment when each stage has been successfully completed.
12	Remediation Process	Valid will establish a process to reschedule and re-execute any part of the Transition that the DMV deems to pose a risk or hazard to the DMV's business interests.
13	Production Readiness Confirmation	Production Readiness Confirmation - Confirmation from Valid that (1) the DL/ID System has met all of the business and technical requirements; (2) it has no outstanding Level 1 Defects or Level 2 Defects; (3) all tasks and activities necessary to take the DL/ID System into Production, including applicable education and training, have been completed; (4) all Transition preparation has been completed; and (5) the new system is otherwise ready for Production.
14	Training	Valid will perform all training in accordance with its Training Plan for the operational, administrative, and technical staff. The training for the administrative and technical staff must be performed prior to production cutover; the training for the operational staff will occur at the time of installation as deployments occur. See Training Plan.
15	Practice Cutover	This is a practice and dry run for activating the Cutover to Production.
16	Cutover	Place DL/ID System and its components into Production upon written approval by DMV.
17	Validation of Successful Transition	This task is inclusive of user acceptance and assessment of acceptable performance with respect to comparison of baseline operational and performance attributes collected during preceding phases (i.e., design, build, and test).

11.9.3 Objectives of Practice Cutover

A practice cutover is utilized to practice and validate the Transition prior to Go Live! It is a way of fine-tuning the process and of minimizing risks prior to full production cutover.

- To exercise Go-Live cutover in the production environment
- To involve everyone in cutover to practice and confirm steps to execute cutover
- To discover and resolve logistical issues (e.g., deploying and setup of the equipment)
- To better understand timings

11.9.4 Cutover Entrance Criteria

- All key performance indicators (KPIs) and their success criteria are defined and pre-rollout metrics satisfied
- No outstanding Level 1 or Level 2 defects
- All tasks and activities to take DL/ID System into Production
- All training has been completed, or on schedule to be completed (with dates, user audiences defined, and training content prepared)
- All documentation and training support materials (quick reference guides, user guides, computer-based training, etc.) is approved, and ready for distribution
- An approved Deployment Plan is ready
- An approved Support Plan for the Operations and Maintenance effort is ready
- All identified critical or high priority risks are mitigated, transferred or accepted
- Practice cutover was successful
- Cutover Readiness Assessment checklist comprehensively addresses the readiness criteria, and it is approved

12. Deployment

This section describes how Valid will prepare for, setup, test, and verify equipment functionality, then deliver to each DMV location the evening before the scheduled cutover date, fully train the DMV location staff the following morning, and provide status reporting.

12.1 Deployment Schedule

The Schedule for the statewide rollout will be determined by the WVDMV. Valid Field Services will review the schedule on a week by week basis, throughout the rollout schedule, making any adjustments as directed by the WVDMV. Valid Field Services will strive to maximize our efficiency with the rollout and the training effort.

12.2 Deployment Preparation

In preparation for WVDMV deployments, the following will occur:

- The Valid Field Services will establish a central equipment depot in West Virginia.
- Valid Field Services will receive, tag, and enter into its inventory system, all equipment procured for DMV sites. All equipment will receive an asset tag.
- Valid Field Services will prepare a set of site logs to be completed at DMV locations. These site logs will be set up electronically, and able to print an individual sheet for each deployment location.
- Valid will create a set of checklists and scripted processes for the Valid Field Services team. These scripted processes will be used to help ensure that each technician follows his training to install software and drivers, in what order, and covers all aspects of the installation.

- Valid Field Services will deliver all image capture workstation (ICW) components to DMV office location the early evening prior to installation, and right after close of business, so as not to disturb normal business operations.

- During the Cutover Practice, the Valid Field Services teams will review the processes employed and the sequence of these activities, and make any needed adjustments. If additional cutover practices are warranted, they will be initiated. Similar timings will be used to review the SLA requirements during the Maintenance and Support phase. During the Pilots, they will re-test this process at actual sites, and continue to make appropriate adjustments.

- In collaboration with DMV, the Valid Field Services teams will update their schedules of installation dates for all DMV locations at the beginning of the deployment, and maintain subsequent adjustment schedules for the remaining of the deployment. DMV will identify the quantity and type of equipment to be installed at each DMV location.

- Valid Field Services will provide the names of the individuals in each team in accordance with the current schedule.

- WVDMV will be asked to obtain contact information for each DMV location and provide that to the installation teams, at least two weeks prior to the selected installation date for each DMV site.

12.3 **Rollout** – This stage encompasses seven key phases, as follows:

- **Stage 1– External Services (DL/ID System data and photo service and EDL service).** This will ensure that external entities who inquire into WVDMV's system for data and image retrieval can access this information within the appropriate response times (e.g., state law enforcement).

- **Stage 2 – Back-Office / DMV Headquarters locations.** A small volume of folios that are processed in DMV headquarters and may require special handling. This will run for a two-day period.

- **Stage 3 – Front Office Capture/Issuance Pilot.** The Pilot would consist of a select number of business offices, representing multiple sizes of DL offices as well as differing geographic locations. What will be accomplished during the Pilot is validation of the front-end processes (including data communications), as well as a determination of any issues in the business end of this offices (such as remedial training needs).

- **Stage 4 – Statewide Deployment.** This consists of the deployment of the remaining location offices across West Virginia as quickly as possible.

- **Rollback** – This stage is optional, and would only occur if a significant issue surfaces after Stage 1 has started, but before Stage 3 has begun.

Note: For field offices, once the process begins, any issues will be dealt with and corrected; there would be no rollback once the front office deployment is underway.

12.4 Installation

Valid Field Services technicians will install and test the equipment and application functionality during the early evening (immediately after end of normal business activity) prior to the scheduled "Go Live" date at a given DMV location. The morning after installation, a Valid Field Services technician will be onsite at the applicable WVDMV locations to assist the staff in using the equipment and the WebLink ID product.

The Valid Field Services technicians will perform the following tasks, in accordance with a scripted process that it will prepare and review with DMV.

- Install new camera towers with IC workstations
- Ensure that any needed chains to hold the camera backdrop screens are positioned
- Install the backdrop screens
- Check out the installation and perform functional testing on each piece of equipment
- Measure the distance from the camera to the drop down screen, and make any adjustments needed
- Install and or configure the most current image to the ICW systems which will include print drivers and additional software as necessary. We plan to use an ICW-specific Windows image that will be pre-configured for the printer drivers, WebLink ID shortcut(s), Capture Manager software, and Windows service.

The Valid Field Services team will ensure asset ownership tags have been applied to all installed equipment. Additionally, the team will remove and dispose from DMV locations all packing materials and other debris from the installation. Any cabling will be neatly labeled and orderly.

The Valid Field Services team will maintain a site log that details the hardware and software configurations for each site. The site log will be the property of the DMV, and one copy will be left on-site with the DMV location the site designee and another copy will be sent to DMV point of contact.

12.5 14-Day Pre-Post Support Plan

12.6 Post Installation

The Valid Field Services technicians will arrive the morning after the installation of equipment at each DMV location and will do the following:

- The Field Services technician team will help them with any questions or training needs, and that will continue throughout the morning.
- Provide any needed equipment support
- Field Services technicians will not leave a WVDMV location without checking out with the location manager / supervisor.

If at a later date, DMV requires the DL/ID System solution equipment to be uninstalled and then

reinstalled and tested at a different location, Valid will perform that task in coordination with DMV, closely along the same installation processes as the original deployment.

Valid will pay particularly close attention to support of each installed location 7 days prior to installation / deployment and 7 days after. In this way, Valid will gauge any location-specific issues and provide solutions which assuage any concerns.

12.7 Reporting

The Valid Field Services installation teams will report back through their established communications channels and established periodicity (daily calls and weekly reports) through a single point of contact regarding the deployment and installation of the equipment at each DMV location. The concept is to have the most current information regarding the installations in the hands of DMV.

During the installation the Valid Field Services team will complete a site log of the hardware and software configuration for each site. The site log will include all of the following:

- Date of Equipment Installation
- Site Location
- Equipment Installed
    - Asset Name/Model
    - Asset Tag Identifier #
    - Serial Number
    - Asset Descriptor
- Any Issues Encountered
- Special Concerns

A copy of the site log will be given to the site / location supervisor. At the end of the week, the site logs for all sites installed during that week will be sent to DMV for its review.

13. Operations and Maintenance

The Valid Field Service team will be responsible for troubleshooting, replacing equipment, reporting, and other assigned tasks, supporting the equipment and services deployed at the DMV locations. During the Operations and Maintenance (O&M) period which follows the Deployments, the staffing level maintained by Valid will be more than adequate to meet DMV's SLAs in supporting the equipment and responding to all service calls. These Field Service technicians will be recruited from West Virginia, and trained up prior to training and deployment.

13.1 Staffing and Coverage

Valid will position its field technicians throughout the state, as well as a manager/supervisor, to provide the needed coverage for maintenance and support. It will establish a central equipment depot Valid will maintain its staffing levels to support trouble calls throughout the state. Valid Field Services will maintain and distribute to WVDMV all the technicians' contact information including their names, physical location, mobile telephone numbers, and email addresses. Valid will also update DMV monthly on the equipment inventory, by product/model, maintained to support the DMV locations.

Our Field Services technicians will be fully trained on and capable of diagnosing, replacing and servicing the deployed equipment, both hardware and software, as well as their operation. They will have detailed maintenance documentation at their fingertips. Valid Field Support is responsible for service during business hours of all DMV office locations.

13.2 Valid Call Procedures

13.2.1 Initiating a service call

Valid will deploy a full set of equipment to each WVDMV location, and provide a toll-free number for DMV sites to contact it for any issues. When the DMV location contacts the Valid Help Desk, the latter will open a ticket and follow all issues to resolution. Valid will require the following information:

- Location of the office (full physical address)
- Contact person, phone number, and email
- A concise summary of the issue
    - 7:30 am to 6:00 pm, Eastern Time Monday through Friday.
    - 7:30 am to 12:30 pm, Eastern Time Saturdays
    - Extended hours as needed for special events such as the West Virginia State Fair.

13.2.2 Recording the call at Valid

Valid can receive Help Desk calls via web tracking, phone, or email. Valid will align its Help Desk coverage with DMV location schedules (generally, Monday thru Friday, 7:30 AM thru 6:00 PM (eastern time); 7:30 AM to 12:30 PM on Saturdays). Upon receipt of the call ticket from the DMV, the Valid Help Desk Service Representative (SR) will review the issue, and will either dispatch a Valid Field Technician to the site (Level 3), or will call the DMV site supervisor to get a clarification of the issue. Once dispatched, the Valid Field Technician will call the DMV contact person to apprise him or her of the ETA. If the Valid Help Desk can resolve the call over the phone, then the trouble ticket will be documented and closed. If a technician is dispatched, then the Help Desk will track the trouble ticket until the technician resolves the issue, and will document the timelines associated with that effort. In agencies with redundant Contractor provided equipment, if Valid-owned equipment needs repair or replacement, the service must be completed within 6 business hours of the initial report.

Upon arrival at the DMV site, the Valid field technician will notify the Valid Help Desk that he or she has arrived.

While the Valid Help Desk maintains a ShoreTel automated call distribution (ACD) system which will automatically track the calls, call duration, etc., the Valid HD SR will log the call into JIRA, Valid's issue management system, where the call will be recorded, tracked, and progressed through final resolution.

13.2.3 Closing the Call

When the Valid Field Technician completes the service call, either resolving the issue or replacing the malfunctioning equipment, then he will check out with the DMV site contact person, and then call the Valid Help Desk. The Valid HD SR will place a return message/call to the DMV Help Desk, and will resolve the call in JIRA. If malfunctioning equipment was replaced, then later, when the Valid Field Technician

checks out the equipment at the Valid equipment depot, the actual cause of the malfunction will be sent to the Valid HD, which will update the issue within JIRA.

13.3 Reporting

By the 3rd working day of each month the Valid Help Desk will prepare a monthly report detailing the calls for the month, the issue resolution, time to resolution, and any other pertinent data. In the report, the Help Desk will provide WVDMV with any trends revealed by the monthly data or data over a past set of months (e.g., some issues with cameras might have been resolvable at the site by DMV staff). The report will be sent to the Valid Operations Manager for DMV who will review it and present it to DMV as part of her overall monthly reporting.

On an as-needed basis, using JIRA, the Help Desk can provide special reports on certain types of equipment or on specific DMV sites.

Valid Field Technicians will submit a daily report to their supervisor consisting of a list of all service calls closed, updated or otherwise worked on as well as any equipment replaced, brought back to the warehouse and any other tasks completed during their shift.

Each week the in-state Valid Field Services Manager will submit a report to Valid management for continued monitoring of events. Valid will provide a set of reports to the DMV as described below.

13.3.1 Daily Reports

- The "*Open Request Status Report*" will list all open service requests with performance and response times
- The "*Requests Closed Since Last Report*" will list all closed resolved requests with pertinent problems, resolutions, root causes, and performance information

Note: Should a systemic or repeating issue affecting a significant number of sites or devices occur, Valid Field Services may be required to update DMV with frequent (e.g., daily) progress conference calls until DMV regains its confidence that service requirements are being met.

13.3.2 Monthly Reports

- The "*Volume Summary Report*" contains all service requests that quantifies calls opened, closed, problem types, resolution, etc., by equipment type. This information will include a review of the previous 12 months to help identify trends.
- The "*Inventory Report*" shows the location and status of all Valid Field Services' equipment deployed throughout the state. It tracks installed equipment, spare hardware, equipment out-for-repair, and any "retired" (inactive and removed) equipment.
- The "*Performance Report*" lists all the performance data against SLA requirements including: (1) Response Time, (2) Arrival Time. (3) Time-To-Repair, and (4) Close Time

Note: This data is generated monthly, but published with a 12-month history for trend analysis

- The *"Ad Hoc Reports"* are on-demand reports to address a specific need such as call volume analysis, site history reporting, operator history reporting, etc.

13.4 Troubleshooting & Repair

Valid Field Technicians will try to reproduce the issue when they arrive on location so that they can either confirm the problem and repair it, or swap out any equipment needed. The Valid field technician will follow a basics-first troubleshooting procedure after arriving on location – making sure that all cables, connections and power are present and plugged in correctly. He will then try to power on, reproduce the error or reset the system.

In support of each service call to a DMV location, the Valid technicians will provide a summary of what the call entailed, the issues found, the actions taken and the status and closure of the issue. That information will be used to update the call ticker, and together with the call data from the Valid Help Desk (time call was received at Valid, time of dispatch, time call ended, etc.) an incident report will be prepared. Valid will send DMV a weekly summary of incident reports, and will provide detailed incident reporting monthly, distributed via email and/or uploaded into SharePoint or other DMV-preferred repository.

When the problem has been identified, reproduced, repaired or replaced, the Valid Field Technician will conduct a series of tests (TBD) to make sure that the system is fully operational, and ensure that the DMV office is able to complete a transaction. The Field Technician will ensure that the office completes a live transaction or if no customers are waiting, they will complete another test to ensure all is operational before departing site.

13.5 Equipment

It has been Valid's experience that it needs to maintain approximately 4% to 7% of its deployed equipment in inventory to replace malfunctioning equipment. The specific amount is dependent on the type and model of equipment. All equipment required by Valid will be newly manufactured, and will be inspected to ensure excellent working order.

Valid Field Services will replace malfunctioning equipment with identical equipment, and malfunctioning parts with identical parts. Valid will ensure that it acquires enough equipment and parts to handle the anticipated needs of DMV through the contract term, to ensure that equipment doesn't become obsolescent. Valid will track all its equipment, and will provide DMV visibility into the status of each serialized equipment from inventory to installation, to repair and back into inventory. The equipment deployed to each DMV location includes:

- Camera towers
- Backdrop screens for photos
- Signature pads
- Printers
- Scanners

13.6 Preventive Maintenance

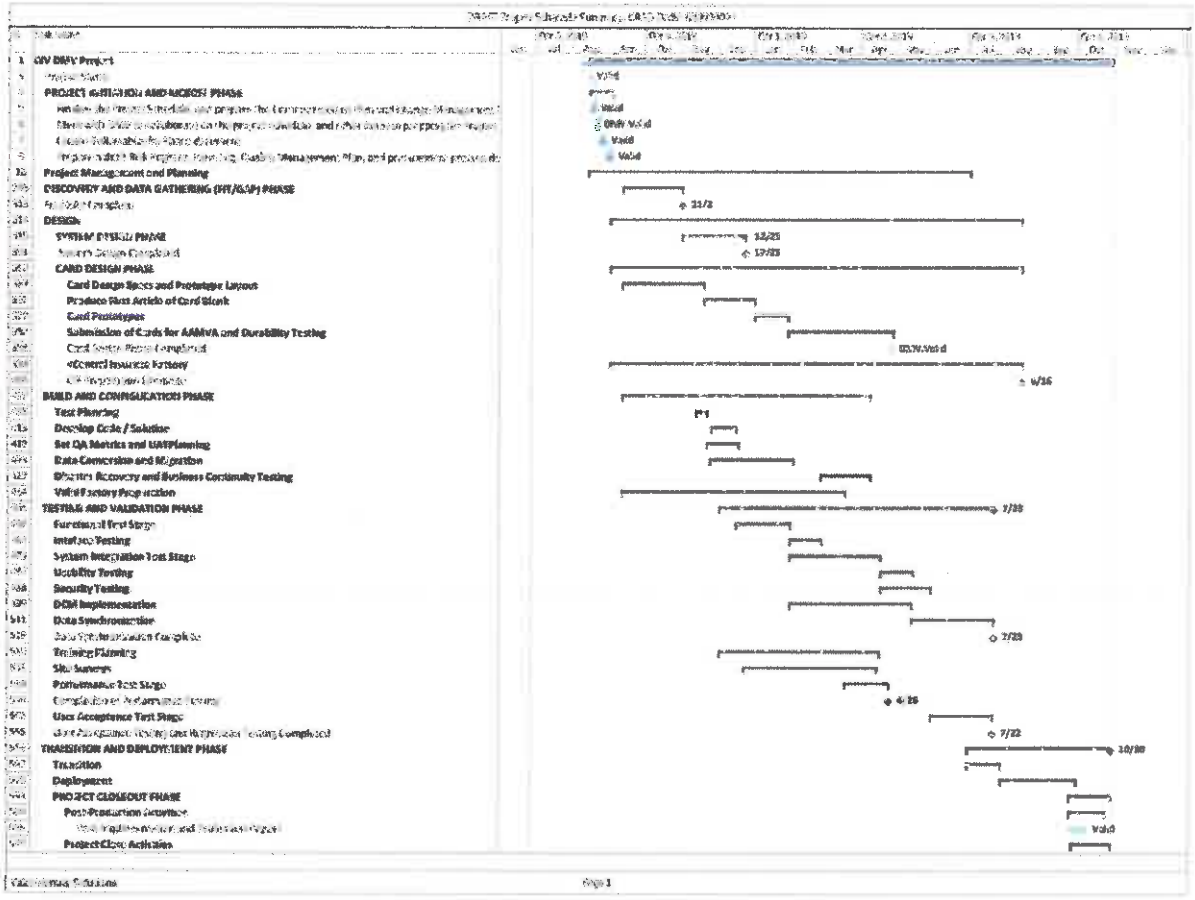
Valid Field Services plans for its technicians to visit each DMV location at least once per year for the purpose of checking on the deployed equipment, and to assist the location staff, as needed. This includes inspection, testing, and calibration, as necessary to ensure that all components are in good working order and that the equipment will continue in good working order throughout the duration of the contract. In order to minimize the impact to the normal business operations of DMV locations, the preventive maintenance will be scheduled at a time mutually agreed upon by DMV and Valid Field Services. The preventive maintenance call will include all deployed equipment (e.g., image capture workstations, cameras, etc.).

All maintenance activity performed at each DMV location will be approved by the DMV site supervisor. The Valid technician will record the name of the site supervisor and the date/time of the preventive maintenance visit, and any comments provided by the site supervisor. This data will become part of the preventive maintenance incident report. The call information for these preventive maintenance visits will be made available to DMV via email or posted to SharePoint.

APPENDIX 2

Project Schedule

This is Valid's Sample Project Schedule, with detailed level of activity (To Be updated), including training dates.



DRAFT Project Task List CRFP DMVI 800000001

ID	Text1	Task Name	Duration	Start	Finish	Predecessors	Resource Names
1		**WV DMV Project**	**316 days**	**Wed 8/15/18**	**Thu 10/31/19**		DMV,Valid
2	Activity	West Virginia DMV awards Contract	1 day	Wed 8/8/18	Thu 8/9/18		DMV
3		Project Starts	1 day	Wed 8/15/18	Thu 8/16/18	2	Valid
4		PROJECT INITIATION AND KICKOFF PHASE	**13 days**	**Thu 8/16/18**	**Tue 9/4/18**		
5	Activity	Finalize the Project Schedule, and prepare the Communications Pla	2 days	Thu 8/16/18	Mon 8/20/18	3	Valid
6		Meet with DMV to collaborate on the project schedule, and other items in prepping for Project Kickoff	3 days	Mon 8/20/18	Thu 8/23/18	5	DMV,Valid
7	Activity	Create Deliverables by Phase document	4 days	Thu 8/23/18	Wed 8/29/18	6	Valid
8	Activity	Send to DMV for review	5 days	Wed 8/29/18	Mon 9/3/18	7	DMV
9	Activity	Prepare a draft Risk Register, Issue Log, Quality Management Plan, and procurement process document	4 days	Wed 8/29/18	Tue 9/4/18	7	Valid
10		**Project Management and Planning**	**290 days**	**Wed 8/15/18**	**Wed 7/3/19**		
11		**Project Management**	**290 days**	**Wed 8/15/18**	**Wed 7/3/19**		
12	Deliverable	**Monthly Project Status Report**	**216 days**	**Tue 9/4/18**	**Wed 7/3/19**		Valid
24	Activity	**DMV Review of Monthly Project Status Report**	**196 days**	**Tue 9/11/18**	**Wed 6/12/19**		DMV
35	Deliverable	**Weekly Project Progress Report**	**229 days**	**Wed 8/15/18**	**Tue 7/2/19**		Valid
83	Activity	**DMV Review of Weekly Project Progress Report**	**226 days**	**Tue 8/21/18**	**Wed 7/3/19**		DMV
130	Activity	**Project Plan Update**	**211 days**	**Fri 9/7/18**	**Mon 7/1/19**		Valid
174	Activity	**DMV Review of Project Plan Update**	**211 days**	**Mon 9/10/18**	**Tue 7/2/19**		DMV
218	Deliverable	**VALID Staffing Resource Plan Update**	**176 days**	**Tue 10/2/18**	**Wed 6/5/19**		Valid
228	Activity	**DMV Review of VALID's Staff Resource Plan Update**	**176 days**	**Thu 10/4/18**	**Fri 6/7/19**		DMV
238	Activity	**Risk Management Review**	**191 days**	**Thu 9/13/18**	**Fri 6/7/19**		Valid,DMV
278	Activity	**Project Governance Coordination Meetings**	**196 days**	**Wed 9/5/18**	**Thu 6/6/19**		DMV,Valid
289		**Project Kickoff**	**21 days**	**Wed 8/15/18**	**Thu 9/13/18**		
290	Activity	Prepare for Project Kickoff with Agenda and Materials	6 days	Wed 8/15/18	Tue 8/21/18		Valid,DMV
291	Activity	Project Kickoff Agenda and Materials Reviewed by DMV	4 days	Tue 9/4/18	Mon 9/10/18	9,290	DMV
292	Deliverable	Project Kickoff Event	2 days	Mon 9/10/18	Wed 9/12/18	290,2	DMV,Valid
293	Activity	Project Kickoff Event Reviewed by DMV	1 day	Wed 9/12/18	Thu 9/13/18	292	DMV
294	Milestone	Project Initiation and Kickoff Completed	0 days	Thu 9/13/18	Thu 9/13/18	292,2	DMV,Valid
295		DISCOVERY AND DATA GATHERING (FIT/GAP) PHASE	36 days	Thu 9/13/18	Fri 11/2/18		
296	Activity	Refine the Project Plan	3 days	Thu 9/13/18	Tue 9/18/18	294	Valid,DMV

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ID	Text1	Task Name	Duration	Start	Finish	Predecessors	Resource Names
297	Activity	Establish Implementation Strategy	3 days	Thu 9/13/18	Tue 9/18/18	296	Valid,DMV
298	Activity	Assess Internal / External Project Dependencies	1 day	Tue 9/18/18	Wed 9/19/18	296	DMV,Valid
299	Activity	Establish Internal / External Project Risks	2 days	Tue 9/18/18	Thu 9/20/18	297	DMV,Valid
300	Deliverable	Finalize Communications Management Plan	3 days	Tue 9/18/18	Fri 9/21/18	297	DMV,Valid
301	Deliverable	Finalize Change Management Plan	1 day	Fri 9/21/18	Mon 9/24/18	300	DMV,Valid
302	Deliverable	Finalize Quality Management Plan	1 day	Mon 9/24/18	Tue 9/25/18	301	DMV,Valid
303	Deliverable	Finalize Risk Register and Issue Log	1 day	Mon 9/24/18	Tue 9/25/18	301	DMV,Valid
304	Deliverable	Develop Deliverables by Phase Document	2 days	Tue 9/25/18	Thu 9/27/18	303	DMV,Valid
305	Activity	Identify New/Enhanced Business Processes	2 days	Thu 9/27/18	Mon 10/1/18	301,3	Valid,DMV
306	Activity	Prep for Fit/Gap Sessions	3 days	Mon 10/1/18	Thu 10/4/18	305	DMV,Valid
307	Activity	Conduct Fit/Gap Assessment including new and enhanced business processes, and review of data elements	13 days	Thu 10/4/18	Tue 10/23/18	306	DMV,Valid
308	Activity	Document Requirements	2 days	Tue 10/23/18	Thu 10/25/18	307	Valid,DMV
309	Deliverable	Create Updated Fit/Gap Document	3 days	Thu 10/25/18	Tue 10/30/18	308	Valid
310	Activity	DMV to review Updated Fit/Gap Document	3 days	Tue 10/30/18	Fri 11/2/18	309	DMV
311	Deliverable	Produce Initial draft of the Requirements Traceability Matrix (RTM)	3 days	Thu 10/25/18	Tue 10/30/18	308	Valid
312	Activity	DMV to review Initial Draft of RTM	3 days	Tue 10/30/18	Fri 11/2/18	311	DMV
313	Milestone	Fit / GAP Complete	0 days	Fri 11/2/18	Fri 11/2/18	311,3	DMV,Valid
314		DESIGN	249 days	Mon 9/3/18	Fri 8/16/19		
315		SYSTEM DESIGN PHASE	37 days	Fri 11/2/18	Tue 12/25/18		
316		Iterative System Design Reviews	37 days	Fri 11/2/18	Tue 12/25/18		
317		Create Function Design Documents	12 days	Fri 11/2/18	Tue 11/20/18		
318	Deliverable	Create SDD for Data Layout Design	2 days	Fri 11/2/18	Tue 11/6/18	313	Valid
319	Activity	Review and Approve SDD for Data Layout Design	2 days	Tue 11/6/18	Thu 11/8/18	318	DMV
320	Deliverable	Create SDD for Interfaces Design	3 days	Tue 11/6/18	Fri 11/9/18	318	Valid
321	Activity	Review and Approve SDD for Interfaces	2 days	Fri 11/9/18	Tue 11/13/18	320	DMV
322	Deliverable	Create SDD for Extensions Design	3 days	Fri 11/9/18	Wed 11/14/18	320	Valid
323	Activity	Review and Approve SDD for Extensions Design	2 days	Wed 11/14/18	Fri 11/16/18	322	DMV
324	Activity	Review Current Reports	2 days	Wed 11/14/18	Fri 11/16/18	322	DMV
325	Activity	Design Additional Reports	2 days	Wed 11/14/18	Fri 11/16/18	322	Valid
326	Activity	Review the Additional Reports	2 days	Fri 11/16/18	Tue 11/20/18	325	DMV

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ID	Text1	Task Name	Duration	Start	Finish	Predecessors	Resource Names
327		**Create Technical Design Documents**	**14 days**	**Fri 11/16/18**	**Thu 12/6/18**		
328	Deliverable	Create SDD for Data Layout Design	2 days	Fri 11/16/18	Tue 11/20/18	323	Valid
329	Activity	Review and Approve SDD for Data Layout Design	2 days	Tue 11/20/18	Thu 11/22/18	328	DMV
330	Deliverable	Create SDD for Interfaces Design	3 days	Tue 11/20/18	Fri 11/23/18	328	Valid
331	Activity	Review and Approve SDD for Interfaces	2 days	Fri 11/23/18	Tue 11/27/18	330	DMV
332	Deliverable	Create SDD for Extensions Design	3 days	Fri 11/25/18	Wed 11/28/18	330	Valid
333	Activity	Review and Approve SDD for Extensions Design	2 days	Wed 11/28/18	Fri 11/30/18	332	DMV
334	Activity	Review Current Reports	2 days	Fri 11/30/18	Tue 12/4/18	333	DMV
335	Activity	Design Additional Reports	2 days	Fri 11/30/18	Tue 12/4/18	333	Valid
336	Activity	Review the additional Reports	2 days	Tue 12/4/18	Thu 12/6/18	335	DMV
337		**Performance, DCM and Solution Planning**	**25 days**	**Tue 11/20/18**	**Tue 12/25/18**		
338	Activity	Establish Performance Requirements	1 day	Wed 11/28/18	Thu 11/29/18	332	Valid
339	Activity	Create Process Flows with Key Inputs and Outputs	3 days	Thu 11/29/18	Tue 12/4/18	338	Valid
340	Activity	DMV to review Process Flows	2 days	Tue 12/4/18	Thu 12/6/18	339	DMV
341	Deliverable	Create Interface Control Documents	3 days	Tue 12/4/18	Fri 12/7/18	339	Valid
342	Activity	DMV to review Interface Control Docs	2 days	Fri 12/7/18	Tue 12/11/18	341	DMV
343	Deliverable	Create Data Conversion / Migration (DCM) Plan	4 days	Tue 11/20/18	Mon 11/26/18	328	Valid
344	Activity	DMV to review DCM Plan	2 days	Mon 11/26/18	Wed 11/28/18	343	DMV
345	Deliverable	Create Solution System Architecture Documents	5 days	Tue 12/11/18	Tue 12/18/18	342	Valid
346	Activity	DMV to review Solution System Architecture Documents	2 days	Tue 12/18/18	Thu 12/20/18	345	DMV
347	Activity	Update Enterprise Architecture Documents	2 days	Tue 12/18/18	Thu 12/20/18	345	Valid
348	Activity	Create System Sizing Requirements	3 days	Tue 12/18/18	Fri 12/21/18	345	Valid
349	Activity	Establish Test Environment Plan	3 days	Thu 12/20/18	Tue 12/25/18	347	Valid
350	Activity	Establish SDLC Environments	4 days	Tue 12/18/18	Mon 12/24/18	345	Valid
351	Milestone	**System Design Completed**	**0 days**	**Tue 12/25/18**	**Tue 12/25/18**	348	DMV,Valid
352		[illegible]	**249 days**	**Mon 9/3/18**	**Fri 8/16/19**		
353		**Card Design Specs and Prototype Layout**	**48.13 days**	**Thu 9/13/18**	**Tue 11/20/18**		
354	Deliverable	Valid's graphic designer will create base card layouts for DMV review	8 days	Thu 9/13/18	Tue 9/25/18	294	Valid
355	Activity	DMV Reviews Card Layouts	5 days	Tue 9/25/18	Tue 10/2/18	354	DMV

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ID	Text1	Task Name	Duration	Start	Finish	Predecessors	Resource Names
356	Activity	Card Designer to discuss expectations with DMV and prepare concepts document	10 days	Tue 9/25/18	Tue 10/9/18	354	DMV,Valid
357	Activity	Review concepts document and iterate over changes.	4 days	Tue 10/2/18	Mon 10/8/18	355	DMV,Valid
358	Activity	DMV approves basic card layouts	5 days	Mon 10/8/18	Mon 10/15/18	357	DMV
359	Deliverable	Create Card Design Specification	5 days	Mon 10/8/18	Mon 10/15/18	357	Valid
360	Activity	DMV Approves Card Design Specification (CDS)	5 days	Mon 10/8/18	Mon 10/15/18	357	DMV
361	Activity	Valid provides prepress artwork and "soft copy" proofs	4 days	Mon 10/15/18	Fri 10/19/18	359	Valid
362	Activity	DMV Review and Approves prepress artwork and "soft copy"	4 days	Fri 10/19/18	Tue 10/30/18	361	DMV
363	Deliverable	Valid provides Prototype Card Layout	5 days	Tue 10/30/18	Tue 11/6/18	362	Valid
364	Activity	DMV to review Prototype Card Layout	3 days	Tue 11/6/18	Fri 11/9/18	363	DMV
365	Deliverable	Valid provides Core Approval Document	4 days	Fri 11/9/18	Thu 11/15/18	364	Valid
366	Activity	DMV to review Core Approval Document	3 days	Thu 11/15/18	Tue 11/20/18	365	DMV
367		**Produce First Article of Card Blank**	**31 days**	**Tue 11/20/18**	**Wed 1/2/19**		
368	Activity	Pre-Press (inc prepare PDF Proofs)	10 days	Tue 11/20/18	Tue 12/4/18	366	Valid
369	Activity	Obtain PDF Proof approval	2 days	Tue 12/4/18	Thu 12/6/18	368	Valid
370	Activity	Print Fronts	2 days	Tue 12/4/18	Thu 12/6/18	368	Valid
371	Activity	Print Backs	2 days	Tue 12/4/18	Thu 12/6/18	368	Valid
372	Activity	Collate	1 day	Thu 12/6/18	Fri 12/7/18	371	Valid
373	Activity	Laminate	1 day	Fri 12/7/18	Mon 12/10/18	372	Valid
374	Activity	Punch	1 day	Mon 12/10/18	Tue 12/11/18	373	Valid
375	Activity	Verification	2 days	Tue 12/11/18	Thu 12/13/18	374	Valid
376	Activity	Valid produces Card Blank Approval Document (CBAD) and FA Samples	4 days	Thu 12/13/18	Wed 12/19/18	375	Valid
377	Activity	DMV approves CBAD and FA Samples	10 days	Wed 12/19/18	Wed 1/2/19	376	DMV
378		**Card Prototypes**	**20 days**	**Wed 1/2/19**	**Wed 1/30/19**		
379	Activity	Review design results	5 days	Wed 1/2/19	Wed 1/9/19	377	DMV
380	Deliverable	Valid produces Card Protypes	10 days	Wed 1/9/19	Wed 1/23/19	379	Valid
381	Activity	DMV approves Card Prototypes	5 days	Wed 1/23/19	Wed 1/30/19	380	DMV
382		**Submission of Cards for AAMVA and Durability Testing**	**63 days**	**Wed 1/30/19**	**Mon 4/29/19**		
383	Deliverable	Provide sample set of cards for submission to AAMVA for tes	45 days	Wed 1/30/19	Wed 4/3/19	381	Valid
384	Deliverable	Valid provides a sample set of cards for submission for independent testing	30 days	Wed 1/30/19	Wed 3/13/19	381	Valid
385	Activity	Sample Cards are approved by AAMVA	2 days	Wed 4/3/19	Fri 4/5/19	383	DMV

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ID	Text1	Task Name	Duration	Start	Finish	Predecessors	Resource Names
386	Deliverable	Valid prepares multiple copies of a Production Card Approval Document (PCAD;	15 days	Fri 4/5/19	Fri 4/26/19	385	Valid
387		DMV reviews and approves	1 day	Fri 4/26/19	Mon 4/29/19	386	DMV
388	Milestone	Card Design Phase Completed	1 day	Fri 4/26/19	Mon 4/29/19	386	DMV,Valid
389		**<Central Issuance Factory**	**249 days**	**Mon 9/3/18**	**Fri 8/16/19**		**Valid**
390		**Planning / Requirements Gathering Process**	**6 days**	**Mon 9/3/18**	**Tue 9/11/18**		**Valid**
391	Activity	Plan for Procurement	5 days	Mon 9/3/18	Mon 9/10/18		Valid
392	Activity	Resources Allocation	1 day	Mon 9/10/18	Tue 9/11/18	391	Valid
393		**Equipment Procurement, Setup and Testing**	**243 days**	**Tue 9/11/18**	**Fri 8/16/19**		**Valid**
394		**Procurement**	**59 days**	**Tue 9/11/18**	**Tue 11/20/18**		**Valid**
395	Activity	FW / MONTROSE Equipment (Servers), Printer, Marker	59 days	Tue 9/11/18	Tue 11/20/18	392	Valid
396		**Program Delivery**	**82 days**	**Tue 11/20/18**	**Thu 3/14/19**		**Valid**
397	Activity	Phase 1 - Establish communication between State and	15 days	Tue 11/20/18	Tue 12/11/18	395	Valid
398	Activity	Phase 2 - Establish communication between Valid and	15 days	Tue 12/11/18	Tue 1/1/19	397	Valid
399	Activity	Phase 3 - Factory Buildout (Develop and Verify Integrit	20 days	Tue 1/1/19	Tue 1/29/19	398	Valid
400	Activity	Phase 4 - Replicate FW ProtoFactory at Katrine	15 days	Tue 1/29/19	Tue 2/19/19	399	Valid
401	Activity	Phase 5 - Factory Allocation Manager (Pre-UAT Testing	17 days	Tue 2/19/19	Thu 3/14/19	400	Valid
402		**Completed Factory System**	**15 days**	**Fri 7/26/19**	**Fri 8/16/19**		**Valid**
403	Activity	Final Readiness Test	1 day	Fri 7/26/19	Fri 8/9/19	401	Valid
404	Activity	Production Card Approval Documents (PCAD)	4 days	Fri 8/9/19	Thu 8/15/19	403	Valid
405	Activity	Factory Control System Go Live	1 day	Thu 8/15/19	Fri 8/16/19	404	Valid
406	Milestone	CIF Preparation Complete	0 days	Fri 8/16/19	Fri 8/16/19	405	
407		BUILD AND CONFIGURATION PHASE	**149 days**	**Thu 9/13/18**	**Wed 4/10/19**		
408		**Test Planning**	**7 days**	**Wed 11/14/18**	**Fri 11/23/18**		
409	Activity	Develop/Compile Overall Test Plans	3 days	Wed 11/14/18	Mon 11/19/18	322	Valid
410	Activity	Develop Test Analysis Report	2 days	Mon 11/19/18	Wed 11/21/18	409	Valid
411	Activity	Establish QA Metrics	2 days	Wed 11/21/18	Fri 11/23/18	410	Valid
412	Activity	Refine Development Plan	2 days	Wed 11/21/18	Fri 11/23/18	410	Valid
413		**Develop Code / Solution**	**15 days**	**Tue 11/27/18**	**Tue 12/18/18**		
414		**Interfaces, Extensions & Reports**	**15 days**	**Tue 11/27/18**	**Tue 12/18/18**		
415	Activity	Develop Interfaces	8 days	Tue 11/27/18	Fri 12/7/18	331	Valid
416	Activity	Develop Extensions	8 days	Fri 11/30/18	Wed 12/12/18	333	Valid
417	Activity	Develop Reports	8 days	Thu 12/6/18	Tue 12/18/18	336	Valid
418		**Set QA Metrics and UATPlanning**	**19 days**	**Fri 11/23/18**	**Thu 12/20/18**		
429	Activity	Gather and Report QA Metrics	2 days	Tue 12/18/18	Thu 12/20/18	417	DMV,Valid

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ID	Text1	Task Name	Duration	Start	Finish	Predecessors	Resource Names
420	Deliverable	Develop UAT Plan with test scripts and test cases	7 days	Fri 11/23/18	Tue 12/4/18	412	DMV,Valid
421	Activity	DMV to review UAT Plan, Scripts and Cases	2 days	Tue 12/4/18	Thu 12/6/18	420	DMV
422	Deliverable	Develop Training Plan	10 days	Thu 11/22/18	Thu 12/6/18	329	DMV
423		**Data Conversion and Migration**	**50 days**	**Mon 11/26/18**	**Mon 2/4/19**		
424	Deliverable	Create Data Mapping Document for Legacy Systems	20 days	Mon 11/26/18	Mon 12/24/18	343	Valid
425	Activity	DMV to review Data Mapping Document	10 days	Mon 12/24/18	Mon 1/7/19	424	DMV
426	Activity	Perform Data Extraction	20 days	Mon 1/7/19	Mon 2/4/19	425	DMV
427		**Disaster Recovery and Business Continuity Testing**	**30 days**	**Wed 2/27/19**	**Wed 4/10/19**		
428	Deliverable	Valid to Provide Updated DR / BC Plan with DR Test Plan	5 days	Wed 2/27/19	Wed 3/6/19	445	Valid
429	Activity	DMV to review Updated DR / BC Plan & DR Test plans	10 days	Wed 3/6/19	Wed 3/20/19	428	DMV
430	Deliverable	Testing of Disaster Recovery Failover from one site to another	5 days	Wed 3/20/19	Wed 3/27/19	401,429	Valid
431	Activity	DMV to review Failover Testing	10 days	Wed 3/27/19	Wed 4/10/19	430	DMV
432	Activity	Remediate any issues determined in Failover Test	2 days	Wed 3/27/19	Fri 3/29/19	430	Valid
433	Activity	DMV to review any needed Remediation of Failover Tests	5 days	Fri 3/29/19	Fri 4/5/19	432	DMV
434		**Valid Factory Preparation**	**134 days**	**Thu 9/13/18**	**Wed 3/20/19**		Valid
435	Activity	Create and update the BOM	5 days	Thu 9/13/18	Thu 9/20/18	298	Valid
436	Activity	Vendor Manufacturing	60 days	Thu 9/20/18	Thu 12/13/18	435	Valid
437	Activity	Review DC Production Processes	10 days	Thu 9/20/18	Thu 10/4/18	435	Valid
438	Activity	Document DC Production Processes	15 days	Thu 10/4/18	Thu 10/25/18	437	Valid
439	Activity	Perform Katrine SAT	2 days	Thu 12/13/18	Mon 12/17/18	436	Valid
440	Activity	Unit test Katrine equipment	15 days	Mon 12/17/18	Mon 1/7/19	439	Valid
441	Activity	Unit test control software	5 days	Mon 1/7/19	Mon 1/14/19	440	Valid
442	Activity	Complete end-to-end testing -- MXD/Mx	10 days	Mon 1/14/19	Mon 1/28/19	441	Valid
443	Activity	Complete load testing	5 days	Mon 1/28/19	Mon 2/4/19	442	Valid
444	Activity	Prepare "Variations" ICD for testing	5 days	Mon 2/4/19	Mon 2/11/19	443	Valid
445	Activity	Produce "Variations" job	1 day	Mon 2/11/19	Tue 2/12/19	444	Valid
446	Activity	Perform Montrose SAT	2 days	Tue 2/12/19	Thu 2/14/19	445	Valid
447	Activity	Unit test Montrose equipment	3 days	Thu 2/14/19	Tue 2/19/19	446	Valid
448	Activity	Unit test control software	5 days	Tue 2/19/19	Tue 2/26/19	447	Valid
449	Activity	Complete end-to-end testing -- MXD/Mx	1 day	Tue 2/26/19	Wed 2/27/19	448	Valid
450	Activity	Complete load testing	3 days	Wed 2/27/19	Mon 3/4/19	449	Valid
451	Activity	Produce "Variations" job	1 day	Mon 3/4/19	Tue 3/5/19	450	Valid
452	Activity	Test Factory Allocation data flow and handling	4 days	Tue 3/5/19	Mon 3/11/19	451	Valid

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ID	Text1	Task Name	Duration	Start	Finish	Predec	Resource Names
453	Activity	Test DMV processes	5 days	Mon 3/11/19	Mon 3/18/19	452	Valid
454	Activity	End to end system test using DMV data	2 days	Tue 3/19/19	Wed 3/20/19	452,45	Valid
455		TESTING AND VALIDATION PHASE	165 days	Tue 12/4/18	Tue 7/23/19		
456		**Functional Test Stage**	33 days	Tue 12/18/18	Fri 2/1/19		
457	Deliverable	Establish Functional Test Plan with Expected Results	3 days	Tue 12/18/18	Fri 12/21/18	417	Valid
458	Activity	DMV to review Functional Test Expected Results	2 days	Fri 12/21/18	Tue 12/25/18	457	DMV
459	Deliverable	Create Equipment Test Plan	4 days	Tue 12/25/18	Mon 12/31/18	458	Valid
460	Activity	DMV to review Equipment Test Plan	4 days	Mon 12/31/18	Fri 1/4/19	459	DMV
461	Activity	Execute Functional Testing	10 days	Mon 12/31/18	Mon 1/14/19	459	Valid
462	Activity	Defects and Issues Log for Functional Testing	3 days	Mon 1/14/19	Thu 1/17/19	461	Valid
463	Activity	Execute Equipment Testing	2 days	Thu 1/17/19	Mon 1/21/19	462	Valid
464	Activity	Collect Performance Metrics	1 day	Thu 1/17/19	Fri 1/18/19	462	Valid
465	Deliverable	Produce Functional Testing and Equipment Testing Reports	5 days	Fri 1/18/19	Fri 1/25/19	464	DMV
466	Activity	DMV to review Testing Reports	5 days	Fri 1/25/19	Fri 2/1/19	465	DMV
467		**Inteface Testing**	19 days	Fri 2/1/19	Thu 2/28/19		
468	Activity	Create Usability Test Plan	5 days	Fri 2/1/19	Fri 2/8/19	466	Valid
469	Activity	DMV to review Usability Test Plan	5 days	Fri 2/8/19	Fri 2/15/19	468	Valid
470	Activity	Perform Usability Testing	2 days	Fri 2/15/19	Tue 2/19/19	469	Valid
471	Deliverable	Provide Results to DMV	2 days	Tue 2/19/19	Thu 2/21/19	470	Valid
472	Activity	DMV to review results	5 days	Thu 2/21/19	Thu 2/28/19	471	DMV
473		**System Integration Test Stage**	55 days	Fri 2/1/19	Fri 4/19/19		
474	Activity	Establish System Test Expected Results	3 days	Fri 2/1/19	Wed 2/6/19	466	Valid,DMV
475	Activity	Establish UAT Expected Results	3 days	Wed 2/6/19	Mon 2/11/19	474	DMV,Valid
476	Deliverable	Establish SIT Test Plan and Procedures	8 days	Mon 2/11/19	Thu 2/21/19	475	Valid
477	Activity	DMV to review SIT Test Plan	3 days	Thu 2/21/19	Tue 2/26/19	476	DMV
478		Perform SIT Test (Alpha Test)	15 days	Thu 2/21/19	Thu 3/14/19	476	Valid
479	Activity	Defects and Issues Log for SIT Test	3 days	Thu 3/14/19	Tue 3/19/19	478	Valid
480	Activity	DMV to review Defects and Issues Log	3 days	Tue 3/19/19	Fri 3/22/19	479	DMV
481	Activity	Collect Performance Metrics	1 day	Tue 3/19/19	Wed 3/20/19	479	Valid
482		Produce System Test Report	3 days	Wed 3/20/19	Mon 3/25/19	481	Valid
483	Deliverable	Create System Technical Documentation	10 days	Mon 3/25/19	Mon 4/8/19	482	Valid
484	Activity	DMV to review System Technical Documenation	5 days	Mon 4/8/19	Mon 4/15/19	483	DMV
485	Deliverable	Publish Version Release Document	5 days	Mon 4/8/19	Mon 4/15/19	483	Valid
486	Activity	DMV to review Release Document	4 days	Mon 4/15/19	Fri 4/19/19	485	DMV
487		**Usability Testing**	19 days	Fri 4/19/19	Thu 5/16/19		

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ID	Text1	Task Name	Duration	Start	Finish	Prede	Resource Names
488	Activity	Create Usability Test Plan	5 days	Fri 4/19/19	Fri 4/26/19	486	Valid
489	Activity	DMV to review Usability Test Plan	5 days	Fri 4/26/19	Fri 5/3/19	488	Valid
490	Activity	Perform Usability Testing	2 days	Fri 5/3/19	Tue 5/7/19	489	Valid
491	Deliverable	Provide Results to DMV	2 days	Tue 5/7/19	Thu 5/9/19	490	Valid
492	Activity	DMV to review results	5 days	Thu 5/9/19	Thu 5/16/19	491	DMV
493		**Security Testing**	**30 days**	**Fri 4/19/19**	**Fri 5/31/19**		
494	Deliverable	Create Security Test Plan	10 days	Fri 4/19/19	Fri 5/3/19	486	Valid
495	Activity	DMV to Review Security Plan	10 days	Fri 5/3/19	Fri 5/17/19	494	DMV
496	Activity	Perform Security Testing	5 days	Fri 5/17/19	Fri 5/24/19	495	DMV,Valid
497	Activity	Provide result to DMV	5 days	Fri 5/24/19	Fri 5/31/19	496	Valid
498		**DCM Implementation**	**73 days**	**Fri 2/1/19**	**Wed 5/15/19**		
499	Deliverable	Prepare DCM Plan	10 days	Fri 2/1/19	Fri 2/15/19	466	
500	Activity	DMV to review the DCM Plan	6 days	Fri 2/15/19	Mon 2/25/19	499	
501	Activity	Prepare Data Extract Templates	2 days	Mon 2/25/19	Wed 2/27/19	466,5(	Valid
502	Activity	DMV to review Data Extract Templates	3 days	Wed 2/27/19	Mon 3/4/19	501	DMV
503	Activity	Data Conversion Test Plan with Scripts	8 days	Mon 3/4/19	Thu 3/14/19	502	Valid
504	Activity	DMV to review Data Conversion Test Plan with Scripts	5 days	Thu 3/14/19	Thu 3/21/19	503	DMV
505	Activity	Data Extraction	15 days	Thu 3/21/19	Thu 4/11/19	504	DMV,Valid
506	Activity	Data Integrity Testing	5 days	Thu 4/11/19	Thu 4/18/19	505	DMV,Valid
507	Activity	BioLink enrolls CIF data	10 days	Thu 4/18/19	Thu 5/2/19	505	Valid
508	Activity	WebLink ID consume the CIF data from BioLink	5 days	Thu 5/2/19	Thu 5/9/19	507	Valid
509	Activity	Prepare for Data Refreshes	2 days	Thu 5/9/19	Mon 5/13/19	508	DMV,Valid
510	Activity	Data Refreshes	2 days	Mon 5/13/19	Wed 5/15/19	509	DMV,Valid
511		**Data Synchronization**	**49 days**	**Wed 5/15/19**	**Tue 7/23/19**		
512	Activity	Convert images to standard format	2 days	Wed 5/15/19	Fri 5/17/19	510	Valid
513	Activity	Complete conversion of all data and stage it in production	7 days	Fri 5/17/19	Tue 5/28/19	512	Valid
514	Activity	Enroll data into the facial recognition (FR) BioLink solution environment	10 days	Tue 5/28/19	Tue 6/11/19	513	DMV,Valid
515	Activity	Load all incremental folio data from current vendor into WebLink environment	6 days	Tue 6/11/19	Wed 6/19/19	514	Valid
516	Activity	Validation of existing production data extractions	3 days	Wed 6/19/19	Mon 6/24/19	515	DMV,Valid
517	Activity	Ongoing synchronization and testing for Compet CIFs and DMV db	21 days	Mon 6/24/19	Tue 7/23/19	516	Valid,DMV

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ID	Text1	Task Name	Duration	Start	Finish	Predecessors	Resource Names
518	Milestone	Data Synchronization Complete	0 days	Tue 7/23/19	Tue 7/23/19	517	DMV,Valid
519		**Training Planning**	**97 days**	**Tue 12/4/18**	**Thu 4/18/19**		
520	Activity	Develop Training Scripts	5 days	Tue 12/4/18	Tue 12/11/18	420	Valid
521	Activity	Develop Training Plan	25 days	Tue 12/11/18	Tue 1/1/19	520	Valid
522	Deliverable	Create a Training Curriculum	5 days	Tue 1/1/19	Tue 1/8/19	521	Valid
523	Activity	DMV to review Curriculum Plan	10 days	Tue 1/8/19	Tue 1/22/19	522	DMV
524	Deliverable	Create End-User Training Materials	7 days	Tue 1/22/19	Thu 1/31/19	523	Valid
525	Activity	DMV to review End-User Training Materials	15 days	Thu 1/31/19	Thu 2/21/19	524	DMV
526	Deliverable	Create On-Line Help Materials	10 days	Thu 2/21/19	Thu 3/7/19	525	Valid
527	Activity	DMV to review On-Line Help Materials	10 days	Thu 3/7/19	Thu 3/21/19	526	DMV
528	Deliverable	Create Quick Reference Guides (QRG) / User Job Aids	10 days	Thu 3/21/19	Thu 4/4/19	527	Valid
529	Activity	DMV to review QRGs and User Job Aids	5 days	Thu 4/4/19	Thu 4/11/19	528	DMV
530	Deliverable	Produce a Training Schedule	5 days	Thu 4/4/19	Thu 4/11/19	528	Valid
531	Activity	DMV to review Training Schedule	5 days	Thu 4/11/19	Thu 4/18/19	530	DMV
532		**Site Surveys**	**80 days**	**Tue 12/25/18**	**Tue 4/16/19**		
533	Deliverable	Create Site Survey Plan	10 days	Tue 12/25/18	Tue 1/8/19	351	Valid
534	Activity	DMV approves the Site Survey Plan	5 days	Tue 1/8/19	Tue 1/15/19	533	DMV
535	Activity	Perform Site Surveys	45 days	Tue 1/15/19	Tue 3/19/19	534	Valid
536	Deliverable	Summary Report of Site Surveys	15 days	Tue 3/19/19	Tue 4/9/19	535	Valid
537	Activity	DMV approves the Site Survey Summary Report	5 days	Tue 4/9/19	Tue 4/16/19	536	DMV
538		**Performance Test Stage**	**27 days**	**Wed 3/20/19**	**Fri 4/26/19**		
539	Deliverable	Performance Test Plan	5 days	Wed 3/20/19	Wed 3/27/19	481	Valid
540	Activity	DMV to review Performance Test Plan	10 days	Wed 3/27/19	Wed 4/10/19	539	DMV
541	Activity	Execute Performance Testing	5 days	Wed 4/10/19	Wed 4/17/19	539,5	Valid
542	Activity	Remediate any issues or bugs	5 days	Wed 4/17/19	Wed 4/24/19	541	Valid
543	Activity	DMV to review Remediation	2 days	Wed 4/24/19	Fri 4/26/19	542	DMV
544	Milestone	Completion of Performance Testing	0 days	Fri 4/26/19	Fri 4/26/19	543	Valid,DMV
545		**User Acceptance Test Stage**	**36 days**	**Fri 5/31/19**	**Mon 7/22/19**		
546		Prepare for UAT	7 days	Fri 5/31/19	Tue 6/11/19	497	
547	Activity	Perform User Acceptance Testing (Final System Acceptance)	10 days	Tue 6/11/19	Tue 6/25/19	546	DMV
548	Activity	List and Prioritize Defects and Issues	2 days	Tue 6/25/19	Thu 6/27/19	547	Valid
549	Activity	DMV to review Defects and Issues List for UAT	2 days	Thu 6/27/19	Mon 7/1/19	548	DMV

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ID	Text1	Task Name	Duration	Start	Finish	Predecessors	Resource Names
550	Deliverable	Create Remediation Plan for Outstanding Issues and Bugs	3 days	Thu 6/27/19	Tue 7/2/19	548	Valid,DMV
551	Activity	Execute Remediation Plan	5 days	Tue 7/2/19	Tue 7/9/19	550	Valid
552	Activity	Perform Regression Testing	5 days	Tue 7/9/19	Tue 7/16/19	551	Valid
553	Activity	DMV reviews Regression Testing Results	2 days	Tue 7/16/19	Thu 7/18/19	552	DMV
554	Activity	Update Operational Documents	2 days	Thu 7/18/19	Mon 7/22/19	553	Valid
555	Milestone	User Acceptance Testing and Regression Testing Completed	0 days	Mon 7/22/19	Mon 7/22/19	554	Valid,DMV
556		TRANSITION AND DEPLOYMENT PHASE	87 days	Mon 7/1/19	Wed 10/30/19		
557		Transition	20 days	Mon 7/1/19	Mon 7/29/19		
558	Deliverable	Finalize Implementation Plan to include Transition, Deployment	2 days	Mon 7/1/19	Wed 7/3/19	549	Valid
559	Activity	DMV to review Transition Plan & Release Checklists	2 days	Wed 7/3/19	Fri 7/5/19	558	DMV
560	Activity	Transition Operational Procedures	3 days	Fri 7/5/19	Wed 7/10/19	559	Valid
561	Activity	Publish Job Control Schedule	2 days	Wed 7/10/19	Fri 7/12/19	560	Valid
562	Activity	Establish SLA Parameters	2 days	Fri 7/12/19	Tue 7/16/19	561	Valid
563	Activity	Assemble Audit Impact Statement (integrity, security & privacy)	2 days	Fri 7/12/19	Tue 7/16/19	561	Valid
564	Activity	Execute an FR Scrub	7 days	Tue 7/16/19	Thu 7/25/19	552	
565	Activity	Execute Operations Training	5 days	Tue 7/16/19	Tue 7/23/19	563	Valid
566	Activity	Review Technical Training, and followup with remedial training as needed	3 days	Tue 7/23/19	Fri 7/26/19	565	Valid
567	Activity	Perform Release Verification	2 days	Tue 7/23/19	Thu 7/25/19	565	Valid
568	Activity	Update Enterprise Architecture and Data Model	2 days	Thu 7/25/19	Mon 7/29/19	567	Valid
569	Activity	Update Data Center Environments	2 days	Thu 7/25/19	Mon 7/29/19	567	DMV,Valid
570		Deployment	46 days	Mon 7/29/19	Tue 10/1/19		
571	Activity	Perform Practice Cutover	1 day	Mon 7/29/19	Tue 7/30/19	569	Valid
572	Activity	DMV to review Practice Cutover	1 day	Tue 7/30/19	Wed 7/31/19	571	DMV
573		Initialization	1 day	Wed 7/31/19	Thu 8/1/19		
574	Activity	All systems' components installed, tested, and verified	1 day	Wed 7/31/19	Thu 8/1/19	572,4	Valid
575		Rollout – Stages 1 thru 4	43 days	Thu 8/1/19	Tue 10/1/19		
576	Activity	Stage 1 - External Services (CIS data / photo service / EDS service)	2 days	Thu 8/1/19	Mon 8/5/19	574	Valid
577	Activity	Stabilization of External Services	2 days	Mon 8/5/19	Wed 8/7/19	576	Valid
578	Activity	Stage 2 - BackOffice Capture /Issuance	3 days	Wed 8/7/19	Mon 8/12/19	577	Valid

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ID	Text1	Task Name	Duration	Start	Finish	Predecessors	Resource Names
579	Activity	Stage 3 -- Cutover Front Office(s) for Pilot (3 offices)	10 days	Mon 8/12/19	Mon 8/26/19	578	Valid
580	Milestone	Pilot Complete	0 days	Mon 8/26/19	Mon 8/26/19	579	DMV,Valid
581	Activity	DMV reviews Pilot – Decision to go Statewide (3 sites)	1 day	Mon 8/26/19	Tue 8/27/19	579	Valid
582	Activity	Statewide Deployment Planned	2 days	Tue 8/27/19	Thu 8/29/19	581	DMV,Valid
583		**Stage 4 - Statewide Deployment**	**29 days**	**Thu 8/29/19**	**Tue 10/1/19**		Valid
584	Activity	Install and Train 4 sites	3 days	Thu 8/29/19	Tue 9/3/19	582	Valid
585	Activity	Install and Train 4 sites	5 days	Tue 9/3/19	Tue 9/10/19	584	Valid
586		Install and Train 4 sites	5 days	Tue 9/10/19	Tue 9/17/19	585	
587		Install and Train 4 sites	5 days	Tue 9/17/19	Tue 9/24/19	586	
588		Install and Train 4 sites	5 days	Tue 9/24/19	Tue 10/1/19	587	
589	Activity	Install and Train last 4 sites	5 days	Tue 9/17/19	Tue 9/24/19	585,5	Valid
590	Activity	Review Installations	1 day	Tue 9/24/19	Wed 9/25/19	589	
591	Milestone	Complete Statewide Deployment	0 days	Wed 9/25/19	Wed 9/25/19	588,5	DMV,Valid
592	Activity	Final System Acceptance by DMV	2 days	Wed 9/25/19	Fri 9/27/19	590	DMV
593		[redacted]	25 days	Wed 9/25/19	Wed 10/30/19		
594		**Post-Production Activities**	**22 days**	**Wed 9/25/19**	**Fri 10/25/19**		
595	Deliverable	Post-Implementation and Evaluation Report	12 days	Wed 9/25/19	Fri 10/11/19	590	Valid
596	Activity	DMV to review Cutover Assessment Report	10 days	Fri 10/11/19	Fri 10/25/19	595	DMV
597		**Project Close Activities**	**23 days**	**Fri 9/27/19**	**Wed 10/30/19**		
598	Activity	All project documents completed, organized and provided to DMV for Storage	8 days	Fri 9/27/19	Wed 10/9/19	592	Valid
599	Activity	All project activities closed	5 days	Fri 10/11/19	Fri 10/18/19	595	Valid
600	Activity	Plans completed for Transition to Maintenance and Ongoing Support	3 days	Fri 10/18/19	Wed 10/23/19	599	Valid
601	Activity	DMV to Certify Project Completion	5 days	Wed 10/23/19	Wed 10/30/19	600	DMV
602	Milestone	Project Completion	0 days	Wed 10/30/19	Wed 10/30/19	601	DMV,Valid

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