STATE OF WEST VIRGINIA

DEPARTMENT OF ADMINISTRATION

WEST VIRGINIA INTER@CTIVE

RFP Subject:	Self-Funded State E-Government Portal **Technical Proposal**
Number:	CRFP 0212 SWC1600000001
Vendor's Name:	West Virginia Interactive, LLC
Business Address:	10 Hale Street 3rd Floor Charleston, WV 25301
Telephone Number:	(304) 414-0265
Fax Number:	(304) 414-0266
Name of Contact Person:	Ian McQuinn, General Manager
E-Mail Address:	imcquinn@egov.com
Due Date:	January 6, 2016

ORIGINAL

Signature: _Jan McQuinn_   **Date:** 1-6-2016

01/06/16 12:30:13
WV Purchasing Division

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

Subject: Self-Funded State E-Government Portal, CRFP 0212 SWC1600000001

West Virginia Interactive, LLC (WVI), respectfully submits for consideration this response to the state of West Virginia, Department of Administration, CRFP 0212 SWC1600000001, for a "Self-Funded State E-Government Portal."

WVI has carefully read the RFP and all associated documents, attended the mandatory pre-bid conference, submitted questions for the pre-bid conference and questions for the RFP written question deadline, completed all required forms, and provided a comprehensive, thoughtful response to the state's RFP questions and requirements.

WVI's sole focus is on delivering value-added e-Government services that save money and increase efficiencies for the residents, businesses, and government of West Virginia. Since 2007, it has been our privilege to partner with West Virginia and to assist the state in becoming a national leader in these pursuits. We have successfully worked with the state to expand the e-Government program to 70 agencies and more than 340 online services and websites, which deliver valuable West Virginia digital government services to its constituents in a secure and available environment.

Our experience in West Virginia is supplemented by the success of WVI's peer affiliates providing similar e-Government services in 27 other states under the corporate umbrella of NIC. We offer a talented team already on the ground in Charleston, established business processes tailored to the specific needs of the West Virginia e-Government program, deep understanding of the current applications and services, a strong pipeline of future enhancements, as well as a an extensive library of more than 11,900 proven e-Government services managed across NIC affiliates.

As suggested in "Section Two – Instructions to Vendors Submitting Bids," subsection "11. Exceptions and Clarifications," WVI has proposed additional provisions that are not addressed in the RFP and included these with the "WVI Attachments" portion of the proposal. The proposed additions are not a refusal of the mandatory requirements in the RFP or unwillingness to negotiate equitable terms. Additionally, WVI has provided all required signed forms and addendum acknowledgement forms within the "WVI Attachments."

We firmly believe that the e-Government progress already achieved by the state, in partnership with WVI, has successfully delivered innovative e-Government solutions that have met the unique needs of the state and its constituents, and helped enhance West Virginia's stature as a national leader in e-Government.

Thank you for your consideration of WVI.

Sincerely,

Ian McQuinn
General Manager
West Virginia Interactive, LLC

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Attachment A: Vendor Response Sheet

Provide a response regarding the following: firm and staff qualifications and experience in completing similar projects; references; copies of any staff certifications or 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, and what the project goals and objectives where and how they were met.

Executive Summary

WVI is proud to be a part of the eight-year evolution of the West Virginia e-Government program and wants to earn the right to continue serving West Virginia and its businesses and citizens. We partnered with the state to implement a funding model and technology platform specifically tailored to the successful delivery of West Virginia's self-funded e-Government program, and we are prepared to meet the objectives of this RFP from day one of the new contract.

WVI has an exceptional track record building **proven West Virginia self-funded e-Government solutions, driving adoption** through **effective marketing,** and deploying **local experts** with **deep community roots** to support the needs of West Virginia. This degree of expertise is essential to meet the specific requirements of West Virginia's solicitation and deliver all facets of the self-funded e-Government portal that the state and its constituents expect. WVI knows first-hand that **self-funded e-Government requires a complex set of essential components that must be carefully assembled to provide a well-functioning solution, and WVI is the only company to do so on behalf of the state of West Virginia.** WVI recognizes that our experience with the self-funded solution will enable us to transform West Virginia's e-Government program while meeting the state's unique financial, political, and operating needs.

With WVI, West Virginia benefits by working with a proven provider that has delivered each element of this solicitation for the state of West Virginia. Unlike other vendors that have to "learn as they go along" due to having little or no e-Government experience, WVI's solution is based on know-how derived from eight years of e-Government specialization with the state and is driven by best practices from our parent company, NIC, which has delivered 28 successful state portal implementations.

As detailed throughout our proposal, WVI will leverage the experience of our affiliates that provide similar services in 27 other states as part of the NIC family of companies. NIC is the leading provider of e-Government services in the nation, building and managing official government websites, e-Government services, and secure payment processing solutions for more than 3,900 state, local, and federal government agencies across the country.

Proven, Results-Focused Expertise

Based on the requirements of the RFP, West Virginia requires a versatile partner that can handle a broad range of portal services. Our dedicated, locally based staff of professionals has a proven track record and can offer the state the following expertise:

- **Responsive, results-oriented solutions for state and local agencies** — WVI currently works with more than 70 state and local agencies, boards, and commissions, and has developed more than 340 websites and applications to meet the needs of the state and its constituents. No other provider

can match our track record in working in conjunction with West Virginia state government to deliver value through e-Government.

- **Mastery of self-funded e-Government delivery** — WVI has worked with the state for eight years to established business processes and development methodologies that ensure the successful execution of a self-funded model specifically matched to the state's governance and oversight requirements. Trusting a new provider to learn how to properly implement the self-funded model "on-the-job" could be risky and costly to the state.
- **Cost avoidance** — By utilizing the self-funded experience of WVI, the state has avoided application development costs of over $1 million per year. This number does not include the additional costs avoided by WVI providing hosting/infrastructure, security, business analysis and consulting, marketing, and customer support.
- **Revenue generated / collected for the state** — WVI applications process tens of millions of dollars of West Virginia state funds per year. Most applications maintain an interface to West Virginia Treasurer's Office payment pages, or have the ability to process funds through our own in-house payment processing engine.
- **Proven marketing and outreach to drive usage** —WVI understands that e-Government is only effective when agency, citizen, and business users take advantage of online services. WVI has worked with a variety of agencies to help drive adoption and online usage that benefit citizens and businesses of the state. We pledge to continue to use this marketing expertise to seek out opportunities to create additional adoption success stories.
- **Tenured and proven Charleston-based team** — Unlike other providers that parachute in experts for a short period of time and then redeploy personnel to other projects, or that assign a small local team but do the technical development elsewhere, our team in Charleston brings 57 years of combined e-Government experience supporting the needs of the state of West Virginia and has a deep knowledge of what is required to successfully operate the state's e-Government platform.

Partnership Built on Success

WVI's singular focus has been advancing West Virginia's e-Government program under the state's requested self-funded business model. WVI provides design, management, and support of the state's official website WV.gov, custom application development, website design, CMS services, customer service, marketing, payment processing and other services. During this eight-year partnership, WVI has developed, deployed, and currently maintains 340 agency-specific applications, enterprise applications, and websites for the state e-Government program, including:

- Vehicle Registration and Temporary Tag System
- Personalized License Plate Requests
- Suspicious Activity Reporting Mobile Application
- Vehicle Registration Renewals
- Uniform Commercial Code Searches and Filings
- Professional Licensing and Verification
- Child Support Payment Notifications
- Trip and Fuel Permits
- Fishing Tournament Registration
- Ethics Commission Financial Disclosure Filing
- Live Help Online Customer Service

- Unemployment Contribution Filings

In addition to the e-Government applications delivered and supported, WVI has redesigned the WV.gov portal three times since establishing the portal management partnership with the state. During this time, West Virginia has been recognized by both government and industry groups for e-Government excellence and has received the following honors and awards for WV.gov services:

- 2014 Children's Justice Task Force "Extra Mile Award" - WV Help Mobile Application
- 2014 Center for Digital Government "Government to Citizen" Award - Online Vehicle Registration Renewals
- 2012 ACT-IAC Excellence.gov Award Finalist - West Virginia Vehicle Registration System
- 2012 Center for Digital Government "Driving Digital Government – State Government" - Suspicious Activity Reporting Mobile Application
- 2011 West Virginia Excellence in Technology Award – Best Application Serving Public - Child Support Payment Notification System
- 2010 Digital Government Achievement Awards - West Virginia Vehicle Registration System
- 2010 West Virginia Excellence in Technology Award – Best Application Serving Business - West Virginia Vehicle Registration System
- 2009 Good Jobs First Report - Recovery.wv.gov ranked #4 state recovery website in the nation.
- 2008 Best of the Web State Portal Special Award - West Virginia Education Portal
- 2008 Digital Education Achievement Community (Tighter Bonds) Award Winner - West Virginia Education Portal

WVI does not build solutions specifically to win awards, yet we are always pleased when the state is recognized for its aggressive efforts to advance its mission of service through e-Government. If selected for contract award, we pledge to continue to provide e-Government services that bring these well-deserved accolades to the state of West Virginia.

Proposed Services

WVI has identified the following opportunities across the West Virginia e-Government program to expand services and continue the transformation of WV.gov. We look forward to exploring these opportunities if awarded this contract.

Potential Service	Description
Gov2Go for West Virginia	WVI will develop a proposal to onboard existing applications and build new applications that integrate with NIC's personal government assistant, Gov2Go.
Business One-Stop	NIC partner states have developed and deployed innovative Business One Stop portals across the country. WVI will work with the state to measure the benefits of replacing the legacy Business4WV system with a new, state of the art, West Virginia Business One-Stop Portal.
Teacher Certification and Renewal	WVI will develop a comprehensive online teacher license application and renewal system fully integrated with the Department of Education.

Potential Service	Description
Mobile Inspection Platform	NIC created a first-of-its kind mobile inspection platform built on a flexible iOS framework that can be customized for building robust inspection applications for agencies. WVI will leverage this NIC expertise to deploy a mobile inspection platform in West Virginia that can be customized by multiple agencies.
Online Driver's License Renewals	WVI will rely on proven NIC expertise and technology to ensure West Virginia drivers will be able to renew online and only visit a DMV office once every 16 years.
Campsite Reservations	NIC has developed innovative outdoor recreation management services in several states, which allow citizens to take advantage of state campground and outdoor recreation assets via an online mobile-optimized interface. WVI can help expand outdoor enthusiasts' access to the unparalleled beauty of West Virginia outdoors by leveraging NIC's body of knowledge.
Commercial Trucking Services and Portal	West Virginia could become a regional model for commercial trucking through a new, comprehensive commercial trucking portal that provides registration services and other relevant services via a one-stop commercial trucking portal.
Electronic Titles and Liens	NIC partner states have successfully launched electronic title and lien services that allow auto dealers and banks to interact electronically with the DMV, which has created efficiencies for government and businesses, aids law enforcement, and helped reduce fraud.
WV.gov	WVI will bring to bear the latest technologies and innovative user-centered design techniques that have brought recognition to other NIC states, while elevating the WV.gov brand and the unique character of our mountain state.
Vital Records	West Virginia stands to realize significant efficiencies and citizens will quickly adopt an enterprise vital record ordering system for WV that provides users with a quick, secure, and affordable means of accessing vital records administered by the state.

Eliminating Transition Risk

As the current provider, WVI will not be required to perform any migration or other transition services in support of the new contract. Should the state select WVI for award, the current portal operations will continue, resulting in no disruptions to the user community or the state. Additionally, all current projects that WVI is working on will continue on course without any delay since there is no need for a transition.

While a different vendor would be focused on a large transition and migration of services, WVI can focus our efforts on delivering new services, applications, technologies, and value to West Virginia instead of spending the time learning how to work within a self-funded model and how to support existing West Virginia solutions.

Our Proposal

In the pages of the response that follow, we have included details that explain the methods that will be used to meet the requirements of the RFP. Our proposal to the state promises that we will continue to manage and market the award-winning solutions that, together, comprise WV.gov. In addition, WVI is committed to continuing our track record of developing innovative new services that serve the public, government employees, and state and local agencies in a more efficient and cost-effective manner.

We are confident that WVI represents the best choice for the state of West Virginia to continue its legacy of e-Government excellence, and we look forward to continuing our mutually beneficial partnership to serve the needs of West Virginia government, businesses, and citizens, should we be selected for award.

Section 3. Qualifications and Experience:

3.1   The Vendor should provide an overall description of the Vendor's company and including its lines of business, history, size, location, business philosophy, professional partnerships and certifications, and recent successes.

VENDOR RESPONSE:

In June 2007, the state of West Virginia awarded a contract to build and maintain its e-Government portal to NICUSA, Inc., and ultimately to West Virginia Interactive, LLC (WVI), a NICUSA, Inc. subsidiary dedicated solely to the state of West Virginia. WVI uses leading technology and application development techniques to build West Virginia's e-Government portal and services, putting the citizens of West Virginia first. Eight years later, WVI maintains a strong partnership with the state of West Virginia, providing innovative e-Government services to state partners and citizens.

WVI has been fortunate to be a significant part of West Virginia's e-Government initiatives. In partnership with approximately 70 government entities across the state, WVI has been successful in bringing over 340 online and mobile services and websites to citizens and businesses and has provided new, efficient ways for both groups to interact with their state government.

Lines of Business

Since first contracting with the state in 2007, WVI has successfully provided a broad scope of services to the state of West Virginia, all with the common goal of improving the e-Government landscape. Among the most common services provided by WVI are the design, management and support of the state's official website, WV.gov, custom application development, website design, CMS services, customer service, marketing and payment processing. WVI offers an extensive library of proven e-Government services and a wide-range of expertise, including:

- Website design and hosting
- Content Management System (CMS) Services
- Graphic design
- Custom Web application development and hosting
- Interactive Voice Response (IVR)

- Business analysis
- Market research
- Marketing and public relations
- Electronic Commerce
- Payment processing and merchant services
- Customer support
- Professional licensing and verification
- Mobile applications for smartphones and tablet computing

History

WVI History

In 2007, through a competitive bidding process (Request for Proposal, # ISCG0081 for West Virginia State Web Portal Solution), the state entered into a contract with West Virginia Interactive (WVI), a wholly owned, Charleston-based subsidiary of Olathe, Kansas-based NIC. Now eight years later, WVI is proud of the solutions we have delivered and excited about the future opportunities to help West Virginia become one of the nation's best in providing efficient services for both state agencies and their constituents.

Since 2007, WVI has furthered these goals:

1. To expand business and citizen access to government services and information;
2. To offer an easy and convenient process for these groups to conduct transactions with state government on-line;
3. To accelerate the development and delivery of an increased volume of quality, digital government services;
4. To enhance the level of customer service for state government;
5. To extend digital government services to citizens of cities and county government; and
6. To provide such public service without increasing the tax burden on the citizens of West Virginia, through utilization of private capital management and appropriate payment for same.

Since 2007, WVI has established agreements with more than 70 agencies and has launched 140 new e-Government applications and more than 200 government websites. Through our efforts, the state has saved an estimated $25 million through cost avoidance. In 2014 alone, systems developed by WVI processed more than $63 million in state funds over 4.9 million transactions. Additionally, more than 17 million users visited state agency websites hosted by WVI in 2014.

NIC History

When NIC, in partnership with the state of Kansas, founded the enterprise self-funded e-Government concept in 1992, the technology was based on dial-up connections and basic bulletin board functionality. In the course of our company's growth, NIC has been instrumental in pushing the e-Government envelope. NIC delivered its second state portal to Nebraska as the nation's first World-Wide-Web-based enterprise e-Government solution. Whether identifying and building new and innovative services, or moving aggressively to embrace new technology platforms, such as mobile and
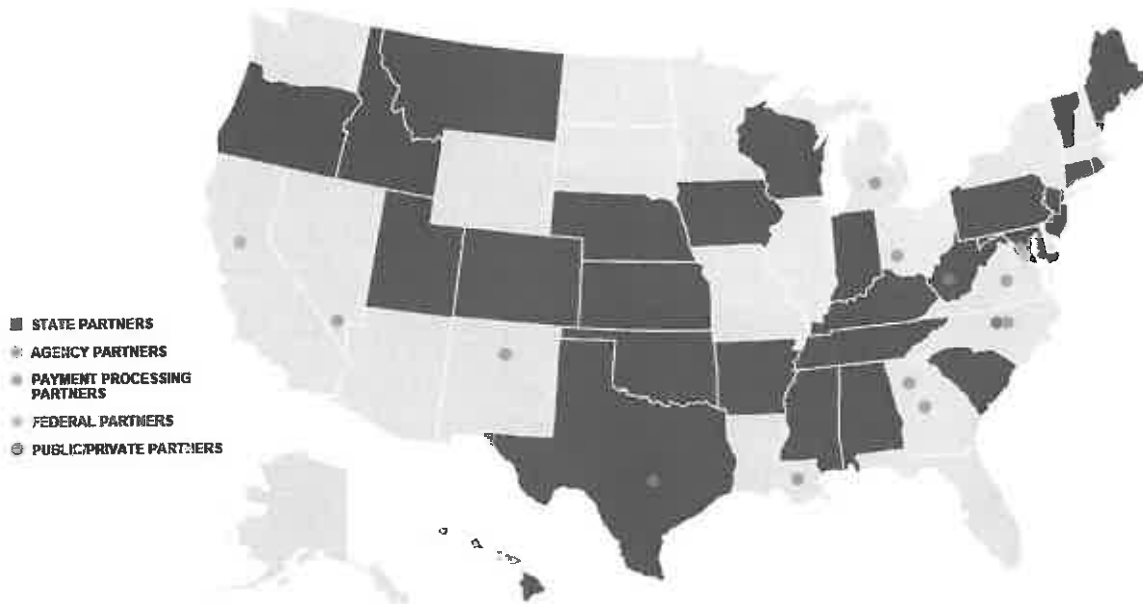
social networking, NIC is in a constant state of evolution as technology advances and user habits change. We were the first private sector provider to offer state governments the following innovations:

- Online transactions
- Secure electronic payment processing
- Mobile device-friendly eGovernment solutions with secure payment processing
- Text-based help to citizens
- Real-time dashboards to manage eGovernment program performance
- Specialty portals for specific industry segments
- eGovernment-specific custom market research
- Live online customer service
- Statewide eGovernment advertising and public relations campaigns
- 24x7x365 customer support via phone and live chat
- Point-of-purchase/retail solutions
- One-stop/integrated service suites
- Web 2.0 social networking technologies
- Websites and online services built with mobile-friendly responsive design
- Solutions for new technology devices, including the first eGovernment apps for the iPad and Apple Watch

The map that follows illustrates NIC's current state e-Government partnerships with more than half of the states in the U.S. These partnerships represent support for more than 3,900 government entities, including every branch, agency, department, and level of state government for more than half the states in the U.S. Through these partnerships, NIC has provided a portfolio of more than 11,000 information-based and transactional services, many of which are used by and customized to meet other partner states' specific needs.

Figure 1: NIC Partner Engagement Map

- STATE PARTNERS
- AGENCY PARTNERS
- PAYMENT PROCESSING PARTNERS
- FEDERAL PARTNERS
- PUBLIC/PRIVATE PARTNERS

Size

Headquartered in Charleston, West Virginia, WVI has 12 employees dedicated exclusively to the delivery of e-Government and portal management services on behalf of the state. WVI's parent organization, NIC Inc., currently employs a workforce of over 850. WVI is able to leverage NIC Inc. corporate resources as needed for finance, legal, human resources, marketing, security, and technology expertise in the performance of the contract.

Location

WVI is located in beautiful downtown Charleston, West Virginia, only 1.5 miles from the state capitol and the majority of state agency offices. The address is:

10 Hale Street, 3rd Floor
Charleston, WV 25301

The general telephone number at that location is (304) 414-0265.

The primary contact at this location is the proposed Vendor Contract Manager, Ian McQuinn. Mr. McQuinn's phone number is (304) 414-0265, extension 106.

Business Philosophy

For eight years, WVI has successfully operated the state's e-Government program via a self-funded model, while providing world-class services to the state and its constituents. Working in collaboration with the state, WVI has developed value-added services in addition to numerous services that are provided to West Virginia constituents at no additional cost.

There are specific characteristics of the self-funded model that make it mutually beneficial to both the vendor and the state partner while simultaneously delivering tangible results to constituents and clients of the portal services (agencies, citizens, and businesses). These characteristics are unique to the transaction-based model employed by NIC-managed states. The following are the main tenets of WVI's business philosophy that is shared as the basis for success in all NIC portals:

- **Reward Results, Not Just Effort:** Under a traditional time and materials project, resource and cost overruns are typically covered by additional appropriations or budget reallocations. Under this scenario, the vendor may be motivated to spend excess time developing applications and to make money from development or maintenance costs plus margin instead of focusing on the results of the services. With the self-funded business model currently in place, WVI earns a return only when end users realize a benefit from an application and elect to process specific transactions online. This approach provides fertile ground for a partnership whose highest priority is being responsive to agency needs while providing an efficient, online service for citizens and businesses.
- **Efficient Process for Approval of Projects:** Under the self-funded model, the West Virginia Department of Administration, Office of Technology, the state's e-Government Project Manager, and the e-Government Portal Board retain oversight, but unleash the power of the private sector by approving time-sensitive projects and demanding constant results. Agencies are able to embark on e-Government projects without the burden of a formal RFP/RFQ process for each project or initiative.
- **Marketing and Outreach to Drive Service Adoption:** Our business-building approach is consistently recognized as best-in-class. WVI understands that e-Government is only effective when agency, citizen, and business users in West Virginia take advantage of online services. WVI has worked with a variety of agencies to help drive adoption and online usage that benefits citizens and businesses of the state. We are experts at finding ways to reach our most critical audience when trying to drive service adoption. Evidence of this success includes services like Vehicle Registration Renewals. Through traditional press releases coupled with the use of social media such as Facebook, online transactions grew 86% in the third quarter of 2015, compared to the previous year. Trip and Fuel Permits are purchased exclusively through the self-funded service produced by WVI as a result of outreach, onboarding and training to introduce the service.
- **Local Management, Local Support, Local Focus:** WVI is based in the state of West Virginia and is 100% focused on the unique needs of our only customer – the state of West Virginia. This locally dedicated team ensures we become part of the operating environment of West Virginia government. We hire locally from the deep talent pool across West Virginia, and WVI will continue to hire local resources to help support the state's economic development platform. As services have grown over the years, WVI has a proven track record of adding staff and reinvesting in portal operations. WVI began in 2007 with an initial staff of three (3) full time employees (FTE) and today we currently employ twelve (12) FTEs. If awarded the contract, we are committed to continuing to invest in the portal as our services expand, consistent with available portal resources.

- **Applications and Services without Commercial Value Should Be Subsidized by the Model:** Applications should be evaluated with an enterprise perspective in mind, instead of being based solely upon return-on-investment (ROI) of that specific service. WVI considers the overall value the application delivers to constituents and the government partner. In many instances, this will mean that WVI will develop services without charging either the agency or end users, such as the Public Defender Services Online Voucher System, WV Help Mobile Application, and WVI's Live Help. While these so-called in-kind services will not grow bottom line ROI, they fulfill the state's mission of providing in-demand services and bring new users to WV.gov, which fosters return visits and helps to drive overall adoption of e-Government services. Creating services at no cost to the state will create a win-win-win scenario, benefiting constituents, state government, and the private-sector partner.
- **Services Billed at Cost:** Under the self-funded model adopted by most states in the U.S. and currently used in West Virginia, all expenses and services are paid at actual cost and are not marked-up by the provider before being paid as portal expenses. In a true public-private partnership, the provider should not make money from mere effort, such as building the application or buying hardware or software to run the portal. WVI should only make money from the result of the effort—when more and more people use the online service.

WVI has spent the last eight years applying the NIC self-funded model and supporting business philosophy to consistently deliver proven, innovative e-Government solutions for the state of West Virginia. If awarded the contract, WVI looks forward to many more years of continuing our beneficial partnership.

Professional Partnerships and Certifications

An additional value or strength that WVI brings to this partnership is that of the relationships and strategic alliances developed by WVI and other NIC e-Government contracts over the years. These relationships provide more avenues to assess new trends, technologies, and needs of state government portals. Not only does WVI bring NIC's other state e-Government partnerships to bear, but we are also able to actively participate in such national organizations as:

- National Association of State Chief Information Officers (NASCIO)
- The American Association of Motor Vehicle Administrators (AAMVA)
- The National Electronic Commerce Coordinating Council (NECCC)
- National Association of Secretaries of State (NASS)
- National Governors Association
- Democratic Governors Association
- Republican Governors Association
- Southern Governors' Association
- Western Governors' Association
- National Association of State Budget Officers
- International Association of Commercial Administrators

Additionally, NIC and its affiliates have relationships with private industry groups such as Microsoft, IBM, Google, and Oracle that lead the drive to open standards, interoperability, and next generation technology as well as improving the delivery and support of these solutions on behalf of the state. WVI also maintains and fosters relationships with corporations that utilize large amounts of government

services such as ADP, Experian, and LexisNexis. These relationships allow WVI to accurately develop, price, and market premium services that provide the best service, return, and overall benefit to the state of West Virginia.

WVI maintains certifications that directly benefit the state of West Virginia today, and will continue to achieve certifications with similar or higher standards going forward. For example, WVI currently has an agreement with Verizon Business Security Services to be assessed as part of their Security Management Program (SMP) and Verizon provided ongoing information on security best practices, new threats and other security best practices. WVI will continue a similar security partnership throughout the term of the contract. This relationship enables WVI to support IT security governance activities, helps reduce risk, and demonstrates compliance with key international, industry, and regulatory security standards. Another example is the rigorous Payment Card Industry's Data Security Standards (PCI DSS) compliance assessment through a Qualified Security Assessor (QSA). NIC is certified as a Level One Service Provider under the PCI DSS and WVI participates in an assessment by a QSA annually.

As with all certification programs designed to assess the meeting or exceeding of industry standards and best practices, WVI will regularly evaluate and may participate in different programs as they evolve.

Recent Successes

One of the major benefits to the state of the partnership with WVI is the reinvestment of revenues back into our operations to further the advancement of West Virginia's e-Government priorities and goals. As a result of this important facet of the self-funded model, WVI has become more efficient and effective at delivering successes year after year. While we are proud of all of the successes we have shared with the state since 2007, some of the most notable have come in recent years. The following is a list of some of those recent successes:

- **DMV Self-Service Suite** - A legislative audit called for more DMV services to be made available online, creating efficiencies for the public and cost savings for the agency. Significant challenges existed due to burdensome statutory requirements imposed on the DMV. WVI tackled the challenges head-on and developed an online self-service platform for the DMV that enabled services like Vehicle Registration Renewal, while still satisfying state code requirements and creating efficiencies for the DMV. In less than two years, WVI has launched 11 new or redesigned online services on the DMV's self-service platform that serve the entire citizenry of West Virginia.
- **WV.gov 3.0** - WVI coordinated with the Governor Tomblin's Office, the Department of Administration and the CTO to launch and announce the redesigned WV.gov in February of 2015. The new version of the website featured a fresh, image-rich design, streamlined content and a mobile-friendly user experience. An average of seven million visits is received each year on WV.gov and 12% of those visits are from a mobile device. The redesign was the third by WVI of the state's official website since 2008.
- **UCC Online and Back Office** - In January of 2015, WVI launched the Uniform Commercial Code (UCC) Back Office System for the West Virginia Secretary of State. The system complements the public facing UCC Filing and Search system launched by WVI in late 2012 and creates an end-to-end comprehensive solution that has transformed the agency's handling of UCC filings and searches. Among the most innovative features of the Back Office system is the ability for the agency to process all paper filings received through the integrated web-based system with an in-line redaction capability and user friendly controls. The new system allows the Secretary of State's Office to

streamline the processing of more than 24,000 annual UCC filings. In the first quarter of 2015, over 6,700 filings and searches were performed, a nearly 200% increase over the first quarter of the previous year.

- **Public Defense Voucher System** - West Virginia Public Defender Services recently mandated the use of the WVI-built system by all attorneys submitting vouchers for public defense work. With complete reimbursement data encompassed in the system, WVI was able to build functionality that helped the agency detect billing fraud with a single report. An investigation and data collection process that used to take months and sometimes years, could now be provided instantly. In addition to the cost savings from the use of the system, the agency expects to save thousands of dollars per year by minimizing billing fraud.

In addition to these noted successes, WVI released 17 e-Government services, 17 websites, and 3 local government payment solutions in 2015. In 2014, WVI released 21 e-Government services, 15 websites, and 6 local government payment solutions.

3.2 The Vendor should provide the following information regarding its staff qualifications and experience in completing similar projects:
References
Copies of any staff certifications or 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 and how they were met.

VENDOR RESPONSE:

WVI is a locally based, fully dedicated team of e-Government professionals 100% dedicated full-time to developing, maintaining, enhancing, and marketing services for West Virginia government. WVI provides the state with a combined 57 years of experience working with the West Virginia self-funded e-Government program. Our team successfully deployed the self-funded model with the state in 2007, and acutely understands the nuances of the model, which has delivered award-winning e-Government services to citizens and businesses for more than eight years, and continuously expands services to meet the evolving needs of the state.

WVI staff qualifications are perfectly aligned with the transformative vision of the state, and provide expertise to continue efficient delivery of more than 340 services and websites currently deployed through the enterprise self-funded e-Government program.

To ensure compliance with the state's request for staff qualifications, we have provided resumes for all staff members below that address each of the criteria in this requirement. These resources represent WVI's proposed staffing plan, and we have documented each resources proposed role for the new contract and their experience, education, certifications, and project references in the tables that follow. WVI has also provided a detailed narrative and organization chart of our proposed project team as requested in our response to *section 3.5* of this proposal. Copies of staff certifications and degrees are included at the conclusion of this response to *section 3.2*.

Name	Ian M. McQuinn
Proposed Staffing Plan Role	General Manager
Summary	Mr. McQuinn has more than 10 years of directly-applicable requirements analysis, project management, training and transition planning experience. Eight out of the 10 years were spent in multiple roles with WVI, developing a skill set tailored specifically for delivering services to the state of West Virginia in a self-funded environment. In his current role with WVI, Mr. McQuinn is the General Manager of the Self-Funded State e-Government Portal project in West Virginia. Mr. McQuinn is responsible for business development, including the creation of strategies and programs that drive WVI's development and marketing efforts. He works directly with numerous state agencies, boards, associations and officials to identify prospective services and oversee all development, deployment, maintenance, and marketing associated with them.
Years of Experience	10
Education	Marshall University, Huntington, West Virginia Bachelor of Business Administration – Economics, Cum Laude Master of Business Administration
Certifications / Qualifications	ITIL Foundations Certified NIC's Customer Database (CDB) NIC's Payment Engine (TPE®) NIC personnel management training
Past Project / Reference	

Employer	West Virginia Interactive
Job Title	General Manager

Customer	Location
State of West Virginia	Charleston, WV

Customer PM Name	Contact Info
Gale Given	1900 Kanawha Boulevard East Capitol Complex – Building 5, 10th Floor Charleston, WV 25305 Phone: (304) 558-8101 Email: gale.y.given@wv.gov

Project Title and Type / Project Objectives / How Objectives were Met
As the executive leader, Mr. McQuinn has overall responsibility for the self-funded e-Government contract with the state of West Virginia. In his current role, Mr. McQuinn is responsible for delivering and maintaining more than 140 online services built on behalf of 70 state agencies, plus over a dozen local payment processing services, maintaining a highly available portal infrastructure that processes an average of 470,000 transactions per month. Mr. McQuinn is responsible for the planning and delivery of high-impact e-Government services for state agencies based on demands of agencies and their constituents, and overseeing seamless customer service for all inquiries for these services. Based in Charleston, Mr. McQuinn manages WVI's staff dedicated to application

development, project management, systems administration, customer service, and marketing.

Past Project / Reference		

Employer	West Virginia Interactive
Job Title	General Manager

Customer	Location
State of West Virginia	Charleston, WV
Customer PM Name	**Contact Info**
Gale Given, Chief Technology Officer	1900 Kanawha Boulevard East Capitol Complex – Building 5, 10th Floor Charleston, WV 25305 Phone: (304) 558-8101 Email: gale.y.given@wv.gov

Project Title and Type / Project Objectives / How Objectives were Met

Project Title and Type:
The official state of West Virginia website – WV.gov

Project Objectives:
To design, build and implement a refreshed mobile-friendly WV.gov that met the needs and received the approval of the Chief Technology Officer, the Department of Administration and the Governor's Office.

How Objectives were Met:
In 2014, Mr. McQuinn assembled and managed the WVI WV.gov Redesign Team among the WVI Staff. The team pored over detailed usage analytics, visitor feedback, and offerings in other states to develop a vision for WV.gov that best served West Virginia citizens and businesses while also highlighting the beauty of the state. Visits from mobile devices were definitely on the rise, increasing 58% from 2013 to 2014. With this knowledge and the fact that the primary internet connection for many West Virginians is a smart phone, WV.gov was designed to be more than just mobile-friendly. With touch-enabled controls, a swipe-able menu and quick loading and simplified pages, the new WV.gov blurs the lines between mobile app and mobile website.

Mr. McQuinn worked with the key project stakeholders to gather feedback and secure buy-in. The new WV.gov was launched in February 2015 to excellent press coverage and feedback. GovTech Magazine conducted two interviews with the state and published two articles in the months following, related to WV.gov and the state's mobile design strategy.

Past Project / Reference		

Employer	West Virginia Interactive
Job Title	Director of Marketing and Portal Operations

Customer	Location

West Virginia Division of Motor Vehicles IRP/IFTA	Charleston, WV
Customer PM Name	**Contact Info**
Michael Maggard	1800 Kanawha Blvd. East Charleston, WV 25317 Phone: (304) 926-2583 Email: Michael.L.Maggard@wv.gov

Project Title and Type / Project Objectives / How Objectives were Met

Project Title and Type:
Combined Trip and Fuel Permits Web Application

Project Objectives:
The project objective was to create a system to manage the issuance and tracking of Combined 10-Day Trip and Fuel Permits required by commercial trucking companies to travel through the state. Permit numbers were sold in bulk to permit resellers and actual permits could only be purchased by trucking companies through one of the resellers at a considerable markup, or in-person at the DMV regional office in Charleston. The agency needed a system that allowed permit resellers to purchase permits in bulk and to allow trucking companies to purchase them online directly from the DMV. Tracking and auditing controls were required for all permits sold.

How Objectives were Met:
Mr. McQuinn designed an interactive web application that served specific needs of the two customer bases. Permit reselling companies are able to log into their business account profile, purchase permits in bulk and have the payment withdrawn by the state Treasurer via ACH sweep. Once permit resellers issue the lot of permits, the detailed permit information can be uploaded into the system, eliminating the need to ship boxes of paper copies of the permits to the DMV each month. Trucking companies, who are the end-users of the permits, can purchase permits one-by-one and pay conveniently with a credit card. Companies are given the option to create an account to save redundant company and transaction information to speed future transactions. The system also features a shopping cart for the purchase of multiple permits and robust reporting features.

To ensure the smooth adoption of the system, Mr. McQuinn coordinated outreach to all active permit reselling companies and provided training as-needed.

Past Project / Reference

Employer	West Virginia Interactive
Job Title	Project Manager

Customer	Location
West Virginia Public Defender Services	Charleston, WV
Customer PM Name	**Contact Info**
Dana Eddy	One Players Club Drive, Suite 301 Charleston, WV 25311 Phone: (304) 558-3905 Email: dana.f.eddy@wv.gov

	Project Title and Type / Project Objectives / How Objectives were Met
	Project Title and Type: Online Voucher Submission System Web Application **Project Objectives:** West Virginia Public Defender Services (PDS) processes over 30,000 vouchers submitted by attorneys each year for reimbursement for public defense work and expenses. Traditionally, the agency hand received, screened, and input the data from the vouchers into a back-end database. The effort required the employ of temporary data entry personnel at great expense to PDS, yet still resulted in large backlogs of voucher that required processing and payment. The agency desperately needed a secure online tool that allowed attorney's to enter and submit voucher information electronically. **How Objectives were Met:** Mr. McQuinn worked with PDS and Office of Technology to define and enforce the exhaustive list of business rules and calculations involved in public defense voucher validation. Also, based on past experience, Mr. McQuinn was aware that that the agency would not be successful in mandating the use of the system if it were difficult to use. Mr. McQuinn established and collected feedback from a pilot group of users to design a system that was simple to use and supported the existing workflow processes of attorneys. The result was an application that allows for building and population of voucher information as cases progress, granular user management controls support different user-access types and automatic voucher status updates to keep attorneys informed. Today, 100% of vouchers submitted are done so through the Online Voucher System and the data flows seamlessly to the PDS back-end database, saving the agency thousands of hours per year.

Name	Will Smith
Proposed Staffing Plan Role	Director of Operations
Summary	As one of NIC's most experienced portal management resources, Mr. Smith has more than 14 years of directly-applicable requirements analysis, project management, and software development experience in federal, state, and local government. Mr. Smith has five years of direct experience working to provide e-Government services to the state of West Virginia under the self-funded model. Mr. Smith's unique previous experience as Director of Development and Director of Operations provides in-depth knowledge and understanding of WVI's operations, resulting in better and more effective solutions for the state. In his current role with WVI, Mr. Smith is the Director of Operations for the Self-Funded State E-Government Portal project in West Virginia. Mr. Smith is responsible for overseeing daily operations at WVI by managing key components such as the project pipeline and project management and creative teams, marketing efforts, customer support, and business development.

Years of Experience	14
Education	**West Virginia University, Morgantown, West Virginia** Bachelor of Science – Computer Engineering Bachelor of Science – Electrical Engineering Master of Science – Electrical Engineering
Certifications / Qualifications	ITIL Foundations Certified NIC's Customer Database (CDB) NIC's Payment Engine (TPE®) NIC personnel management training Website Design and Build (HTML, CSS) Bootstrap and Responsive Website Design SharePoint Content Management Training ASP.NET C#
Past Project / Reference	(see below)

Employer	West Virginia Interactive
Job Title	Director of Operations

Customer	Location
Mountain Stage	Charleston, WV

Customer PM Name	Contact Info
Scott Finn	600 Capital Street Charleston, WV 25301 Phone: (304) 556-4901 Email:

Project Title and Type / Project Objectives / How Objectives were Met

Project Title and Type:
MountainStage.org Website

Project Objective:
MountainStage.org hosts an extremely popular concert series that features artists from all over the world. The organization was represented by an aging website and required WVI to develop and assist the agency with the implementation of a fresh new design. Given the artistic nature of MountainStage.org, the requirements for the website were outside the normal realm of state agency websites. The new Mountain Stage website was targeted toward a different audience than a typical state agency website.

How Objectives were Met:
Mr. Smith worked with the WVI creative team to develop multiple possible designs for the site that met the partner's requirements. After numerous designer iterations, Mr. Smith presented the proposed site design to the agency.

Mountain Stage was very pleased with the designs presented and approved their favorite. Mr. Smith oversaw the creative team in the implementation of the new design and then worked directly with the agency to train and assist key personnel with populating content in the new site. Within a few months, the agency was able to complete the input of their refreshed content using the WVI Enterprise Content Management System and the website was successfully launched.

Past Project / Reference		

Employer	West Virginia Interactive
Job Title	Director of Operations

Customer	Location
WorkForce West Virginia	Charleston, WV
Customer PM Name	**Contact Info**
Beth Carenbauer	112 California Avenue Charleston, WV 25305 Phone: (304) 558-2624 Email: Beth.N.Carenbauer@wv.gov

Project Title and Type / Project Objectives / How Objectives were Met

Project Title and Type:
Employer Online Contribution Reporting – ACH Credits Program Web Application

Project Objective:
The majority of Unemployment Contribution reports and payments received by WorkForce West Virginia are submitted by third-party payroll administrators such as ADP or PayChex. Traditionally, the companies would send the electronic reports on CDs and paper checks each quarter for thousands of West Virginia employers. It required a significant effort on the part of the agency to process the files from the CDs and the paper checks. In many cases, errors in the format of the files or the data contained required WorkForce staff to fix the errors manually before processing. WorkForce needed a web-based system that allowed third party administrations (TPAs) such as ADP or PayChex to file unemployment contribution reports for an unlimited number of employers and send payments using ACH Credit. This project was to use similar approaches as other states to ensure the maximum system usability and adoption.

How Objectives were Met:
Mr. Smith reviewed similar systems in multiple states currently offering ACH credit payments to develop a model using best practices. Mr. Smith then worked with WorkforceWV to organize multiple calls with the major TPAs to define the architecture that would best meet both the agency and the TPA's needs. Once defined, Mr. Smith architected the solution and oversaw the development process. Upon completion, Mr. Smith worked directly with individual TPAs to assist in fast adoption of the new system. Within two filing quarters, all but one major TPA transitioned to the new system, resulting in over 6,000 new filings utilizing ACH credit in the final two quarters of 2015.

Past Project / Reference		

Employer	West Virginia Interactive
Job Title	Director of Development

Customer	Location
West Virginia Department of Commerce	Charleston, WV

Customer PM Name	Contact Info
Kim Harbour	1900 Kanawha Boulevard East Capitol Complex – Building 5, 10th Floor Charleston, WV 25305 Phone: 304-558-8101 Email: Kimberly.L.Harbour@wv.gov

Project Title and Type / Project Objectives / How Objectives were Met

Project Title and Type:
Commerce Custom CMS Hosting Environment

Project Objective:
The Department of Commerce utilized an aging, custom-built content management application that was the home of multiple tourism and Commerce agency websites. WVI was approached to architect a new hosting environment for the application so the vital website could remain available to the public. The agency was in desperate need for a quick transition to new host provider because the current provider was discontinuing service and support. The overall hosting requirements and architecture had to be discovered quickly during project planning as the system was custom built and required an environment of the same nature.

How Objectives were Met:
Mr. Smith designed an ideal hosting environment based on years of experience with hosting similar systems for WVI applications and worked with the WVI data center to quickly stand up the environment. Mr. Smith then worked closely with the agency and developers previously supporting the application to install the application and make it operational in the new environment. During transition, multiple changes in the setup of the environment were needed to accommodate the application. Mr. Smith adapted the plan and shifted server resources on the fly. This effort resulted in the successful transition of the application to the environment to WVI hosting center with minimal downtime. After completion of the project, Mr. Smith provided the agency with an analysis of their legacy system and suggested next steps to improve reliability.

Name	Billy J Sauls
Proposed Staffing Plan Role	Director of Technology
Summary	Mr. Sauls has more than 11 years of directly-applicable technical and solution design skills along with other state-level e-Government experience in a self-funded environment. In his current role with WVI, Mr. Sauls is the Director of Technology for the Self-Funded State E-Government Portal project in West Virginia. Mr. Sauls oversees the portal development team and is responsible for the management of application development, deployment, and maintenance.

Years of Experience	11
Education	**West Virginia University** Bachelor of Science in Computer Science
Certifications / **Qualifications**	ITIL Foundation Certified .Net Framework Development NIC's Customer Database (CDB) NIC's Payment Engine (TPE®)

Past Project /
Reference

Employer	West Virginia Interactive
Job Title	Director of Technology

Customer	Location
West Virginia Division of Motor Vehicles	Charleston, WV

Customer PM Name	Contact Info
Wilbur Thaxton	5707 MacCorkle Ave. SE Suite 200, Bldg KC HQ, Rm ITS Phone: (304) 926-2565 Email: Wilbur.L.Thaxton@wv.gov

Project Title and Type / Project Objectives / How Objectives were Met

Project Title and Type:
WV DMV Self-Service Portal Web Application

Project Objectives:
The objective of this project was to develop a user-friendly suite of web applications to support the transition of consumer and motor carrier paper-based transactions to a centralized, publically accessible online portal. The services included Online Vehicle Registration Renewal, Duplicate Registration Cards and Decals, Driver License Status lookup, and Personal Driving History Record purchases.

How Objectives Were Met:
To meet the objectives of the project, Mr. Sauls designed the system so that each service was built as a new module that is then combined into the platform. Mr. Sauls started with a basic common platform. As each new service was implemented, this common platform was refined and improved. Mr. Sauls approach allowed for each module to be developed independently so multiple services could be developed concurrently. Mr. Sauls also used this modular approach in the DMV administrative review system.

The platform Mr. Sauls implemented has created a reusable framework that significantly reduces implementation time. To date, 11 modules have been completed, one is in development, and three are being finalized to start development soon.

Past Project /
Reference

Employer	West Virginia Interactive

Job Title	Senior Software Developer/Director of Technology

Customer	Location
West Virginia Division of Motor Vehicles	Charleston, WV

Customer PM Name	Contact Info
Wilbur Thaxton	5707 MacCorkle Ave. SE Suite 200, Bldg KC HQ, Rm ITS Phone: (304) 926-2565 Email: Wilbur.L.Thaxton@wv.gov

Project Title and Type / Project Objectives / How Objectives were Met

Project Title and Type:
WV Vehicle Registration System Web Application

Project Objectives
Traditionally, the West Virginia DMV provided cardboard temporary license plates to dealerships to place on vehicles when they were sold. The tag was valid for 60 days and meant to be replaced when the customer's permanent license plate and registration was mailed by the DMV. This process was slow, expensive, labor intensive and did not leave an accessible audit trail for public safety issues. The objective of the project was to create an online system for WV Vehicle Dealerships to electronically create and print Temporary Registration Tags for vehicles sold in the state of West Virginia. Upon the completion of a sale, the information for the vehicle and the temporary tag was to be processed and sent to the WV DMV mainframe system to lessen the manual processing involved and to increase availability of the data.

How Objectives were Met
Mr. Sauls was instrumental in developing a method for interacting with the DMV Mainframe and the electronic process of creating the online temporary tag. During requirements gathering, it was discovered that limitations of the Mainframe required all of the information associated with a full vehicle title to create even a temporary tag and registration record. The system was adapted to collect all associated customer, vehicle, financial and tax information to enforce WV business rules to create valid data to create a full record. Mr. Sauls was required to program extensive interaction with the mainframe to ensure all data was validated and entered accurately.

Past Project / Reference

Employer	West Virginia Interactive
Job Title	Senior Software Developer

Customer	Location
West Virginia Bureau for Child Support Enforcement	Charleston, WV

Customer PM Name	Contact Info
Dee Ann B. Burdette, Assistant General Counsel	350 Capitol Street, Rm 147 Charleston, WV 25301 Phone: (304) 356-4665

Email: Dee-Ann.B.Burdette@wv.gov

Project Title and Type / Project Objectives / How Objectives were Met
Project Title and Type: WV Child Support Direct Payments Web Application **Project Objectives** Legislation was passed that required employers with over 50 employees to use an electronic system to pay and track the child support obligations of any employees that qualified. The objective of this project was to give employers an easy, web-based system to manage and schedule payments on behalf of their employee, for child support payment obligations. Payments needed to be scheduled in advance, processed, and then transmitted to the agency through automated processes. **How Objectives were Met** Mr. Sauls developed a process for the transaction cycle of scheduling a payment, processing the payment, and transmitting the payment information to the agency. This work was merely customization, given that the application was originally built in Virginia and WVI had access to it through the NIC portal there. Once the entire process cycle was established, system design and development was completed.

Name	Sharon Hill
Proposed Staffing Plan Role	Project Manager
Summary	Mrs. Hill has more than eight years of directly-applicable requirements analysis, project management, training, and transition planning, as well as marketing and other state-level e-Government experience in a self-funded environment. In her current role with WVI Mrs. Hill has managed the successful implementation of 41 websites and more than 50 online services and application projects. Mrs. Hill works directly with numerous state agencies, boards, associations and officials to identify prospective services and oversee all planning, design, development, testing, deployment, maintenance, and marketing associated with them.
Years of Experience	18
Education	**Marshall University, Huntington, West Virginia** Bachelor of Business Administration – Management Information Systems
Certifications / Qualifications	**Certificates** ITIL® Foundation Certificate in IT Service Management, April 2015 Up to 18 years of experience in the following technologies: <u>Web Tools:</u> ASP.NET, Web Services, Active Server Pages, JavaScript, HTML, VBScript, CSS, COM+, Dream Weaver, Visual Interdev

	Applications: MS Office, MS SharePoint, MS Visio, MS Visual Studio 2005, MS Visual Studio 6.0, Team Foundation Server, Daptiv, Jira, Google Analytics **Languages**: ASP.NET, VB.NET, VB 6.0, VBA, PL/SQL, T-SQL, SQL, Winbatch **RDBMS**: ORACLE, MS SQL Server, MSDE, Pervasive SQL, MS Access **RDBMS Tools**: TOAD, SQL Server Management Studio **Connectivity**: ADO, ODBC **Graphics Packages**: Paint, Adobe Photoshop **Operating Systems**: Windows Server 2000, Windows Server 2003, Windows Server 2008, Windows Server 2012

Past Project / Reference

Employer	West Virginia Interactive
Job Title	Project Manager

Customer	Location
Secretary of State State Tax Department Workforce WV	Charleston, WV

Customer PM Name	Contact info
Beth Ann Surber	1900 Kanawha Blvd, E Building 1, Suite 157-K Charleston, WV 25305 Phone: (304) 558-6000 Email: BSurber@wvsos.com

Project Title and Type / Project Objectives / How Objectives were Met

Project Title and Type:
Business4WV Portal, Business Registration and Filing System Web Application

Project Objectives:
Business4WV is the online portal for processing business filings in West Virginia. The objective of each project phase is to increase functionality for businesses and to increase online adoption.

How Objectives Were Met:
Since 2008, Mrs. Hill has been responsible for managing the planning, design, development, testing, deployment, and marketing of 18 successful project phases that implemented 14 new filing types and various other functions in the online business registration and filing system. The annual number of transactions completed through the online system increased from 8,187 in 2007 to 88,027 in 2015, an increase of 975%.

Past Project / Reference

Employer	West Virginia Interactive
Job Title	Project Manager

Customer	Location
Secretary of State	Charleston, WV

Customer PM Name	Contact info
Beth Ann Surber	1900 Kanawha Blvd, E Building 1, Suite 157-K

Charleston, WV 25305
Phone: (304) 558-6000
Email: BSurber@wvsos.com

Project Title and Type / Project Objectives / How Objectives were Met

Project Title and Type:
Uniform Commercial Code Filing and Search System – Back Office Web Application

Project Objectives:
The purpose of this project was to provide the Partner with a new online back office system to replace multiple back office systems and components used to process UCC filings and searches. The Back Office system completes the public-facing UCC Filing and Search system managed by Mrs. Hill one year prior.

How Objectives Were Met:
Mrs. Hill was responsible for managing the planning, design, development, testing, and deployment of the new system. The new system integrated all functionality necessary to process paper filing documents and search requests received by the filing office into one, integrated online solution and streamlined the back office filing and search process.

Since the launch in January 2015, 28,520 filings and searches have been processed with an average time savings of 25 minutes per transaction. As a result, over 11,883 hours have been saved this year.

Past Project / Reference		

Employer	West Virginia Interactive
Job Title	Project Manager

Customer	Location
DHHR Bureau of Public Health, Center for Local Health	Charleston, WV
Customer PM Name	**Contact Info**
Linda Lipscomb	350 Capitol Street, Room 515 Charleston, WV 25301 Phone: (304) 356-4240 Email: Linda.F.Lipscomb@wv.gov

Project Title and Type / Project Objectives / How Objectives were Met

Project Title and Type:
Program Plan Reporting System Web Application

Project Objectives:
The primary goal of the Application was to streamline the reporting and review process and to reduce the manual labor and costs involved with the Program Plan reporting and review process for both the boards of local health and the Division of Local Health as well as to reduce maintenance and support costs. The cost of operating and maintaining and supporting the previous solution was approximately $200,000 per year.

How Objectives Were Met:

The Program Plan Reporting System provides a complete end-to-end online reporting and review process for the annual Program Plan. Local boards of health can quickly and securely report their annual program plan information electronically to the Center for Local Health and the admin portion of the system enables the Center for Local health to review each section of the submitted program plan and apply a review status as well as generate reports on the submitted program plan data.

The new innovative reporting system eliminated the need for paper forms and mailing requirements while providing a new streamlined process that saves local boards of health time and effort by completely eliminating the manual steps in the reporting process.

Mrs. Hill was responsible for managing the planning, design, development, testing, and deployment of the new system. In year one, the Application provided cost savings of $87,000 for the Center for Local Health, with projected ongoing savings of $185,000 per year. Additionally, the time needed to complete and submit the Program Plan has been reduced from 6+ weeks to 6 business days.

Past Project / Reference

Employer	West Virginia Interactive
Job Title	Project Manager

Customer	Location
Office of the State Fire Marshal	Charleston, WV

Customer PM Name	Contact Info
Allan Casto	1207 Quarrier Street Charleston, WV 25301 Phone: (304) 558-2191 x 53225 Email: Allan.D.Casto@wv.gov

Project Title and Type / Project Objectives / How Objectives were Met

Project Title and Type:
Reduced Cigarette Ignition Propensity Certification Application and Renewal System – Web Application

Project Objectives:
The primary goal of the Application was to provide the Partner with a new online system that enables cigarette manufacturers to electronically submit Reduced Cigarette Ignition Propensity Certification applications, renewals and supplemental updates to the Office of the State Fire Marshal, to eliminate the need of mailing paper forms and documentation, to enable the Partner to electronically process submitted applications, and once approved, enable the cigarette manufacturer to print a certificate.

How Objectives Were Met:
Mrs. Hill was responsible for managing the planning, design, development, testing, and deployment of the new system. Since launch in September 2012, 205

applications, renewals, and supplemental updates have been processed through the online system and the printing and postage costs of applications, supporting documents and certificates was completely eliminated resulting in an average cost savings of $20,500 to the cigarette manufacturer and the agency.

Name	Steve Boyer
Proposed Staffing Plan Role	Project Manager
Summary	Mr. Boyer has eight years of business analysis, project management, training and customer support, with four of those years being within the e-Government self-funded environment. In his current role with WVI, Mr. Boyer is Project Manager for the Self-Funded State e-Government Portal project in West Virginia. Mr. Boyer is responsible for managing projects at both the state and local levels. He works directly with numerous state agencies, boards, and associations to identify prospective services and oversees his projects from the concept phase to the production support phase. In addition, Mr. Boyer manages many of the WVIPay accounts located throughout the state.
Years of Experience	8
Education	**West Virginia State University** Bachelor of Science in Business Administration – Concentration in Management Information Systems **Marshall University Graduate College** Master of Science – Information Systems
Certifications / Qualifications	ITIL Foundations in IT Service Management
Past Project / Reference	(see below)

Employer	West Virginia Interactive
Job Title	Project Manager

Customer	Location
WV Division of Motor Vehicles	Charleston, WV
Customer PM Name	**Contact Info**
Michael Maggard	1800 Kanawha Blvd. East Charleston, WV 25317 Phone: (304) 926-2583 Email: Michael.L.Maggard@wv.gov
Project Title and Type / Project Objectives / How Objectives were Met	

REQUEST FOR PROPOSAL
WV OFFICE OF TECHNOLOGY
CRFP 0212 SWC1600000001

Project Title:

WV DMV Self-Service Portal Web Application

Objectives:

The objective of this project was to transition a paper-based manual process to an online vehicle, drivers, motor carriers and dealer services portal that the public could access from the convenience of their homes or business.

How Objectives Were Met:

Objectives were met by identifying the information needed to complete a service request along with any potential roadblocks that may prohibit the service from being offered online. For example, customers wishing to renew their vehicle registration online are required to provide property tax information which must also be verified by the WV DMV. WVI implemented a process that allows the customer to access their county's online tax website and retrieve that information in order to complete the vehicle registration process. Once completed, the WV DMV may instantly access the same county tax website to verify the information provided is correct. Customers may also upload their military orders or a letter from the county assessor's office in place the tax information.

Past Project / Reference		

Employer	West Virginia Interactive
Job Title	Project Manager

Customer	Location
West Virginia Bureau of Senior Services	Charleston, WV
Customer PM Name	**Contact Info**
Jennifer Fazzolari	1900 Kanawha Blvd E, Charleston, WV 25305 Phone: (304) 558-3317 Email: Jennifer.J.Fazzolari@wv.gov
Project Title and Type / Project Objectives / How Objectives were Met	

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Project Title:
Provider Reporting – Web Application

Objectives:
The objective for this project was to obtain 100% employee certification reporting from all WV provider agencies that take part in the Medicaid Aged and Disabled Waiver and Personal Care programs. In previous years, the Bureau of Senior Services was only able to capture a fraction of the employee certification data by initiating random audits of the agencies. As a result of this application, agencies are able to submit their data more efficiently while also allowing the Bureau to quickly analyze the results and take action. A process that once took months and many employees to complete has been reduced to weeks with only one employee assigned to the task.

How Objectives Were Met:
Mr. Boyer was responsible for requirements analysis, prototype development, and user acceptance testing for the West Virginia Bureau of Senior Services Provider Reporting Application. The project objectives were met by identifying the business rules needed for each certification/training and then using that information to calculate non-compliance. Once the noncompliance logic was determined, it was essential that training schedules were understood to ensure the application captured all applicable trainings that took place during the assigned reporting period. Mr. Boyer also provided a substantial level of user support to ensure the success of the program.

Past Project / Reference	

Employer	West Virginia Interactive
Job Title	Project Manager

Customer		Location	
Cabell County Sheriff's Office		Huntington, WV	
Customer PM Name		**Contact Info**	
Beth Ross		750 Fifth Avenue, Room 101 Huntington, WV 25701 Phone: (304) 526-8663 Email: taxoffice@cabellcountysheriff.com	

Project Title and Type / Project Objectives / How Objectives were Met

Project Title: Cabell County Crime Reporter Mobile Application

Objectives:
The objective for the project was to develop an application that allows citizens to populate and submit a crime report via a mobile device to the Cabell County Sheriff's Office. Users needed to have the ability to submit important information such as location, activity description, subject description, vehicle description, and one (1) photograph. Once submitted, the application emails a report with the detailed information to an approved list of recipients. The Application is available on the IOS and Android operating systems.

How Objectives Were Met:

Mr. Boyer was responsible for requirements analysis, prototype development, and user acceptance testing for the Cabell County Crime Reporter Mobile application. Objectives were met by identifying the most efficient way to allow users of the mobile app to quickly submit a crime report while making sure enough information is provided to the Cabell County Sheriff's Office to allow them to take action. One major challenge was ensuring the user could identify their location when submitting a report. Taking advantage of the location tracking functionality on a mobile device allowed for an exact coordinates to be provided without the user having to know their exact location.

Name	Elaine Thacker
Proposed Staffing Plan Role	Creative Services Designer
Summary	Ms. Thacker has more than seven years of experience working in design. She has been with WVI for more than six years designing, building and maintaining websites; training and communicating with partners; and providing unity across West Virginia's websites and applications. In her current role with WVI, Ms. Thacker is Creative Services Designer for the Self-Funded State E-Government Portal project in West Virginia. Ms. Thacker is a self-starter, very organized, and experienced as a designer. She has worked with numerous state agencies and has provided timely and pleasing website development, design, and maintenance.
Years of Experience	7
Education	**Marshall University, Huntington, West Virginia** Bachelor of Fine Arts (BFA) in Visual Art, Minor in Business Management December 2007 - Cum Laude
Qualifications / Skills	**Computer Software** Adobe Photoshop CC Adobe Illustrator CC Adobe InDesign CC Microsoft SharePoint 2010 Microsoft Word Microsoft PowerPoint Microsoft Excel **Skills** Vector Illustration Logo Design Website Design and Build (HTML, CSS) Bootstrap and Responsive Website Design SharePoint Content Management Training

Past Project / Reference		

Employer	West Virginia Interactive
Job Title	Creative Services Designer

Customer	Location
State of West Virginia	Charleston, WV
Customer PM Name	**Contact Info**
Gale Given, Chief Technology Officer	1900 Kanawha Boulevard East Capitol Complex – Building 5, 10th Floor Charleston, WV 25305 Phone: (304) 558-8101 Email: gale.y.given@wv.gov

Project Title and Type / Project Objectives / How Objectives were Met

Project Title and Type:
The Official State of West Virginia Website – WV.gov

Project Objective:
WVI last released a new version of WV.gov in 2010 and the site was in need of updated content and an updated design. The WVI team set out to restructure/rebuild the current WV.gov website to make information quick and easy to locate, highlight top resources, put emphasis on search, showcase agency news, and incorporate the beauty of the state, while focusing on responsive and accessible design.

How Objectives were Met:
Ms. Thacker used the Bootstrap framework to make the WV.gov website responsive to mobile device screen sizes. Focusing on UX design and quick menu/navigation items allowed the user to swipe from section to section without refreshing the page. To convey important state news, top headlines are pulled from key agencies' RSS feeds and are front and center on the homepage. The search box is easily accessible, and top resources, such as forms and directories are effortlessly located by corresponding icons and text on the homepage. Scenic photos are submitted to WV.gov's Flickr feed and are incorporated into the WV.gov website weekly as the background image. The featured images keep visitors engaged and highlight the beauty of the state.

Past Project / Reference		

Employer	West Virginia Interactive
Job Title	Creative Services Designer

Customer	Location
West Virginia Division of Motor Vehicles	Charleston, WV
Customer PM Name	**Contact Info**
Natalie Holcomb, Public Information Specialist III	5707 MacCorkle Ave. SE P.O. Box 17300 Charleston, WV 25317 Phone: (304) 926-3836 Email: natalie.d.holcomb@wv.gov

Project Title and Type / Project Objectives / How Objectives were Met

Project Title and Type:
Division of Motor Vehicles Website

Project Objective:
Design and build a new Division of Motor Vehicles website with focus on online services, streamlined content and a clean, mobile-friendly design.

How Objectives were Met:
Ms. Thacker used current site analytics reports and reviewed other state DMV websites to restructure and redesign the WV DMV website. The site content was divided into target audiences to make information easier to find, and a clean, modern design was implemented. Available online services and applications are highlighted throughout the site to drive adoption increases in the agency's online services. It was built using the Bootstrap framework, making the site responsive and accessible on multiple platforms. The result is a user-friendly, responsive website with an emphasis on online services.

Past Project / Reference

Employer	West Virginia Interactive
Job Title	Creative Services Designer

Customer	Location
Department of Health and Human Resources	Charleston, WV
Customer PM Name	**Contact Info**
Scott Eubank, Communications Specialist	One Davis Square, Suite 100 East Charleston, WV 25301 Phone: (304) 558-2109 Email: Scott.S.Eubank@wv.gov

Project Title and Type / Project Objectives / How Objectives were Met

Project Title and Type:
Department of Health and Human Resources Website

Project Objective:
Design and build a new Department of Health and Human Resources website with focus on key agencies, streamlined content and a clean, mobile friendly design.

How Objectives were Met:
Perhaps the biggest challenge of the redesign was disseminating the resources on the previous DHHR website, which was very text-heavy and composed of many links that had little resource-based separation. Ms. Thacker grouped the main resources on the page into key agencies with focus on the most important topics. The groups then branched off to each agency's individual website. Adding photography and focusing on a fresh, clean design assisted in making the site visually pleasing. The previous design did not scale to be usable on a mobile device. Using the Bootstrap framework, Ms. Thacker further optimized the site for mobile responsiveness.

Name	Theodore Blaine Mullins
Proposed Staffing Plan Role	Creative Services Designer
Summary	A former award-winning visual journalist, Mr. Mullins has more than 15 years of experience in mass communications focused in design, content management and presentation – six years of which have been solely in Web Design and Development. In his current role with WVI, Mr. Mullins is a Creative Services Designer, SharePoint Instructor and also provides Level 1 Support for site content management of all WVI partner agencies in the state of West Virginia. Mr. Mullins is responsible for creating clean, accessible new designs and redesigns for state agency websites. He then incorporates these designs in a mobile responsive framework using the Microsoft SharePoint platform for easy, client-side content management. He works directly with the WVI project manager and communications directors as well as directors of numerous state agencies in the development of the designs and sees every design project through to completion on deadline. He also works one-on-one with various agency employees through content management training sessions and technical support issues.
Years of Experience	15
Education	**Marshall University, Huntington, West Virginia** Bachelor of Arts – Journalism. Graduated Cum Laude, August 2000.
Certifications / Qualifications	**Certificates/ Awards** ITIL ® Foundation Certificate in IT Service Management, 2015 Designs published in West Virginia Executive Magazine, 2012 Winner, 1st Place Editorial Design, Kentucky Press Association, 2007 **Qualifications** Web and Print Design Logo/Icon Vector-Based Design Photo Illustration HTML5 CSS jQuery JavaScript XSLT Bootstrap 3.0 Microsoft SharePoint Designer 2010 Adobe Creative Suite 2015 Microsoft Office 2015
Past Project / Reference		**Employer**	West Virginia Interactive	

Job Title	Creative Services Designer

Customer	Location
WV.gov/State Portal 3.0	Charleston, WV

Customer PM Name	Contact Info
Gale Given, Chief Technology Officer	1900 Kanawha Boulevard East Capitol Complex – Building 5, 10th Floor Charleston, WV 25305 Phone: (304) 558-8101 Email: gale.y.given@wv.gov

Project Title and Type / Project Objectives / How Objectives were Met

Project Title and Type:
The Official State of West Virginia Website – WV.gov

Project Objectives:
Mr. Mullins was tasked with creating a new, updated design for the West Virginia state portal in 2014. Also required was the creation of a new, mobile-first interface using existing content and the creation of key entry points for easier access to information within the portal.

How Objectives Were Met:
Mr. Mullins consolidated the numerous navigation categories from the previous portal into more simple categories to streamline content. He also restructured the presentation of all subcategories in an interface that would get the user more direct access to information with fewer clicks. Mr. Mullins focused this content in a design template with a color scheme that accommodates interchangeable, scenic background photos to showcase the beauty of the Mountain State. The portal was published in winter 2015 and has received positive feedback.

Past Project / Reference

Employer	West Virginia Interactive
Job Title	Creative Services Designer

Customer	Location
West Virginia Department of Agriculture	Charleston, WV

Customer PM Name	Contact Info
Butch Antolini, Communications and Marketing Director	Marketing & Development Division Building 2. Gus R. Douglass Agricultural Center at Guthrie Office Charleston, WV 25302 Phone: (304) 558-2210 Email: bantolini@wvda.us

Project Title and Type / Project Objectives / How Objectives were Met

Project Title and Type:
West Virginia Department of Agriculture Website

Project Objectives:

Design and build a new Department of Agriculture website with focus on current initiatives, streamlined content and a clean, mobile-friendly design.

How Objectives Were Met:
Mr. Mullins was directly responsible for the design and buildout of a new site for the state Department of Agriculture. Instructed by the department to use earth tones and agency-provided art, Mr. Mullins was resourceful in creating a vibrant color scheme that met criteria and also stood out in contrast with other sites using green and brown. He accomplished this through color correcting provided photos, saturating the greens and restricting the brown to the navigation and footer. The result was art that could be made dominant and an exceptional color scheme. Through these efforts, all staff at the Department were pleased with the end result, the site was published in summer 2015 and has been well-received.

Past Project / Reference

Employer	West Virginia Interactive
Job Title	Creative Services Designer

Customer	Location
West Virginia Division of Homeland Security and Emergency Management (DHSEM)	Charleston, WV

Customer PM Name	Contact Info
Jimmy Gianato, Governor's Homeland Security Advisor and Director of the West Virginia Division of Homeland Security	1900 Kanawha Boulevard, East Building 1, Room EB-80 Charleston, WV 25305-0170 Phone: (304) 541-9990 Email: Jimmy.J.Gianato@wv.gov

Project Title and Type / Project Objectives / How Objectives were Met

Project Title and Type:
West Virginia Division of Homeland Security and Emergency Management Website

Project Objectives:
Design and build a new Division of Homeland Security and Emergency Management website with focus on current threat or emergency information, streamlined content and a clean, mobile-friendly design.

How Objectives Were Met:
Mr. Mullins was responsible for creating a DHSEM site redesign, successfully pitching the redesign to multiple agency staff members and seeing through the accelerated buildout of the site in a two-week window. This redesign relied on existing content from the previous DHSEM site. Through use of a dominant blue color scheme accompanied by red and white, he created a design that original and distinctive among agency websites. Mr. Mullins streamlined content in a similar manner as in the WV.gov portal by consolidating numerous entry points on the old site and creating key entry points on the new site. He designed custom icons for these entry points that were well-received by the agency. The staff requested these entry points also be used on inside pages. The result of the buildout was a

	completely revamped, mobile-first site that heralded the American flag as a dominant element. The site received positive feedback from staff members and the director. It was delivered to the agency in December 2014 and published in early 2015.
Past Project / Reference	

Employer	West Virginia Interactive
Job Title	Creative Services Designer

Customer	Location
West Virginia Office of the Secretary of State (WVSOS)	Charleston, WV
Customer PM Name	**Contact Info**
Beth Ann Surber, Chief Information Officer	1900 Kanawha Blvd E Building 1, 157-K Charleston, WV 25305 Phone: (304) 558-6000 Email: BSurber@wvsos.com

Project Title and Type / Project Objectives / How Objectives were Met

Project Title and Type:
Business4WV Portal Website

Project Objectives:
Design and build a new Business4WV landing-page website with focus on finding business registration and compliance information quickly in a mobile-friendly design.

How Objectives Were Met:
Mr. Mullins was responsible for redesigning and building a new business portal for the WVSOS. Developing site content relied on researching other state business portals and input from key members of the office of the WVSOS. WVSOS staff requested a design with a mix of content from other state business portals combined to fit West Virginia's specific needs. Mr. Mullins created custom icons and a button interface utilizing bright blues for entry points. The user interface, the color scheme and the icons were well-received by the WVSOS committee. Additionally, a logo designed by Mr. Mullins was selected as the official logo for the state business portal. He took suggested photos from staff members and was able to make them work in the original design concept. Mr. Mullins quickly turned around what was initially expected to be a long project involving multiple reworks – by committee request – into a shorter project with minimal changes to the initial design. Website buildout has been completed and is slated for publication in early 2016.

Name	Eric Garza
Proposed Staffing Plan Role	Senior Software Developer
Summary	In his current role with West Virginia Interactive, Mr. Garza is Senior Software Developer for the Self-Funded State E-Government Portal project in West Virginia. Mr. Garza has valuable experience engineering software solutions for West Virginia state government partners. During his tenure at West Virginia Interactive, Mr. Garza has developed highly functional, user-friendly award-winning applications that experience heavy usage. In addition to great public facing systems, Mr. Garza has designed and developed enterprise internal solutions that help West Virginia Interactive be ever more efficient at delivering services to the state of West Virginia.
Years of Experience	12
Education	**Trinity University, San Antonio, Texas** Bachelor of Science with Honors – Computer Science
Certifications / Qualifications	Microsoft .Net C# Microsoft SQL Server (PL/SQL) Java Java Script Apple Objective-C NIC's Customer Database (CDB) NIC's Payment Engine (TPE®) Experience with full development cycle and rapid development cycles

Past Project / Reference

Employer	West Virginia Interactive
Job Title	Senior Software Developer

Customer	Location
State of West Virginia Secretary of State	Charleston, WV
Customer PM Name	**Contact Info**
Beth Ann Surber Chief Information Officer	1900 Kanawha Blvd E Building 1, 157-K Charleston, WV 25305 Phone: (304) 558-6000 Email: BSurber@wvsos.com

Project Title and Type / Project Objectives / How Objectives were Met

Project Title and Type:
Uniform Commercial Code Online and Back Office System – Web Application

Project Objectives:
The purpose of this project was to provide the Partner with a new online UCC back office system that will replace the existing UCC back office systems and enable the WVSOS to process UCC filings received at the filing office. The system required in-line redaction capability, document generation, a reporting module, imaging functions and administrative filing management controls.

How Objectives Were Met:

Several technical challenges were encountered and overcome in the project. Mr. Garza vetted and adopted a new front end technology, KnockoutJS, to make pages more responsive and user friendly. To accomplish the online scanning and redaction the system was integrated with third party vendor, Atalasoft, to provide a seamless solution.

Past Project / Reference

Employer	West Virginia Interactive
Job Title	Senior Software Developer

Customer	Location
West Virginia Bureau of Senior Services	Charleston, WV

Customer PM Name	Contact Info
Name: Julie Shelton Title: Director	1900 Kanawha Blvd. East Charleston, WV 25305 Phone: (304) 558-3317 E-Mail: Julie.L.Shelton@wv.gov

Project Title and Type / Project Objectives / How Objectives were Met

Project Title and Type:
Provider Reporting – Website/Application

Project Objectives:
For the offline reporting process that occurred the first year, it took the agency eight months to compile the operational information from all of the participating providers and analyze it to determine compliance. The Bureau of Senior Services needed a better way to collect the information and to quickly analyze it to determine compliance. The objective of the project was to develop a web application to allow providers of services within the Aged and Disabled Waiver program to report their employee certification information electronically to the West Virginia Bureau of Senior Services annually, and to provide the Bureau administrative features and reporting based on those reports.

How Objectives Were Met:
This system was designed from the ground up taking key pieces of customer and partner feedback to provide a system that allowed providers instant compliance status messages on the state of their employees. Mr. Garza used KnockoutJS heavily to provide live updates as employee data was collected.

Past Project / Reference

Employer	West Virginia Interactive
Job Title	Senior Software Developer

Customer	Location
West Virginia Division of Natural Resources	Charleston, WV

Customer PM Name	Contact Info
Bryan Hoffman Administrative Services Manager	324 4th Avenue South Charleston, WV 25303 Phone: (304) 558-3315 E-Mail: Bryan.M.Hoffman@wv.gov

Project Title and Type / Project Objectives / How Objectives were Met

Project Title and Type:
Wonderful WV – Website/Application and iPad Application

Project Objectives:
The West Virginia Division of Natural Resources wanted to explore a digital format for tablet computers for one of the state's most popular publications, Wonderful West Virginia Magazine. The magazine has been published for many years and features great regional stories and stunning photography. West Virginia Interactive was tasked with providing an online tool enabling subscriptions and renewals to Wonderful West Virginia Magazine, as well as a new Digital Edition of the magazine for download and viewing on the Apple iPad tablet device.

How Objectives Were Met:
To allow quick and easy subscriptions and renewals, Mr. Garza created a unique menu to choose options with an interactive button approach. User choices are captured all on the client side and posted in a single form post. Finally, the web application was integrated seamlessly with the West Virginia State Treasurer's payment page to accept credit cards.

A challenge related to the iPad issue of the magazine was related to Integrating with publishing platform that was utilized. Mr. Garza engineered a custom Web API and a registration page to incorporate custom functionality inside the iPad application. Today, the subscription information is synced automatically with the publishing platform to determine the issues that are delivered to the customer.

Past Project / Reference		

Employer	West Virginia Interactive
Job Title	Senior Software Developer

Customer	Location
West Virginia Secretary of State	Charleston, WV
Customer PM Name	**Contact Info**
Beth Ann Surber Chief Information Officer	1900 Kanawha Blvd E Building 1, 157-K Charleston, WV 25305 Phone: (304) 558-6000 Email: BSurber@wvsos.com

Project Title and Type / Project Objectives / How Objectives were Met

Project Title and Type:
Business Entity Search – Web Application

Project Objectives:
The West Virginia Secretary of State's office required a new online Business Entity Search system that would enable customers to search for a business registered in the state. In addition, the service needed to also include a secure online feature that enabled customers to purchase and download a certificate of existence or a certificate of authorization for businesses registered with the West Virginia Secretary of State. Customers needed to have the ability to purchase multiple certificates and pay a grand total once.

How Objectives Were Met:

By its nature, the system required that a vast number of official files be generated upon completing a transaction. Mr. Garza created a robust set of classes to generate accurate PDF documents that serve as official documentation for the Secretary of State. Additionally, Mr. Garza developed a shopping cart features for the application. This allowed multiple filings to be purchased while only requiring one payment to complete the transaction.

Name	Matthew Baird
Proposed Staffing Plan Role	Software Developer
Summary	In his current role with WVI, Mr. Baird is Software Developer for the Self-Funded State E-Government Portal project in West Virginia. Mr. Baird is responsible for the development of software, including the creation of web applications for WVI's partners. He collaborates with project managers in order to satisfy the partner's requirements for their application and ensure that all of the partner's concerns have been addressed to their satisfaction.
Years of Experience	1
Education	**Marshall University, Huntington, West Virginia** Bachelor of Science – Computer Science Minors: Math, Biology
Certifications / Qualifications	C# python C++ Java PostgreSQL SQL Server Sqllite Asp.net Web Forms Asp.net MVC

Past Project / Reference

Employer	West Virginia Interactive
Job Title	Software Developer

Customer	Location
West Virginia Public Employees Grievance Board	Charleston, WV
Customer PM Name	**Contact Info**
Cricket Reynolds	1596 Kanawha Blvd, E. Charleston, WV 25311 Phone: (304) 957-8381 Email: Cricket.D.Reynolds@wv.gov
Project Title and Type / Project Objectives / How Objectives were Met	

Project Title and Type:
Public Employees Grievance Board Search – Web Application

Project Objectives:
The Public Employees Grievance Board required an application that would allow a user to search the Public Employees Grievance Board documents and view the results of the search with pagination and several sorting methods. Users would need to view the details of each search result as well as the corresponding legal document.

How Objectives Were Met:
The application objectives were satisfied by Mr. Baird who created a search form that allowed a user to search by a variety of criteria. This application then queried a SharePoint database and displayed the results in a sortable and paged table. This table allowed a user to view the details of any grievance filed by clicking on a link for each entry as well as the corresponding legal document which was linked to in the details for each case.

Past Project / Reference		

Employer	West Virginia Interactive
Job Title	Software Developer

Customer	Location
State Police	Charleston, WV
Customer PM Name	**Contact Info**
Chris Behre	725 Jefferson Road South Charleston, WV 25309 Phone: (304)-746-2225 Email: Christopher.J.Behre@wvsp.gov

Project Title and Type / Project Objectives / How Objectives were Met

Project Title and Type:
State Police Crime Tips Web Application

Project Objectives:
The West Virginia State Police required a web application that enabled an anonymous user to submit a crime tip to the state police. The crime tips were to be viewed in an administration system that would allow an authenticated user to view the tips and respond via email to the sender.

How Objectives Were Met:
Mr. Baird created the application by utilizing the model view controller architecture of ASP.Net which allowed Mr. Baird to present input to the user in a way that could then be interpreted into a form. This form could then be inserted into a SQL Server database once the user had correctly completed the form. Mr. Baird then created methods that were used to pull this data from the database and present it to a user that had been authenticated so that they could review the information submitted and respond as needed.

Name	Blaise Liu
Proposed Staffing Plan Role	Software Developer
Summary	In his current role with WVI, Mr. Liu is the Software Developer for the Self-Funded State E-Government Portal project in West Virginia. Mr. Liu is skilled in designing, testing, and developing interactive web applications. His technical expertise includes advanced knowledge in database design/management, fluency in ASP.NET MVC and JavaScript, and proficiency in cross-platform mobile development. Mr. Liu also strives to keep abreast of the latest technology.
Years of Experience	5
Education	**West Virginia University, Morgantown, West Virginia** Master of Science – Statistics
Certifications / Qualifications	Microsoft Certified System Engineer Microsoft Certified Database Administrator SAS Certified Base / Advanced Programmer for SAS9 Cisco Certified Network Associate

Past Project / Reference

Employer	West Virginia Interactive
Job Title	Software Engineer

Customer	Location
West Virginia Division of Natural Resources	Charleston, WV

Customer PM Name	Contact Info
Lt. Col. David Trader	324 4th Avenue South Charleston, WV 25303 Phone: (304) 558-2784 Email: David.W.Trader@wv.gov

Project Title and Type / Project Objectives / How Objectives were Met

Project Title and Type:
Hunting and Boating Education System Web Application

Project Objectives:
The purpose of this project was to create a system that enables individuals to register for a hunter or boater education class and purchase a copy of their hunter education certification card online. In addition, the system needed to enable the WV DNR to view class rosters, submit student scores, and complete reports using a password protected administrative portal.

How Objectives Were Met:
As the lead developer on the project, Mr. Liu was responsible for the system architecture, database design, system design, development, testing, deployment and system maintenance. A formidable challenge in the project was the workflow process used by the WV DNR and transitioning it into an online approval process.

Separate user profiles were created to accomplish the workflow process and the required separation of duties.

Employer	West Virginia Interactive
Job Title	Software Engineer

Customer	Location
Real Estate Department	Charleston, WV

Customer PM Name	Contact Info
Gail Delmaar-Mines	900 Pennsylvania Avenue, Suite 500 Charleston, West Virginia 25302 Phone: (304) 558-9093
	Email: Gail.E.Delmaar-Mines@wv.gov

Project Title and Type / Project Objectives / How Objectives were Met

Project Title and Type:
Capitol Parking Violation Payment System Web Application

Project Objectives:
The objective of the project was to create a new online system that enables parking violators to pay parking citations received at the West Virginia State Capitol Complex and to provide a credit card payment option.

Prior to the new online system, the parking violator submitted the paper citation along with check or cash payment to the Partner by mail or payment box, and the citation and payment were processed manually by the Partner staff upon receipt. Additionally, credit card payments were not accepted.

How Objectives Were Met:
As the lead developer on the project, Mr. Liu was responsible for the system architecture, database design, system design, development, testing, deployment and system maintenance. Mr. Liu developed the application to provide a convenient method to pay parking citations received at the West Virginia State Capitol Complex online with a credit card. The online payment data is automatically imported into the Partner's backend system on a daily basis which results in staff time savings for the agency. The new system was also developed using the latest responsive technologies which provides access to the system from any mobile device.

Since launch, 1,994 tickets have been paid through the online system with an average agency staff time savings of 15 minutes per ticket. As a result, over 498 hours have been saved in agency staff time.

Employer	West Virginia Interactive
Job Title	Software Engineer

Customer	Location
DHHR Bureau of Public Health, Center for Local Health	Charleston, WV
Customer PM Name	Contact Info

Linda Lipscomb	350 Capitol Street, Room 515 Charleston, WV 25301 Phone: (304) 356-4240 Email: Linda.F.Lipscomb@wv.gov

Project Title and Type / Project Objectives / How Objectives were Met
Project Title and Type: Program Plan Reporting System Web Application **Project Objectives:** The primary goal of the project was to create a web application that streamlined the Program Plan reporting and review process for both the boards of local health and the Division of Local Health as well as to reduce maintenance and support costs. **How Objectives Were Met:** Mr. Liu was responsible for the system architecture, database design, system design, development, testing and deployment of the system. There are many sections of the Program Plan and keeping track of the completion status of the different sections can be difficult. As a solution, Mr. Liu utilized a graphical icon-based menu with a different icon representing each section. The icons change to reflect whether the section is not started, in progress, or completed. The system has greatly eased the Program Plan submission process.

Name	Brooke A. Thomas
Proposed Staffing Plan Role	Office Administrator/Customer Service Representative
Summary	In her current role with WVI, Mrs. Thomas is the Office Administrator of the Self-Funded State E-Government Portal project in West Virginia. Mrs. Thomas is responsible for daily office accounting functions and front-line customer support for portal-managed web-applications and websites. Customer support includes answering telephone calls, responding to emails, and engaging in live-help chat sessions to help users and visitors. She works directly with numerous state agencies, boards and associations to coordinate support after the deployment of an online application or website. To provide the exemplary support that she does, Mrs. Thomas maintains an in-depth knowledge of the working of all WVI applications as well as the location of resources on WV.gov, the state's official website.
Years of Experience	7
Education	**Marshall, University, Huntington, West Virginia** Bachelor of Business Administration – Major In Accounting, Minor in Economics
Certifications / Qualifications	NIC's Customer Database (CDB) Generally Accepted Accounting Principles (GAAP)
Past Project / Reference	

Employer	West Virginia Interactive
Job Title	Office Administrator

Customer	Location
WorkForce West Virginia	Charleston, WV
Customer PM Name	**Contact Info**
Beth Carenbauer	112 California Ave, Charleston, WV 25305 Phone: (304) 558-2624 Email: Beth.N.Carenbauer@WV.gov

Project Title and Type / Project Objectives / How Objectives were Met

Project Title and Type:
Online Employer Contribution Reporting System – Web Application

Project Objectives:
WorkForce West Virginia traditionally accepted quarterly filings on paper and paper checks from every registered employer in West Virginia. The interactive web application built by WVI allows easy, fast and secure filing via the internet. The new filing method was a substantial change in the process and required hands-on customer support to get business users registered and assist them with system-related questions.

How Objectives were Met:
Since the introduction of the new filing application and to this day, Mrs. Thomas assists with user log in issues, questions about the filing process and finding information for users regarding filings after they have been submitted. Each quarter, calls, live-help chat sessions and emails flood the WVI help desk. Mrs. Thomas has an in-depth knowledge of the system and is able to assist customers efficiently and effectively each and every quarter.

Past Project / Reference		

Employer	West Virginia Interactive
Job Title	Office Administrator

Customer	Location
Division of Motor Vehicles	Charleston, WV
Customer PM Name	**Contact Info**
Michael Maggard	5707 MacCorkle Ave., SE Charleston, WV 25317 Phone: 304-926-3840 Email: Michael.L. Maggard@WV.gov

Project Title and Type / Project Objectives / How Objectives were Met

Project Title and Type:
Vehicle Registration System-Web Application

Project Objectives:
The Division of Motor Vehicle introduced an online system for Licensed Dealers and License Services to register vehicles online with the state's mainframe while producing a temporary tag and temporary registration for the vehicle. The new system was a great improvement, but a brand new process compared to the hand-written process. Dealerships were required to sign agreements and submit

	information to WVI to establish an account and get access to begin using the system. **How Objectives were Met:** With the roll-out of the system in 2009, Mrs. Thomas was able efficiently on-board new dealers and clearly explain the functionality of the system to the users how the system would simplify their title work process with the WV DMV. Mrs. Thomas continues to add new dealers as required and provide information on the system's function and benefits. She provides assistance with log in issues, provides system guidance, communicates DMV regulatory requirements and much more.
Past Project / Reference	

Employer	West Virginia Interactive
Job Title	Office Administrator

Customer	Location
Secretary of State	Charleston, WV
Customer PM Name	**Contact Info**
Beth Ann Surber	1900 Kanawha Blvd, E Building 1, Suite 157-K **Charleston, WV 25305** Phone: (304) 558-6000 Email: BethAnn@WVSOS.com

Project Title and Type / Project Objectives / How Objectives were Met

Project Title and Type:
Business For West Virginia – Web application

Project Objectives:
The Secretary of State's Business4WV Business Portal is a one-stop shop where businesses can be registered with multiple agencies and file annual reports. Completing the required registration process and filing reports to stay compliant can sometimes be difficult and confusing processes. Responsive and knowledgeable customer support provided through many channels is required to keep any burden on business users to a minimum.

How Objectives were Met:
Mrs. Thomas quickly and concisely answers support questions via phone, email and live-help chat for customers that need assistance. Help logging in, finding PIN information for filing annual reports, and technical questions about the filing process are typical support issues. Mrs. Thomas also assists business users by directing them to the appropriate section of the Secretary of State's website to get the information they are seeking. The annual report filing deadline creates a large spike in demand for support, to which Mrs. Thomas responds readily. In 2015, there were over 98,000 registered West Virginia businesses that needed to file an annual report with the WV Secretary of State by June 30th.

Copies of Staff Certifications & Degrees

Please see the following pages for copies of staff certifications and degrees.

Marshall University

The Marshall University Board of Governors
upon the recommendation of the faculty of the

College of Business

has conferred upon

Ian M. McQuinn

the degree of

Bachelor of Business Administration

Economics
Cum Laude

In Testimony Whereof, the signatures of the duly authorized officers of the
Board of Governors and the Faculty of the University and the seal of the
University have been affixed.
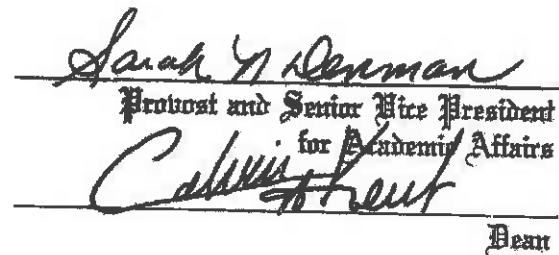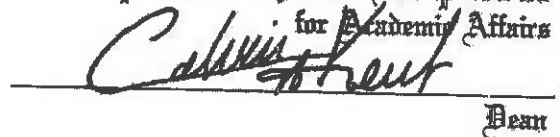
Given at Huntington, West Virginia, this tenth day of May, 2003.

Marshall University Board of Governors

Gary G. White
Chairman

Daniel D. Angel
President of the University

Sarah N. Denman
Provost and Senior Vice President
for Academic Affairs

Calvin Kent
Dean

Marshall University

The Marshall University Board of Governors
upon the recommendation of the faculty of the

Graduate College

has conferred upon

Ian M. McQuinn

the degree of

Master of Business Administration

In Testimony Whereof, the signatures of the duly authorized officers of the Board of Governors and the Faculty of the University and the seal of the University have been affixed.

Given at Huntington, West Virginia, this seventh day of May, 2005.

Marshall University Board of Governors

A. Michael Perry
Chairman

[signature]
President of the University

Sarah N. Denman
Provost and Senior Vice President
for Academic Affairs

Leonard J. Deutsch
Dean

AXELOS
GLOBAL BEST PRACTICE

ITIL
PRINCE2
MSP
M_o_R
P3M3
P3O
MoP
MoV
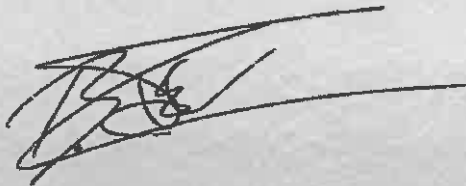
This is to certify that
Ian McQuinn

Has achieved the
**ITIL® Foundation Certificate
in IT Service Management**

Effective from
11 September 2014

Registration number

███████████████

drs. Bernd W.E. Taselaar
Chief Executive Officer

EXIN

DegreeVerify Certificate

Transaction ID#:	■■■■■■	**Date Requested:**	01/04/2016 20:19 EST
Requested by:	WILLIAM SMITH	**Date Notified:**	01/04/2016 20:21 EST

Status:	Confirmed
Fee:	$13.25

INFORMATION YOU PROVIDED

Subject Name:	**WILLIAM** First Name	**BLACK** Middle Name	**SMITH** Last Name

Name Used While Attending School:
(If different from above)

School Name: WEST VIRGINIA UNIVERSITY

Degree Award Year: 2001

Attempt To: Verify a degree

INFORMATION VERIFIED

Name On School's Records:	WILLIAM BLACK SMITH
Date Awarded:	12/27/2002
Degree Title:	MS IN ELECTRICAL ENGINEERING
Official Name of School:	WEST VIRGINIA UNIVERSITY
School Division:	ENGINEERING/MINERAL RESOURCES
Major Course(s) of Study:	ELECTRICAL ENGINEERING
(and NCES CIP Code, if available):	■■■■

INFORMATION VERIFIED

Name On School's Records:	WILLIAM BLACK SMITH
Date Awarded:	05/13/2001
Degree Title:	BS IN ELECTRICAL ENGINEERING
Official Name of School:	WEST VIRGINIA UNIVERSITY
School Division:	ENGINEERING/MINERAL RESOURCES
Major Course(s) of Study:	ELECTRICAL ENGINEERING

DegreeVerify Certificate

(and NCES CIP Code, if available):	▉▉▉▉
Academic Honors:	**MAGNA CUM LAUDE**

INFORMATION VERIFIED

Name On School's Records:	**WILLIAM BLACK SMITH**
Date Awarded:	**05/13/2001**
Degree Title:	**BS IN COMPUTER ENGINEERING**
Official Name of School:	**WEST VIRGINIA UNIVERSITY**
School Division:	**ENGINEERING/MINERAL RESOURCES**
Major Course(s) of Study:	**COMPUTER ENGINEERING**
(and NCES CIP Code, if available):	▉▉▉▉
Academic Honors:	**MAGNA CUM LAUDE**

WEST VIRGINIA UNIVERSITY

EBERLY COLLEGE OF ARTS AND SCIENCES

*Know all persons by these presents
that the West Virginia University Board of Governors
upon the recommendation of the faculty
has conferred upon*
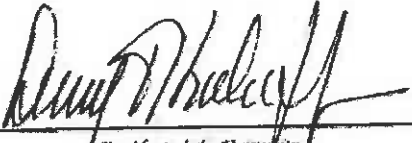
BILLY JOE SAULS

The Degree of
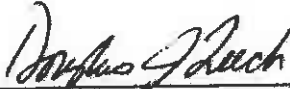
BACHELOR OF SCIENCE
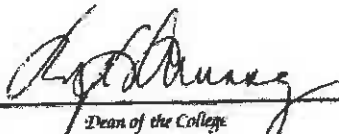
Computer Science

*With all the rights, honors, and privileges thereunto
appertaining. Witness the seal of the university and
the signatures of its duly authorized officers hereunto
affixed this fifteenth day of May,
two thousand five.*
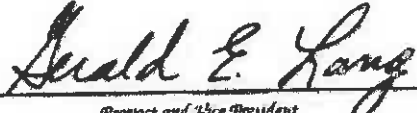
President of the University

Chair, West Virginia University
Board of Governors

Dean of the College

Provost and Vice President
for Academic Affairs and Research

AXELOS
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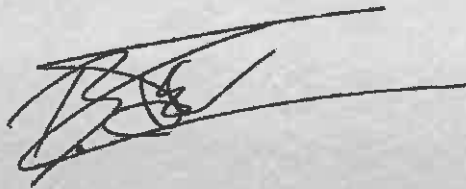
This is to certify that

Billy Sauls

Has achieved the

ITIL® Foundation Certificate in IT Service Management

Effective from
2 April 2015

Registration number

███████████

drs. Bernd W.E. Taselaar
Chief Executive Officer

EXIN
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EXIN

Marshall University

The West Virginia Higher Education Interim Governing Board
upon the recommendation of the faculty of the

College of Business

has conferred upon

Sharon Louise Brown

the degree of

Bachelor of Business Administration

Management Information Systems

In Testimony Whereof, the signatures of the duly authorized officers of the West Virginia Higher Education Interim Governing Board and the Faculty of the University and the seal of the University have been affixed.

Given at Huntington, West Virginia, this fifth day of May, 2001.

The West Virginia Higher Education
Interim Governing Board

Cathy M. Armstrong, ESQ.
Chairman

J. Michael Mullen
Chancellor

President of the University

Dean

AXELOS
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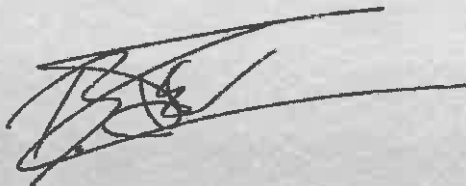
This is to certify that
Sharon Hill

Has achieved the
**ITIL® Foundation Certificate
in IT Service Management**

Effective from
2 April 2015

Registration number

drs. Bernd W.E. Taselaar
Chief Executive Officer

EXIN

West Virginia State University

Know all persons by these presents

That the West Virginia State University Board of Governors
upon the recommendation of the Faculty has conferred upon

Steven Lee Boyer

the degree of

Bachelor of Science in Business Administration

With all the rights, honors, and privileges thereunto appertaining. Witness the seal
of the university and the signatures of its duly authorized officers hereunto
affixed this 16th day of December, Two thousand seven.

_____
President

_____
Chair, WVSU Board of Governors

_____
Vice-President, Academic Affairs

_____
Registrar

Marshall University

The Marshall University Board of Governors
upon the recommendation of the faculty of the

Graduate College

has conferred upon

Steven L Boyer

the degree of

Master of Science

Information Systems

In Testimony Whereof, the signatures of the duly authorized officers of the
Board of Governors and the faculty of the University and the seal of the
University have been affixed.

Given at Huntington, West Virginia, this eighth day of May, 2010.

Marshall University Board of Governors

Chairman

President of the University

Provost and Senior Vice President
for Academic Affairs

Dean, Graduate College

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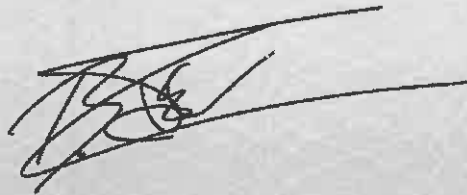
This is to certify that
STEVEN BOYER

Has achieved the
ITIL® Foundation Certificate in IT Service Management

Effective from
7 January 2015

Registration number

drs. Bernd W.E. Taselaar
Chief Executive Officer

EXIN
The global independent certification institute for ICT Professionals

EXIN

Marshall University

The Marshall University Board of Governors
upon the recommendation of the faculty of the

College of Fine Arts

has conferred upon

Elaine Marie Holliday

the degree of

Bachelor of Fine Arts
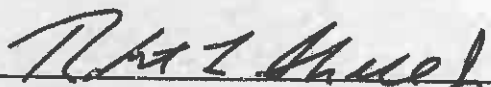
Visual Art
Cum Laude

In Testimony Whereof, the signatures of the duly authorized officers of the
Board of Governors and the Faculty of the University and the seal of the
University have been affixed.
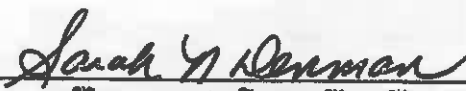
Given at Huntington, West Virginia, this eleventh day of December, 2007.
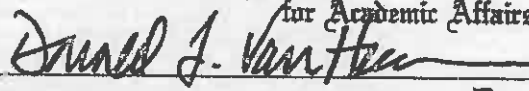
Marshall University Board of Governors

_____
Chairman

_____
President of the University

_____
Provost and Senior Vice President
for Academic Affairs

_____
Dean

Marshall University

The West Virginia Higher Education Interim Governing Board
upon the recommendation of the faculty of the

School of Journalism and Mass Communication

has conferred upon

Theodore Blaine Mullins

the degree of

Bachelor of Arts

Cum Laude

In Testimony Whereof, the signatures of the duly authorized officers of the West Virginia Higher Education Interim Governing Board and the Faculty of the University and the seal of the University have been affixed.

Given at Huntington, West Virginia, this eleventh day of August, 2000.

The West Virginia Higher Education
Interim Governing Board

Cathy M. Armstrong, ESQ.
Chairman

John F. Hurd
Interim Chancellor

Daniel D. Angel
President of the University

Harold C. Shaver
Dean, School of Journalism
and Mass Communications

AXELOS
GLOBAL BEST PRACTICE

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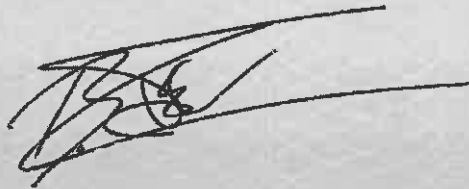
This is to certify that
THEODORE BLAINE MULLINS

Has achieved the
ITIL® Foundation Certificate in IT Service Management

Effective from
7 January 2015

Registration number

drs. Bernd W.E. Taselaar
Chief Executive Officer

EXIN

Trinity University

The Board of Trustees of Trinity University

upon the recommendation of the Faculty

hereby confers upon

Eric Ray Garza

the degree of

Bachelor of Science

with all the rights, privileges, and honors thereunto appertaining.

Given in San Antonio in the State of Texas

the fourteenth of May in the year of our Lord two

thousand and five.

President of the University

Vice President of Academic Affairs
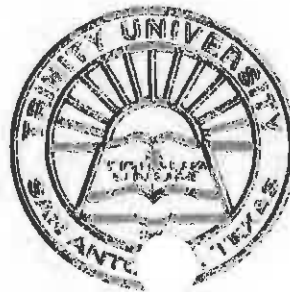
Chairman, Board of Trustees

Secretary, Board of Trustees

Marshall University

The Marshall University Board of Governors

upon the recommendation of the faculty of

College of Information Technology and Engineering

has conferred upon

Matthew T Baird

the degree of
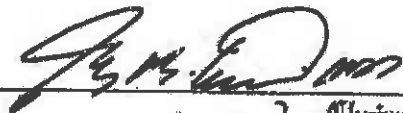
Bachelor of Science
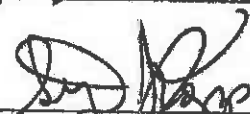
Computer Science

In Testimony Whereof, the signatures of the duly authorized officers of the Board of Governors and the Faculty of the University and the seal of the University have been affixed.

Given at Huntington, West Virginia, this tenth day of May, 2014.

Marshall University Board of Governors

_____
Chairman

_____
President of the University

_____
Provost and Senior Vice President
for Academic Affairs

_____
Dean

WEST VIRGINIA UNIVERSITY

EBERLY COLLEGE OF ARTS AND SCIENCES

Know all persons by these presents
that the West Virginia University Board of Governors
upon the recommendation of the faculty
has conferred upon

JIANQING LIU

The Degree of

MASTER OF SCIENCE

Statistics

With all the rights, honors, and privileges thereunto
appertaining. Witness the seal of the university and
the signatures of its duly authorized officers hereunto
affixed this twenty eighth day of December,
two thousand ten.
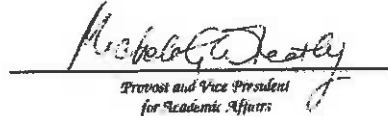
President of the University

Chair, West Virginia University
Board of Governors

Dean of the College

Provost and Vice President
for Academic Affairs

Microsoft Certified Systems Engineer

JIAN QING LIU

Has successfully completed the requirements to be recognized as a Microsoft Certified Systems Engineer: Windows 2000.

Date of achievement: 12/06/2001

Certification number: A293-5870

Satya Nadella
Chief Executive Officer

Microsoft CERTIFIED
Systems Engineer

Microsoft Certified Database Administrator

JIAN QING LIU

Has successfully completed the requirements to be recognized as a Microsoft Certified Database Administrator: Microsoft SQL Server 2000.

Date of achievement: 12/06/2001

Certification number: A293-5868

Satya Nadella
Chief Executive Officer

Microsoft CERTIFIED
Database Administrator

Jianqing Liu

HAS SUCCESSFULLY COMPLETED THE
CISCO CAREER CERTIFICATIONS TEST REQUIREMENTS
AND IS RECOGNIZED AS A

Cisco Certified Network Associate — CCNA

VALID THROUGH: November 19, 2004

CISCO ID#   █████████

John J. Chambers

John Chambers
President and CEO
Cisco Systems, Inc.

CISCO SYSTEMS

SAS® Certified Base Programmer for SAS®9

SAS recognizes that

Jianqing Liu

has earned the credential identified above
and fulfilled the requirements
for certification by SAS.

Issued: 12OCT2007

For credential verification, or to add your name to the certification directory,
visit support.sas.com/certify/dirfind.hsql
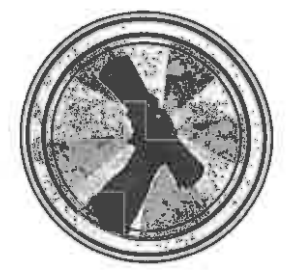
SAS® Certified Advanced Programmer for SAS®9

SAS recognizes that

Jianqing Liu

has earned the credential identified above
and fulfilled the requirements
for certification by SAS.

Issued: 02NOV2007

For credential verification, or to add your name to the certification directory,
visit support.sas.com/certify/dirfind.hsql

AXELOS
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P3O

This is to certify that
Will Smith

Has achieved the
ITIL® Foundation Certificate
in IT Service Management

Effective from
24 July 2014

Registration number

drs. Bernd W.E. Taselaar
Chief Executive Officer

EXIN
The global independent certification institute for ICT Professionals

EXIN

Marshall University

The Marshall University Board of Governors
upon the recommendation of the faculty of the

College of Business

has conferred upon

Brooke Alison Pettit

the degree of

Bachelor of Business Administration

Accounting

In Testimony Whereof, the signatures of the duly authorized officers of the
Board of Governors and the Faculty of the University and the seal of the
University have been affixed.

Given at Huntington, West Virginia, this eighth day of May, 2004.

Marshall University Board of Governors
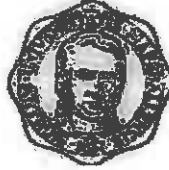
3.3   The Vendor should identify the names of at least three major entities currently using the services of the Vendor in the types of services and funding model required by this proposal. The service should have been implemented within the past five years and operational for a minimum period of two years. A name, title, address, telephone number and e-mail address should be provided for a person in a technology leadership position in that state to contact regarding the services proposal. The State reserves the right to contact each entity listed in the proposal.

VENDOR RESPONSE:

WVI is more than just the organization that provides West Virginia-specific domain expertise, an intimate understanding of the local political landscape, and extensive relationships built on years of trusted partnership with agency partners under the current self-funded e-Government portal contract. We are part of the largest and most productive network of e-Government providers in the world. NIC has affiliates that provide e-Government programs that serve more than 3,900 federal, state, and local agencies. NIC has led the e-Government industry since 1992, and we offer the deepest portfolio of solutions that currently deliver a broad set of benefits to more than half the states in the U.S.

Vendor References

Although WVI is the entity submitting this RFP response and will continue to be the company that will be responsible for the performance of the agreement, WVI is a wholly owned subsidiary of NICUSA, Inc. In compliance with this RFP requirement, we are providing references from WVI and WVI sister entities under the NIC corporate umbrella. We believe these references speak to NIC's ability to consistently deliver services through its local operating subsidiaries similar to WVI.

We recognize that West Virginia has a clear vision for its e-Government offering and realizing this vision will require an experienced partner with an unmatched track record of using innovative approaches to deploy online services that help residents, businesses, and government operate more efficiently. To this end, we are pleased to provide the requested references as evidence of our expertise in deploying the specific services requested through this RFP. WVI has provided a reference for our current contract with the state of West Virginia and five other states.

Each reference provided below represents a deployment that is similar to the services requested by the state through this RFP, including maintaining and supporting the state's main e-Government portal using the services and deploying the types of services under the funding model required by this RFP. Each of these references represents contracts that have been implemented within the last five years and operational for a minimum period of two years.

Entity	Contact
State of West Virginia	Gale Y. Given Deputy Secretary of Administration and Chief Technology Officer Office of Technology 1900 Kanawha Blvd., East Capitol Complex – Building 5, 10th Floor Charleston, WV 25305 Phone: (304) 558-8100 E-mail: gale.y.given@wv.gov

Entity	Contact
	NIC's subsidiary in the state, West Virginia Interactive (WVI), contracted with the state in July 2007 to build self-funded e-Government services for the state's official web portal, branded WV.gov. NIC is responsible for the development of new interactive online services and websites for the state of West Virginia and provides enterprise payment processing services to county and municipal governments. Since 2007, WVI has developed over 340 interactive e-Government services and websites serving the citizens and business of West Virginia. As the enterprise e-Government services provider for the state, Mississippi Interactive provides the following services: • Enterprise portal management • Application development • Technology infrastructure management • Marketing and public relations • Customer service • Market research • Security • Help desk operation • Payment processing • Policy consulting • Project management • Training • Cross-boundary agency outreach • Local government services

Entity	Contact
State of Alabama	Brunson White Secretary of Technology Office of Information Technology 445 Dexter Ave Suite 9050 Montgomery, AL 36130 Phone: (334) 242-7360 E-mail: brunson.white@oit.alabama.gov NIC contracted with the state of Alabama to manage the state's official e-Government program in 2002. NIC – through its local subsidiary dedicated to the contract, Alabama Interactive – provides ongoing management of the state's official website, Alabama.gov, as well as ongoing infrastructure refreshment and maintenance, end-to-end e-commerce management, customer service, marketing and other services. Through this seven-year partnership, NIC has developed over 250 interactive online services on behalf of the state that are available through Alabama.gov. As the enterprise e-Government services provider for the state, Alabama Interactive provides the following services: • Enterprise portal management

Entity	Contact
	• Application development
	• Technology infrastructure management
	• Marketing and public relations
	• Customer service
	• Market research
	• Security
	• Help desk operation
	• Payment processing
	• Policy consulting
	• Project management
	• Training
	• Cross-boundary agency outreach
	• Local government services

Entity	Contact
State of Arkansas	Mark Martin Arkansas Secretary of State **Executive Office** State Capitol, Suite 256 500 Woodlane Avenue Little Rock, AR 72201 501-682-1010 The state of Arkansas represents one of NIC's longest state e-Government portal partnerships; NIC first began contracting with Arkansas for these services in 1997 (through its Little Rock-based subsidiary, Arkansas Information Consortium, LLC). Arkansas has been a leader in deploying first-of-the-kind mobile services, including Arkansas becoming the first state to offer mobile payments for e-Government. Through Arkansas Information Consortium, NIC supports 225 state and local agencies in the areas of application development and maintenance, website development and maintenance, customer support, marketing, and security. NIC has currently developed nearly 1,000 online interactive services on behalf of the state of Arkansas that help constituents interact more efficiently with government. As the enterprise e-Government services provider for the state, Arkansas Information Consortium provides the following services: • Enterprise portal management • Application development • Technology infrastructure management • Marketing and public relations • Customer service • Market research • Security • Help desk operation • Payment processing • Policy consulting • Project management

Entity	Contact
	• Training • Cross-boundary agency outreach • Local government services

Entity	Contact
State of Maryland	Greg Urban Chief Operating Officer Department of Information Technology 45 Calvert Street Annapolis, MD 21401 410-260-7279 greg@maryland.gov NIC, through its subsidiary Maryland Interactive, executed a contract with the state of Maryland in 2011 to provide statewide enterprise e-Government services. NIC provides these services via the self-funded model established in the state by NIC. Through the contract NIC is responsible for design and management of the state's official website, NIC has helped develop dozens of new interactive online services. As the enterprise e-Government services provider for the state, Maryland Interactive provides the following services: • Enterprise portal management • Application development • Technology infrastructure management • Marketing and public relations • Customer service • Market research • Security • Help desk operation • Payment processing • Policy consulting • Project management • Training • Cross-boundary agency outreach • Local government services

Entity	Contact
State of Mississippi	State CIO Craig P. Orgeron, Ph.D., CPM Executive Director and Chief Information Officer MS Department of Information Technology Services 601-432-8089 Craig.Orgeron@its.ms.gov

Entity	Contact
	MSI Contract Manager Renee Murray, CPM, PMP Procurement/Consulting Team Leader MS Department of Information Technology Services 601-432-8146 Renee.Murray@its.ms.gov NIC's subsidiary in the state, Mississippi Interactive, contracted with the state in December 2010 to build self-funded e-Government services for the state's official web portal, branded MS.gov. NIC is responsible for the development of new interactive online services and secure payment processing for all online services for the state of Mississippi. As the enterprise e-Government services provider for the state, Mississippi Interactive provides the following services: • Enterprise portal management ○ Application development ○ Technology infrastructure management • Marketing and public relations • Customer service • Market research • Security ○ Help desk operation • Payment processing • Policy consulting • Project management • Training ○ Cross-boundary agency outreach • Local government services

Entity	Contact
State of Utah	Dave Fletcher Chief Technology Officer Division of Technology Services, Department of Administrative Services 1 State Office Building Floor 6 Salt Lake City, UT 84114 (801) 538-3476 dfletcher@utah.gov A partner since 1999, the contract between the state of Utah and NIC (through its Salt Lake City-based subsidiary, Utah Interactive, LLC) has produced several noteworthy "firsts" for e-Government. Utah was the first state to introduce one-stop business registrations that integrate multiple agency and federal requirements into a single transaction, point-of-purchase vehicle registration renewals to private sector inspection stations, and multichannel 24x7x365 customer service. As of 2014, NIC has helped build more than 700 e-Government services and websites, supporting 31 government agencies and entities across the state.

Entity	Contact
	NIC provides the following services through its enterprise contract with the state of Utah: • Enterprise portal management • Application development • Technology infrastructure management • Marketing and public relations • Customer service • Market research • Security • Help desk operation • Payment processing • Policy consulting • Project management • Training • Cross-boundary agency outreach • Local government services

3.4 The Vendor should describe the experience of its organization to develop and maintain enterprise level e-Government services of the size and scope that will be required to support the State of West Virginia. The Vendor should show experience and abilities in the following:

3.4.1 Vendor should describe its ability to provide a quick implementation of e-Government solutions.

VENDOR RESPONSE:

Since 2007, it has been our honor to work with the state to deliver services through our e-Government partnership and to play a part in making West Virginia a national leader in online service delivery, and we are proud of these achievements to date. No other vendor can match the level of West Virginia-specific e-Government experience we possess, nor can they match our track record of success in the state delivering services of the size and scope that will be required through the RFP.

Since first contracting with the state, WVI has continued to provide design, management, and support of the state's official website, WV.gov, custom application development, website design, CMS services, customer service, marketing, payment processing, and other services. During this eight-year partnership, WVI has developed more than 160 interactive online services on behalf of the state that are available through WV.gov.

The following are just a few examples of solutions WVI has implemented quickly:

• Child Support Direct
  – Already operational in Virginia, the application was slightly modified to and branded for West Virginia
  – Development time: reduced from two months to 17 days.
• Suspicious Activity Reporting Mobile

- Utilizing technology pioneered in another NIC state, the SAR Mobile application was developed with a single effort and deployed to two major mobile platforms.
  - Develop time: 20 days
- Uniform Commercial Code Filing
  - Borrowing application specifications and best practices from the custom built New Jersey application, WVI modified the application to meet West Virginia's business requirements.
  - Development time: reduced by 30%
- DMV Online Services
  - A legislative audit in December of 2013 found that the West Virginia DMV should be offering more services online. A long-time trusted DMV partner, WVI moved full-force on the discovery and development of Online Vehicle Registration Renewals. WVI developed a unique solution to a statutory property tax verification requirement that made the service possible for citizens and saves the DMV hundreds of man-hours per month. This very successful service was developed on schedule in just one month at no cost to the DMV.

> 3.4.2 The Vendor should describe its prior e-Government development and implementation experience. Descriptions should include examples showing the Vendor's performance on other state's e-Government applications. Information should include number of web hits and the number of transactions processed.

VENDOR RESPONSE:

WVI is uniquely positioned as both a West Virginia-based company 100% committed to the state's e-Government program and as a member of the NIC family of companies. As the long-term contractor with the state, WVI developed and deployed more than 340 web applications and websites that currently comprise the West Virginia e-Government program. WVI supports more than 70 West Virginia state government entities through the enterprise self-funded e-Government contract. In 2014, WVI expanded support to include 15 additional agencies. As an NIC subsidiary, WVI is part of the largest and most productive network of e-Government providers in the world. NIC affiliates like WVI currently manage more than 11,000 e-Government applications that processed over $20 billion in secure payments in 2014 on behalf of its government partners.

With such an expansive library of services, we have decided to highlight NIC services that have been successfully launched in other NIC partner states, which is in keeping with the RFP requirement. The services defined below are innovative services that WVI is proposing to develop if selected as the new contractor. These successful services illustrate our ability to deliver important government services online, show our ability to keep these in-demand services always available, and demonstrate our ability to gain adoption of e-Government services within the self-funded model.

Specifically, the services highlighted below complement the innovative e-Government services WVI has proposed as part of this bid submission, which include:

- **Gov2Go for WV** – developing plan to onboard existing applications and building new applications to integrate with NIC's personal government assistant, Gov2Go
- **Business One-Stop** – replace the legacy Business4WV system with a new, state of the art, Business One-Stop Portal
- **Mobile Inspections** – market enterprise iPad mobile inspection service to state agencies

- **Online Driver's License Renewals** – Drivers will be able to renew online and only visit a DMV office once every 16 years
- **Campsite Reservations** – Campers will be able to use an interactive tool to reserve campsites and pay fees at West Virginia State Parks
- **Commercial Trucking Services and Portal** – New commercial trucking registration services that will establish the base for a one-stop commercial trucking portal
- **Electronic Titles and Liens** – auto dealers and banks can interact electronically with the DMV
- **WV.gov** – addition of functionality and ongoing design updates to stay competitive in Best of the Web competition
- **Vital Records** – Enterprise vital record ordering system for WV citizens that is quick, secure and affordable

Gov2Go

Project Name:	Arkansas Gov2Go
Description:	In 2015, NIC developed a unique services for the state of Arkansas e-Government program — Gov2Go. The unique service provides a personal government assistant available to mobile devices. Gov2Go is the easiest way for Arkansans to keep up with their civic duties—things like assessing, paying property taxes and renewing tags. The "smart app" has the ability to learn a user's needs, track tasks, and provide reminders when something is due. The personal assistant tool ensures that citizens and businesses don't miss deadlines, provides savings to government entities chartered with tracking down overdue tasks, eases some of the information technology burden inherent in agencies responsible for collections and things like professional licensing updates, and provides an individualized non-intrusive aide to the user.
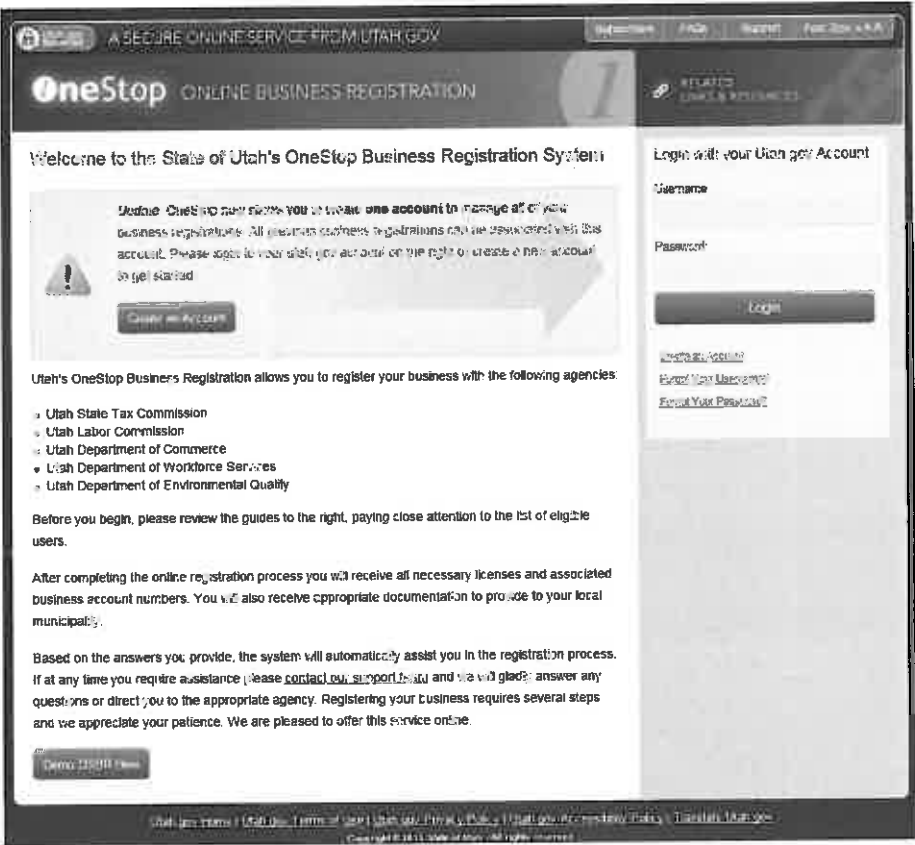
Data Points:	**# of web hits**
	Since its launch a few months ago, the application has seen 25,166 page views.
	# of transactions processed
	The service does not process transactions. However, since launching the service there have been 6,100 user "events", such as notifications and reminders that have occurred on the initial user base. Almost 2,000 events have been car tag reminders, which result in revenue for the state.
	Since September 1, 2015, the Gov2Go mobile app experienced an 85% increase in signups, thanks to a recent media push and awareness campaign around the state's upcoming property tax payment deadline. The NIC team integrated a Gov2Go on-boarding option through the online property tax process and users are taking advantage of it, indicating they want Gov2Go for future reminders so they can receive notifications and pay property taxes from the convenience of a mobile phone.
	Over 15,000 users signed up for Gov2Go in what the portal still considers an early version of the app. Gov2Go's updated, native mobile app launched recently. Amazon named Gov2Go a finalist in its "City on a Cloud" Innovation Challenge, a global competition for governments implementing solutions using Amazon services. Finalists were named in five countries, with Gov2Go one of only four finalists in the US.

Business One-Stop

Project Name:	Utah One Stop Business Registration
Description:	NIC's history of providing online business registration services dates back to 2003, when NIC collaborated with the state of Utah to develop the One Stop Business Registration (OSBR) system, the first program in the U.S. to integrate multiple government agencies at the federal, state, and local levels into a streamlined, online business registration process. NIC developed the service as part of its enterprise-wide partnership to provide e-Government services for the state. OSBR allows citizens to register a Utah business with the Utah State Tax Commission, Labor Commission, Department of Commerce, Department of Workforce Services, and six participating cities. Businesses are also notified if they need to register with the Internal Revenue Service and are then connected to the online registration service. At the end of the process they receive all of the necessary licenses and account numbers for their business in less than one day. Since the program's launch in 2003, the OSBR program has increased online registrations from 10 percent to over 60 percent of all business registrations in Utah. The program has received international and national praise and was recognized by the Center for Digital Government and the National Association of Chief Information Officers.
	NIC has developed similar business registration systems through its e-Government partnerships with other states, including Hawaii, Kentucky, Tennessee, and Wisconsin, and has developed business registration and filing systems in many other states.

Data Points:	**# of web hits** In 2014 the service had 3,615,087 page views **# of transactions processed** 27,241 new businesses registered and paid through the service in 2014

Mobile Inspection Services

NIC subsidiaries have developed and deployed a wide array of mobile inspection services for many state partners across the U.S. Examples include:

- Arkansas Restaurant Inspection
- Maryland Mobile Vehicle Inspection
- Nebraska Firework Inspection
- Rhode Island House Resource Commission Lead Inspection Certificates
- Tennessee Mobile School Bus Inspections

In Alabama, NIC created a first-of-its kind mobile inspection platform built on a flexible iOS framework that can be customized for building robust inspection applications for agencies.

Project Name:	Alabama Mobile Inspection Platform
Description:	In the state of Alabama, NIC recognized that mobile inspection applications increase productivity, drive inspection consistency, simplify compliance, eliminate paper, and save time. To make mobile inspection applications attainable across jurisdictions and agencies, NIC developed the Mobile Inspection platform, which provides a framework that can be easily customized by government agencies to create a mobile inspection solution.

Designed from the ground up to be fully customizable, Mobile Inspections takes full advantage of Apple's Core Data model. The heart of the iOS native Mobile Inspection application is powerful and robust. The platform leverages JSON dynamic data structure schema with Core Data and the Mobile Inspection framework. The JSON data structure describes the layout, design, formatting, validation and flow of virtually everything you see and interact with in the Mobile Inspection application.

The Mobile Inspection platform provides developers a customizable data hierarchy, where all items have a custom set of rules for validation and data integrity requirements. Every item also provides ability to capture multiple images and comments by default.

Security is provided throughout. Every item in the inspection framework has a data security indicator. Any item marked as secure is stored encrypted on the device, in transit and in the backend database. Transmission of data over the network both to and from the device takes advantage of SSL.

The Mobile Inspection platform also delivers full offline functionality and data optimization. If the device has network connectivity data syncing occurs in real-time, otherwise data is tagged and synced when network connectivity is available. Optimizing data transfers using JSON helps keep data payloads smaller and faster than XML or web services. |
| Data Points: | **# of web hits**
In 2015, the platform was deployed for the Alabama Board of Funeral Services for inspectors to use in the field. The field inspectors used the service to inspect all funeral homes in the state in 2015, which included 513 funeral homes.

# of transactions processed
Not applicable |

Online Driver's License Renewals

Project Name:	Utah Driver License Online Renewal
Description:	For the Utah Department of Public Safety, Driver License Division, NIC developed and currently maintains the Utah Driver License Online Renewal service. The service provides users the ability to renew their Drivers' License, State Identification, or to Update an Address using the online service 24 hours a day, seven days a week. The

online renewal service is limited to license/ID Card holders who have already verified their identity with the Driver License Division after January 1, 2010.
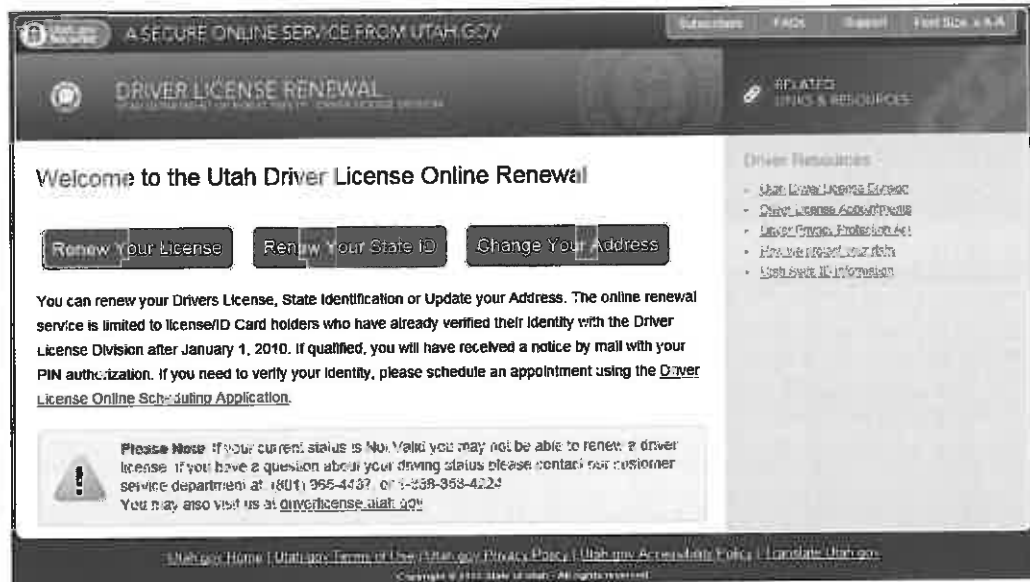
Data Points:	**# of web hits** In 2014, the service had 2,428,746 page views **# of transactions processed** In 2014, the service processed 139,587 transactions

Campground Reservations

Project Name:	Hawaii Online Camping, Reservation, and Permitting System
Description:	The state of Hawaii, Department of Land and Natural Resources Online Camping, Reservation, and Permitting System is a multi-tenant, multi-agency end-to-end parks reservation and permitting system that provides users with access to hundreds of reservable sites spanning the major islands of Hawaii. The NIC-developed and managed service is part of the DLNR's Recreational Renaissance initiative to increase the availability of efficient, user-friendly public services throughout the state. Highlights of the Hawaii reservation and permitting system include • Securely providing campground and cabin permits to users • Self-funded service • Multi-agency system that can accommodate different business rules through a flexible business rules engine • User focused design with trip planning and detailed campground and cabin information • Ongoing enhancements, innovation and continual improvement

NIC is the single point of contact for the hosting, security, design, reservation functionality, maintenance of all inventory, reservation and transaction data associated with Hawaii's state and county parks, forest reserves, public beaches, and hunt lotteries. NIC provides the websites, as well as the financial transaction management, customer service and technical support functions associated with the system. The system has been continuously enhanced using techniques that focus on a user-centered design and an individual user's end-to-end recreation experience, and provides integrated travel planning features with reservation functionality in line with user-centered research and design techniques, which allow the public to obtain general information and guidelines about each location, view maps of camping areas, check real-time availability, manage reservations, and submit secure payments online.
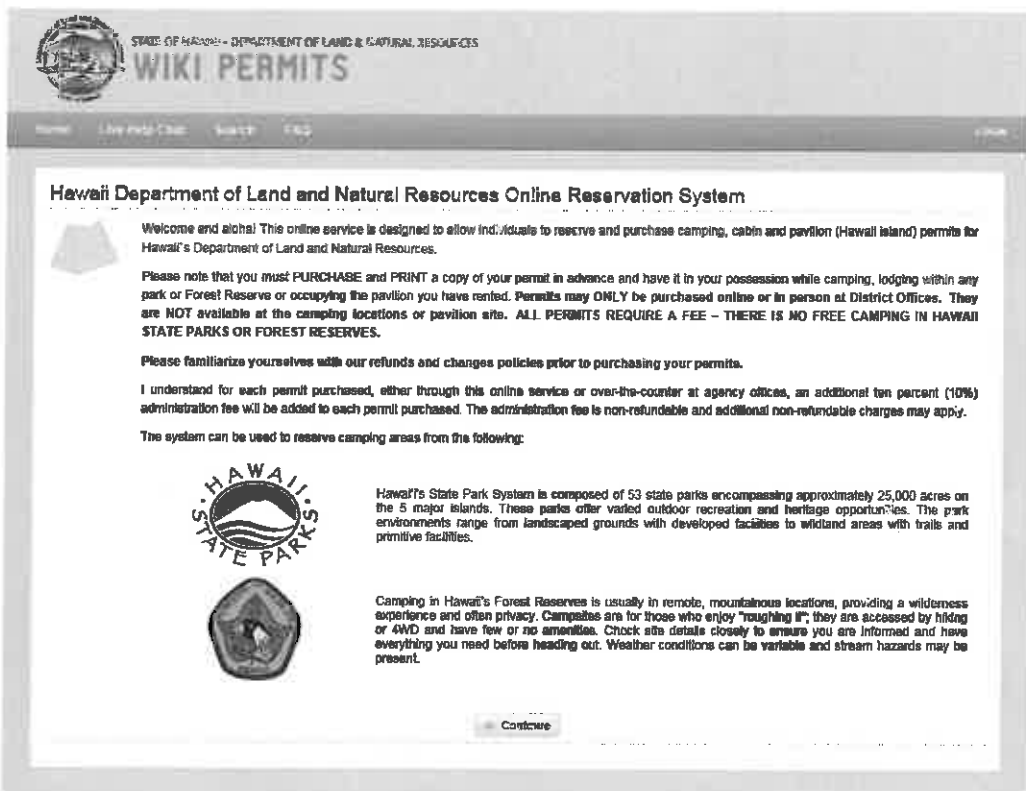
Data Points:	**# of web hits** In 2015, the system recorded 2,082,747 page views. **# of transactions processed** In 2015, the system processed $1,428,286.
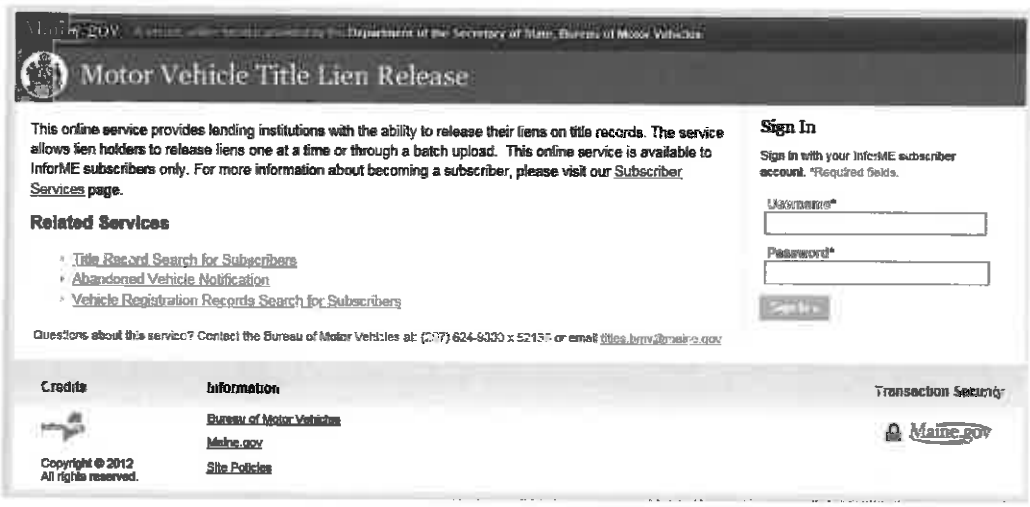
Commercial Trucking Services & Portal

Project Name:	Idaho Commercial Trucking Services & Portal
Description:	The Idaho Trucking Portal, Trucking.idaho.gov, represents the combined effort of the Idaho Department of Transportation, Idaho Tax Commission, Idaho State Police, and NIC. It was created to simplify the interaction between commercial drivers and related businesses and the state of Idaho. The trucking portal makes available many of the regulatory services with which the trucking industry must comply, online, in one centralized location. http://trucking.idaho.gov/
Data Points:	**# of web hits** In 2015, Trucking.Idaho.gov had 73,000 sessions (sessions = multiple pages viewed). **# of transactions processed** In 2015, the portal processed 63,656 transactions that collected more than $7.8 million.

Electronic Titles & Liens

Project Name:	Maine Motor Vehicle Title Lien Release Service
Description:	NIC developed the Bureau of Motor Vehicles electronic motor vehicle title lien release system, which allows lending institutions to release the liens they hold on a Maine motor vehicle title. Financial institutions can issue a lien release one at a time,

or through a batch upload. The service communicates released liens to the Bureau of Motor Vehicles on a daily basis, allowing a lien release to be processed within 24 hours.

https://www1.maine.gov/cgi-bin/online/bmv/lien_release/menu

Data Points:	# of web hits
	To date in 2015, the application has processed 25,996 title lien releases.
	# of transactions processed
	All releases require processing of a transaction.

Home Page Redesign

Project Name:	Texas.gov Redesign
Description:	With a 2014 state population of nearly 27 million people, the state of Texas e-Government program is designed to serve 8.4% of the entire U.S. population. As the sole enterprise e-Government services provider for the state, NIC's engagement in Texas is the largest state public-private partnership of its kind in the U.S.
	NIC has redesigned the site three times since 2010, which now provides users with an intuitive, groundbreaking single page portal design, highly effective search function, and analytics-driven content and functionality. The new Texas.gov ensures that content, information architecture, and access to online government services is driven by users of the system through data-driven research, documented user behaviors, feedback, investment in tools and resources to ensure success, comprehensive industry-proven service management framework, and a long-term, stable partnership with the state that celebrates innovation and ensures oversight.
	In March of 2015, Texas.gov announced a transformative state government portal experience with the launch of the new, one-page Texas.gov. The reimagined

Texas.gov showcases a considerably streamlined, yet charming interface featuring only the best, most helpful information that users actually want and need, and offers it in an intuitive way that lets them interact in a manner that is most comfortable to them. In addition to simplifying the experience, the approachability of the portal shines through with a Texas-friendly conversational tone and imagery that celebrates the state's unique character.

Based on years of analytics data, NIC had a very clear understanding of what users come to do on Texas.gov, and the portal was redesigned accordingly. Dozens of web pages and layers of navigational architecture were removed, unnecessary and unused features of the portal were eliminated, and thousands of links were manually curated and organized into a structured table format. Today, via the one-page portal, Texas.gov delivers the following noteworthy features:

- Search
- Find It
- Responsive Design & Styling
- Analytics-Based Content
- CSS Animations
- New Look & Feel
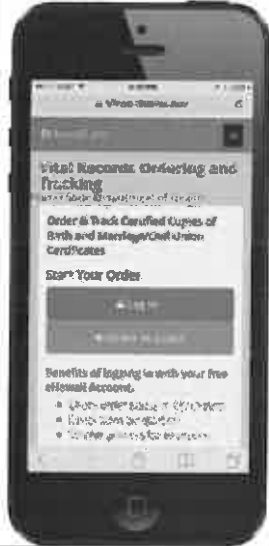
In 2015, Texas.gov was recognized for digital government excellence by 19 industry award programs. Recognition spanned several areas of the Texas.gov program, including website innovation and excellence, cost-effective solutions for the operation of state government, and well-crafted, effective campaigns to market online services to citizens. For the second year, the Texas.gov website ranked as one of the top five government websites in the nation receiving a Best of Web Award from the Center for Digital Government. The website was also recognized with a Communicator Gold Award of Excellence, a MarCom Gold Award, a Gold AVA Digital Award, an Interactive Media Best in Class Award, and Web Marketing Association Outstanding Web Award.

Welcome to Texas.gov!

Data Points:	# of web hits In 2014, 7,077,656 visitors accessed the Texas.gov portal **# of transactions processed** In 2014, NIC processed more than 27 million secure transactions worth $1.45 billion for the state of Texas

Vital Records

Project Name:	Vital Records Online Ordering & Tracking
Description:	NIC provides a vital records solution that allows users to request and agencies to administer Marriage, Birth, Death, and Divorce records. NIC has delivered vital records solutions for multiple states including Arkansas, Hawaii, Indiana, Maine, Montana, Utah, and Vermont. NIC has also developed an end-to-end vital records solution suite that includes ordering, payment, fulfillment and shipping, and administrative functions and it can be customized to fit the vital records needs of other states. In Hawaii, NIC developed the mobile-optimized Hawaii vital records services which allows authenticated users and guests to order certificates for events, such as Birth and Marriage/Civil Union, that occurred in Hawaii and are received and preserved by the Office of Health Status Monitoring, a unit of the Hawaii State Department of Health. The Hawaii vital records service provides the following: - Order certified copies of birth and marriage/civil union certificates and records dating back to 1909 - eHawaii account users can track their orders via the "My Orders" feature - Guest users can track their orders by using the "Track Order" feature https://vitrec.ehawaii.gov/vitalrecords/

Data Points:	# of web hits
	To date in 2015, the online system has processed 44,351 orders for vital records.
	# of transactions processed
	All orders require processing of a transaction.

> 3.4.3 The Vendor should describe its experience in delivering state government oriented applications that can be easily customized. Such publications may include, but not be limited to, professional license renewals, environmental licenses and permits, Medicaid eligibility, search on corporate filings, income tax payments, and state archive information.
>
> VENDOR RESPONSE:

WVI has extensive experience delivering e-Government applications specific to the state of West Virginia. WVI is part of the NIC family of companies that deliver services in more than half the states in the U.S. NIC partner states benefit from the development of customized services by resources dedicated to the state, and can also leverage NIC's knowledge library of more than 11,000 installed digital government services to rapidly introduce new applications and enhance the state's existing services. These code objects, processes, and work plans reduce turnaround time and allow WVI to rapidly customize and launch new services.

For even quicker implementation, WVI can leverage centralized, NIC-managed enterprise applications require no development and only configuration to match West Virginia's rules and processes. For example, the Enterprise Mobile Inspection iOS Application built by NIC's Alabama subsidiary provides a flexible iOS framework for creating robust inspection services. Through simple configuration, inspection data such as images, sliding scale values, text, and even signatures can be arranged to meet an agency's unique inspection requirements. Agencies can take advantage of this easy configuration process to quickly transition from performing cumbersome paper-based inspections to more efficient, electronic inspections. In addition to electronic inspections, centralized services include event registration, mobile event agendas, and vital record ordering and fulfillment.

Even in cases when a development effort is required, the reduction in time and effort can be substantial. For example, WVI was able to utilize a child support payment system originally built in the Virginia portal. The system, called Child Support Direct, was customized in 17 days as opposed to at least a two-month development cycle and is still heavily used by employers in West Virginia today. The following are just some of the state government oriented applications WVI has customized and deployed for West Virginia:

- Child Support Direct
- Uniform Commercial Code Filing and Search
- Suspicious Activity Reporting Mobile Application
- Wonderful West Virginia Magazine Bookstore

For eight years, the state of West Virginia has realized the advantage of sharing software applications, policy experience, and marketing expertise among all NIC portals. This is a unique feature of the NIC business model—no other provider has a similar multi-state software exchange platform for such a

comprehensive spectrum of resident- and business-focused e-Government applications Because of this platform, WVI is able to rapidly deploy proven applications already operating in other states. No other vendor can make this claim.

> 3.4.4 The Vendor should describe its experience with technical architecture compatible with the solution requested in this solicitation.

> VENDOR RESPONSE:

As the current e-Government portal provider, WVI has extensive knowledge and experience with the technical architecture requested in this solicitation. WVI and NIC's experience in implementing e-Government architectures in more than half the states in the U.S. makes WVI uniquely qualified for the implementation and hosting of e-Government solutions.

WVI is a trusted partner to a variety of West Virginia government entities across the state. As a result, the technical architecture has been implemented to host over 340 applications and websites. We have helped several government entities broaden their service delivery channel, including the development of multiple online services for the Division of Motor Vehicles and providing electronic filing for Workforce WV.

WVI has vast experience developing and maintaining applications with the major software development languages and platforms, namely Java and .NET. WVI also has experience developing mobile applications for all three major platforms (iPhone, Android, and Windows). Additionally, WVI staff has access to development resources and guidance across the NIC family providing an even boarder range of technical expertise.

> 3.5 The Vendor should provide a narrative description of the proposed project team, its members, and organizational structure along with an organizational chart identifying the key people who will be assigned to accomplish the work required by this RFP, illustrating the lines of authority, and designating the individual responsible for the completion of each service component and deliverable of the RFP.

> VENDOR RESPONSE:

WVI is a Charleston-based, fully dedicated team founded, organized, and staffed for the sole purpose of enabling West Virginians to conduct business with government securely and efficiently using all available digital channels. We apply innovative technologies, marketing outreach to drive adoption, customer service, and a variety of other elements to help ensure successful deployment of e-Government services on behalf of the state.

The proposed WVI team provides the state with a combined 57 years of experience working with the state's self-funded e-Government program. Our team successfully deployed the self-funded model with the state in 2007, and understands the nuances of the model, which has delivered award-winning e-Government services to citizens and businesses for more than eight years, and continuously expands services to meet the evolving needs of the state.

WVI hires and trains e-Government professionals with the technical and business skills needed to provide the state with creative, technologically sound solutions that meet citizen/government needs, are continuously available, and provide a secure channel to interface with the state. The WVI team has been designed, trained, and deployed to ensure the most efficient delivery and maintenance of the state's e-Government program, as well as responsiveness to customer agencies and end users.

WVI staff qualifications are perfectly aligned with the transformative vision of the state, and provide expertise to continue efficient delivery of the more than 340 services and websites currently deployed through the enterprise self-funded e-Government program as well as to continually deploy new innovative solutions on behalf of the state.

Proposed WVI Team Member Roles

The following describes the roles that will comprise the WVI team and the responsibilities of each role. The structure of the team and clear definition of individual roles have been established to meet the specific, unique needs of the West Virginia e-Government program. These roles, and the professionals who fulfill these obligations, represent some of the most experienced e-Government professionals in the U.S., all versed in delivery via the self-funded model.

Position	Duties
General Manager	• Project planning • Adherence to contract provisions • Fiscal oversight • Successful completion of the projects within the schedule • Provide direction and tasking of the project team members • Coordination with the assigned state staff • Identify, mitigate and manage project risk • Issue identification, tracking, reporting and resolution • Provide project schedule and resource tracking and reporting • Serve as liaison to Portal Board
Director of Marketing & Portal Operations	• Recommend and execute the market development strategies for specific applications; overall branding usability and design of the website • Manage all e-commerce aspects of the applications; day-to-day activities • Manage projects and customer service/relationship management • Lead marketing team in development of strategies to drive interactive sales
Director of Technology	• Provide end-to-end product management of all e-Government services • Develop application and product specifications with state departments and other customers • Apply knowledge and components of NIC-developed software and identification of how code will be leveraged to streamline development • Lead the design, coding and testing of software/network systems • Supervise, direct and lead software development team • Knowledge of software frameworks from a total systems perspective

Position	Duties
Senior Developer	• Develop Internet applications • Maintain existing applications • Provide security scanning • Perform ongoing design, coding, and testing of software/network systems • Work with customers and other staff to determine project specifications • Mentor new developers in web application design, security best practices, and developing an understanding of new and existing projects and related systems • Mentor non-technical staff on project and operational processes and provide technical knowledge of portal and application operations • Provide operational support and monitoring for the WV.gov portal and hosted applications, assisting develops and partners in identifying operational issues and problem remediation and/or resolution
Developer	• Develop Internet applications • Maintain existing applications • Work with customers and other staff to determine project specifications • Perform ongoing design, coding, and testing of software/network systems
Creative Services Designer	• Maintain content of Internet and e-commerce applications • Develop graphics and maintain content for web and marketing collateral • Train agency personnel to maintain websites • Execute design standards as directed by team leader • Maintain and develop new web pages, brochures and presentations • Work with constituents, other staff to determine appropriate content design • Create and maintain websites and all corresponding links • Use web authoring tools, scripting languages, and various content generation tools • Develop graphics for web pages using graphic creation software • Thorough understanding of all policy and architecture requirements in the state web environment, including hardware and software standards • Comprehensive understanding of delivering sites in compliance with Federal ADA guidelines and Section 508 of the Federal Workforce Investment Act of 1998 • Uses mobile web development tools to create layouts compatible with major smartphone operating systems • Provides HTML layout and flow of the application • Develops CSS to handle the layouts for Apple, Android, and Windows phones, respectively, along with their tablet versions • Creates JavaScript to handle the user's interactions with the application
Project Manager	• Market Internet products and services • Assist marketing team in development of strategies to drive interactive sales • Work within framework of strategic marketing plan, company business plan • Generate marketing activity reports • Produce print and online public relations materials including brochures, newsletters, press releases and articles • Assist with customer service support for state departments/assoc. members • Participate in and coordinate attendance at trade shows, conferences and conventions; monitor supplies and equipment for booth display • Work with agency to understand project requests and produce statements of work. • Develop application specification training and customer support guidance

Position	Duties
Customer Service / Office Administrator	• Answer phones and provide customer service support • Perform duties including travel and training coordination, office supply orders, interoffice mail and faxing, new hire processing and management of subscription accounts. • Oversee accounts payable/receivables and payroll • Perform miscellaneous executive assistant duties • Provide application quality assurance • Provide customer service support for Internet, e-commerce services • Enter, maintain, and update customer info. • Process incoming customer requests as they relate to services

Staff Competencies

Below, we have provided a staffing competency matrix that provides guidelines for the skill sets and experience associated with each of the roles defined in the WVI staffing plan.

Figure 2: Staffing Competencies

e-Government Skill Sets	West Virginia Interactive Roles						
	General Manager	Dir Mktg & Portal Ops	Project Manager	Dir of Technology	Application Developers	Creative Svcs Designer	Cust. Srv./Office Admin
Project Management	✓	✓	✓	✓			
Document Requirements	✓	✓	✓	✓	✓	✓	
Application Development				✓	✓	✓	
Web Design						✓	
Testing		✓	✓	✓	✓	✓	✓
Documentation	✓	✓	✓	✓	✓	✓	✓
Self-Funded Revenue Model Expertise	✓	✓	✓	✓	✓	✓	✓
Marketing Plan & Execution	✓	✓				✓	
eGovernment Services Training	✓	✓	✓	✓	✓	✓	✓
Governance	✓	✓	✓	✓	✓	✓	✓
Business Process Improvement	✓	✓	✓	✓	✓	✓	✓
Tools Implementation				✓	✓	✓	
Technology Architecture Consulting				✓	✓	✓	
eGovernment Application Development				✓	✓		
Help Desk	✓	✓	✓	✓	✓	✓	✓
Portal Operations Management	✓	✓		✓			
Work Order Proposal Development	✓	✓	✓	✓			
Revenue Modeling for Proposed Apps	✓	✓	✓	✓			
Project Prioritization	✓	✓	✓	✓			
Contract Management	✓	✓					
Product Management	✓	✓	✓	✓			
Service Management	✓	✓	✓	✓	✓	✓	✓
Billing	✓	✓					✓
Manage Customer Subscription Accounts	✓	✓					✓
Coordinate Training	✓	✓	✓			✓	✓
New Hire Processing / Onboarding	✓	✓					✓
Office Administration	✓	✓					✓

Project Organization

To assure WVI's continued long-term commitment and dedication to the West Virginia self-funded e-Government program, WVI will staff a fully dedicated team to deliver the enterprise e-Government

system and portal services through the self-funded model. WVI is proposing a staffing model, which is grounded in eight years of experience staffing to deliver the current West Virginia e-Government services, from contract initiation to the present.

WVI's dedicated West Virginia team will continue to be locally based in Charleston, in close proximity to state agency decision makers, and will be directed by a senior e-Government professional, who has eight years of experience working on the West Virginia e-Government program, and who will be permanently located in and dedicated to West Virginia. The WVI team will also leverage NIC corporate services to provide security, finance, marketing, HR, legal, IT, hosting, and program management services.

Below, WVI provides an organization chart for the proposed WVI team. It is important to note that our current staffing level is based on the current understanding of West Virginia's needs. Under the self-funded model, staffing is scaled based on available portal revenue. Based on historical experience, we would expect the staff size to scale similarly as the number of transaction-based services increases and the state identifies additional project priorities.

Figure 3: WVI Organization Chart

LEGEND
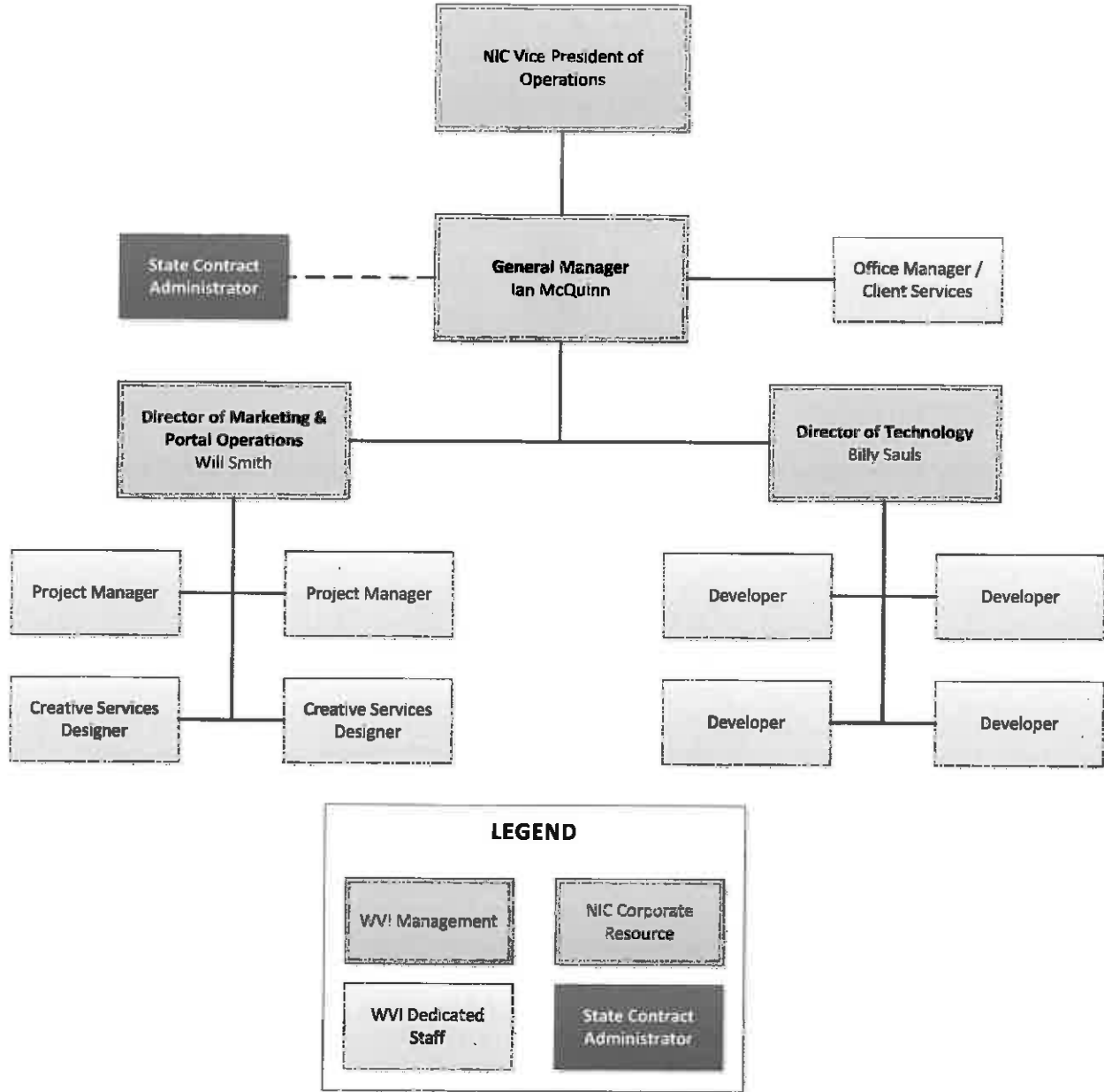
Section 4. Project Goals and Objectives

The Vendor should describe how it will meet this specification.

4.1   Objective 1 - General Design Requirements

4.1.1   The State intends that e-Government applications will be used as a location for Agency information dissemination and electronically delivered services that will facilitate citizen and business relationships with the State. The Vendor should answer the needs of Agencies by designing the e-Government application from

the customer perspective. Customers will naturally approach the use of e-Government services from a number of different perspectives. The design should enable a variety of approaches and respond with a number of methods for searching and linking information and services. The State believes that a consistent user interface will be a critical factor in the success of these applications within the Customer communities.

VENDOR RESPONSE:

Design Methodology

WVI has designed and built more than 340 successful e-Government services and websites for the state of West Virginia over the last eight years. As a result of our specialized expertise, we have refined our application design methodology to maximize the quality of applications from customer perspective while minimizing the amount of time to create new services. The design methodology utilized by WVI is founded on the following core principles:

- **Stakeholder Participation** – Agency staff and other stakeholders work with the design and development team throughout the project lifecycle.
- **Iterative Process** – Start with a rough concept of the project and iteratively refine and enhance throughout the project lifecycle.
- **Prototyping** – Develop a visual representation of the intended system functionality to assist in further defining requirements.
- **Progressive Enhancement** – Focus on the content and functionality of the application rather than the limitations of the delivery method and browser.
- **User Involvement** – The user experience cannot be an afterthought when designing applications. Understanding the needs and desires of the user is essential to developing a satisfying user experience. WVI will consider the customers perspective and the multiple ways that customer's interact with systems such as these, including use our experience, NIC-wide research and design best practices. Moreover, assumptions about the user and how they will use the application will be validated by testing with agency staff and actual potential users.
- **Quality Assurance** – Unit testing and quality assurance are performed throughout the iterative design and development process to ensure that the application functions as intended.
- **Mobile-first delivery channel** – availability of e-Government services should correspond to the transforming needs of citizens, businesses, and government employees. WVI will use its extensive experience developing and delivering websites using responsive design techniques which allow access to the service from any device, and develop native applications for major mobile platforms that leverage the power and device resources.

Applications can vary greatly in complexity and scope. Therefore, WVI defines an appropriate design lifecycle on an application-by-application basis. Iterative design deliverables, such as prototypes, data models, and flow charts are created as necessary pending the scope of the particular project. Typically, WVI continuously refines a project as requirements are gathered, interfaces are designed, and feedback is obtained. The application is iteratively refined until it meets the final "go live" requirements of the stakeholders.

Universal Templates & Design Standards

User interface consistency is important when designing a portfolio of online services. Users should be able to move from one application to another without having to learn a new interface. Moreover, the interfaces should be properly branded and designed to match the look-and-feel of approved official state of West Virginia standards. This instills confidence in the user that they are conducting official business with the state.

Accordingly, WVI has developed written design standards for West Virginia applications. These standards were derived from WVI's own experience in designing applications, general industry best practices, and feedback from the state of West Virginia. These standards, which have been in place and refined since the launch of the first West Virginia service, take into account specific state standards for look-and-feel and branding. These standards also account for accessibility guidelines and with recent iterations, adaptive standards for differing consumption devices.

Topics covered by the design standards include, but are not limited to, the following:

- Look-and-feel and branding
- Fonts, typography, and other text formatting
- Accessibility standards
- Form layout and visual display
- Interface components and JavaScript usage
- Integration of online and/or interactive help components
- Display of error messaging
- Iconography and visual queues

Beyond just written standards, WVI has created application page templates and style guides that comply with these standards. These templates are shared by all applications built for West Virginia to ensure maximum usability, deliver a consistent overall user interface, and speed up overall application development. It has been WVI's experience that a common user experience leads not only to increased adoption among state services, but also to a favorable ranking among organizations that evaluate government website usability. To enhance these goals, libraries of custom interface components have been opportunistically developed. For instance, a component that allows the user to enter a date is included in the design library. Last but not least, standard style sheets and core JavaScript functionality have been created and shared between applications to provide consistent styling and browser-side actions.

By using shared templates, interface components, style sheets, and core JavaScript actions, applications can quickly be modified to conform to changes brought about by site redesigns and other look-and-feel changes. Moreover, as the design standards are refined, the applications can easily be adapted to comply with the new standards. In addition to providing flexibility, these shared design components expedite the development of new applications by fostering reuse of existing assets.

> 4.1.2 The overall design should be constructed to accommodate the rapidly changing world of information technology, e-Government, and wide-scale growth. Designs should allow for flexibility in incorporating new capabilities for e-Government that come along with future advances in technology. Customers will become

accustomed to the new advances and features available on commercial Internet pages and come to expect the same from their State e-Government sites.

VENDOR RESPONSE:

Through subsidiaries like WVI, NIC has provided e-Government services to state partners for over 23 years, and no one company is more experienced at adapting e-Government services to new technologies. WVI pulls from this experience and uses established best practices when designing applications and websites in West Virginia. By separating the content layer from the physical application, WVI can make changes on the presentation layer to conform to the ever-changing world of information technology without having to change the underlying application itself. By developing applications with a solid object-oriented methodology, the impact of new technologies and advances in current technologies is easily quantified, and the portion of the system that is affected is significantly minimized. WVI and our NIC peers design e-Government applications with the goal of making them robust, scalable, and by following Internet standards (e.g., XML, web Services, J2EE, OOP, .NET) so that integration with updated or new technologies is less complex. As new features are introduced and widely adopted, WVI will work to incorporate relevant technologies into the design and architecture of the West Virginia portal.

> 4.1.3   The system should allow the Agencies direct access to their content for editing and the publishing of new content. It should also have the facility to automate an approval process for such changes. This process should be customizable to accommodate individual circumstances.

VENDOR RESPONSE:

Since 2007, WVI has provided an enterprise content management system that gives agencies direct access to create, edit, and publish content to their websites. By utilizing the built-in functionality of Microsoft SharePoint, WVI can assist agencies in customizing multiple approval processes based on their individual needs. These approval processes can be role based, location based, or any such combination.

Currently, the state has multiple agencies utilizing an edit and approve process. Agencies such as Secretary of State utilize the built in workflow approval process in which pages are started in draft, submitted for approval and finally approved by section reviewer and made public.

Additionally, the system supports the ability to automate the publishing or un-publishing of content based on a given time and date. This functionality is used extensively by the Governor's office and other agencies for the distribution of press releases and the posting of news and announcements on websites.

> 4.1.4   The system should allow the upload of various file types of posting online including but not limited to pictures, DF files, Word files, Excel files and compressed video files.

VENDOR RESPONSE:

The WVI enterprise CMS supports a wide range of file formats that can be uploaded to the website. Files can include pictures, DF files in a variety of formats, Word files, Excel files, and compressed video files. Through the use of built-in features, the WVI can control the accepted and rejected formats in order to standardize agency practices and provide the best end-user experience. WVI works with each

agency on a site by site basis to formulate the best approach to providing the correct format and storage location that will result in the fastest performance to the citizen end-user. WVI also works with agencies to prevent usage of formats that will not be readily available to citizens, such as Word Perfect or other tools that have limited adoption among constituents.

Additionally, WVI provides agencies with the ability to store files outside of the enterprise content management system through our Content Delivery Network. These servers allow agencies to provide a secondary approach to streaming content to end users.

Finally, WVI manages multiple media-hosting sites to assist with agencies with the specialized delivery of content. For example, WVI maintains a Vimeo account that is customized for the streaming state of West Virginia video content in a variety of formats including websites and mobile applications. WVI also assists larger agencies, such as Secretary of State, in managing their own Vimeo accounts to incorporate streams directly on their website.

> **4.1.5** The system should include the ability to easily locate and reuse previously entered content across the enterprise.
>
> VENDOR RESPONSE:

WVI's enterprise CMS provides users with the ability to store reusable site components including objects, navigation, templates, graphics, and all other content that should be reused. WVI works with state agencies to make sure content managers are trained on how to add, locate and reuse previously entered content that they have been authorized to reuse.

WVI works with our technology partner Microsoft to customize the SharePoint solution in the manner that best fits the unique needs of West Virginia. SharePoint provides a framework for government users to easily publish content to a website directly. The site structure, navigation, and templates are designed and created by web developers. The developers define the site navigation, utilizing navigation templates provided by SharePoint. This navigation, baseline site templates, and branding are readily available for users to reuse across the enterprise.

As future documents are created, they inherit this navigation design. As areas are defined that will require frequent updates by a wide audience of people, templates are designed that allow for rich text input by end users. From here, users can create content at will and page navigation, and look/feel are automatically generated and applied by the core website templates.

SharePoint stores all content in XML, HTML, and binary content objects for maximum flexibility. Objects are stored in a database repository and managed separately from the website templates or design elements. Web pages can be built and served dynamically. This enables content to be personalized based on user profile or behavior, browsing device, or language preference. By managing the objects separately, content can easily be re-purposed across a variety of applications within the organization and with external partners.

> **4.1.6** The system should include a state-of-the-art search feature available from every page. The system should include a tool for monitoring use of the content by external users with a granularity of a single Web page. This tool should include customizable reports.

VENDOR RESPONSE:

State-of-the-Art Search Feature

WVI currently provides two state-of-the-art search options for agencies based on their needs.

The primary option is to utilize Google Site Search to search not only the agency's website, but also related websites. This search engine powers most agency sites include WV.gov. Through the use of Google Site Search, the state gets the power of the number one rated search engine in the world to index and search their sites. Through this engine, the WVI can track frequent search requests, modify and guide responses, and display suggested results based on given key words.

The second option provided to agencies is SharePoint Enterprise Search. This built-in search option as part of SharePoint can be fined tuned to index site documents and content. This search option is best suited for agencies, such as the State Tax Department, with a large amount of documents as opposed to website html content. This service provides similar functionality to Google Site Search with the ability to track frequent search requests and modify and guide responses. This option is best suited to more advanced administrators and is typically managed by the WVI.

Search Centric Websites

As part of the WVI's current design templates, all websites have a search capability at the per page level. With the exception of the state portal, WV.gov, agency website searches are focused on the sites associated with the given agency. This approach helps narrow results and provide a user with more focused and reliable resources. As part of WVI's design standards, agency sites include a dominantly featured search tool. This is achieved by locating the search box towards the top of the screen with a common look and feel throughout the site.

Monitoring Site Usage

Monitoring and measuring site usage is important to understanding if the given site is meeting the needs of the agency and its constituents, and how it can be improved to meet future needs. As such, WVI, utilized the industry leading analytics solution provided by Google. Every site developed by WVI includes a site specific Google Analytics profile. Through the use of this powerful tool, agencies can obtain usage reports at the site wide and per page levels. Additionally, agencies can see a graphical representation of how users navigate through the site. Google Analytics provides a wide range of reports and metrics that identify not only usage, but location, technology used, browser version, monitor resolution, and much more. This information can be filtered by date, or multiple additional parameters in customized reports.

> 4.1.7 The system should include a detailed reporting feature to track fees collected. This includes both statutory fees, those fees set by WV Statute; and Transaction Fees, those fees determined by the Agency and Vendor and approved by the Portal Board.
>
> VENDOR RESPONSE:

WVI currently provides multiple reporting features at the application level to identify fees collected, including statutory and transaction fees, and provide such reports to partner agencies and the Portal Board as requested. WVI proposes incorporating a global fee tracking application into all systems hosted by the state portal to track both statutory fees and transaction fees. As part of this system, WVI would work with the Portal Board to provide the requested reporting features on a monthly or yearly basis.

4.2 Objective 2 - Consumer Access and Accessibility

4.2.1 The Vendor should make the e-Government applications accessible via popular web browsers, current and prior versions (e.g., Microsoft's Internet Explorer, Mozilla Firefox, Chrome, Opera, Safari, etc.)

VENDOR RESPONSE:

Applications and graphical interfaces are designed and coded by WVI to render as expected in any browser that complies with current web standards, such as HTML5, CSS-1/2/3, and a standard DOM as established by the World Wide Web Consortium (W3C). Applications and web pages developed by WVI render and function best in these standards-compliant browsers. West Virginia also considers the security aspects of prior browser versions, and will only support browsers that support PCI DSS requirements, for example, browsers that can support a TLS 1.1 or greater in June 2016.

To ensure the broadest support for desktop, mobile, and audio browsers, WVI utilizes a progressive enhancement approach when designing and building web content. Progressive enhancement is a strategy for web design that emphasizes accessibility, semantic HTML markup, and external style sheet and scripting technologies. Progressive enhancement uses web technologies in a layered fashion that allows everyone to access the basic content and functionality of a web page, using any browser or assistive technology, while also providing those with better bandwidth or more advanced browser software enhanced interface functionality.

WVI has found progressive enhancement to be a superior methodology to the graceful degradation approach used in the earlier days of the internet. By focusing on the content and functions performed by a website or application instead of the capabilities or limitations of the browser, the maximum number of users, regardless of browser technology, will be able to access the critical content and features of a site. This ensures that state e-Government services will be able to provide a satisfying user experience regardless of the browser technology and client platform.

4.2.2 The e-Government applications should be designed with universal or alternative access methods to accommodate accessing the Internet via various devices. Personal hand-held devices, Interactive Voice Response (IVR), kiosks, cell phones, Wireless Access Protocol (WAP) devices, and WebTV are among the different ways in which the general public should be able to access the Internet without the use of a traditional web browser. Not all of these access devices will be able to accommodate the same level of display, communication and other programming capabilities that could be accessible on the Internet through a standard Internet browser. The Vendor should address how it will approach providing this same basic functionality being delivered over these different methods of access.

VENDOR RESPONSE:

More and more, customers are demanding access to services in the manner that is convenient for the customer. This includes mobile devices, IVR, kiosks, WAP, Web TV, and emerging technologies. WVI believes that this is a critical component of any e-Government services delivery strategy and we have therefore worked hard over the past eight years in West Virginia to provide universal access.

WVI continuously examines new technologies to determine whether they can improve the interaction with citizens, enable new solutions for the project, and improve interoperability across the enterprise. This process includes proactively monitoring emerging technologies as they migrate from concept, to beta, to a full-blown standard.

The emergence of responsive design as a standard for service deployment has changed the approach to the e-Government services WVI deploys on behalf of its state partner in West Virginia. Responsive design is not the only tool in the universal access toolbox, but it is critical. WVI began using responsive web design for West Virginia services in 2013 by launching new responsive applications and websites. This has continued throughout the last two years with most state websites, including WV.gov either updated to use responsive design or currently in the process. Responsive design addresses the ever-changing landscape of devices, browsers, screen sizes, and orientations by creating flexible, fluid, and adaptive websites. Instead of responding to the need for a desktop web version adapted to the most common screen resolution, along with a particular mobile version (often specific to a single mobile device), responsive design approaches the issue the other way around: using flexible and fluid layouts that adapt to almost any screen size.

There are three key technical features that distinguish responsive design:

- Media queries and CSS3
- A flexible grid-based layout that uses relative sizing
- Flexible images and media, through dynamic resizing or CSS

Responsive design allows the content to adapt to the user's needs and device capabilities, beyond simply resizing fonts and images to fit the screen size. A successful responsive design also has responsive information architecture, adapting content or presenting information in a different order based on what a mobile or tablet user will require first. It also takes into consideration the differing bandwidths and speeds of the users' devices so that the same functionality is available for all users with consistent aesthetic appeal that conforms to the capabilities of each device.

For services and websites built in West Virginia by WVI today, responsive design is the standard. All services use this approach for the design, development, deployment, and management of all applications. Furthermore, if selected as the bidder with the highest rated proposal score (thus retaining the applications currently in service), we will continue to retrofit existing state applications and sites to use responsive design and progressive enhancement. The following images show an example of the implementation of these techniques for the West Virginia DMV website.

Figure 4: Desktop version of the West Virginia DMV Website

Figure 5: Tablet and smartphone version of the West Virginia DMV Website
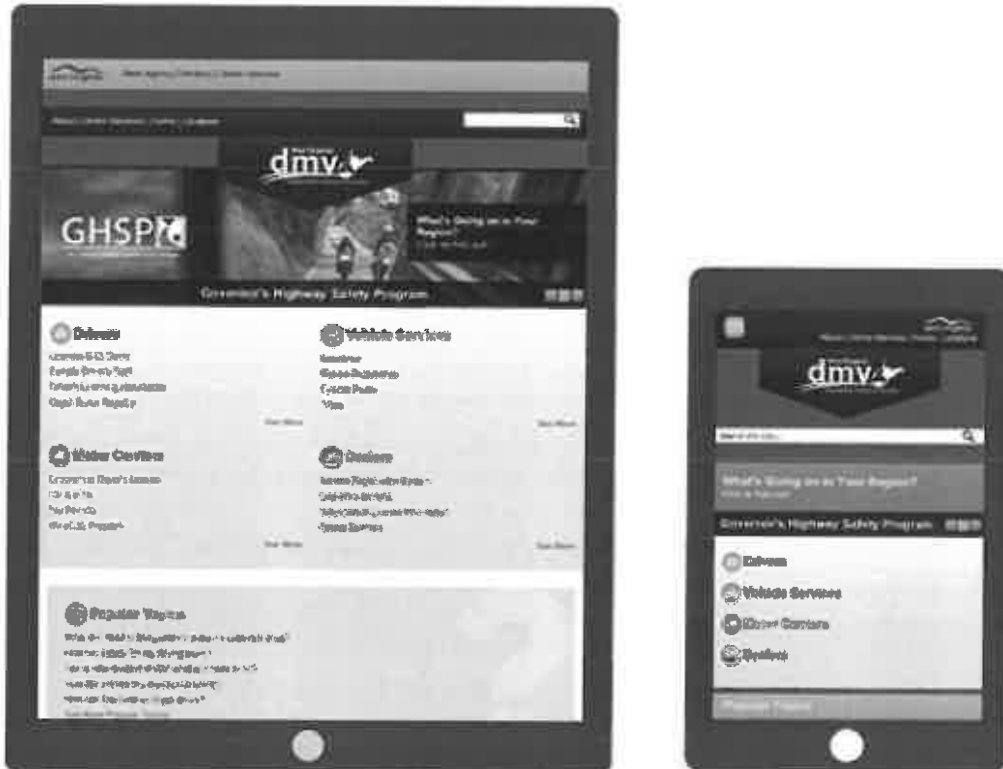
WVI is able to provide integration for multiple access devices through open standards, particularly XML and Web Services. XML and Web Services enable both new and existing applications to connect with software and services across platforms, applications, and programming languages. These standards are at the core of WVI's development practice providing the ability to quickly build, deploy, manage, and use connected, secure solutions with XML and Web Services. These solutions enable faster, more agile enterprise integration, and the promise of information anytime, anywhere, on any device.

Alternate Access Devices

Choosing XML as the medium for transferring data to the presentation-rendering device permits communication with an ever-expanding list of alternative access devices. Many web developers have experienced the pain of developing parallel sites to accommodate differing browsing mechanisms (WAP devices, web browser, kiosks, WebTV, and others). However, a website with content in XML can then be transformed into different markup languages and, therefore, can create different versions of the same content based solely on the requesting device.

WVI hires technology professionals with the technical skills needed to provide the state with the greatest number of possible options for providing alternative methods of internet access. The technical team has, as a core competency, the ability to design and develop applications to serve multiple access channels.

When designed properly, applications can be deployed through a "write once, serve many" approach. The processing logic can be stored on the application server, yet due to the intelligent use and deployment of technologies such as XML and XSL (Extensible Stylesheet Language), the single instance of code can feed many access channels. WVI has successfully used this approach for the design, development, deployment, and management of applications here in West Virginia. Furthermore, if situational requirements necessitate, we can approach retrofitting existing state applications by assessing the effort needed to adapt them to fit such a deployment model.

4.2.3   The State recognizes the distinction between web-based solutions that include IVR capability and those that do not. The combined use of a web-based application and IVR will be optional depending on the Agency's specific requirements. The Vendor should address its experience in using IVR solutions.

VENDOR RESPONSE:

To accommodate users who may not have web access or wish to use alternatives to the web, WVI has the ability to provide telephone-accessible Interactive Voice Response (IVR) solutions to West Virginia. It has been our experience that IVR solutions demonstrate tremendous success and lead to greater accessibility to the citizenry. In New Jersey, for example, our parent company, NIC developed an IVR solution for the Division of Taxation to allow customers to pay their taxes on the phone. In Utah, another division of NIC implemented an integrated web and IVR solution for an individual tax filing application and found the IVR interface was used four times as much as the state's web-based interface.

WVI leverages a hosted full-scale IVR solution, while our experienced resources write the code for the specific IVR applications. Services that use IVR are coded using Voice eXtensible Markup Language (Voice XML) as the data layer. Because this technology is based on open standards and XML, we are

able to deploy the solution regardless of the operating environment or application development language. Not only are we able to integrate this IVR solution with service offerings by using Voice XML, we are able to open the system to partners who may wish to develop their own IVR scripts and services by leveraging the project's IVR infrastructure.

> 4.2.4 The Vendor should describe the approach, tools, methodology and experience that will be used to ensure non-visual accessibility of all online services developed under this contract. This includes ways to incorporate the use of universal accessibility within design, communication methods, navigation, and technology to remove access barriers and to accommodate the needs of all users and use of emerging tools.

> VENDOR RESPONSE:

WVI is committed to the current accessibility standards defined by Section 508, as well as the Web Content Accessibility Guidelines (WCAG) 2.0 issued by the Web Accessibility Initiative (WAI) of the World Wide Web Consortium (W3C). In addition, WAI-ARIA (Web Accessibility Initiative - Accessible Rich Internet Applications) is a technical specification published by the W3C that specifies how to increase the accessibility of dynamic content and user interface components developed with AJAX, HTML, and other dynamic interface technologies.

WCAG 2.0 avoids technology-specific requirements and instead provides a list of technology-neutral techniques for the following success criteria:

- **Text Alternatives:** Provide text alternatives for any non-text content so that it can be changed into other forms people need, such as large print, Braille, speech, symbols, or simpler language.
- **Time-based Media:** Provide alternatives for time-based media.
- **Adaptable:** Create content that can be presented in different ways (for example simpler layout) without losing information or structure.
- **Distinguishable:** Make it easier for users to see and hear content including separating foreground from background.
- **Keyboard Accessible:** Make all functionality available from a keyboard.
- **Enough Time:** Provide users enough time to read and use content.
- **Seizures:** Do not design content in a way that is known to cause seizures.
- **Navigable:** Provide ways to help users navigate, find content, and determine where they are.
- **Readable:** Make text content readable and understandable.
- **Predictable:** Make web pages appear and operate in predictable ways.
- **Input Assistance:** Help users avoid and correct mistakes.
- **Compatible:** Maximize compatibility with current and future user agents, including assistive technologies.

To ensure the broadest support for desktop, mobile, and audio browsers, WVI will continue to utilize the *progressive enhancement* approach when designing and building web content.

Applications developed by WVI are routinely tested for compliance with Section 508 of the Rehabilitation Act using a technical standards checklist such as WebAIM's Section 508 Checklist (http://www.webaim.org/standards/508/checklist). Testing is conducted using automated testing tools and manual testing methods with screen readers, policy experts, and persons with disabilities when

possible. In addition, the site is routinely reviewed for alignment with the latest Web Accessibility Initiative guidelines from the W3C. The WAI guidelines at http://www.W3.org/WAI define how browsers, media players, and other "user agents" support people with disabilities and work assistive technologies.

WVI also uses the following accessibility resources to maintain its cutting edge approach to accessibility:

- WAVE from WebAIM — http://wave.webaim.org/
- Cynthia Says from HiSoftware — http://www.cynthiasays.com/
- AChecker — http://achecker.ca/checker/
- JAWS
- Color Oracle, Vischeck

WVI conducts application usability testing throughout the development process for every new website, online service, and technical enhancement as part of the quality assurance testing process. We use various testing tools, such as JAWS screen reader and Cynthia Says from HiSoft, to verify a service functions properly when viewed through an assistive device or in text-only mode.

Overall, WVI will continue to work with the state to ensure that applications are accessible as defined by the state. Additionally, all WVI developed applications will adhere to other policies and procedures that either meet or exceed the state's requirements including language and technologies that protect the rights and safety of children and other unique user groups.

> 4.2.5   The state's e-portal applications must be operational and available to users 24 hours a day every day of the year. The only exception will be for pre-defined systems administration and maintenance. Individual applications may be unavailable based on the individual agency legacy application operational schedule. Scheduled downtime must be coordinated with and approved by the state with at least a seven (7) day advance notice prior to performing the scheduled downtime. Scheduled downtime must be scheduled during off-hours. The vendor must describe their approach and experience on availability and the scheduling of routine maintenance downtime.
>
> VENDOR RESPONSE:

WVI provides an architecture, infrastructure, hosting facility and alternate site location that are designed to provide 24x7 availability for the state's e-portal applications. WVI's current and proposed solution will meet the agreed upon availability service levels for the portal as described in Section 4.5.5 of this response. WVI provides advanced notice of our scheduled downtime in compliance with the advance notice provisions of the contract.

WVI understands that individual applications may be unavailable based on the individual agency legacy application operation schedule and will factor this into our maintenance windows, availability reporting and service level management.

Low risk changes that have no measurable impact to the environment are done nightly during off hours. Changes that do carry risk or have the capability to cause service disruption are performed during pre-

scheduled maintenance windows. Whenever possible, change implementation utilizes the inherent load balanced nature of the network and the failover disaster recovery site to prevent any service disruption.

To maximize availability, maintenance periods will be agreed upon and defined for regularly-scheduled windows during off-peak times to allow for standard maintenance activities within the IT systems. All release and configuration changes will be conducted during scheduled maintenance windows. WVI will provide a seven-day advance notice of scheduled maintenance. Emergency maintenance will be performed according to emergency change management procedures.

4.3   Objective 3 - Applications Development Framework

4.3.1   The Vendor should identify all checkpoints within its methodology where State acceptance/sign-off is required. In addition, the Vendor should explain how each of the following processes will be performed and what role the State would have in the process.

- Software Quality Assurance - review and audit of software products and activities to verify compliance with applicable procedures and standards (identify types of established procedures and standards).
- System testing - testing conducted to review product code for accuracy of processing as well as accuracy of operation.
- Acceptance testing verification and validation - verification that a project meets the specifications and validation that the product meets the Agency's needs.
- Risk Management - identification, analysis and prioritization of risks with associated plans to eliminate or mitigate those risks.
- Application Maintenance.

VENDOR RESPONSE:

e-Government needs to be a dynamic medium, and WVI understands that changes to West Virginia website content and online services are a fact of life. Our project management approach has been carefully designed to integrate change orders and modification requests seamlessly into our development queue. By collaborating and maintaining open communication with state partners, we have created an efficient process that delivers prompt turnaround on change orders.

WVI's proposed application development methodology is a vital component of overall program management because it allows the state to manage a project throughout its lifecycle. The following table illustrates the project management methodology WVI follows for application development. This proposed methodology has been effective in other NIC-managed states and will be followed by the WVI team to develop and deploy new applications for West Virginia. The project lifecycle is designed with consistency, repeatable processes, management control, and timely delivery in mind. State acceptance / sign-off is proposed and is required to proceed to the next project phase of the life-cycle.

Phase	Description (Deliverables, Sign-Off, Checkpoints)
1. Project Evaluation	This phase starts with the project kick-off meeting between WVI staff and the agency to discuss a common understanding of project scope and preliminary timeline. During this phase the technical focus is at a minimum while greater emphasis is placed on defining agency needs and the citizen/business expectations. A Work Order (WO) Request is created that provides a high-level overview of the project, business requirements, suggested fee model, timelines, associated risks, and constraints. The WO will be used to create a Project Prioritization Request that is then submitted for review by the Portal Board. For agencies new to the e-Government Program, an SLA will be established and submitted through the appropriate channels as defined in the RFP for approval.
2. Definition	At the core of this phase are a series of application analysis meetings with technical and business staff of the agency. The functions covered may include, but may not be limited to: requirements analysis, security, system design, user interface prototype requirements, reconciliation requirements, legacy system data integration, and current business processes. The results of these meetings are documented in functional and technical specifications along with the development of prototype, when applicable, which will help WVI prepare the Statement of Work as well as build test cases. WVI will create a Statement of Work that will go to the state for approval, and if approved will result in a comprehensive Statement of Work that governs the project.
3. Design and Development	The design and development phase translates the Work Order into a functioning application. The goal of this phase is to develop a system that meets all of the established requirements of the Statement of Work and is ready for testing. During this phase, WVI and the agency prepare the test cases to be used during the Quality Assurance phase. Unit testing must be completed before progressing to the next phase. Developers will code, build, unit test, and prototype the application during this phase.
4. Quality Assurance	In this phase, testing is performed on several levels, including load tests, security reviews, integration testing, and system testing. Also, preparations are made for deployment including service desk training and support protocols. Agency staff will be critical in testing the agency test scripts and plans. In addition, the marketing plan is finalized with the state agency to define the adoption plan to educate users about the new service. Final user training, including WVI customer service staff, is completed. Finally, the state agency signs off on a Letter of Acceptance before the application is released into production. This ensures that there is a firm control mechanism in place, so that there is no question as to when the agency is ready for the release to take place. WVI will finalize application training needs during this phase. All releases will be security scanned prior to release into the production environment.

Phase	Description (Deliverables, Sign-Off, Checkpoints)
5. Launch	This phase releases the application to the prescribed customer base and integrates it with the website, marketing, support, maintenance, and customer service functions upon agency approval. This phase may include a pilot portion prior to full deployment into production. WVI will conduct agency knowledge transfer and other user training during the Launch phase of a project. The phase is completed with a lessons-learned meeting between the WVI and agency stakeholders with takeaways from that meeting documented and incorporated into the project materials.
6. Support, Maintenance, Feature Enhancements	Upon deployment, this phase includes maintenance, support, and feature enhancement activities. All projects are managed as part of the overall application portfolio and changes are made through the change management process. During this phase WVI identifies the scope of any changes, the criticality, and impact. For minor changes, WVI will work with the state agency to quickly implement and obtain approval for the changes. For major changes and enhancements, WVI will start a new project cycle that will result in an amendment to the Statement of Work.

Each phase is associated with specific goals and objectives and can be repeated to address deficiencies discovered at later phases. The figure below provides a graphical depiction of the implementation methodology, including a summary of each phase and necessary agency approvals.

Figure 6: Application Development Methodology

Project Evaluation	Definition	Design & Development	Quality Assurance	Launch	Support (Maintenance / Feature Enhancement)
- Meet with Agency to discuss common understanding - Complete WO Request - WO Request is reviewed	- Document System Requirements - Create SOW - SOW is approved	- Create Design Documents - Code, build, unit test, prototype - Change in requirements or prototype, go back to Definition - Prepare test cases - Develop marketing materials	- Testing Phases: • Alpha • Load • Regression • Integration • System • Accessibility • Billing • File Transfer • Payment • Beta - Change in requirements or prototype, go back to Definition - Invalid implementation of a requirement, go back to Design & Development - Obtain Agency sign off on final user acceptance testing - Obtain Agency sign off before release of the application to production	- Optional pilot testing - Migrate to production environment - Knowledge transfer & user training - Post launch internal project review - Lessons learned meeting between NIC and agency	Maintenance: - Customer support - Hosting - Problem resolution Feature Enhancement: - New functionality, go back to Project Evaluation Agency sign off is required for all changes and enhancements

Software Quality Assurance

After each development iteration, all developed components enter quality assurance (QA) testing. This testing validates that the software developed meets functional and design requirements agreed to by the customer agency. The QA team attempts to validate assumptions on the usability of the components and suggests ways to improve the delivered software. In addition to QA testing, a security assessment is conducted on the delivered components of the build to ensure that any potential security issues are addressed early on in the implementation.

WVI's quality assurance approach is designed to make sure that a released service meets all defined requirements and test cases as well as satisfies the customer's needs. WVI will rigorously define all requirements and develop test plan/cases and will work with the state to determine customer satisfaction on multiple fronts. At the beginning of the project, WVI will document all known customer needs and issues. The information gathered will go into the project requirements and design

documents during the project specification phase and approved by the state. Requirements will be included in a test plan. WVI and the state will evaluate the project to verify that it meets all stated specifications and validations during each testing phase.

The dedicated team will be responsible for periodic audit and review of the processes, application, or activity related to each service. WVI also tracks end-user requests for process improvements and/or repeated usability and technical issues. WVI will also be responsible for evaluating services for compliance with state and industry guidelines and standards, such as ADA and Rehabilitation Act compliance, state web standard guidelines compliance, and any other state-defined standards and policies. At the completion of each project, the WVI team will perform a final audit/review and report the findings to the program leadership.

The state will be asked to provide assistance to the quality assurance team to ensure that accurate assessments and analysis are performed on the project. The state may also participate in the evaluation of the quality assessment audit/review and provide insight to applicable procedures and standards.

System Testing

A critical part of the development process is working with agencies to ensure that our development efforts result in systems and applications that work properly, meet the functional and business requirements of the agency, and are useful to the end user.

When we begin work on a deliverable, the first step is always to work with the agency to define the functional and processing requirements. These specifics vary with each development effort. For example, some development efforts are straightforward and require little analysis (i.e., professional license lookup), while others require complex input and/or processing with different outputs sent to different entities, such as a tax payment where the tax must be computed from data entered and the payment collected. Regardless of the project's size, we will work with the appropriate agencies to determine their goals and needs and, where appropriate, work with the potential users to incorporate their input into the process.

Once the functionality is defined and documented, each function will be identified and evaluated. A test plan will be created for each of these functions along with an overall testing strategy. The majority of the functional tests will be black box tests that will evaluate the functionality of the application. White box testing (testing against the system implementation) will also be used, but will generally be done internally and will not be part of formal acceptance testing.

While WVI staff will conduct various tests throughout the development process and will participate in final testing with the agency, the final approval of testing and system sign-off must come from the agency.

With every project we undertake, we expect to work closely with state agencies to develop functional requirements for the project before any development begins. However, our experience is that these requirements often change once development and testing begin. Consequently, the process of defining functionality and acceptance tests needs to be flexible. As new requirements are determined, they will be added to the initial requirements and appropriate tests and adjustments to timelines will be

determined. These tests will become part of the overall testing plan and will need to be satisfied before final approval of the project is given.

Throughout the process, WVI and key state domain experts will evaluate each deliverable to ensure that the customer's needs are met by performing the defined test cases. The participating state agency will sign off on all test plans and design and specification documents.

Testing Overview

WVI's development and project management teams perform many different testing processes to review product code for accuracy of processing as well as accuracy of operation. Some of these testing processes are described below.

Unit Testing

Unit testing is a software verification and validation method in which a programmer tests if individual units of source code are fit for use. Ideally, each test case is independent from the other test cases. Substitutes like method stubs, mock objects, fakes, and test harnesses can be used to assist testing a module in isolation. Unit tests are typically written and run by software developers to ensure that code meets its design and behaves as intended. Often, unit tests are written "up front" - before the code that is being tested is even developed.

WVI developers will utilize the unit testing capabilities inherent in the Integrated Development Environment they are using for that programming language. A unit test can be created for each test case and run every time that source code is changed to make sure that no bugs are introduced with changes to the code. This greatly reduces the time and effort required for regression testing.

Stress & Load Testing

WVI's development process uses stress and load testing to measure an application against known system baselines and performance criteria. During the development and testing phases, stress and load testing is done to measure the level of system resources available in an ideal environment. These results can then be compared with historical data to help identify and isolate client-server performance problems.

If the system is a high-usage model, for example, thousands of users visiting a website at the same time, the system uses multiple computers to generate enough load. Load tests consist of a series of web performance tests or unit tests which operate under multiple simulated users over a period of time. Load tests are created through a test generation wizard that simplifies the process.

When a tester adds web performance tests to a load test, the software simulates multiple users opening simultaneous connections to a server and making multiple HTTP requests. The tool allows us to test different use cases in parallel to more realistically simulate load and identify performance issues related to multifactor entanglement.

Load tests can be used in several different types of testing:

Types of Testing	Description
Smoke	How an application performs under light loads for short durations.
Stress	Help determine if the application will run successfully for a sustained duration under heavy load without breakage or serious performance degradation.
Performance	To determine how responsive the application is.
Capacity Planning	How the application performs at expected capacity levels.

Security Testing

WVI development team establishes internal development practices and techniques to prevent the introduction of web application vulnerabilities during the Software Development Lifecycle (SDLC). WVI at a minimum takes into account the Open Web Application Security Project (OWASP) top ten vulnerabilities while developing all applications.

Security cannot be an afterthought when developing web applications. WVI has integrated security into the entire SDLC so that threats are anticipated, detected, and remediated early in the development process. As part of the SDLC, WVI will:

- Ensure that security requirements are in place from the beginning of the project by performing a security review of the functional requirements for an application
- Ensure that all data generated, collected, or accessed by an application is fully understood and classified
- Perform peer review of all developed code to ensure that security best practices are being followed
- Use automated tools to scan milestone builds to identify potential web application vulnerabilities early in the development cycle
- Use automated tools to scan a build before it is released into production
- Prior to production deployment, require that applications receive signoff from security personnel following successful security review

Accessibility Testing

West Virginia.gov and its services will be routinely tested for compliance with Section 508 of the Rehabilitation Act using a technical standards check-list
(e.g. http://www.webaim.org/standards/508/checklist). Testing will be conducted using automated testing tools and manual testing methods with screen readers, policy experts, and persons with disabilities when possible. In addition, the site will be routinely reviewed for alignment with the latest Web Accessibility Initiative guidelines from the W3C. The WAI guidelines at http://www.W3.org/WAI/ define how browsers, media players, and other "user agents" support people with disabilities and work assistive technologies.

Application Optimization

WVI development staff work in concert with testing and QA to take the results of performance testing, production metrics, and user feedback as inputs into the process for optimizing applications. WVI will use application profiling tools, performance monitoring tools and other application data to perform application optimization tasks and to remove performance bottlenecks. Optimization is just a step in the software development lifecycle for new services or will result in a change request for deployed

applications. WVI can provide application analysis and optimization services for non- WVI applications as appropriate.

Acceptance Testing Verification and Validation

WVI's QA process is designed to make sure that a released product meets all defined requirements and test cases as well as satisfies the customer's needs. WVI will rigorously define all requirements and develop test plans that validate critical use cases for the system. Additionally, WVI will work with the state to determine customer satisfaction on multiple fronts. First, our website design and user interface design teams are well versed in providing user-centric designs that meet the customers' needs and are easy to use. Second, WVI will address the customer needs up front by involving key domain experts as part of the project specification phase of our application development methodology, developing prototypes where required and completing detailed work flow and system diagrams prior to beginning development. Lastly, our user acceptance testing phase will include walking the customer through the finalized product, allowing them to perform all test cases as outlined in the test plan for the project.

WVI will work with the state at the beginning of the project to prototype, document, and walk through all customer needs and issues. The information gathered will go into the project requirements and design documents during the project specification phase. Requirements will be included in a test plan. WVI and the state will evaluate the project to verify that it meets all stated specifications and validations during the testing phase.

Risk Management

WVI understands that unless there is a comprehensive strategy and methodology for identifying, assessing, reporting, managing, and mitigating risks, they may become barriers to the overall success of the West Virginia e-Government program.

Risk is defined as any event that may negatively impact achieving the deployment milestones, jeopardize the delivery schedule, reduce the value of the application, or produce adverse consequences for the state, citizen users, business users, or WVI.

WVI will identify, analyze and prioritize risks, and develop associated mitigation plans by assessing for potential risks in four areas:

- **Product Risk:** The risk that the solution was conceived or developed without taking the end users requirements into consideration or that a solution would be inadequate for the necessary tasks. This includes design risk, development risk, and implementation risk.
- **Management Risk:** The risk that the agency does not have management buy-in to see the project to completion or that the team does not have the capabilities or subject matter expertise to execute the project. This includes planning risk, investment risk, and process risk.
- **Organizational Risk:** The risk that the organization would be affected by the deployment of the service. For example, a solution that replaces a manual process with an online process that may not be adopted by the agency staff or user group and therefore affect the organization's operations. This includes resources risk, acquisition risk, and stakeholder risk.

- **Business Risk:** The risk that the system does not provide the business organization with the necessary management information or that financial exposure would be caused by the new system processes.

Risks and mitigation to risks are documented in a Statement of Work for review and acceptance by the agency. Therefore, state participation in relation to risk assessment and mitigation processes will largely be included in the functional specification review and approval process.

Application Maintenance

Routine application maintenance will not require another SOW for implementation and is generally provided under the self-funded model through a change management process. Any enhancements to an application that goes beyond the original agreed upon scope will be evaluated by WVI and the agency to decide if a new project is necessary.

All routine maintenance requests that are considered changes to the system will be administered using the following change management procedure.

Once an application is put into production, it is managed as part of the service portfolio. All changes to these services will be managed through the approved change control and configuration management process. WVI's change control procedures vary depending on the type of change including application, operating system, etc. However, all change controls procedures must include the following requirements:

1. All change requests must be approved by the appropriate governance prior to initiation.
2. All changes must be documented in detail on a change request form.
3. All changes must have test plans prior to initiation into the QA environment; deployment plans must include roll-back procedures.
4. All changes must successfully complete all applicable testing stages (e.g., user acceptance) prior to implementation into production.
5. Changes must be communicated to any impacted users or business units prior to implementation into production.
6. Final approval is required prior to implementation of the change into production.

    4.3.2   It is assumed that a number of core applications will be shared by some applications that are developed for the State. The Vendor should detail the advantages of building or acquiring core modules that can be reused by all online applications. Below are examples of some core modules:

- Security and authentication services
- Issuance of confirmation
- Management, storage, and presentation of online forms
- Search engine services
- Online help and customer service capabilities
- Receipt of electronic revenues
- Encryption services
- Online publication services
- Connectivity services

- Interfaces and protocols for integrating with back-end systems
- Shopping cart

VENDOR RESPONSE:

One of the key elements in WVI's application software design process is reusability. WVI is proposing a scalable architecture and application development approach for West Virginia that is based upon developing and deploying common components and tools (including search and social media/collaboration tools) that will be used across the enterprise. West Virginia has successfully reused applications, experience, technology, and other solutions that have been used in other states who partner with NIC. For example, WVI has utilized a Driver's License Practice Test application, which was originally created in Arkansas. The application allows drivers to take practice tests via iPad or iPhone before obtaining a driver's license.

WVI's goal is to develop robust applications for West Virginia that meet the needs of the end user, yet do so in a manner that allows our development team and/or the state's development staff to take advantage of existing methodologies, code, and know how to build applications using a step-by-step development methodology with built-in hooks for speeding up development through reuse. Early in the software lifecycle, reuse can occur during system design by identifying patterns of behavior of functionality that already exist in West Virginia applications or other NIC-built applications. Also by building a framework of components specific to West Virginia common components such as authentication/authorization, search, payment processing, integration methods and web services will be leveraged and can be managed at an enterprise level. Leveraging these best practices will save significant time in the design and development phases for new applications.

WVI has access to a code library that contains framework, module, object, and application best practices developed in all of the languages that NIC partner states have required. This includes, but is not limited to J2EE (JSP, EJB, Servlets), .NET (C#, ASP.NET, MVC), Objective-C, ColdFusion, Perl, Ruby, PHP and C/C++.

WVI currently uses and can continue to develop application modules in all of the categories listed in the RFP and the following application modules already exist and can be leveraged for West Virginia e-Government solutions:

- *Security and authentication services*: Security and authentication modules for subscription, Web Single Sign-On (Web SSO), and remote access methods
- *Issuance of confirmation*: Modules for receipts, acknowledgements, emails, and other confirmation activities
- *Management, storage and presentation of online forms*: Presentation layer objects and methods for interacting with online forms built from WVI's extensive experience in handling e-Government online forms
- *Search engine services*: Web services and other modules that extend the functionality of search technologies from providers such as Google and Microsoft
- *Online help and customer service capabilities*: Methods and objects for providing online help and customer service capabilities in many WVI-managed e-Government programs
- *Encryption services using open standards and partner products*: Various tools, policies and procedures for storing data securely and securely transmitting data between servers and systems

- *On-line publication services*: Web 2.0 objects, web content caching solutions, and other solutions for syndicating and distributing content to users and systems
- *Connectivity services*: Modules for interfacing disparate systems using secure connection methods and agreements with connectivity vendors such as AT&T, Qwest, Checkpoint, Cisco, HP and Sun
- *Interfaces and protocols for integrating with back-end systems*: Custom, yet standards-based, applications for interfacing with legacy systems and custom objects that work with Open Data Base Connectivity/Java Data Base Connectivity accessible data stores. WVI also works with middleware solutions and the integration tools that come with Java Application Servers and Microsoft .NET; this includes the ability to utilize XML and web services in both Java/UNIX and Windows/.NET environments
- *Shopping cart/online store*: Centralized shopping cart and online store applications, which can be used by multiple applications and agencies

In addition WVI has access to NIC's alternate channel solutions, including:

- *Mobile applications:* NIC has developed numerous mobile applications for specific platforms and multi-platform efforts using HTML 5 and native frameworks. We have seen tremendous reuse in our mobile applications and will be able to utilize our iPhone/iPad, Android, Blackberry, Palm, and Windows Phone solutions to deliver or provide a foundation to deliver new mobile services for West Virginia.
- *IVR solutions*: Solutions for Vail Systems and Bayonne as well as components that work with traditional, ASP-model, and outsourced IVR solutions using Voice-XML

4.3.3 Integration with legacy systems is critical to the success of the State's efforts to provide web access to government services and information. The Vendor should address the following:

4.3.3.1 Data Editing - The decision to use off-line or online transaction verification processing will be determined for each application based upon documented factors related to the impact on existing application processing, protection of data, and changes required for legacy systems. The agencies, in consultation with the Vendor, will determine the most appropriate method of data editing.

4.3.3.2 Updating Legacy Data - The State is responsible for all production database updates. The Agency, in consultation with the Vendor, will determine the most appropriate interface form which updates can occur. The update format may be batch data entry record format or an online transaction that will be processed by the legacy update application or some other method acceptable to the State. The Vendor will not manage or host legacy databases and data sets that support legacy applications.

VENDOR RESPONSE:

WVI understands that providing secure, manageable, repeatable integration methods to West Virginia systems is critical to the success of the e-Government project. We are committed to bringing our experience in West Virginia and in other NIC states to deploy specific technology solutions, and to

develop any required custom interfaces to meet the specific integration needs of West Virginia's legacy systems.

WVI has proven its ability to integrate with multiple legacy systems over the past eight years working with the state of West Virginia. Some notable examples are:

- WorkforceWV Employer Contributions – WVI worked with the agency to define a nightly sync process utilizing batch files for both the import and export of filing data. Through this nightly process, WVI imports employer filing status and overdue balances from the Workforce mainframe. WVI then produces a file containing daily online filings for Workforce to update and record in the mainframe. Additionally, WVI produces images of online files for compliance with state code that are transferred nightly to a Workforce imaging server.
- Vehicle Registration Renewals – WVI worked with the DMV to validate vehicle information in real time through the use of DB2 stored procedures.
- Board of Registered Nursing License Search – WVI worked with the agency to provide online real-time license status and verification checks through the use of SQL stored procedures and views.

WVI has been able to achieve integration by providing an agile, open, yet secure system architecture that operates seamlessly within the state's existing infrastructure. We are constantly seeking to use only those tools that are best-in-class applications, that utilize open and accepted de facto Internet and web standards such as HTTP/S, HTML, XML, web services, EDI, and others. These solutions will facilitate horizontal integration among government entities and vertical integration among other state, local, and federal government organizations.

A key factor in WVI's success is our ability to interact with a wide variety of agency systems through various integration methods. WVI's dedicated staff will develop the method or application that interfaces the legacy environment through a solution that is compatible with the agency operating environment and adheres to all standards, policies and guidelines and bulletins issued by the agency. WVI and its NIC affiliates have a long history of creating real solutions in bringing legacy government information to the public's fingertips and can leverage solutions for accessing data in other NIC state portals as potential options for any new interface or extraction requirement.

Data Editing

Our technical staff will work with agency personnel and the state stakeholders during the requirements gathering phase of our software development lifecycle process to work through, among other things, all issues including data editing, which would cover, at a minimum, transaction verification, user authentication, personally identifiable information, and other factors. WVI has successfully followed this project development approach with West Virginia agencies and will continue utilizing this methodology.

It is WVI's preference to use on-line transaction verification methods when available. Doing so ensures that an application is always utilizing current, up-to-the-minute information to perform its verification functions. WVI recognizes that this is not always possible due to network, application, and other legacy environment constraints. When using off-line methods, such as batch replication of data from legacy systems to local databases, WVI will ensure that this replication occurs securely and reliably. Controls will be placed around the batch process to ensure the integrity of the data exchange. Furthermore,

sensitive data replicated into local data stores will be protected through encryption, one-way hashing, and other appropriate security techniques.

Updating Legacy Data

WVI will work with the state to define and analyze all legacy system production database changes for implementation by the state. WVI will also consult with the agency responsible for the affected system, based upon our experience described above, and will implement the most appropriate interface from which updates can occur as determined by the agency. WVI will document the state implementation requirements for updating legacy systems for each project in the project documentation. WVI understands that it will not manage nor host legacy databases and datasets that support legacy applications.

WVI has worked with the state to update legacy data in paradox, SQL databases, and mainframe. In each instance, we worked with the agency to define the best possible solution. For solutions involving real-time updates, WVI worked with the agency to develop the method of update. This has included SQL stored procedures, db2 stored procedures, and mainframe terminal emulation. For solutions involving disconnected update processes, WVI has implemented daily jobs that submit a batch file to the agency for processing. With each job, WVI worked carefully with the agency to define the batch file format and delivery schedule.

4.4   Objective 4 - Funding Models

The State of WV will continue with the transaction-based funding component currently in use. The Vendor will receive a portion of transactions fees collected by e-Government applications to support application development, maintenance, and hosting services defined in this RFP. The State will cooperate with the Vendor to recover its costs through those Transaction fees.

4.4.1   The Vendor should provide its prior use of each of the following funding methodologies and offer suggestions and/or additions to the explanations of each. The Agency determines the fee structure and amount. In some cases the fee to the Citizen is defined by Statute.

Agency Fee Service: Service is provided through the portal at the same price to the citizen or business as compared to the service being provided through traditional means. The Agency requesting the service will be billed by the Vendor for each transaction. This has previously been called a Transaction Fee.

For example, citizens pay $100 to the Board of Accountancy to renew an Accountant License whether it is renewed online, in person or through the mail. The cost of putting the service online was not passed on to the citizen. The Board of Accountancy pays the current Vendor a fee per transaction. Some services through the portal are provided at no cost to the citizen. It is a free service, the cost of which is borne entirely by the Agency or the Vendor.

Customer Fee Service: Service is provided through the portal with the some or all of the cost of the online service passed along to the citizen or business resulting in a fee over and above the traditional amount for the ability to conduct business with the State online. This has previously been called a Convenience Fee.

For example, citizens pay $31 to renew a Vehicle Registration through the Portal or $30 to renew through the mail or at a local DMV Office. The differential, $1, is remitted to the current Vendor to recover the cost of providing the online service.

Transaction Fees: The state would like to consider using the term transaction fee to describe both of the preceding concepts. The vendor should explain if it believes there is a reason to continue differentiating these scenarios from the vendor's standpoint.

Subscription Services: The Vendor will work with the Agencies to facilitate subscription services through the WV State Portal as provided by the mutual agreement of the Agency and the Vendor as detailed in a Service Level Agreement to be negotiated between the parties.

One example is the sale of Driver's Records for the Department of Motor Vehicles (DMV). SLAs between the DMV and the current portal provider is included for reference as Appendix C. The Vendor should assume all requirements in this SLA will continue at a minimum, however, it will be required to negotiate a new SLA with the WV DMV upon award.

Time and Materials/Web Hosting Component: The State of West Virginia may also request services provided on a time and materials basis with proposed labor rates as agreed to by the State and the Vendor for e-Government application development and e-Government application hosting services. These projects may include, but not limited to the development of new e-Government applications, enhancement of existing applications, web-site design or development. The Vendor will not provide staff augmentation services. No guarantee of use is provided for these services. Vendor must provide a not-to-exceed price for such projects at the time it presents its proposal to the requesting Agency.

A current example is the hosting of the Department of Commerce website at: wvcommerce.org

VENDOR RESPONSE:

Experience with Self-Supporting Model

WVI's parent company, NIC, is the market leader in delivering an enterprise self-supporting business model in support of a state's e-Government program. NIC established the nation's first transaction-based self-supporting e-Government program in 1992 and currently works with more than half of the states in the U.S. to provide customized self-supporting approaches. No other provider or combination of vendors can match our breadth of expertise in deploying specialized self-supporting approaches for e-Government solutions that meet the specific needs of state government. In West Virginia, WVI has been providing the e-Government services requested in this RFP under a self-supporting business model since 2007. NIC is the only company that has delivered the model on behalf of multiple states, and WVI is the only provider who offers the specific experience of delivering the self-supporting model to the state of West Virginia.

Under the direction and guidance of the state, WVI was able to successfully implement a self-supporting model in West Virginia because of our innate understanding of the model, and willingness to make the upfront and ongoing investments necessary to support operations. WVI has reviewed the state of West Virginia's requirements, and we are confident that we can continue to use the transaction-based, self-supporting model to deliver all requested services in response to this RFP for a *Statewide Contract for an e-Government State Portal.*

Figure 7: Wakefield Research - Americans Willingness to Pay Fees

WVI has spent eight years gaining a deep and detailed understanding of how the self-supporting model can contribute to West Virginia's e-Government program and how the state wants to deliver value to its constituents through the model. Under the self-supporting model, WVI has successfully delivered the services required in the RFP using the requested funding streams with mutual success. As the e-Government program expanded, WVI has grown to 12 employees all delivering exclusive service to the state, backed by hundreds of employees working for NIC across the country.

e-Government is not a "build once and walk away" proposition with needs that will scale down over time. An effective e-Government strategy should serve constituents on a long-term basis, which requires a reliable, diverse, ongoing, and flexible funding approach over time. More than half of the states in the U.S. have aligned with NIC to deploy the transaction-based, self-supporting model to meet their specific business requirements and provide a sustainable funding stream for further e-Government expansion.

Figure 8: Wakefield Research - Americans Willingness to Pay Fees
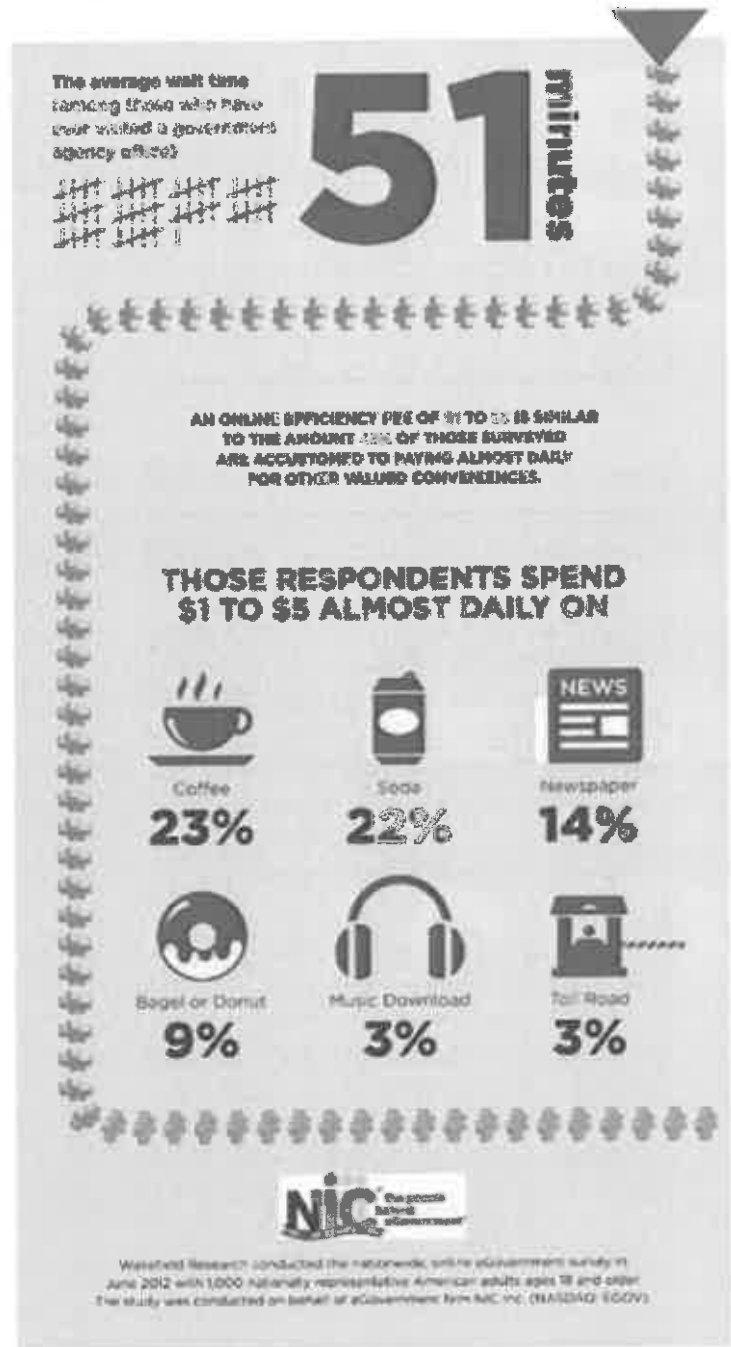
Funding Methodologies

As noted earlier in this response, WVI has been successful in the past eight years developing services that fully fund the operation. These services provide the funding for the West Virginia e-Government project, which support everything we do on behalf of the state. As we continue to add and refine the

service offerings, we are confident that these funding methodologies will continue to provide the revenue needed to support all of the state's initiatives:

- Agency Fee Services
- Customer Fee Services
- Subscription Services
- Time and Material Services/Web Hosting

A description of WVI's experience and approach to each funding methodology is provided below.

Agency Fee Service

This is the second time the state has issued an RFP for self-funded e-Government services. It is clear from this that the state has set the strategic direction to encourage the adoption of e-Government services in order to increase operational efficiency and effectiveness for West Virginia agencies. The state recognizes that when services are put online, cost savings result for the agency. These cost savings are generally in excess of any transaction fee that may be charged by the state's e-Government partner. Therefore, agencies may elect to pay a nominal transaction fee for the provision of the online service. The agency fee model allows NIC to bill the agency monthly for the transactions and use that revenue to support the enterprise, including application development, maintenance, hosting, security, end-to-end e-commerce and customer support. Several agencies have elected to use agency fees to process payment services with WVI over the course of the current contract. For example, when WVI developed the Uniform Commercial Code Filing and Search system for the West Virginia Secretary of State's Office, the agency did not wish to pass along the transaction fee to the end-user. Filings that occur through the system are estimated to take 25 minutes less processing time per filing. Given the substantial efficiency created, the Secretary of State's Office chose to pay WVI a small fee per transaction out of cost savings.

Customer Fee Service

WVI has developed many services for West Virginia state government that utilize a customer fee (previously called a convenience fee). Nearly 90% of the current WVI-supported e-Government program revenue comes from Customer Fee Services. This includes Vehicle Registration Renewals, Capital Parking Ticket Payments, and Local Government Payment Processing. In all situations where customer fees are attached to the statutory fee, we seek to add value to both the customer experience as well as the internal processing done by the state. In West Virginia, the approved customer fees are a significant part of the reinvestment back into the state to deliver e-Government services.

Many states have chosen to charge customer fees to end users to provide value-added online delivery of services, the majority of which are targeted at business users. In specific cases, states with self-supporting solutions in place have collaborated with their NIC partner to add value by enhancing the electronic delivery of information desired by approved users. States with self-funded e-Government programs in place have consistently found that businesses are willing and able to pay customer fees for faster and easier access to government information and services, and that has certainly been the case here in West Virginia. In fact, the majority of Americans are more than willing to pay a customer fee. A June 2012 survey conducted by Wakefield Research found that 67 percent of Americans would pay a $1-$5 fee in order to avoid standing in line at a government agency office. Additionally, as many as one-third of Americans would pay a fee as much as $10 to avoid standing in line. There is no charge to the state for customer fee services.

Based on the success of services using customer fees to grow the state's e-Government initiatives through this contract, we are confident that reasonable customer fees for appropriate services provided under this RFP will provide sufficient revenue to continue to provide additional capital to develop, maintain, enhance, operate and expand the state's e-Government services.

Transaction Fees

WVI is fine with using the term transaction fee to describe both Agency Fee Services and Customer Fee Services.

Subscription Services

WVI has offered monthly customer account or subscription services to high-volume business users since the start of our partnership with West Virginia in 2007, in addition our parent company NIC has used subscription services in support of self-supporting portals since its founding in 1992. Subscriptions continue to be used by businesses to realize cost savings and efficiencies from using online government services across multiple agencies. Subscriptions eliminate the need to send multiple bills to a single end user for multiple transactions with multiple agencies. This service also allows authorized users to view account activity, manage multiple users on the account, code transactions in a naming convention that matches the customer's internal billing system, and store information for future sessions to avoid duplicative data entry. It also significantly reduces the burden of accounts receivable management for the state as well as the business. Account fees are comprised of a subscription fee, which is collected annually, and monthly invoices with customer fees based on the total number of transactions processed for each account.

Subscriptions are also used to track authorized users for specific services to ensure that end users are complying with all federal and state laws. For example, in the case of driving records, all users of the service must be in compliance with the Driver Privacy Protection Act (DPPA) and must have a signed and approved access agreement on file.

Time and Materials/Web Hosting Component

WVI currently provides time and material and application hosting services for the state of West Virginia under our current contract and has the staff, process, and mechanisms in place to support these endeavors under a new contract. By including the ability to perform services through this funding methodology, the state has recognized that some agencies may have a need to engage the private sector partner for in-demand special projects, hosting, or other projects that will be charged at the vendor's labor rates. Some of the projects WVI has successfully completed include the Bureau of Senior Services In-Home Care System, the Bureau of Senior Services Provider Reporting, and the Bureau for Public Health Program Plan System. Additionally, WVI has used the model to host the Department of Commerce website system and the storage system for the Offender Information Systems SharePoint component.

WVI will perform the initial analysis on the scope and effort of the project and provide a not-to exceed price at the time we present a proposal to the requesting Agency. For application hosting, WVI will perform the initial analysis on the hosting resources required to develop a package based on storage usage. This package will evaluate storage usage and any potential non-storage costs that would occur for hosting these resources, such as additional software licenses.

4.4.2   Factors for Determination of Transaction fees

The Vendor will work with the requesting Agency to develop a proposed transaction fee. All new fees must be approved by the Portal Board. In establishing or recommending approval of Transaction fees, the parties shall consider the following factors:

- The need to invest in the reasonable expansion of and improvement in network and information services.
- A commitment to the public policy requirement to provide electronic access to public records and electronic transactions at the most reasonable rate possible.
- That the rates to be charged may be adjusted to permit funding of special projects and enhancement of public service.
- Any other reasonable factor that in the opinion of the parties should be considered.
- In the event the Statutory Fees are reduced or increased as a result of revisions to West Virginia law or regulation, such reductions or increases shall be pass on directly to State portal users.

VENDOR RESPONSE:

Fee Methodology

For the self-funded model to be successful, it is essential that the private sector partner meet the following four goals that encompass all aspects of operations:

1.   Attain maximum value while keeping costs to agencies, citizens and businesses reasonable
2.   Offer a variety of highly available information and services that have perceived value at a particular price point
3.   Satisfy the goals of government agencies, which include increased efficiencies, cost savings, and enhanced service to constituents
4.   Support the private partner to the extent that fees allow for growth while covering expenses relating to staff, equipment, other operating expenses and a reasonable profit

WVI has been successful over the past eight years finding the balance of the four goals above as it launched several services within West Virginia. Each new service must be priced independently to assure that the service is used and not priced out of the market. While this sounds simple, it requires experience, skill, and finesse with the self-funded model to get it right every time. It has been the experience of WVI, however, that meeting goal #1 has a cascading effect on all the other goals and drives adoption of services. As such, WVI focuses a great deal of its energies on delivering valuable services to as many customers and constituents as possible.

When considering transaction fees, it is important to thoroughly research and analyze constituents' perception of the price-value relationship for the proposed service, and how a variance in price will influence demand and adoption. This is a methodology that has been put into practice in West Virginia for several services. For example, the Division of Motor Vehicles and WVI together went on a road show for the Vehicle Registration System (VRS), where hundreds of dealers had a chance to discuss, in person, the fee structures and features of the service. The Driver Conviction Monitoring service was developed

with the input and testing of large insurance support. If a service is "priced out of the market" in comparison to the value it offers, customers will not use it, the state will not realize any benefit, and the private partner recoups none of its investment.

For fee-based services, we will work with the Portal Board to establish the fee for each service based upon a number of factors. To ensure our services are priced competitively to encourage usage, WVI relies on data sources from our other NIC partner states as well as NIC's market research that assesses fees charged in other states. Our general approach is to review fees for similar services offered in other NIC partner states in addition to non-NIC states and the associated adoption rates and other trends. We then cross-reference our custom research with any specific factors particular to the service or West Virginia. Generally, WVI adopts a value-based pricing strategy for its services. When pricing a service, we examine a variety of variables to ensure maximum adoption. Some of these variables include:

- Cost Savings: Determining the cost savings that a service provides to users is the first step in the pricing strategy. By analyzing alternative methods for end users to complete a transaction (in person, by mail, etc.), WVI derives a baseline cost model for the service. This model takes into account all of the cost factors involved in completing a transaction beyond the statutory fee. These factors include a user's time, postage, mileage, and expedited processing fees, among others.
- Market Value: The second step in pricing a service is to understand the market value of the service. While the cost savings for a user determined in the first step discussed above may be quite significant, the perceived value – the amount a user is willing to pay – for the online service may be less. After all, if WVI recommends and the state approves a fee that is too high, then no one wins – the constituent does not use the online service, the state will not realize efficiencies, and WVI does not generate revenue to reinvest in the state. As a result, the fee must be commensurate with the value of the service and the efficiencies it creates for the user.
- Current Market Pricing: For similar services in other states, WVI researches current pricing to ensure consistency and fairness, especially for businesses that may operate in multiple jurisdictions and use similar online services in other states. However, in the end, each state approves its own pricing structure based on its particular market.
- Commitment to Public Policy: As a long-time partner of West Virginia that has built its reputation over the past eight years on preserving the public trust, WVI's overarching commitment to responsible public policy has been to provide electronic access to public records and electronic transactions at the most reasonable price possible.

The state, through the Portal Board, is the final arbiter of all fees charged under the self-funded model. That point bears repeating: the state, through the Portal Board, will have the ultimate authority to approve all fees.

4.5 Objective 5 – Hosting

The Vendor shall host the State's e-Government application environment at no cost to the State.

4.5.1 The Vendor should provide scalable security solutions for web and Internet services at the network and application level such as secure sockets layer certificates, user authentication and single sign on (SSO), application firewalls, intrusion detection system (IDS) monitoring, public key infrastructure (PKI) and digital signatures. The Vendor should submit a narrative response and diagram

explaining the various elements of the network security architecture of its solutions, including authentication options, privacy, backup and disaster recovery systems.

VENDOR RESPONSE:

Central Data Center (CDC) Overview

WVI proposes to continue hosting the West Virginia e-Government portal and services at our proven CDC facilities. The CDC is geographically distributed and designed for continuous operation, protected from power failure, physical intrusion, and network outages by extensive back-up power and cooling systems, multi-layered security, and network redundancy and diversity. This design enables the speed, reliability, and performance necessary for mission-critical applications. The hosting environment is designed to maximize uptime through connectivity and power, and WVI has chosen servers, network equipment, and software for our architecture that removes all single points of failure through the use of load balancing, server clustering, device fail-over, and equipment redundancy.

WVI's hosting environment is recognized as a world-class hosting facility and provides environmental features such as:

- Located in "Tier IV" data centers
- Physical security features, including man-traps, palm scans, and controlled access only to the client's own equipment
- Redundant power with diesel generator back-up
- Fire, smoke, and water suppression and detection technology
- State-of-the-art cooling and heating equipment
- 24/7/365 on-site security
- Redundant internet connectivity with OC48 bandwidth
- 24/7/365 environmental and physical monitoring including performance data
- Geographically separated fail-over site

Security

WVI follows a proven security program honed by NIC's experience with more than half the states in the U.S., multiple federal agencies, and countless local governments. Security is paramount to a successful e-Government program and WVI has implemented a best-in-class solution to protect the portal, its services, and the data it handles. The following sections outline the current and proposed security program WVI will continue to deliver to the state should we be chosen to continue partnering with the state.

Protection for the network and devices is accomplished with sound network architecture and effective network security controls. WVI recommends a segmented network topology with strong intrusion detection and prevention systems for the infrastructure.

Security Measures

WVI utilizes a layered and modular security architecture, applying independent security controls at each layer of the hosting environment to provide end-to-end protection of data and systems. Additionally,

security controls are used to secure interfaces with system components external to the hosting environment such as the end user, employees, and West Virginia backend systems.

The function of the layered approach is to provide multiple levels of protection, each of which, while providing a strong layer of security, is not the only obstacle preventing unintended disclosure. By layering the protection, WVI believes that e-Government services offered by the state will not be at the mercy of a single flaw in any one solution, vendor, or protection point.

By approaching the solution with a modular architecture, WVI can replace, modify, or upgrade individual components of the security architecture to ensure that WVI maintains a best of breed environment, and is also able to adjust to future threats and the needs of the state of West Virginia.

Network Security Architecture

The existing e-Government environment provided by WVI for West Virginia services is a complex system consisting of many different layered components. Accordingly, WVI utilizes layered security architecture, applying independent security controls at each layer of the hosting environment. Additionally, controls are used to secure interfaces with system components external to the hosting environment such as the end user, employees, and West Virginia backend systems. The security architecture utilized for the program is presented in the following figure.

Figure 9: Security Architecture

Network Security Architecture Controls

The CDC implements the necessary aspects of the WVI Security Policies utilizing the following technologies.

Security Control	WVI CDC Approach
Client Security - Transport Layer Encryption	WVI uses strong stream encryption for securing data transmissions. This includes support for TLS 1.2 with secure ciphers like GCM and is based on 2048-bit or 4096-bit certificates.

Security Control	WVI CDC Approach
Perimeter Security - Filtering Routers	WVI uses routers at the perimeter of the network with ACLs applied to drop all network traffic that is not required for the system to function.
Perimeter Security – Perimeter Firewalls	WVI data centers use firewall appliances configured to use a combination of "stateful packet inspection" and "application proxy" technologies.
Perimeter Security – Virtual Private Networks	A pair of redundant VPN Concentrators and Adaptive Security Appliances provides VPN services to the hosting environment.
Network Security – Intrusion Detection and Prevention	WVI uses multiple IDS/IPS technologies to protect the CDC hosting environment and to maximize IDS/IDP coverage.
Identity Security – Directory Services	WVI uses Active Directory (AD) for directory services.
Application Security – Application Firewalls	WVI hosting facilities utilize web application firewalls to provide real-time, continuous security against attacks and potential data loss. .
Storage Security – Backup Encryption	WVI uses industry leading backup appliances. Encryption is performed prior to transmission of backup data over the LAN/WAN reducing the chance that sensitive data might be intercepted on the network prior to reaching the backup appliance
Server Security – Server Hardening	WVI provisions servers using pre-hardened, standardized VMware images. Once provisioned, servers are individually analyzed using security tools to validate security measures and to ensure industry best practices are followed.
Server Security – Server Virus Protection	WVI uses virus protection for individual virtualized hardware.
Server Security – Host-based Firewalls	For operating systems that include a server based firewall technology, such as Microsoft Windows, the host-based firewall is configured to only allow access to server ports required for the system to function.
Server Security – Host-based Intrusion Detection	WVI utilizes host-based intrusion detection and audit controls with configuration management.
Transaction Security – Transaction Audit Trail	WVI uses a logging appliance to aggregate and consolidate all logs.

Authentication and Identity Security

Identity security relates to how users identify themselves to applications, websites, and infrastructure components. This includes authentication and authorization processes that ensure that only authorized users can access West Virginia resources. Identity security can also apply to how one component of the system identifies itself to other components of the system in an irrefutable manner.

Web Single Sign-On

A core strength that WVI brings to the state is its familiarity with the current WV.gov single sign on system in use with West Virginia applications and websites. WVI has successfully integrated the vendor's hosted applications into this system as part of our application framework.

The WVI application framework allows for a rapid and seamless integration of all existing and future applications with the WV.gov SSO using common libraries and web services. The WVI application framework ties the WV.gov SSO to the local application infrastructure to allow the following functionality "out-of-the-box":

- Full integration with the WV.gov Single Sign-On for authentication authorization services
- Enforcement of strong passwords including length, content, and age.
- Automatic lock out of accounts after multiple failed login requests.
- Self-help password reset functionality.
- Logging and Auditing of authentication and authorization events.
- Local "role-based" authorization for fine-grain access controls within a single application
- Association of roles within specific instances of the given application or application as a whole. This allows a system like the Vehicle Registration System to provide roles defined to a given dealership and also define roles that provide access to all dealerships.
- Ability to distribute role membership at the agency and customer levels through defined authorization requirements.

Directory Services

Directory services are a commonly used mechanism for managing user account information including authentication credentials and user metadata. By utilizing directory services, WVI provides a consistent mechanism for West Virginia to securely store and manage user accounts. WVI uses directory services to authenticate users for internal-usage sites, FTP services, and administrator access.

Remote Administration

WVI allows administrator access to the environment by personal VPN connection only. VPNs use a unique key token assigned to an individual for authentication of the administrator. Once connected to the environment, system access is controlled through other authentication and authorization mechanisms.

Backup Systems

WVI provides a comprehensive backup and recovery solution that ensures that the reconstruction of lost data does not require the use of original data sets by utilizing a backup data grid. This provides a second layer of insurance should the primary data center be unusable or if there was an issue with "hot site" replication processes. All incremental and full backups of all system data and configuration information at WVI's data centers are written to the data grid. There is a separate grid in each data center. Nightly, the data is replicated to the alternate grid which is in a geographically dispersed data center. This replication is in addition to any data replication occurring from the database and SAN systems.

Backup Encryption

WVI utilizes industry standard backup appliances. The backup system supports strong encryption of files being backed up to the storage array. WVI will use this backup encryption technology to encrypt backups of all data files containing sensitive or private data.

Disaster Recovery

WVI's approach to disaster recovery takes into consideration all of the components, systems, and processes that are required to provide alternate hosting services. WVI's current processing arrangements for disaster recovery leverage WVI's centralized hosting facility (CDC) services and entails utilizing an alternate location, a disaster recovery plan, and a methodology for testing, refreshing, and

informing people about the procedures and processes involved. The disaster recovery and business continuity plans are maintained and refreshed as the project and its underlying technology evolves. The plan has six objectives:

- Establish and define responsibilities
- Define procedures for recovery operation
- Define mission critical systems
- Limit magnitude of loss
- Minimize extend of interruption
- Define alternatives for continuation of services

Alternate Processing Site

WVI maintains geographically separate processing sites. Each of the two CDC facilities provides primary and backup processing for our partners. The infrastructure recovery strategy for West Virginia is to provision cluster nodes for web and application servers across both data centers. This allows both hosting sites to be managed as a single server farm to ensure that the backup facility is reliably capable of resuming services after a disaster. Under normal circumstances, traffic will be routed to the primary facility. If needed, though, traffic can be diverted to the secondary site.

WVI's CDC synchronizes data through several replication strategies to the alternate processing data center in compliance with established RTO requirements. Data replication between facilities is most commonly achieved through replication technologies specific to the relational database technology. SAN replication is available, though, as an alternate data replication method for databases and as a primary method of replicating data stored in files. WVI also performs traditional backup and recovery services that provide a second layer of insurance should the primary data center be unusable.

4.5.2 The Vendor should provide technical services for the State of West Virginia's Enterprise Portal and e-Government applications in compliance with applicable State and Federal rules for security and citizen privacy.

VENDOR RESPONSE:

Security/Protection of Personal Data

West Virginia Interactive understands that providing a sense of security and privacy to users of an e-Government solution results in high adoption rates and customer satisfaction. WVI's system security (described in detail in our response to *Section 4.6*) has been honed by NIC's work on more than 28 state, local, and federal e-Government site installations.

Security is the most critical segment of the current portal and WVI considers the security of our partners' and citizens' information crucial. We handle online information with the commitment of ensuring a secure environment that can be trusted to fulfill all confidentiality requirements. Documented steps are taken to safeguard information according to established security standards and procedures and we continually assess the newest technology for protecting information.

In particular, WVI has security documents covering the following:

- **WV.gov Privacy Policy** – Defines how information collected by applications is used, the proper ownership of the information, and with whom the information might be shared
- **WV.gov Accessibility Policy** – Explains the accessibility and universal access procedures used by WVI on West Virginia applications
- **WV.gov Security Policy** – A high-level document that outlines the security procedures used by WVI to protect customer data that is submitted to a West Virginia application

WVI regularly reviews these policies to verify their compliance with current industry, state, and federal standards and policies. This includes in compliance with applicable state and federal rules for security and citizen privacy.

> 4.5.3 The State may choose to host a subset of applications on State-managed networks and another subset using the Vendor-provided hosting services. The Vendor should describe how this has been provided in past installations.

VENDOR RESPONSE:

WVI realizes that there are possible instances where an application is better suited to be on the state-managed networks. WVI fully supports this requirement. WVI currently manages one application fully hosted by the state of West Virginia and supports multiple applications with pieces, such as databases, hosted by the state. The Business 4 WV application, for example, is fully hosted by the state. With this application, WVI supports the development and enhancement of the application while the state manages the hosting environment. Throughout the life of this application, WVI has worked with the state's help desk and IT teams to address any performance or availability issues. In 2015, WVI supported a significant upgrade to the hosting environment for Business 4 WV. This upgrade was very successful and all parties are satisfied with the results.

> 4.5.4 Vendor should be subject to routine third-party security reviews, audits, and scans at the approval and discretion of the State. The scope of the audits could include any or all aspects or services provided to the State.

VENDOR RESPONSE:

WVI agrees to routine third-party security reviews, audits, and scans at the approval and discretion of the state.

WVI recommends the state continue to leverage the results of our ongoing third party security audits as the security auditing solution for the e-Government program. WVI will use the current vendor, Verizon, or another nationally recognized firm to perform the audits. Recurring assessments are performed that validate controls against an industry standard framework, and other best practices. The audit addresses security at key layers of the solution for West Virginia, including:

- Process and procedure validation
- Policy review
- Desktop devices
- External (Internet-facing) vulnerabilities
- Internal (LAN and DMZ) vulnerabilities

- Email gateway filters
- Wireless environment
- Physical inspection

The assessment is a continuous monitoring program where audit activities are performed over a 12-month period with delivery of a final Risk Assessment Report. Each quarter of the 12-month period WVI receives security status reports for the West Virginia operation including any findings. If the findings are not addressed and/or remediated at the end of the assessment year, WVI will not receive a compliant status.

The certification and associated audits are conducted as part of our self-funded contract with the state.

In addition to the ongoing security audit, WVI undergoes other regular security audits to comply with specific compliance requirements.

- Annually, WVI undergoes a PCI DSS compliance assessment
- All applications and websites are externally validated by a PCI Approved Scanning Vendor, as a component of PCI DSS compliance
- Sarbanes-Oxley ("SOX") control validation activities occur quarterly and annually with random audits from our independent auditors, currently Ernst & Young.

> 4.5.5 The system should be accessible 99.9% of the time, 24 hours per day, and 365 days per year.
>
> VENDOR RESPONSE:

West Virginia Interactive will comply with this requirement, using commercially reasonable efforts to provide that the portal equals or exceeds 99.9% uptime. To harmonize all relevant provisions of this RFP and to align with industry standard exceptions, Vendor assumes that scheduled maintenance (as defined in Section 4.2.5(a) of the RFP), emergency maintenance (for example, to remediate a security vulnerability) and force majeure events will be excluded from the uptime calculation.

> 4.5.6 The Vendor should provide secure data storage options as requested to agencies for use with portal applications. The Vendor should provide a Data Storage Security Plan encompassing the security management strategy to protect the data.
>
> VENDOR RESPONSE:

WVI provides a solution for secure data storage options currently under our contract with the state. The following plan includes protecting data according to classification and applying the appropriate storage security methods. WVI will continue to work with the state and each agency to provide a secure data storage option given each project's unique requirements.

Data Storage Security Plan

Data Security

Protecting data is a primary goal of the entire WVI Security Program. Whether this data is collected from end users or from West Virginia business systems, the privacy and integrity of the data must be ensured using effective security controls for databases and other system data stores.

Data Classification

All data that an application stores in a local database undergoes a data classification process prior to the development of the application. All data is classified as to its confidentiality, availability, and integrity risk.

- Confidentiality – The need to restrict access and disclosure of information including the needs of protecting personal privacy and proprietary information.
- Availability – The need to ensure reliable and efficient access for the use of the data.
- Integrity – The need to protect against improper modification or destruction of data.

The usage of protection mechanisms, such as encryption, website display, administrative access, and truncation are determined after the data is classified appropriately.

Data Access

Databases provide a number of access controls that if used correctly help to ensure that only authorized and expected access to data occurs in the system. For instance, some databases allows an application process to connect to the database without passing a username and password. This prevents database connection credentials from being stored in application configuration files where they might be compromised during an intrusion.

Regardless of the authentication method used to connect to the database, proper permissions must be applied to the database schema. Application process identities are granted minimum permissions for reading and writing data in tables. Often, full read and write permissions are not granted at all to the schema, but instead evaluated and assigned on a granular level. The impact of vulnerabilities can be greatly reduced by following these minimum schema permission techniques.

Data Integrity

The integrity of data held in databases is protected using a number of different techniques. Sensitive data stored in a database will be encrypted using strong encryption technology that is external to the database. This not only ensures that the information cannot be disclosed outside of the context of the application, but prevents the data from being tampered with while in the database. Digital signing and data hashing are other techniques that can be used when the data may not be sensitive, but a control is needed to ensure that unauthorized modification of the data has not occurred. Keys and/or hashing seeds are stored securely and external to the database when using encryption, digital signatures, or data hashing.

An audit mechanism can be used to monitor access to sensitive data. These audit points can be applied at the table or at the column level. When using stored procedures, audits can be integrated into the

procedure. When triggered, these audit mechanisms log the time and identity of the person accessing the data. These audits applied to the schema should be as specific as possible and should be tuned to exclude the normal access needed by an application. In doing so, the audit data can more easily be reviewed by security personnel to uncover unauthorized access by individuals or system processes.

Storage Security

Whether data is stored in databases or in files, ultimately this data resides on the storage systems that support the environment. Several different storage mechanisms are used in the proposed hosting solution.

- Local disk storage in physical servers
- Remote storage systems such as a Storage Array Network (SAN)
- Backup storage systems and media

WVI's security architecture addresses each of these different storage elements of the environment to protect West Virginia data residing in files.

Minimum File Permissions

All storage technologies used by WVI offer access control mechanisms at the file level. All files stored on WVI systems are assigned minimum file access permissions. Only access necessary for applications and software components of the solution are granted to specific user identities. System processes associated with service delivery are assigned unique user accounts to enable the application of very specific access controls to files.

This granularity of access controls extends to administrators as well. File access for administrators can be limited to the minimum access level necessary for them to perform their administrative responsibilities.

Segmented Storage Topology

WVI uses a multi-tier network architecture for West Virginia. Care is taken to engineer the topology of the storage system to match this segmented network architecture. Storage volumes on the SAN are not shared by servers located in different network tiers. Following this approach, an intrusion into a DMZ server could not compromise file systems supporting application services or databases. Likewise, storage volumes are not shared between the different hosting environments (i.e. Production, Staging, Testing, and Development). In this manner, an intrusion into a supporting environment (such as Testing) could not result in access to production files.

Backup Encryption

WVI utilizes dedicated backup appliances. The backup system supports strong encryption of files being backed up to the storage array. WVI uses this backup encryption technology to encrypt backups of all data files containing sensitive or private data.

> 4.5.7 The vendor must establish and maintain an alternative processing arrangement adequate to resume within 24 hours the application's processing services provided under the contract, in the event the agency site or equipment is unavailable due to human error, equipment failure, manmade or natural disaster.

Vendor must describe in detail their approach for alternative processing arrangements and their disaster recovery testing procedures.

VENDOR RESPONSE:

Disaster Recovery

WVI already has and maintains an alternate processing solution through the CDC hosting environment that can resume within 24 hours the services provided under this contract.

WVI's approach to disaster recovery takes into consideration all of the components, systems, and processes that are required to provide alternate hosting services. WVI's current processing arrangements for disaster recovery leverage WVI's centralized hosting facility (CDC) services and entails utilizing an alternate location, a disaster recovery plan, and a methodology for testing, refreshing, and informing people about the procedures and processes involved. The disaster recovery and business continuity plans are maintained and refreshed as the project and its underlying technology evolves. The plan has six objectives:

- Establish and define responsibilities
- Define procedures for recovery operation
- Define mission critical systems
- Limit magnitude of loss
- Minimize extend of interruption
- Define alternatives for continuation of services

Alternate Processing Site

WVI maintains geographically separate processing sites. Each of the two CDC facilities provides primary and backup processing for our partners. The infrastructure recovery strategy for West Virginia is to provision cluster nodes for web and application servers across both data centers. This allows both hosting sites to be managed as a single server farm to ensure that the backup facility is reliably capable of resuming services after a disaster. Global traffic managers (GTMs) manage public Internet traffic to these instances running in parallel at both WVI data centers. Under normal circumstances, traffic will be routed to the primary facility. If needed, though, traffic can be diverted to the secondary site through the GTMs and a DNS change.

WVI's CDC synchronizes data through several replication strategies to the alternate processing data center in compliance with established RTO requirements. Data replication between facilities is most commonly achieved through replication technologies specific to the relational database technology. SAN replication is available, though, as an alternate data replication method for databases and as a primary method of replicating data stored in files. WVI also performs traditional backup and recovery services that provide a second layer of insurance should the primary data center be unusable.

Disaster Recovery Testing

All aspects of the disaster recovery plan are tested at least once annually. Tests are coordinated and performed by routing traffic to the alternate processing site and performing manual and automated testing against services to ensure proper functionality against expectations.

4.6 **Objective 6 - Security and Authentication Services**

4.6.1 The Vendor should explain how it will provide the following:
- Ensure that State information is protected with reasonable security measures;
- Promote and maintain among the Vendor's employees and agents an awareness of the security needs of the State's information.
- Safeguard the confidentiality of information and the integrity and availability of data while it is created, entered, processed, communicated, transported, disseminated, stored, or disposed of by means of information technology.
- Ensure that appropriate security measures are put in place to protect the Vendor's internal systems from intrusions and other attacks, whether internal or external, e.g., message interception, tampering, redirection, or repudiation.

VENDOR RESPONSE:

The modern government environment necessitates that information be presented and transactions take place over the Internet. While the advantages to e-Government are numerous and undeniable, the risks associated with security breaches are substantial. In order to facilitate the delicate balance between information availability and information protection, WVI has made the security and privacy of our partners' information a core competency.

In order to act as secure guardians of the state of West Virginia's data for both current technologies and future technologies, WVI has implemented a layered and modular information security program. The function of the layered approach is to provide multiple levels of protection, each of which, while providing a strong layer of security, is not the only obstacle preventing unintended disclosure. By layering the protection, WVI believes that e-Government services offered by the state will not be at the mercy of a single flaw in any one solution, vendor, or protection point. By approaching the solution with a modular architecture, WVI can replace, modify or upgrade individual components of the security architecture to not only ensure that we maintain a best of breed environment, but also that we are able to adjust to future threats and needs of the state of West Virginia.

WVI meets all requirements for security and authentication services. Details are provided throughout this section; however, a summary of our approach to each requirement is provided in the table below.

Requirement	WVI Approach
Ensure that State information is protected with reasonable security measures	WVI has implemented a comprehensive security platform including transport layer encryption, filtering routers, perimeter and internal firewalls, segmented network architecture, intrusion detection and prevention and other protections designed to protect all state information.
Promote and maintain among the Vendor's employees and agents an awareness of the security needs of the State's information.	West Virginia Interactive utilizes multiple methods for training employees and promoting an awareness of security, including mentoring, informal shadowing, formal training programs, conferences, and discipline-specific training.

Requirement	WVI Approach
Safeguard the confidentiality of information and the integrity and availability of data while it is created, entered, processed, communicated, transported, disseminated, stored, or disposed of by means of information technology	WVI's security practices cover all aspects of the application development, hosting, and operational processes. WVI has implemented a rigorous security practice to safeguard information as well as provide for the integrity and availability of data.
Ensure that appropriate security measures are put in place to protect the Vendor's internal systems from intrusions and other attacks, whether internal or external, e.g., message interception, tampering, redirection, or repudiation	WVI has implemented a comprehensive security platform including transport layer encryption, filtering routers, perimeter and internal firewalls, segmented network architecture, intrusion detection and prevention and other protections designed to protect all internal systems utilized for West Virginia services from intrusions and other attacks from both internal and external sources.

Proven Security Measures

The existing e-Government environment provided by WVI for West Virginia services is a complex system consisting of many different layered components. Accordingly, WVI utilizes layered security architecture, applying independent security controls at each layer of the hosting environment. Additionally, controls are used to secure interfaces with system components external to the hosting environment such as the end user, employees, and West Virginia backend systems. The security architecture utilized for the program is presented in the following figure.

Figure 10: Security Architecture

Presented in the following table are the elements of the security architecture including a list of the security elements associated with each security layer that WVI will provide for the e-Government program. These security elements provide the foundation for protecting state information and assets.

Security Layer	Security Elements
Client Security	• Transport Layer Encryption • Client Data Persistence

Security Layer	Security Elements
Perimeter Security	• Filtering Routers • Perimeter Firewalls • Virtual Private Networks (VPNs) • Physical Security
Network Security	• Segmented Network Architecture • Intrusion Detection and Prevention
Identity Security	• Directory Services • Public Key Infrastructure (PKI)
Application Security	• Vulnerability Prevention • Vulnerability Detection • Application Firewalls • N-Tier Application Architecture
Server Security	• Server Hardening • Server Virus Protection • Host-based Firewalls • Host-based Intrusion Detection • Server Role Isolation
Data Security	• Data Governance • Data Collection • Data Retention • Data Protection • Data Access • Data Integrity
Storage Security	• Minimum File Permissions • Segmented Storage Topology • Backup Encryption
Integration Security	• Network Integration • Minimum Remote System Access • Batch Process Security
Workstation Security	• Workstation Policies and Audits • Workstation Virus Protection • Full Disk Encryption for Laptop Computers

Employee Awareness of Security/Security Training

WVI is committed to educating and continually training our staff on security best practices and the program's policies and procedures. This includes ongoing professional development that includes several programs for employees to enhance their skillsets around security awareness and developing secure applications. WVI's training programs range from formal sessions offered on-site and at different company locations across the country to informal shadowing and mentorship programs in which employees team up and learn best practices from each other.

- Formal training programs in online and offline security, new technologies, infrastructure, system administration, application development and testing, marketing, and project management are offered throughout the year.
- Each year, WVI's staff participates in several NIC corporate multi-day conferences in which management, technical, project management, and marketing personnel gather for ongoing professional development; security is always an area of concentration
- All WVI employees are required to complete an annual security training program administered by our parent company NIC.
- Discipline-specific training occurs periodically and is offered both regionally and nationally. WVI and our parent company NIC's management team meets frequently to review best practices and participate in brainstorming sessions.

Peer mentoring and on-site shadowing provide excellent security skillset development opportunities for both new and experienced employees. WVI's mentoring program pairs new employees with more experienced peers and offers a less formal channel for skill development. WVI also frequently sends new employees to other NIC locations for on-site shadowing and mentoring. Working side-by-side for several days with an experienced employee continues to be an excellent way for new employees to efficiently ramp-up and assimilate into the company culture and environment.

Additionally, WVI establishes key relationships and deploys technologies from leading enterprise security companies whose primary focus is closely aligned with WVI, which is to protect citizen and partner data at all times. As WVI integrates these security technologies into its enterprise architecture, we receive training and consulting time from these industry experts through the pre and post deployment stages. This training is absorbed and subsequently propagated throughout the enterprise in the form of central knowledge bases and wiki's to ensure sustained transfer of knowledge. Such security technologies range from web application firewalls, VPN concentrators to application scanning toolsets.

Confidentiality & Integrity of Data

Data Security

Protecting data is a primary goal of the entire WVI Security Program. Whether this data is collected from end users or from West Virginia business systems, the privacy and integrity of the data must be ensured using effective security controls for databases and other system data stores.

Data Classification

All data that an application stores in a local database undergoes a data classification process prior to the development of the application. All data is classified as to its confidentiality, availability, and integrity risk.

- Confidentiality – The need to restrict access and disclosure of information including the needs of protecting personal privacy and proprietary information.
- Availability – The need to ensure reliable and efficient access for the use of the data.
- Integrity – The need to protect against improper modification or destruction of data.

The usage of protection mechanisms, such as encryption, web site display, administrative access, and truncation are determined after the data is classified appropriately.

Data Access

Databases provide a number of access controls that if used correctly help to ensure that only authorized and expected access to data occurs in the system. For instance, some database allows an application process to connect to the database without passing a username and password. This prevents database connection credentials from being stored in application configuration files where they might be compromised during an intrusion.

Regardless of the authentication method used to connect to the database, proper permissions must be applied to the database schema. Application process identities are granted minimum permissions for reading and writing data in tables. Often, full read and write permissions are not granted at all to the schema, but instead evaluated and assigned on a granular level. The impact of vulnerabilities can be greatly reduced by following these minimum schema permission techniques.

Data Integrity

The integrity of data held in databases is protected using a number of different techniques. Sensitive data stored in a database will be encrypted using strong encryption technology that is external to the database. This not only ensures that the information cannot be disclosed outside of the context of the application, but prevents the data from being tampered with while in the database. Digital signing and data hashing are other techniques that can be used when the data may not be sensitive, but a control is needed to ensure that unauthorized modification of the data has not occurred. Keys and/or hashing seeds are stored securely and external to the database when using encryption, digital signatures, or data hashing.

An audit mechanism can be used to monitor access to sensitive data. These audit points can be applied at the table or at the column level. When using stored procedures, audits can be integrated into the procedure. When triggered, these audit mechanisms log the time and identity of the person accessing the data. These audits applied to the schema should be as specific as possible and should be tuned to exclude the normal access needed by an application. In doing so, the audit data can more easily be reviewed by security personnel to uncover unauthorized access by individuals or system processes.

Storage Security

Whether data is stored in databases or in files, ultimately this data resides on the storage systems that support the environment. Several different storage mechanisms are used in the proposed hosting solution.

- Local disk storage in physical servers
- Remote storage systems such as a Storage Array Network (SAN)
- Backup storage systems and media

WVI's security architecture addresses each of these different storage elements of the environment to protect West Virginia data residing in files.

Minimum File Permissions

All storage technologies used by WVI offer access control mechanisms at the file level. All files stored on WVI systems are assigned minimum file access permissions. Only access necessary for applications and software components of the solution are granted to specific user identities. System processes associated with service delivery are assigned unique user accounts to enable the application of very specific access controls to files.

This granularity of access controls extends to administrators as well. File access for administrators can be limited to the minimum access level necessary for them to perform their administrative responsibilities.

Segmented Storage Topology

WVI uses a multi-tier network architecture for West Virginia. Care is taken to engineer the topology of the storage system to match this segmented network architecture. Storage volumes on the SAN are not shared by servers located in different network tiers. Following this approach, an intrusion into a DMZ server could not compromise file systems supporting application services or databases. Likewise, storage volumes are not shared between the different hosting environments (i.e. Production, Staging, Testing, and Development). In this manner, an intrusion into a supporting environment (such as Testing) could not result in access to production files.

Backup Encryption

WVI utilizes dedicated backup appliances. The backup system supports strong encryption of files being backed up to the storage array. WVI uses this backup encryption technology to encrypt backups of all data files containing sensitive or private data.

Protecting Internal Systems

WVI uses many elements of our security program to protect our internal systems from intrusions and other attacks. This includes protecting the program at the perimeter, network and server level.

Server Security

The server layer of the hosting environment includes the physical server hardware, operating system, and virtualization platform. WVI's Security Program ensures that the server environment is protected through controls such as server hardening, virus protection, host-based firewalls, and host-based intrusion detection, and role isolation.

Perimeter Security

Perimeter security controls manage how the hosting infrastructure interfaces with external networks and systems. Perimeter security also includes the physical security of the servers and network devices including deployment of the following technologies:
- Filtering Routers
- Perimeter Firewalls
- Virtual Private Networks (VPNs)
- Physical Security

Network Security

Protection for the network and devices is accomplished with sound network architecture and effective network security controls. WVI deploys a segmented network topology with strong intrusion detection and prevention systems for the infrastructure.

Security Audits/Security Validation

While WVI implements industry best practices, it is critical to gain outside perspective and validate our security practices. In order to obtain that outside perspective and assess our risk, WVI is continually assessed by a nationally recognized third-party security auditor. This approach enables WVI to support IT security governance activities, helps reduce risk, and demonstrates compliance with key international, industry, and regulatory security standards.

If audit exceptions are discovered during security audits, Mitigation and remediation activities begin immediately after the completion of an audit. Audit exceptions are prioritized based on the severity and risk of the identified deficiency. WVI works closely with the vendor during the remediation process to identify the optimal remediation strategy. Once remediation is complete, the vendor will validate through retesting activities that audit exceptions have been successfully remediated.

The specific objectives WVI achieves by managing security in this manner include: 1) providing a structured, programmatic approach to governance activities; 2) reducing risks with ongoing assurance of security practices; 3) demonstrating compliance with multiple security standards; 4) promoting partner and public confidence.
Audit activities occur at different frequencies: quarterly, annual, and bi-annual.

In addition to the ongoing security audit, WVI undergoes other regular security audits to comply with specific compliance requirements.

- Annually, WVI undergoes a PCI DSS compliance assessment
- All applications and websites are externally validated by a PCI Approved Scanning Vendor, as a component of PCI DSS compliance
- Sarbanes-Oxley ("SOX") control validation activities occur quarterly and annually with random audits from our auditors, currently Ernst & Young.

4.6.2   The Vendor should fully describe its approach to security, including but not limited to, operating system hardening, application server hardening, data protection & encryption, access control, vulnerability management, network infrastructure, boundary protection and network monitoring. The Vendor should submit a narrative response explaining how its proposal addresses each area of security management to include providing a copy of their security policies. Vendors should describe how it would:

- Assure confidentiality of data in transit - provide the ability to execute secure, authenticated, two-way transactions as well as ensuring that all other data is encrypted beyond the reasonable threat of a successful brute force attack.
- Assure confidentiality of data in storage - ensure that all State data is properly segregated from other clients' data.

- Assure integrity of data - determine how to maintain data integrity and customers' confidentiality and privacy; handle legal issues with regard to misuse or fraud and options for resolution.
- Assure legal compliance - ensure proposed solution complies with required protections for State data that governed by State or Federal laws.
- Boundary control protection - determine method for tracking and protection of network interconnections between the Vendor's network infrastructure and networks owned, operated or contracted by the State.
- Maintain access control - determine methods needed to properly manage access control for both physical facility access and information system access.
- Provide authentication - determine how to provide robust authentication services.
- Provide audit capabilities - implement date-time stamp and an audit trail for identifying all network security breaches and attempted breaches; implement penetration analysis and intrusion detection policies to ensure that the application remains as secure as possible over time; implement vulnerability management policies to ensure operating system, software, configuration and application vulnerabilities are identified, corrected and tracked.

VENDOR RESPONSE:

It is not enough to simply deploy security technology. These technologies must be managed correctly and validated by security experts to ensure that they are being effectively applied. WVI and our parent company employ experts in the field of cyber security and WVI also seeks external validation of security controls by utilizing a third-party security vendor to audit our security program. This approach validates all critical aspects of WVI's Security Program through regularly scheduled audits and assessments. Furthermore, WVI will maintain compliance certifications with key industry and government security programs such as PCI DSS and Sarbanes-Oxley (SOX). These programs also require regular security exercises and assessments as a component of compliance certification.

Since the enterprise solution will integrate with state systems and data, WVI has a special responsibility to protect these state systems and the data contained within them. Connections to state systems and networks will utilize secure VPN tunnels for network connectivity. A properly engineered firewall infrastructure will be used to manage traffic originating from the Internet, flowing between internal network segments, and crossing over VPN connections to state systems.

WVI meets all requirements for security and authentication services. Details of our security policies and programs are provided throughout the narrative in this section; however, a summary of our approach to each bulleted requirement is provided in the table below.

In addition, WVI is willing to provide additional information regarding its security policies at a later time, on a confidential basis subject to the exemptions to West Virginia's Freedom of Information Act. West Virginia Code §29B-1-4(a)(13) excludes network security records, passwords, security codes or programs used to respond to or plan against acts of terrorism which may be the subject of a terrorist act from being disclosed to the public. Also, West Virginia Code §29B-1-4(a)(14) excludes security or disaster recovery plans, risk assessments, tests or the results of those tests. In an effort to protect the state's portal and electronic services from security vulnerabilities and unnecessary risk, West Virginia

Interactive would propose providing such information on a confidential basis to the state outside of this response, which is public record.

Requirement	WVI Approach
Assure confidentiality of data in transit - provide the ability to execute secure, authenticated, two-way transactions as well as ensuring that all other data is encrypted beyond the reasonable threat of a successful brute force attack.	West Virginia Interact utilizes Transport Security Encryption (TLS/SSL) to encrypt all sensitive information being transmitted between users and the hosting environment. Similarly, VPN tunnels are used to protect the transfer of information from state data sources and line-of-business systems.
Assure confidentiality of data in storage - ensure that all State data is properly segregated from other clients' data	Through the use of data governance policies and procedures, WVI classifies data storage and retention policies.
Assure integrity of data - determine how to maintain data integrity and customers' confidentiality and privacy; handle legal issues with regard to misuse or fraud and options for resolution.	WVI will accomplish this by maintaining a secure hosting environment where only authorized access can occur; using non-repudiation technologies to ensure that data is not altered; utilizing sound authentication and authorization mechanism to ensure that one customer cannot gain access to another customer's data; and generating a rich audit trail of data access that cannot be circumvented or altered.
Assure legal compliance - ensure proposed solution complies with required protections for State data that governed by State or Federal laws.	WVI will work closely with the state to assure legal compliance meets all applicable state and federal laws through proper system planning and annual reviews.
Boundary control protection - determine method for tracking and protection of network interconnections between the Vendor's network infrastructure and networks owned, operated or contracted by the State.	WVI will utilize perimeter firewalls and VPN tunnels to protect interconnections between the hosted environment and state infrastructure.
Maintain access control - determine methods needed to properly manage access control for both physical facility access and information system access.	WVI maintains a policy of minimum access privileges to both virtual and physical resources. Additionally, physical access to hosted environment is strictly enforced and restricted to individuals who have been authorized to gain such access.
Provide authentication - determine how to provide robust authentication services.	WVI utilizes two-factor authentication through the use of a unique token to gain administrative access. Additionally, WVI proposes the use of digital certificates for web applications requiring a high level of authentication control.

Requirement	WVI Approach
Provide audit capabilities - implement date-time stamp and an audit trail for identifying all network security breaches and attempted breaches; implement penetration analysis and intrusion detection policies to ensure that the application remains as secure as possible over time; implement vulnerability management policies to ensure operating system, software, configuration and application vulnerabilities are identified, corrected and tracked.	WVI realizes that auditing and review is the key to identifying most security breaches and attempts. WVI currently provides robust audit features to log, time stamp, report, review and appropriately escalates all security activity on a regular basis.

Assure Confidentiality of Data

Protecting the confidentiality and integrity of data, whether it originates from the end user or from a West Virginia government system, is of utmost importance to WVI. WVI employs a comprehensive Security Program to protect data at all points within the infrastructure. Data governance is a substantial element of the Security Program. The data governance plans and supporting activities determine how data is classified, secured, retained, and destroyed.

WVI will implement data governance policies and procedures for this program that align with state-specific inputs (e.g., laws, regulations, and standards unique to West Virginia) and industry best practices. These data governance policies will specifically address the classification of data. For each data classification, policies will dictate how the data is protected, how long it is retained, and how it is destroyed. On at least an annual basis, systems will be thoroughly audited to uncover data governance deficiencies. Remediation plans will be developed for any deficiencies uncovered by these audits.

WVI protects the confidentiality of data at all points within the systems and for the entire lifecycle of the data. This includes:

- Using transport security mechanisms to protect communications with the end user and West Virginia government systems
- Adhering to sound data governance policies and processes so that all sensitive data is identified and managed in a consistent, appropriate manner
- Encrypting sensitive data stored in files and databases
- Securing the hosting infrastructure with layers of security controls

In Transit

All applications collecting sensitive or private information from constituents will use TLS/SSL transport stream encryption. This protects the information as it transits from the user's browser to the project's servers preventing interception by intermediate parties. Tokens associated with authentication sessions will always be transmitted over secured connections (e.g., TLS or SSL).

Similarly, Virtual Private Network (VPN) tunnels will be used to protect the transfer of information from state data sources and line-of-business systems.

Additionally, sensitive data will be stored securely at all times within the system. Sensitive data residing in databases and files will be encrypted, hashed, or stored in a redacted format depending on the type of data being stored and the business requirements of applications. Sensitive data will also be encrypted prior to storage in backup systems. Finally, sensitive data in databases and files will be purged and/or securely archived according to established data retention processes and schedules.

In Storage

NIC will take every commercially reasonable precaution to protect the confidentiality of data while it is stored on file systems and in databases. This includes applying appropriate access controls, using strong encryption technology, and engineering the storage topology to align with the segmented design of the network. NIC will also take measures to prevent sensitive data from being written to system log files.

Additionally, NIC will employ security controls and technologies to protect West Virginia systems and databases that support e-Government applications. The security for each integration project will be analyzed and appropriate security measures will be taken to protect the security of these important backend systems.

Sensitive data from West Virginia systems or collected from customers will be encrypted whenever stored in local databases and files. Care will be taken to secure the encryption keys through file access controls or other technologies. Encryption will also be used to encrypt data prior to writing any sensitive data to the backup solution.

Assure Integrity of Data

WVI will protect the integrity and privacy of data regardless of whether that data has originated from the end user or from West Virginia backend systems. WVI will accomplish this by maintaining a secure infrastructure where only authorized access can occur; using non-repudiation technologies to check that data is not altered; utilizing sound authentication and authorization mechanism so that one customer cannot gain access to another customer's data; and generating a rich audit trail of data that cannot be circumvented or altered. If any successful unauthorized electronic access to WVI's systems results in the compromise of personal information, WVI will immediately activate NIC's Incident Response Plan and work closely with West Virginia to help communicate with effected Customers in accordance with the plan and applicable law.

Data Integrity and Customer Confidentiality

Several non-repudiation technologies will be employed to check that data is not altered while in the possession of WVI. For instance, one-way hashing and digital signing of records can be used to detect any modification of a record. If the record contains sensitive, personally identifiable information, encryption will be used to protect the record while residing in the proposed hosting environment.

WVI uses a Web Single Sign-On (Web SSO) technology to provide a centralized authentication mechanism for applications hosted by WVI and by agencies. The security of authentication and authorization controls is improved by avoiding disparate authentication mechanisms in favor of a consistent authentication approach.

Fraud and Misuse Management

Although prevention is at the heart of WVI's security model, attacks have become commonplace especially when conducting business on the Internet. Even with all the due diligence and industry best practices, the speed at which information security is changing makes a breach of security a possibility that must be anticipated and planned for prior to the event occurring.

WVI maintains a comprehensive confidential NIC Incident Response Plan that includes active participation by NIC's Corporate Security Team and documents the necessary steps and actions required to be taken in the event of a security incident. Contained within the necessary steps are requirements for notification of state partners, law enforcement entities, affected parties, etc., where appropriate and in accordance with contract requirements, state and federal law, and industry standards.

Notification about a security event may be received from a variety of sources, including but not limited to WVI employees, a partner, a customer/end user, a third party auditor or vendor, or the media. Regardless of how the event is received, it is evaluated by the NIC Corporate Security Team and classified as a false positive, security incident, or security breach. In the event of an incident, the NIC Corporate Security Team acts as the central point of contact coordinating all activities.

All employees are annually trained on incident detection methods and reporting policies. In addition, employees responsible for the administration of any technology asset are trained in connection with their responsibilities for evidence handling and incident response.

State Cyber Security Policies and Standards

WVI maintains full compliance with all current security and data center requirements as published by the state's Office of Information Technology. WVI is confident that the security architecture of the proposed solution and supporting operational processes meet or exceed the state's standards and any applicable federal laws. WVI recognizes that standards evolve and accordingly will work with the state to ensure that the WVI Security Program is compatible with emerging state standards and federal laws.

Security Approach

WVI utilizes a layered and modular security architecture, applying independent security controls at each layer of the hosting environment to provide end-to-end protection of data and systems. Additionally, security controls are used to secure interfaces with system components external to the hosting environment such as the end user, employees, and West Virginia backend systems.

The function of the layered approach is to provide multiple levels of protection, each of which, while providing a strong layer of security, is not the only obstacle preventing unintended disclosure. By layering the protection, WVI believes that e-Government services offered by the state will not be at the mercy of a single flaw in any one solution, vendor, or protection point.

By approaching the solution with a modular architecture, WVI can replace, modify, or upgrade individual components of the security architecture to ensure that WVI maintains a best of breed environment, and is also able to adjust to future threats and the needs of the state of West Virginia.

Presented in the following table are the layers of the security architecture including a list of the security elements associated with each security layer.

Security Layer	Security Elements
Client Security	• Transport Layer Encryption • Client Data Persistence
Perimeter Security	• Filtering Routers • Perimeter Firewalls • Virtual Private Networks (VPNs) • Physical Security
Network Security	• Segmented Network Architecture • Intrusion Detection and Prevention
Identity Security	• Directory Services • Public Key Infrastructure (PKI)
Application Security	• Vulnerability Prevention • Vulnerability Detection • Application Firewalls • N-Tier Application Architecture
Server Security	• Server Hardening • Server Virus Protection • Host-based Firewalls • Host-based Intrusion Detection • Server Role Isolation
Data Security	• Data Governance • Data Collection • Data Retention • Data Protection • Data Access • Data Integrity
Storage Security	• Minimum File Permissions • Segmented Storage Topology • Backup Encryption
Integration Security	• Network Integration • Minimum Remote System Access • Batch Process Security
Workstation Security	• Workstation Policies and Audits • Workstation Virus Protection • Full Disk Encryption for Laptop Computers

Security Architecture

The existing e-Government environment provided by WVI for West Virginia services is a complex system consisting of many different layered components. Accordingly, WVI utilizes layered security architecture, applying independent security controls at each layer of the hosting environment. Additionally, controls are used to secure interfaces with system components external to the hosting

environment such as the end user, employees, and West Virginia backend systems. The security architecture utilized for the program is presented in the following figure.

Figure 11: Security Architecture

The following sections describe WVI's approach to security.

Client Security

Security begins with the user and the device they are using to access West Virginia applications. WVI employs transport layer security to protect information as it flows to-and-from the end user. Additionally, WVI utilizes techniques to minimize the storage of sensitive information on the user's web browser.

Transport Layer Encryption

Protecting customer information through online transactions as it travels between a user and the server is a very important aspect of both privacy and security for web applications. Strong Transport Layer Security (TLS) or Secure Socket Layer (SSL) stream encryption is used to secure communications between a user's web browser and the program servers. Encrypting this information in transit prevents a third party from intercepting sensitive data as it traverses local networks and the Internet. This type of encryption also helps protect against man-in-the-middle attacks.

Client Data Persistence

WVI utilizes application security practices that mandate the management of persistently cached data and temporary files on the client browser. This includes technical measures that are put in place for all transactional application responses that explicitly instruct client web browsers not to persistently store page data or cache it for reuse when sensitive information is displayed. Sensitive data is also never stored in browser cookies. Lastly, directives are included in the HTML markup of forms to exclude sensitive data values entered into form fields from "auto complete" features active in many popular browsers.

Perimeter Security

Perimeter security controls manage how the hosting infrastructure interfaces with external networks and systems. Perimeter security also includes the physical security of the servers and network devices.

Filtering Routers

WVI uses filtering routers at the perimeter of the data center network. These routers route traffic to-and-from the Internet connection as well as handle traffic crossing between the primary and secondary hosting facilities (e.g., MPLS connections). Access Control Lists (ACLs) are applied at the router to drop all network traffic that is not required for the system to function. By filtering traffic first at the router, malicious traffic does not pass through to network firewall devices reducing the impact of a Denial of Service attack and reducing the processing load on the firewalls.

Perimeter Firewalls

All WVI computer networks, systems, and applications are protected from external networks by the deployment of firewall systems. All firewall devices use a combination of "stateful packet inspection" and "application proxy" technologies.

Virtual Private Networks (VPNs)

VPN technology allows secure tunnels to be created over the Internet. Using state-of-the-art encryption and key management technologies, VPNs enable the Internet, a public network, to function as private, secure network connections without the cost of dedicated telecommunication lines. VPNs will be used

for two distinct purposes in the proposed hosting infrastructure. The first use is to provide secure LAN-to-LAN links into West Virginia backend networks housing systems and data sources required for online applications to function. Secondly, client VPN connections will be used by systems administrators to connect workstations into the proposed network for the purpose of remotely administering the hosting environment.

Physical Security

WVI is proposing to continue hosting services at our Central Data Center (CDC) facilities. These hosting environments are located at Tier IV facilities. WVI implements mechanisms to ensure that only authorized access is permitted into the hosting facilities. There are surveillance cameras both inside and outside the facility. Access to the CDC is strictly enforced and restricted to individuals who have been authorized to gain such access. Also, monitoring is performed to check for any unauthorized access to data assets. No one is allowed to enter the facility without prior approval from the site administrator.

Additionally, WVI implements physical security controls in our offices where WVI employees work to protect sensitive information and systems that may reside within the office environment. At a minimum, each WVI physical location is secured by manual or systematic means. If manual, then key management is assigned to a specific individual. Locks are immediately changed when either a key is lost or not returned when an employee separates from the company. If systematic, then key fobs are assigned to specific individuals. Access is immediately disabled when key fobs are reported lost or upon an employee's separation from the company.

Alarm systems are used to secure facilities after hours and when no personnel are present. All facility and server room entry points and other sensitive business areas must have a surveillance system that records all activity.

All visitors must be authorized before being granted access to a WVI facility. All visitors are given a visitor badge, which must be surrendered upon exiting the facility. A log book is maintained to document when all visitors enter and exit a facility. The log book is secured each night and periodically audited by security personnel. Any unknown person present at a WVI facility without a visitor's badge is stopped and questioned about their presence at the facility. All such incidents should be reported to the designated security contact person so that the incident may be properly documented and handled in accordance with WVI's physical security policies.

Network Security

Protection for the network and devices is accomplished with sound network architecture and effective network security controls. WVI recommends a segmented network topology with strong intrusion detection and prevention systems for the infrastructure.

Segmented Network Architecture

Internal network segments are configured as isolated tiers based on the risk of intrusion and the sensitivity of the data. For instance, one or more DMZ network segments are implemented to limit access from external sources to only those devices necessary to provide the front-end functionality. All backend servers, such as application and database servers, are located in separate internal network segments that do not permit connections from external networks. Communications between internal network segments are tightly regulated using firewalls and other network equipment. Firewall rules will

be configured to provide the minimum level of access necessary to allow network traffic required for normal business operations (i.e. "Default Deny" methodology).

Intrusion Detection and Prevention

Intrusion detection and prevention is another important safeguard to the network. Intrusion Detection and Prevention Systems (IDS/IPS) inspect network traffic through advanced heuristics and signature-based methods to identify potentially dangerous or improper traffic. Once a threat is detected, the IPS can take real time network countermeasures and/or notify an administrator.

Identity/Authentication Security

Identity security relates to how users identify themselves to applications, websites, and infrastructure components. This includes authentication and authorization processes that ensure that only authorized users can access West Virginia resources. Identity security can also apply to how one component of the system identifies itself to other components of the system in an irrefutable manner.

Web Single Sign-On

A core strength that WVI brings to the state is its familiarity with the current WV.gov single sign on system in use with West Virginia applications and websites. WVI has successfully integrated the vendor's hosted applications into this system as part of our application framework.

The WVI application framework allows for a rapid and seamless integration of all existing and future applications with the WV.gov SSO using common libraries and web services. The WVI application framework ties the WV.gov SSO to the local application infrastructure to allow the following functionality "out-of-the-box":

- Full integration with the WV.gov Single Sign-On for authentication authorization services
- Enforcement of strong passwords including length, content, and age.
- Automatic lock out of accounts after multiple failed login requests.
- Self-help password reset functionality.
- Logging and Auditing of authentication and authorization events.
- Local "role-based" authorization for fine-grain access controls within a single application
- Association of roles within specific instances of the given application or application as a whole. This allows a system like the Vehicle Registration System to provide roles defined to a given dealership and also define roles that provide access to all dealerships.
- Ability to distribute role membership at the agency and customer levels through defined authorization requirements.

Directory Services

Directory services are a commonly used mechanism for managing user account information including authentication credentials and user metadata. By utilizing directory services, WVI provides a consistent mechanism for West Virginia to securely store and manage user accounts. WVI uses directory services to authenticate users for internal-usage sites, FTP services, and administrator access.

Remote Administration

WVI allows administrator access to the environment by personal VPN connection only. VPNs use a unique key token assigned to an individual for authentication of the administrator. Once connected to the environment, system access is controlled via the internal directory services.

Application Security

Custom web applications are the greatest single security risk for web infrastructures today. Web application vulnerabilities, including, but not limited to those identified by the Open Web Application Security Project (OWASP) can allow an attacker to gain access to systems, steal, or alter data, or adversely impact the performance of infrastructures. WVI's Security Program focuses on preventing the introduction of web application vulnerabilities in the first place, detecting the presence of web application vulnerabilities, and minimizing their potential impact on the hosting infrastructure.

Vulnerability Prevention

Not introducing web application vulnerabilities is of course the most effective protection against these threats. Security is an essential component of WVI's development process. Employing experienced developers and continuously educating developers on how to avoid introducing vulnerabilities is critical. WVI regularly offers development staff the opportunity to be trained in security by industry experts specializing in web application security. This routine training includes several elements:

- Coding best practices and secure coding principles to mitigate risks
- Common application security weaknesses and vulnerabilities for both the development language and operating environment
- How attackers exploit weaknesses
- Robust security architecture
- Proper methods of handling attempted breaches, including issue resolution, forensic research, and the development of new best practices

Internal training and mentoring augment this external training. While developing applications, peer review of code is performed to catch potential security issues early on in the development process. Finally, developers are trained to use a combination of vulnerability scanning tools and penetration testing to ensure that any vulnerability that may exist through the development process is identified and rectified prior to application deployment.

Armed with up-to-date knowledge, WVI's Charleston based development shop established internal development practices and techniques to prevent the introduction of web application vulnerabilities during the Software Development Lifecycle (SDLC). WVI at a minimum takes into account the Open Web Application Security Project (OWASP) top ten vulnerabilities while developing all applications.

Security cannot be an afterthought when developing web applications. WVI has integrated security into the entire SDLC so that threats are anticipated, detected, and remediated early in the development process. As part of the SDLC, WVI:

- Ensures that security requirements are in place from the beginning of the project by performing a security review of the functional requirements for an application

- Ensures that all data generated or used by an application is fully understood and classified for security needs to protect it
- Performs peer review of all developed code to ensure that security best practices are being followed
- Uses automated tools to scan milestone builds to identify potential web application vulnerabilities early in the development cycle
- Uses tools to scan a build before it is released into any publicly accessible environment
- Prior to production deployment, require that applications receive signoff from security personnel following successful security review

Vulnerability Detection

Application developers must assume that even with the best development techniques and frameworks in place that there is the potential that web application vulnerabilities may still be introduced during the SDLC. Automated scanning tools provide a secondary layer of protection and validation. WVI uses a security tool to scan applications during development and after deployment.

Application Firewalls

Application firewalls are another technology that can help protect systems and data from web application vulnerabilities. Unlike network firewalls, application firewalls understand the protocols and mechanisms used to communicate with web applications at a deep level. By inspecting web traffic and comparing it against a database of known attack signatures, attacks can be identified and intercepted. Moreover, using advanced analytical techniques, application firewalls can detect abnormal activity and protect systems from zero-day and custom attacks. The Payment Card Industry (PCI) requires the use of web application firewalls for e-commerce websites that process credit cards as part of its Data Security Standards (DSS) program.

N-tier Application Architecture

WVI utilizes proven software architecture practices to ensure that the potential impact of web application vulnerabilities is minimized. The preferred architecture used for applications is commonly referred to as an n-tier application architecture. This architecture separates out the functions of an application into discrete functional layers. This layered application architecture compliments the segmented network architecture of the hosting environment.

Server Security

The server layer of the hosting environment includes the physical server hardware, operating system, and virtualization platform. WVI's Security Program ensures that the server environment is protected through controls such as server hardening, virus protection, host-based firewalls, and host-based intrusion detection, and role isolation.

Server Hardening

All servers within the environment are hardened according to platform best practices. This hardening process starts with ensuring that only necessary services are running on each of the servers. By disabling unnecessary services, the potential attack surface is minimized. Additionally, default configurations are modified to enable and tune security features of the operating system and supporting software.

Server Virus Protection

All servers utilize virus protection that provides real-time detection and scheduled scans of all hosts, using a virus signature database to detect viruses, Trojans, and other malware. This helps protect the servers from worms and malware that might be embedded in software installed on the servers. This virus protection will actively take countermeasures to quarantine and remove threats to the server. Additionally, virus protection will provide valuable threat notification and reporting to server administrators.

Host Based Firewalls

For operating systems that include a server based firewall technology, a host-based firewall is configured to only allow access to server ports required for the system to function. This allows fine-grained control over how services can be accessed within the server environment, augmenting network layer security controls.

Host Based Intrusion Detection

WVI uses host-based intrusion detection and prevention (IDS/IPS) tools on all production servers hosting applications and websites. The host-based IDS is configured and tuned to notify administrators of server changes in real time. This real time knowledge allows administrators to rapidly respond to and investigate suspicious activity or unusual activity. Additionally, the reporting serves an essential role in auditing configuration management activities.

Server Role Isolation

Role isolation is another architecture best practice that WVI follows. This practice dictates that a server within a server farm should fulfill a single service role in the farm. For instance, if HTTP and FTP services are provided from a single server farm, these services would be provided through distinct clusters of servers instead of from a single cluster of servers. If a particular service, such as FTP, were compromised, this architecture practice would help prevent the intrusion from spreading to other servers in the farm.

Data Security

Protecting data is a primary goal of the entire WVI Security Program. Whether this data is collected from end users or from West Virginia business systems, the privacy and integrity of the data must be ensured using effective security controls for databases and other system data stores.

Data Classification

All data that an application stores in a local database undergoes a data classification process prior to the development of the application. All data is classified as to its confidentiality, availability, and integrity risk.

- Confidentiality – The need to restrict access and disclosure of information including the needs of protecting personal privacy and proprietary information.
- Availability – The need to ensure reliable and efficient access for the use of the data.
- Integrity – The need to protect against improper modification or destruction of data.

The usage of protection mechanisms, such as encryption, web site display, administrative access, and truncation are determined after the data is classified appropriately.

Data Access

Databases provide a number of access controls that if used correctly help to ensure that only authorized and expected access to data occurs in the system. For instance, some database allows an application process to connect to the database without passing a username and password. This prevents database connection credentials from being stored in application configuration files where they might be compromised during an intrusion.

Regardless of the authentication method used to connect to the database, proper permissions must be applied to the database schema. Application process identities are granted minimum permissions for reading and writing data in tables. Often, full read and write permissions are not granted at all to the schema, but instead evaluated and assigned on a granular level. The impact of vulnerabilities can be greatly reduced by following these minimum schema permission techniques.

Data Integrity

The integrity of data held in databases is protected using a number of different techniques. Sensitive data stored in a database will be encrypted using strong encryption technology that is external to the database. This not only ensures that the information cannot be disclosed outside of the context of the application, but prevents the data from being tampered with while in the database. Digital signing and data hashing are other techniques that can be used when the data may not be sensitive, but a control is needed to ensure that unauthorized modification of the data has not occurred. Keys and/or hashing seeds are stored securely and external to the database when using encryption, digital signatures, or data hashing.

An audit mechanism can be used to monitor access to sensitive data. These audit points can be applied at the table or at the column level. When using stored procedures, audits can be integrated into the procedure. When triggered, these audit mechanisms log the time and identity of the person accessing the data. These audits applied to the schema should be as specific as possible and should be tuned to exclude the normal access needed by an application. In doing so, the audit data can more easily be reviewed by security personnel to uncover unauthorized access by individuals or system processes.

Storage Security

Whether data is stored in databases or in files, ultimately this data resides on the storage systems that support the environment. Several different storage mechanisms are used in the proposed hosting solution.

- Local disk storage in physical servers
- Remote storage systems such as a Storage Array Network (SAN)
- Backup storage systems and media

WVI's security architecture addresses each of these different storage elements of the environment to protect West Virginia data residing in files.

Minimum File Permissions

All storage technologies used by WVI offer access control mechanisms at the file level. All files stored on WVI systems are assigned minimum file access permissions. Only access necessary for applications and software components of the solution are granted to specific user identities. System processes associated with service delivery are assigned unique user accounts to enable the application of very specific access controls to files.

This granularity of access controls extends to administrators as well. File access for administrators can be limited to the minimum access level necessary for them to perform their administrative responsibilities.

Segmented Storage Topology

WVI uses a multi-tier network architecture for West Virginia. Care is taken to engineer the topology of the storage system to match this segmented network architecture. Storage volumes on the SAN are not shared by servers located in different network tiers. Following this approach, an intrusion into a DMZ server could not compromise file systems supporting application services or databases. Likewise, storage volumes are not shared between the different hosting environments (i.e. Production, Staging, Testing, and Development). In this manner, an intrusion into a supporting environment (such as Testing) could not result in access to production files.

Backup Encryption

WVI utilizes dedicated backup appliances. The backup system supports strong encryption of files being backed up to the storage array. WVI uses this backup encryption technology to encrypt backups of all data files containing sensitive or private data.

Integration/Boundary Control Security

WVI managed systems need to integrate with remotely located data sources and West Virginia line-of-business systems. Integration security focuses on controls that protect the proposed hosting environment from these remote networks and systems. Just as important, integration security controls protect West Virginia systems from a potential intrusion into the West Virginia hosting environment.

Network Integration

WVI will continue to utilize Virtual Private Network (VPN) technology to connect the hosting environment to remote networks. The local end of the VPN tunnel is terminated in a network segment distinct from the network segments hosting servers. The remote end of the VPN connection is terminated as close to the remote system being accessed as can be supported by the remote network architecture. Doing so minimizes the possibility of data being intercepted or a man-in-the-middle attack by an individual with access to the remote WAN.

Fine grained bi-directional firewall rules are applied to traffic passing from the local end of the VPN tunnel. Egress rules limit what ports and protocols of the remote system can be accessed by the program's systems and applications. Similarly, ingress rules lock down connections bound for West Virginia systems to only those required for the specific system integration to function. Agencies are responsible for and strongly encouraged to apply similar firewall rules at their end of the VPN tunnel. Using network firewalls to compliment the access controls built into the VPN concentrators provides an

extra layer of protection against a breach of one system cascading into another system through a VPN bridge.

Minimum Remote System Access

West Virginia applications should only be provided the minimum level of access needed to support the integration requirements of the application. WVI will continue to work with state agencies to provision appropriate access to remote data sources and business systems. Limiting the capabilities of the accounts used to access remote systems reduces the chance that a compromised server or application could access data or perform transactions beyond those required for the application to function.

User account information related to remote systems provided to WVI by agencies is protected either by encrypting the credentials in the database or application configuration file.

Batch Process Security

Some applications interact with remote West Virginia systems using batch file Extract-Transform-Load (ETL) processes. To secure these types of integrations, batch files will only be transferred over VPN connections and/or utilize secure file transfer protocols such as FTPS and SFTP. Batch files are removed or encrypted once they have been processed successfully.

Workstation Security

Desktop workstations and laptops used by employees working on West Virginia activities can contain sensitive customer information and/or information that might assist an attacker in gaining access to the infrastructure or applications. Accordingly, the WVI Security Program includes protection of these workplace assets.

Workstation Policies and Audits

WVI has established documented workstation policies based on industry best practices for the various workstation platforms used by our employees to deliver services. These policies cover a wide range of workstation related security topics including but not limited to the following:

- Appropriate use
- Banner statements
- Virus protection
- Locking screen savers
- Password complexity and rotation
- Use of wireless networks
- Attaching devices to workstations and office networks
- Use of software and features that introduce risk

Many of these policies can be enforced using active controls within the operating system of the workstation. Precautions are taken to ensure that an employee cannot circumvent controls placed on their workstation.

Controls that cannot be actively enforced through technology are enforced through employee education and routine audits by security personnel. New employees must review and acknowledge that they have

read and understand workstation security policies as a component of their employee orientation. All employees must participate in security training on an annual basis. This training provides an overview of workstation security policies and notifies them of any changes made to this policy.

Desktop risks are assessed on a quarterly basis. A Desktop Risk Assessment Tool (DRAT) is executed on each workstation to test compliance of the device with workstation security policies. The results of this assessment are a component of the overall SMP certification maintained by WVI.

Workstation Virus Protection

All WVI workstations, fixed and mobile, employ virus protection with up-to-date virus signature definitions. Virus protection for workstations is centrally managed. Centrally managed virus protection allows WVI security staff to identify trends in the workplace and take immediate action to stop the spread of worms, Trojans, and malware.

Full Disk Encryption for Laptop Computers

Laptop computers have become an increasingly frequent vector for inadvertent information disclosure. Intentional theft or unintentional loss of a laptop can place WVI and the state of West Virginia at risk. To mitigate this risk, WVI requires that all laptops utilize full disk encryption. This full disk encryption prevents someone without the appropriate passphrase from accessing the contents of the hard drive.

> 4.6.3 The State requires data confidentiality, integrity and non-repudiation of transactions. The State expects the transaction to be protected in transit through the use of private leased-lines. Full audit trails should be maintained throughout the entire transaction lifetime or in accordance with applicable regulatory standards, whichever is longer. Access control should also be strictly enforced and audited. Any and all remote administration of the hardware, operating system or application software will require the use of strong, dual-factor authentication techniques such as token based or challenge-response methods. Please describe the protection you will provide.

> VENDOR RESPONSE:

Transaction Security

The ability to securely conduct e-Government transactions is a vital aspect of the West Virginia program and an assurance that users demand. Accordingly, WVI uses a state-of-the-art hosting environment and application development technologies that promotes the rapid development and deployment of new transactional services for the constituents of West Virginia. Many of these new applications will process payments and handle sensitive customer information in the course of processing transactions. Data originating from customers and stored in backend West Virginia systems must remain secure throughout transaction processing. The following section explains how WVI's Security Program and layered security architecture provides end-to-end protection for transactions.

Transaction Flow

Each e-Government application developed for West Virginia possesses unique requirements and transaction process flows. But in general, applications at a high level usually share similar transaction

processing flows. These applications most often utilize the following process to complete a customer transaction:

- Step 1: A customer sends a transaction request to an application
- Step 2: The application receives, validates, and interprets the transaction request
- Step 3: The application invokes application services (e.g., web services) to execute transaction logic
- Step 4: Supporting web application services orchestrate and execute transaction fulfillment
  - Payment is collected from the customer
  - Business logic is executed in the backend line-of-business (LOB) systems
  - The results of the transaction processing are recorded in an application specific database
- Step 5: A response is returned to the customer

At all times during transaction processing, WVI ensures that proper security controls are in place as the transaction progresses through the hosting infrastructure and after the completion of the transaction.

Transaction Lifecycle

The job of maintaining the confidentiality of transaction data does not end at the completion of the online transaction. WVI's security practices address the integrity and privacy of the information throughout its entire lifecycle.

- Sensitive transaction data is encrypted before being stored in backup storage systems
- Sensitive transaction data is redacted prior to being stored in data warehouses
- Transaction data is archived securely and/or destroyed at an appropriate time as dictated by established data retention policies
- If sensitive data is ever printed by employees, those printouts are securely shredded once the business need for the printed copy is complete

At least annually, data governance audits occur to validate that all data retention and data protection policies are being strictly followed. If a data governance deficiency is uncovered by these audits, a remediation plan is developed and executed to ensure future compliance with established policies. Additionally, any sensitive information that is not being properly handled is immediately removed or redacted from systems.

Payment processing is performed in a separate secured NIC infrastructure or through the West Virginia State Treasurer Office e-pay application. By collecting payment information and processing payments in a separate environment, the risks that payment information will be mishandled or disclosed by an application are greatly reduced. All communications with payment systems are performed over secure transport protocols. Payment information stored in WVI's payment processing infrastructure is protected using encryption techniques that comply with the PCI DSS.

Transaction Audit Trail

All applications developed by WVI for West Virginia include robust logging mechanisms to adequately capture events during the processing of transactions. The application logs supplement audit information collected from the operating system, databases, firewalls, and intrusion detection systems. Logs are consolidated providing a complete audit trail for all transactions.

Access Control

Physical Security

WVI is proposing to continue hosting services at our Central Data Center (CDC) facilities. These hosting environments are located at Tier IV facilities. Measures are implemented to ensure that only authorized access is permitted into the hosting facilities. There are surveillance cameras both inside and outside the facility. Access to the NIC CDC is strictly enforced and restricted to individuals who have been authorized to gain such access. Also, monitoring is performed to check for any unauthorized access to data assets. No one is allowed to enter the facility without prior approval from the site administrator.

Additionally, WVI implements physical security controls in our offices where WVI employees work to protect sensitive information and systems that may reside within the office environment. At a minimum, each WVI physical location is secured by manual or systematic means. If manual, then key management is assigned to a specific individual. Locks are immediately changed when either a key is lost or not returned when an employee separates from the company. If systematic, then key fobs are assigned to specific individuals. Access is immediately disabled when key fobs are reported lost or upon an employee's separation from the company.

Alarm systems are used to secure facilities after hours and when no personnel are present. All facility and server room entry points and other sensitive business areas must have a surveillance system that records all activity.

All visitors must be authorized before being granted access to a WVI facility. All visitors are given a visitor badge, which must be surrendered upon exiting the facility. A log book is maintained to document when all visitors enter and exit the facility. The log book is secured each night and periodically audited by security personnel. Any unknown person present at a WVI facility without a visitor's badge is stopped and questioned about their presence at the facility. All such incidents should be reported to the designated security contact person so that the incident may be properly documented and handled in accordance with WVI's physical security policies.

Data Access

Databases provide a number of access controls that if used correctly help to ensure that only authorized and expected access to data occurs in the system. For instance, some database allows an application process to connect to the database without passing a username and password. This prevents database connection credentials from being stored in application configuration files where they might be compromised during an intrusion.

Regardless of the authentication method used to connect to the database, proper permissions must be applied to the database schema. Application process identities are granted minimum permissions for reading and writing data in tables. Often, full read and write permissions are not granted at all to the schema, but instead evaluated and assigned on a granular level. The impact of vulnerabilities can be greatly reduced by following these minimum schema permission techniques.

Remote Administration

WVI allows administrator access to the environment by personal VPN connection only. VPNs use a unique key token assigned to an individual for authentication of the administrator. Once connected to the environment, system access is controlled via the internal directory services.

> 4.6.4   For payment transactions made through Internet sales, the Vendor should describe how it will ensure that transaction information is secured through encryption, authentication, and how the payment will route to the West Virginia State Treasurers Office (WVSTO) e-pay application for processing to ensure that card information remains secure. The Vendor should describe how it will prohibit customers from accessing State data unless such access is expressly approved by the State. It shall describe how it will obtain or maintain the appropriate Payment Card Industry Data Security Standard (PCI DSS) compliance.
>
> VENDOR RESPONSE:

Payment Security

Collecting payments is a primary function of e-Government applications. Therefore, these applications must securely collect payment information such as credit card numbers and bank account numbers to process the payment. This payment information must be carefully protected throughout the entire lifecycle of the payment. WVI has proven expertise in secure payment collection and integration with the West Virginia State Treasurer's Office e-pay application and the NIC corporate PCI certified payment application that protects payment information using proven technologies and industry best practices.

West Virginia State Treasurer Office E-Pay

WVI has developed and integrated nearly 30 e-Government applications with the State Treasurer Office's common payment solution. WVI has worked with WVSTO since the founding of the state e-Government contract to facilitate a successful payment transaction process. WVI intends to continue using this service as required by the state.

Payment Processing Abstraction

WVI has abstracted all payment processing decision-making and duties away from individual applications and into the common WVI application framework. This allows for rapid and environment-wide modifications to payment processing techniques, addition of new payment processors, and close monitoring of all payment handling.

The payment abstraction system makes intelligent decisions about how the user may process payments based on the application context including:

- Application settings for usage of different payment processors such as the West Virginia State Treasurer Office e-pay, WVI Common Checkout System, Stored Payments via the WVI Customer Database, direct transaction processing with the NIC Payment Engine, Mobile payments, or batch transactions with the West Virginia State Treasurer Office.
- Local "fine grain" user roles and privileges
- Availability of a "stored" payment within the WVI Customer Database that is securely stored.

- Technological availability of various payment methods. For instance, the WVI Common Checkout System is not available to a telephone caller using an IVR service.

Decisions are made to use stored payment or payment offloading processes whenever possible. Doing so eliminates the need to collect specific payment information in either the application or the payment processing abstraction system.

Payment Processing Offloading

As part of WVI payment processing strategy, applications requiring collection of payments offload the checkout portion of the transaction to a Common Checkout application hosted by WVSTO whenever possible. Depending on the requirements of the application, in some rare instances, the WVI Common Checkout application will be utilized. These instances will require prior approval from the state.

The WVI Common Checkout application, hosted in a secure payment processing environment separate from the portal and application network and servers, instead collects the customer payment information on behalf of the application. This helps ensure that payment information is always handled in a consistent and secure manner. Furthermore, using an offloading payment application whenever possible reduces the exposed risk within the WVI specific environment.

The secure WVI payment processing environment is dedicated solely to processing financial transactions. This hardened processing environment undergoes frequent security audits and maintains comprehensive compliance certifications. For instance, WVI is certified as a Level One Service Provider under the Payment Card Industry's Data Security Standards (PCI DSS). WVI's Payment Engine is a SSAE 16 (formerly SAS 70 Type II) audited solution that is fully compliant with federal, state, local, and industry standards.

Secure Payment Lifecycle

Payment information must be protected for its complete lifecycle. This lifecycle includes collection of information from the end user, transmission of information to backend processors, and storage of payment information within systems.

All WVI hosted payment systems can only be accessed using secure transport connections in compliance with PCI DSS, ensuring that the user's payment information is safely and privately transmitted over the Internet. Moreover, West Virginia payment applications communicate with the payment systems using protected connections to orchestrate checkout sessions and payments. Behind the scenes, the West Virginia Payment Engine communicates with necessary financial processors using secure protocols specified by the processor. Using this approach, the WVI payment solution provides end-to-end protection for payment information as it flows from the user to the financial processor.

When payment information needs to be retained in the payment processing environment, it is only stored for the length of time necessary for processing activities and then purged to minimize potential exposure. Secure storage of sensitive payment information is accomplished with a data encryption appliance. The appliance secures data at the point of capture and provides a granular level of control over sensitive information handling. The data storage approach used by WVI is certified as being fully compliant with PCI DSS guidelines for encryption and key management.

PCI Compliance

WVI is currently PCI DSS compliant. In addition the NIC TPE® environment is continually assessed against PCI DSS and is certified as a Level One Service Provider. WVI also undergoes routine vulnerability scanning by a PCI Approved Scanning Vendor. NIC's Corporate Security Team works closely with the Payment Card Industry to plan and prepare for future industry standards.

> 4.6.5 The vendor should describe its strategy and methodology for identifying, assessing, reporting, managing, and resolving security incidents that potentially endanger the State data or the State network.

> VENDOR RESPONSE:

WVI utilizes multiple methods to identify potential security incidents that could impact the hosted or state environments and data. These methods include:

- Intrusion Detection and Prevention Systems (IDS/IPS) to inspect network traffic through advanced heuristics and signature-based methods to identify potentially dangerous or improper traffic.
- Tripwire in auditing configuration management activities and changes
- Server and Database Audit logs along with Transaction Audit Trails to identity potential malicious behavior.
- Incidents reported by state or NIC staff
- Incidents received through NIC's call center

Although prevention is at the heart of the WVI's security model, attacks have become commonplace especially when conducting business on the Internet. Even with all the due diligence and industry best practices, the speed at which information security is changing makes a breach of security a possibility that must be anticipated and planned for prior to the event occurring.

WVI maintains a comprehensive confidential NIC Incident Response Plan that includes the NIC Corporate Security Team and documents the necessary steps and actions required to be taken in the event of a security incident. Contained within the necessary steps are requirements for notification of state partners, law enforcement entities, affected parties, etc., where appropriate and in accordance with contractual requirements, state and federal law, and industry standards.

Notification about a security event may be received from a variety of sources, including but not limited to WVI employees, a partner, a customer/end user, a third party auditor or vendor, or the media. Regardless of how the event is received, it is evaluated by NIC's Corporate Security Team and classified as a false positive, security incident, or security breach. In the event of an incident, the NIC Corporate Security Team acts as the central point of contact coordinating all activities.

All employees are annually trained on incident detection methods and reporting policies. In addition, employees responsible for the administration of any technology asset are trained in connection with their responsibilities for evidence handling and incident response.

> 4.6.6 The security requirements of this section shall continue to apply to all State information in the hands of the Vendor after the expiration or cancellation of the Contract.

VENDOR RESPONSE:

WVI recognizes that the obligation to protect state information after the expiration or cancellation of the contract is a necessity. WVI agrees to continue to follow all aspects of the security requirements for all state information that remains with the company after the expiration or cancellation of the contract.

4.7 Objective 7 - Enterprise E-Government Services

4.7.1 Agencies may request development of new websites, updates of existing websites or website migration to the State's standard for content management, including the State homepage. Please describe your web development methodology.

VENDOR RESPONSE:

WVI will use its standard System Development Methodology (SDM) to implement new websites, updates of existing websites or website migrations. The overarching goal of WVI's SDM is to provide a comprehensive approach that allows websites to be developed and maintained according to industry-accepted standards, while ensuring e-Government program objectives are met and the state sustains proper oversight. Our established SDM has delivered thousands of successful e-Government projects across our state partnerships.

System Development Methodology

WVI understands that one of the primary roles of the e-Government program contractor is to bear the responsibility to develop, maintain, and support e-Government websites that serve the constituents of the state of West Virginia. Accordingly, WVI's proven SDM integrates a comprehensive software lifecycle approach with the state's governance structure and contract methodology. This approach ensures that websites are designed, developed, tested, and released rapidly while meeting high standards of quality.

Certain development principles have consistently been identified as critical success factors for e-Government website development projects. These principles will be applied as the foundation for developing e-Government websites for West Virginia.

- **Design services around the user** – The user experience cannot be an afterthought when designing websites. Understanding the needs and desires of the user is essential to developing a satisfying user experience. Moreover, assumptions about the user and how they will interact with the website should be validated by user testing.
- **Prototype the website frequently and as early as possible** – If a picture is worth a thousand words, then a prototype is worth a million words. People understand what they can see and touch. Prototypes of increasing complexity should be developed throughout the development project to allow stakeholders to see and evaluate what is being developed.
- **Validate quality** – Quality assurance should be weaved into the SDM. Designers should validate and test the final design of the site across multiple browsers and platforms. Designers should also review the site as a whole once agency content buildout is completed. This final validation point helps agencies release their new website without quality issues.

The overarching goal of WVI's SDM is to provide a comprehensive approach that allows applications and websites to be developed and maintained according to industry-accepted standards, while ensuring e-Government program objectives are met and the state sustains proper oversight. Our established SDM has delivered more than 200 government websites during the life of the WV e-government contract. Furthermore, continuous improvement methods are integrated into project management practices to evolve our methodologies and ensure that they remain best-in-class.

WVI's proposed SDM is a vital component of overall program management because it allows the state to manage a project throughout its lifecycle. The following table illustrates the project management methodology WVI follows for e-Government website development. This proposed methodology has been effective in other NIC-managed states and will be followed by the WVI team to develop and deploy new websites for West Virginia. The project lifecycle is designed with consistency, repeatable processes, management control, and timely delivery in mind.

The table below presents an overview of WVI's SDM.

Phase	Description (Deliverables, Sign-Off, Checkpoints)
1. Project Evaluation	This phase starts with the project kick-off meeting between WVI staff and the agency to discuss a common understanding of project scope and preliminary timeline. During this phase the technical focus is at a minimum while greater emphasis is placed on defining agency needs and the citizen/business expectations. For agencies with existing websites, WVI works to understand what they do and do not like about their current website. WVI also works to understand what information is expected to be available by end-users. If possible, WVI also reviews any analytics data of current website to understand past usage. For agencies new to the e-Government Program, an SLA will be established and associated to Master Contract.
2. Definition	WVI develops a prototype of Agency's new website for their consideration and feedback. This prototype is reviewed through multiple stakeholder meetings until a final direction for the website is defined. WVI will create a Statement of Work that will go to the state for approval, and if approved will result in a comprehensive Statement of Work that governs the project.
3. Design and Development	The design and development phase translates the Statement of Work into a functioning website. Once the website build out is completed, WVI will hold one or more trainings with agency technical staff to instruct the agency how to populate their content on the new website by using the tools in WVI's enterprise content management system. The agency is then provided technical support and guidance in completing their content.

Phase	Description (Deliverables, Sign-Off, Checkpoints)
4. Quality Assurance	Once the agency has completed their content in the new site, WVI will review the website for common quality assurance metrics. These metrics include but not limited to: • Navigation and site flow • Accessibility issues • Spelling errors • Formatting consistency • Broken links • Missing content • Unpublished content At the conclusion of the review, WVI provides the agency with a list of issues that should be addressed before website is released to the public. Once the agency feels that these issues have been properly addressed, the state agency signs off on a Letter of Acceptance. This ensures that there is a firm control mechanism in place, so that there is no question as to when the agency is ready for the release to take place.
5. Launch	This phase releases the website to the prescribed customer base and integrates it with the website, marketing, support, maintenance, and customer service functions upon agency approval. This phase may include coordination with the state Office of Technology to properly redirect visitors to the agency's new public website.
6. Support, Maintenance, Feature Enhancements	Upon deployment, this phase includes maintenance, support, and feature enhancement activities. Agencies are provided access to WVI help desk for technical support in maintaining website content. Should the agency to elect to have their website designed for new look and feel, this is treated as a new project and is managed as such.

4.7.2   Agencies may request development of new e-Government applications, or enhancements to existing e-Government applications, to provide additional information or capabilities for our citizens and businesses when transacting business with the State and/or receiving services from the State. The Vendor should develop e-Government applications using JAVA, .NET, PHP, Python, or other such technologies as approved, in writing, by the State. Please describe your e-Government development applications.

VENDOR RESPONSE:

As the long-standing current e-Government services provider, WVI possesses an intimate understanding of this program requirement, and will continue to provide this service to the state if selected. WVI has developed and deployed more than 340 web applications and websites that currently comprise the West Virginia e-Government program. WVI supports more than 70 West Virginia state government entities through the enterprise self-funded e-Government contract. In 2014, WVI expanded support to include 15 additional agencies. We look forward to working with agencies to define additional development requests. WVI is adept at developing applications with the prescribed technologies, and understands the programmatic and project requirements to ensure these requests are met through the Work Order processes and through standardized project management techniques. To date, all applications written by WVI have been developed in .NET C#. Our staff does have experience should the need arise in developing applications utilizing JAVA, .NET, PHP, and Python along with other development technologies not included in this requirement.

4.7.3   The Vendor should provide consulting services to analyze Work Order requests, provide functional, non-functional and technical specifications to fulfill these requests and to develop online services and web application products. Work Order Requests will include a variety of new development efforts, reusable solutions, rapid application development programming routines, interfaces and other processes. The Vendor's Work Order Proposal will identify options available to the State to save time, cost, and complexity in deploying these services.

VENDOR RESPONSE:

WVI will work closely with agencies requesting e-Government application development support. As agencies prepare Work Order Requests, WVI will work with agencies to analyze Work Order Requests, provide functional, non-functional, and technical specifications to fulfill these requests, and to develop online services and web application products. After the agency Work Order Request is submitted and approved, WVI will develop a Work Order Proposal that identifies time and cost savings, as well as efficiencies, that will result from the deployed service. In 2014, WVI worked with the state to submit 19 Work Order Requests for new applications, of which five were cancelled by the state or agency, five are currently in process, and nine Work Orders were completed.

4.7.4   The Vendor should work with the State Agency and WVOT to create a development timetable to be included in each SOW. However, scheduled projections are made in most cases with extensive investigation of legacy systems, without knowledge of business rules and business flow, without estimates of staff time committed to projects and without design and architect steps being taken. The Vendor should work diligently to accomplish each such application according to the schedule in accordance with the relative priority assigned by WVOT. The State Agency will be responsive to the Vendor by providing information and assistance as needed to meet the delivery dates on the schedule. The State Agency will understand that the schedule and assignment of priority may need to be adjusted to accommodate reasonable delays due to policy, marketing and technical issues outside the control of the Vendor or as directed by WVOT. Meetings should be set as agreed upon by the Vendor and the Agency to discuss and update the project plan throughout the term of the Agreement. The Vendor should make every effort to keep the State Agency informed of problems that may cause a delay in the delivery of the services detailed in the SOW.

VENDOR RESPONSE:

WVI understands that one of the primary roles of the vendor is to bear the responsibility to project manage, develop, maintain, and support e-Government applications as defined by each project SOW, which is established through the formal Work Order process involving WVI, WVOT, the Portal Board, the agency partner, the Division of Purchasing, and the Attorney General. As the current e-Government services contractor, WVI is acutely aware of the established Work Order process and how fundamental the process is to the success of each e-Government initiative. WVI has also formalized and tailored project management processes that ensure ongoing communication with WVOT and the customer agencies.

WVI understands that projects that comprise the West Virginia e-Government program are guided by a prioritization model. The state-approved project prioritization model ensures that the state's e-

Government program expands while also ensuring that each project takes all project variables into consideration including staffing, funding, and agency priorities/timelines. During the Work Order development process of each project, the state approves or modifies the prioritization of each project based on the program prioritization model and the pipeline of existing and future e-Government projects. The project's priority helps WVI determine the timeline of the project and while balancing WVI's resources among other program initiatives.

To ensure that the customer agency is kept informed of the project and any problems that arise, WVI will provide regularly scheduled project status reports to the agency and will assign a WVI point of contact to each project, who will provide the first line of communication and assistance to the agency. Additionally, WVI will utilize the Customer Relations Management (CRM) features of our IT service management tool to enable WVI to track customer support interactions and patterns, as well as analyze this data in meaningful ways. This component is a core feature of a comprehensive incident and problem management approach and will ensure that problems are documented, tracked, prioritized, addressed, and communicated.

4.8   Objective 8 - Transition Plan

4.8.1   Transition-In Services

4.8.1.1 The State's goal is to transition the services within three (3) to five (5) months of contract signing, however an alternative schedule, mutually agreed to between the Vendor and the West Virginia Office of Technology, would be acceptable. Please provide your suggested schedule.

VENDOR RESPONSE:

Transition-In Schedule

As the current portal provider, WVI will not have to ramp-up and become operational to work on any services as part of a new contract. WVI will be ready to support the existing services and build new services with West Virginia on the date of notification of award including having all staffing (key personnel and other) ready to support the contract. What this equates to is that the state of West Virginia and portal customers will not have to go through a change in the applications, policies, service level agreements, and processes as they would with a new provider. It also means that WVI can focus on delivering new services, applications, technologies, and value to West Virginia instead of spending the time learning how to work within a self-funded model. We are eager to continue our long-term relationship with our West Virginia state and agency partners, and look forward to delivering new innovative services for West Virginia.

WVI has noted throughout this RFP response that it is uniquely qualified to perform all of the functions required under the RFP because of our experience over the past five years in West Virginia. WVI is completely prepared to begin working on the contract deliverables immediately, and three (3) to five (5) months are not needed to begin delivering on the scope of work in the contract.

WVI is the only organization that has the infrastructure, personnel, and general operations in place today to run the e-Government program for West Virginia with no need for a Transition-In period to complete the initial setup of infrastructure or personnel. There also will be no need to learn the specific

nuances of existing services, processes, practices, and how to deliver services in the manner West Virginia expects. As a result, we are confident that we can implement the following at contract start, because we are doing all of the following today:

- A fully functional application development and production hosting platform to accommodate new and existing online services as described in this response
- A proven self-funded business model that provides a sustainable revenue stream for the continued implementation of online services
- A dedicated Charleston-based team to implement the e-Government platform and begin delivery of online services

On the date of notification of award, WVI will have a staff of twelve individuals, most of whom have worked for WVI for over a year and, in many cases, several years. Upon award, these individuals will be honored to continue working on the West Virginia project under the new contract.

Based on our previous experience in West Virginia, WVI has unique insight into the most effective ways to manage the infrastructure, staff, and business plans required to rapidly deliver high-quality e-Government services. The Transition-In Schedule below discusses how WVI will fulfill the specific requirements of the RFP based upon business weeks from contract start. WVI will work with the state to make any changes to the schedule based upon information gathered post award.

Transition-In Schedule	
TASK	**DELIVERY (FROM START DATE)**
Infrastructure	
Equipment and Software Acquisition	Day One
Development and Test Environment	Day One
Production Environment Establishment	Day One
Related Planning and Processes	Day One and ongoing
Staffing	
Key Personnel	Day One
Continued Personnel Development	Day One and ongoing
Long-term Project Planning and Establishment of Operations	
Securing Funding Sources	Day One and ongoing
Project Work-Order Process and Related Documentation	Day One and ongoing as necessary

4.8.1.2 The Vendor should describe its migration or conversion plan, testing procedures and documentation for assuming responsibility for all of the applications currently provided by the present service provider.

VENDOR RESPONSE:

Migration Plan

As the current e-Government portal provider, WVI will not be required to transition the current portal operations or assume responsibility for the existing applications. Thus, we do not describe our

migration plan, testing procedures and documentation or include a timeline and other requested elements of a migration plan. In addition, our current contract includes several clauses to ensure a smooth transition in the event that the state selects another vendor as a result of this RFP. In particular, WVI covenants to make an orderly transition and perform all tasks that are necessary to preserve the integrity of portal operations. WVI has also made it a contractual obligation to deliver all records necessary for portal operations to the new e-Government portal provider.

        4.8.2   Transition-Out Services

                4.8.2.1 The Vendor should prepare a Transition-Out Plan to be made available to the State for its use in the event of operational support being transferred to another Vendor after the end or termination of the Contract. The Vendor should maintain this Transition-Out Plan, accounting for the addition of new services or technical changes, to facilitate transfer of support responsibilities.

                VENDOR RESPONSE:

Transition-Out Plan

WVI understands the state's desire to be able to either take over the operations of the portal or transition to another vendor upon termination or expiration of the contract in an effective and efficient way.

The current contract, under which the state and WVI has operated under for over eight years, includes several clauses to ensure a smooth transition in the event that the state selects another vendor or opts to discontinue the partnership at the conclusion of the contract. WVI covenants to make an orderly transition and perform all tasks that are necessary to preserve the integrity of portal operations, including delivery of all records necessary for portal operations to the state or e-Government portal provider, at the conclusion of the contract.

WVI will present a detailed transition plan for approval by the state that will document the operations for review by the state. Each element will be documented as required (e.g. network topology, system architecture, maintenance/support procedures, etc.) and the proper steps reviewed with the state-designated personnel who would absorb those responsibilities. This will be executed in a prioritized manner in strict coordination with the state partner.

WVI has included more information about the elements that comprise our proposed transition-out plan in the sections that follow.

                4.8.2.2 The State's goal is to provide a transition-out plan within (12) months of the execution of the contract. Please provide your suggested schedule.

                VENDOR RESPONSE:

WVI has read, understands and will comply with this requirement. WVI will deliver a detailed, up-to-date Transition-out plan within twelve (12) months of the execution of the contract.

4.8.2.3 The Vendor should describe the content of the Transition-Out Plan including, but not limited to, a description of resources required for the Vendor to transfer the knowledge necessary to maintain the functions, applications, and services; a description of the testing procedure used to determine if the knowledge transfer is working correctly; and a contingency plan.

VENDOR RESPONSE:

Transition-Out Plan Content

WVI's sister subsidiaries have developed and managed transition-out plans for supporting when the contracts that have run their course and transition to a state or local partner or a third party. In such situations, each element is documented as required (e.g. network topology, system architecture, maintenance/support procedures, etc.) and the proper steps would be reviewed with the personnel who absorbed those responsibilities.

The following template provides a general guideline for the areas that will be addressed in a transition-out plan. This plan is basic in its form and is intended to exemplify a starting point. WVI will deliver a more detailed plan to the state within twelve (12) months after contract award. Additionally, WVI will develop and maintain with current up-to-date information the Transition-Out Plan to facilitate a transfer of support responsibilities.

A Transition-Out Plan will include at a minimum:

- Issues that need to be addressed during a transition period
- Vendor roles and responsibilities as they relate to contract functions, including the role of Key Personnel
- Identification of resources required to achieve successful knowledge transfer (resources required are commensurate with the number and scope of services provided)
- State roles and responsibilities as they relate to contract functions
- Additional stakeholder roles and responsibilities as they relate to the transition of contract functions
- An outline of key milestones during the transition period
- An outline of procedures to be followed during the transition period
- The method of identifying, documenting, and transferring assets (including all state records, applications, data files, agreements, working papers, and operational documentation, as provided in the contract) developed during the course of the contract that are subject to the Transition-Out Plan
- A plan for testing that ensures a one-for-one easily verifiable asset relationship that will facilitate the successful knowledge transfer of program assets and promote true business continuity for the West Virginia e-Government portal.
- A contact point and procedures for managing problems or issues during the transition period
- Contractor compensation during transition periods
- A plan and process for addressing disengaging any Software as a Service Applications (SaaS) solutions

WVI understands the importance of the services the West Virginia e-Government portal provides and the necessity for having a contingency plan in case there are issues with the orderly transition of services from WVI to the state or another vendor.

If portal services are not transitioned out by the termination date, WVI recommends the state utilize its option in the contract to continue transition-out services by extending the termination date. WVI would then continue to provide transition-out services to the state at an agreed upon rate until the new termination date.

> 4.8.2.4 The Vendor should describe, in detail, the process the Vendor will use to turn over all hosting services and support to the State (or the State's agent) whenever necessary.
>
> VENDOR RESPONSE:

Hosting & Support Transition

WVI's transition-out plan will describe the process of turning over all hosting services, as well as support to the state or the state's agent upon expiration or termination of the contract. WVI's sister NIC subsidiaries have experience working with state government partners transitioning hosting services from the subsidiary to a state-owned data center and transitioning from the state data center to a third-party data center. This experience has helped refine NIC's approach to the transition of hosting support if a state were to terminate a contract or elect to not renew a contract.

For the purposes of transitioning hosting services and support, WVI will provide:

- Inventory of existing hardware and software maintained by WVI
- e-Government software applications, directories, log files, user accounts, databases, etc., are all migrated to the state and brought online in a test environment working in parallel with the production site

The transition component of the project will include several defined project phases. In the initial phases of the transition, WVI will work with the state to transfer sufficient knowledge and document all aspects of the existing infrastructure and hosting services. Key activities for each phase are identified in the following section:

Phase 1: Discovery

The discovery phase will document:
- Language, version, and operating environment requirements
- Confidential or private information
- Application security model and how it fits into the hosting environment's security model

Phase 2: Analysis

WVI and the appropriate state staff will evaluate the results of the discovery phase to finalize a transition plan and timeline depending on the number and complexity of the hosting environment.

Phase 3: Execution

WVI and the appropriate state staff will perform the actions required to facilitate transitioning of the applications into the new environment. The following are the high-level steps for the state to anticipate as part of the transitioning of WVI-managed services to the state or other third party:

1. Freeze current application version in version control system
2. Move application to development tier
3. Make all/any modifications to the service
4. Move application to testing tier
5. Test service
6. Make any changes (return to step 3)
7. Migrate to staging environment
8. User Acceptance Testing
9. Make any changes (return to step 3)
10. Deploy into production environment once required approvals are received
11. Test production deployment

Other aspects of the proposed transition template regarding ongoing services beyond hosting are provided in subsequent sections.

> 4.8.2.5 The Vendor should describe the information you would provide to the State as part of this Transition Plan.
>
> VENDOR RESPONSE:

The following template provides a detailed process guideline for the areas that would have to be addressed in the event of a transition. This plan is basic in its form and is intended to exemplify a starting point. WVI will deliver a detailed plan to the state within twelve (12) months after contract award.

High-Level End of Contract Transition/Migration Plan
Each of the plan elements listed below represent sections that would have supporting detail or steps to follow in order to assure a smooth transition of the portal from WVI to the state or another vendor. Some of this detail includes, but is not limited to:
E-commerce/Financial Management
It is important that the state or the new vendor is fully prepared for managing all financial aspects of transactional and subscriber revenue. This includes the following activities: • Transfer/revocation of all WVI authority on portal accounts • Analysis/configuration/setup for any changes to payment processing for ACH, debit and credit card payments • Refunds, returns, charge-backs, etc. in coordination with affected agencies • Credit card charge research requests • Monthly subscriber billing functions • Generation of monthly agency Payment Statements • Funds disbursement and reporting • Reconciliation of accounts • Merchant account management

High-Level End of Contract Transition/Migration Plan

- Financial setup process for new applications
- Lockbox transition (if necessary)
- PCI DSS standards compliance responsibilities that must be met by the state

Portal Monthly Account Management

Supporting monthly accounts may include the following activities:

- Account setup and maintenance
- Generate user IDs and communicate to customers
- Maintain hard-copy files containing original, signed customer contracts
- Handling of customer billing questions
- Credit card expiration date tracking and maintenance
- Management of government subscription accounts (usually state agencies have free access to most portal services, but must maintain a subscription account to capture users obtaining access to services)
- Determination and notification of which users should have access to which systems/services
- Bad debt collection efforts for monthly accounts, which currently bill in arrears of service usage

Infrastructure

- Technical points of contact are identified at WVI and the state to guarantee clear and consistent communication
- Identify WVI and state staff required to perform the transition
- Estimate the state staffing requirements to support the system, i.e. skill levels, FTEs, etc.
- Determine any training needs, specifically around the portal environment including hardware, software and enterprise components (Content Management System, Search Appliance, SOA, .NET, Security, Authentication/Authorization, Application Interfaces, the Network)
- Transition phases and completion date are agreed upon
- Inventory of existing hardware and software in place at current portal location
- Document hardware that would need to be acquired and identify all software that would need to be acquired including licensing terms and maintenance (if any)
- The state procures and receives hardware and software in accordance with the portal contract
- Disaster Recovery and Business Continuity are transitioned to the state
- WVI and NIC technical staff assists state technical staff in configuration of network equipment, hardware and software to support the new environment
- WVI technical staff freezes any new development to prevent any configuration control problems while last stages of transition take place
- Software applications, directories, log files, user accounts, administrative services, databases, etc., are all migrated to the state and brought online in a test environment working in parallel
- Cut-over blackout period identified

Training

- Identify the state's designated technical personnel that will inherit the operational responsibilities for the portal including all financial processing procedures
- Develop a timeline for state technical staff to review all infrastructure components, portal software applications and system administration functionality
- Work through a detailed review and training on all documentation
- Develop and establish a test scenario or environment for state personnel to practice and become proficient with support of portal system applications and system administration
- Deliver final copy of all documentation and source code as defined in the contract

Security

- Identify the state's technical personnel that will inherit the security aspects of the portal
- Develop a timeline for state technical staff to review all security components, processes, procedures and plans

High-Level End of Contract Transition/Migration Plan

- Work through a detailed review and training on all documentation, plans and activities
- Work with the state to transition 3rd party auditing, scans and other activities provided by WVI to the state

Customer Relations

- Identify the state customer service personnel who will inherit all customer relations activities and responsibilities
- Examine and determine plan for help desk functions to transfer to the state
- Train staff on customer service methods, tools and processes
- Develop a timeline for WVI administrative and/or marketing staff to review all customer accounts and affected parties
- Review with state personnel all portal-to-customer communiqués, along with frequency
- Develop explanatory letters to go out to customers on state letterhead explaining the upcoming transition
- WVI to send copies of all customer account information to the state as permitted by contract
- Final cut-over date identified and agreed to by both the state and WVI
- The state assumes all customer relations activities and responsibilities

Marketing Activities: Campaigns, Public Relations, and Design & Print

The following marketing services are typically provided by WVI staff in support of the portal. WVI will provide information on all current activities around the following categories:

- Overall portal branding and marketing strategy to drive awareness of WV.gov
- Advertising (e.g., paid display advertising)
- Portal Public Relations (e.g., unpaid advertising)
- Government technology award nominations
- Surveys and focus groups (often a market research function, but also used to gauge customer satisfaction and in the website architecture design process)
- Industry-specific marketing (i.e., promotion directed to groups such as attorneys, insurance, etc.)
- Preparation for and participation in relevant association meetings and trade shows
- Service-specific marketing (i.e., promotional plan to drive adoption of a service (or group of services)
- Specialty graphic design projects (logo design, letterhead, PowerPoint templates, signage etc.)
- Market research for new application development
- Service adoption tracking, analysis and goal-setting to drive usage

> 4.8.2.6 The Vendor should discuss how the source code will be handled, i.e., will it be in escrow and given to the State upon demand, or at the conclusion of any contracted agreement with the Vendor.

VENDOR RESPONSE:

West Virginia Interactive proposes that it would deposit the source code for the Portal Software, including any upgrades or new releases, with an escrow agent on a quarterly basis during the term of the contract pursuant to an escrow agreement mutually agreed by the parties. West Virginia Interactive proposes that the initial escrow agent shall be NCC Group Escrow Associates, LLC, which is a third-party unaffiliated with, and independent of, West Virginia Interactive. West Virginia Interactive shall pay all expenses related to the escrow requirements set forth in this section. Capitalized terms used in this section but not otherwise defined shall have the respective meanings set forth in Vendor's proposed Additional Terms and Conditions. Other terms and conditions of the escrow agreement are proposed as follows:

1. Escrowed materials shall include source code for Portal Software (but shall exclude Electronic Services and software developed by any third party) used in production on the Portal and associated supporting documentation developed in the ordinary course of business.
2. West Virginia Interactive will have the authority to remove superseded source code and documentation if it is simultaneously replaced with the most current version of the superseded source code and documentation.
3. The escrow agreement will include direction to the escrow agent to release all escrowed items at termination of the contract by state "for cause" (as defined by RFP General Terms and Condition Section 16), at expiration of the full contract term, or upon West Virginia Interactive, LLC's bankruptcy.

4.8.3   Project Management for Transition of Portal to New Vendor
4.8.3.1 The Vendor should provide a comprehensive narrative that illustrates how the Vendor will manage the transition, ensure completion of the scope of services, and accomplish required objectives. The Vendor should include a chart describing major activities, the number of hours required by the Vendor and WVOT staff to complete the transition and the timeframe. Please break down estimates by staff type, e.g., Project Manager, Functional Manager, Functional Analyst, Technical Manager, Programmer, Data Base Administrator, and Trainer.

VENDOR RESPONSE:

Project Management for Transition of Portal

As the current portal provider, WVI will not have to manage the transition to become operational to work on any services as part of a new contract. WVI will be ready to support the existing services and build new services with West Virginia on the date of notification of award including having all staffing (key personnel and other) ready to support the contract. What this equates to is that the state of West Virginia and portal customers will not have to go through a change in the applications, policies, service level agreements, and processes as they would with a new provider. It also means that WVI can focus on delivering new services, applications, technologies, and value to West Virginia instead of spending the time learning how to work within a self-funded model.

WVI is the only organization that has the infrastructure, personnel, and general operations in place today to run the e-Government program for West Virginia with no need for a Transition-In project or effort to complete the initial setup of infrastructure or personnel. There also will be no need to learn the specific nuances of existing services, processes, practices, and how to deliver services in the manner West Virginia expects. As a result, we are confident that we can implement everything required for the operation of the state's e-Government portal at contract start, because we are doing so today.

Based on our previous experience in West Virginia, WVI has unique insight into the most effective ways to manage the infrastructure, staff, and business plans required to rapidly deliver high-quality e-Government services. The Transition-In list of activities and required effort below emphasizes the continuity with which WVI can continue operations if awarded the contract.

High-Level End of Contract Transition/Migration Activities	Vendor Hours	WVOT Hours	Timeframe
Transition all financial aspects of the contract			
Transfer of all WVI authority on portal accounts	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Contract Start
Analysis/configuration/setup for any changes to payment processing for ACH, debit and credit card payments	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Contract Start
Refunds, returns, charge-backs, etc. in coordination with affected agencies	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Contract Start
Credit card charge research requests	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Contract Start
Monthly subscriber billing functions	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Contract Start
Generation of monthly agency Payment Statements	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Contract Start
Funds disbursement and reporting	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Contract Start
Reconciliation of accounts	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0	Contract Start

High-Level End of Contract Transition/Migration Activities	Vendor Hours	WVOT Hours	Timeframe
	Programmer: 0 Data Base Administrator: 0 Trainer: 0	Programmer: 0 Data Base Administrator: 0 Trainer: 0	
Merchant account management	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Contract Start
Financial setup process for new applications	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Contract Start
Lockbox transition (if necessary)	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Contract Start
PCI DSS standards compliance responsibilities	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Contract Start
Transition portal monthly accounts			
Account setup and maintenance	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Contract Start
Generate user IDs and communicate to customers	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Contract Start
Maintain hard-copy files containing original, signed customer contracts	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Contract Start

High-Level End of Contract Transition/Migration Activities	Vendor Hours	WVOT Hours	Timeframe
Handling of customer billing questions	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Contract Start
Credit card expiration date tracking and maintenance	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Contract Start
Management of government subscription accounts (usually state agencies have free access to most portal services, but must maintain a subscription account to capture users obtaining access to services)	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Contract Start
Determination and notification of which users should have access to which systems/services	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Contract Start
Bad debt collection efforts for monthly accounts, which currently bill in arrears of service usage	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Contract Start
Transition portal infrastructure			
Technical points of contact are identified at WVI and the state to guarantee clear and consistent communication	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Contract Start
Identify WVI and state staff required to perform the transition	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Contract Start
Estimate the state staffing requirements to support the system, i.e. skill levels, FTEs, etc.	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0	Contract Start

High-Level End of Contract Transition/Migration Activities	Vendor Hours	WVOT Hours	Timeframe
	Programmer: 0 Data Base Administrator: 0 Trainer: 0	Programmer: 0 Data Base Administrator: 0 Trainer: 0	
Determine any training needs, specifically around the portal environment including hardware, software and enterprise components (Content Management System, Search Appliance, SOA, .NET, Security, Authentication/Authorization, Application Interfaces, the Network)	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Contract Start
Transition phases and completion date are agreed upon	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Contract Start
Inventory of existing hardware and software in place at current portal location	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Contract Start
Document hardware that would need to be acquired and identify all software that would need to be acquired including licensing terms and maintenance (if any)	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Contract Start
WVI procures and receives hardware and software in accordance with the portal contract	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Contract Start
Disaster Recovery and Business Continuity are transitioned to the state	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Contract Start
WVI and NIC technical staff configure network equipment, hardware and software to support the new environment	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0	Contract Start

High-Level End of Contract Transition/Migration Activities	Vendor Hours	WVOT Hours	Timeframe
	Trainer: 0	Trainer: 0	
WVI technical staff freezes any new development to prevent any configuration control problems while last stages of transition take place	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Contract Start
Software applications, directories, log files, user accounts, administrative services, databases, etc., are all migrated to WVI and brought online in a test environment working in parallel	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Contract Start
Cut-over blackout period identified	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Contract Start
Training activities required for transition			
Identify WVI's designated technical personnel that will inherit the operational responsibilities for the portal including all financial processing procedures	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Contract Start
Develop a timeline for WVI technical staff to review all infrastructure components, portal software applications and system administration functionality	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Contract Start
Work through a detailed review and training on all documentation	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Contract Start
Develop and establish a test scenario or environment for WVI personnel to practice and become proficient with support of portal system applications and system administration	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Contract Start
Receive final copy of all documentation and source code as defined in the contract	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0	Contract Start

High-Level End of Contract Transition/Migration Activities	Vendor Hours	WVOT Hours	Timeframe
	Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	
Transition security knowledge and materials			
Identify WVI's technical personnel that will inherit the security aspects of the portal	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Contract Start
Develop a timeline for WVI technical staff to review all security components, processes, procedures and plans	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Contract Start
Work through a detailed review and training on all documentation, plans and activities	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Contract Start
Work to transition 3rd party auditing, scans and other activities provided by WVI	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Contract Start
Transition customer relations knowledge and materials			
Identify the customer service personnel who will inherit all customer relations activities and responsibilities	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Contract Start
Examine and determine plan for help desk functions to transfer	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Contract Start
Train staff on customer service methods, tools and processes	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0	Contract Start

High-Level End of Contract Transition/Migration Activities	Vendor Hours	WVOT Hours	Timeframe
	Data Base Administrator: 0 Trainer: 0	Data Base Administrator: 0 Trainer: 0	
Develop a timeline for WVI administrative and/or marketing staff to review all customer accounts and affected parties	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Contract Start
Review all portal-to-customer communiqués, along with frequency	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Contract Start
Develop explanatory letters to go out to customers on state letterhead explaining the upcoming transition	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Contract Start
WVI to receive copies of all customer account information as permitted by contract	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Contract Start
Final cut-over date identified and agreed to by both the state and WVI	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Contract Start
WVI assumes all customer relations activities and responsibilities	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Contract Start
Transition marketing activity knowledge and materials			
Overall portal branding and marketing strategy to drive awareness of WV.gov	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Contract Start
Advertising (e.g., paid display advertising)	Project Manager: 0 Functional Manager: 0	Project Manager: 0 Functional Manager: 0	Contract Start

High-Level End of Contract Transition/Migration Activities	Vendor Hours	WVOT Hours	Timeframe
	Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	
Portal Public Relations (e.g., unpaid advertising)	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Contract Start
Government technology award nominations	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Contract Start
Surveys and focus groups (often a market research function, but also used to gauge customer satisfaction and in the website architecture design process)	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Contract Start
Industry-specific marketing (i.e., promotion directed to groups such as attorneys, insurance, etc.)	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Contract Start
Preparation for and participation in relevant association meetings and trade shows	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Contract Start
Service-specific marketing (i.e., promotional plan to drive adoption of a service (or group of services)	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Contract Start
Specialty graphic design projects (logo design, letterhead, PowerPoint templates, signage etc.)	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Contract Start

High-Level End of Contract Transition/Migration Activities	Vendor Hours	WVOT Hours	Timeframe
Market research for new application development	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Contract Start
Service adoption tracking, analysis and goal-setting to drive usage	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Project Manager: 0 Functional Manager: 0 Functional Analyst: 0 Technical Manager: 0 Programmer: 0 Data Base Administrator: 0 Trainer: 0	Contract Start

4.8.3.2 The Vendor should agree to provide the following for each work order:

    4.8.3.2.1 A project plan for implementation and ongoing support of the project. Staffing and timelines for each work order will be included in the plan. The following phases should be addressed:
- Initialization of the project
- System hardware and software implementation
- Agency application development and implementation
- Ongoing operations

    4.8.3.2.2 An indication of the approximate length of time required after the State agrees to proceed with the project including:
- Definition of the timeframes for each implementation activity and requirement to be fulfilled
- A proposed installation schedule that identifies complete installation of all Vendor services
- Definition of any dependent services that would be the responsibility of the State and the timeframe

VENDOR RESPONSE:

WVI has read, understands, and will comply with this requirement. WVI has spent the past eight years finely tuning our operations to satisfy the state's work order/SOW process and will continue following the practices through the transition project. If needed, WVI will review and tailor operational processes to ensure the work order/SOW deliverables in this requirement are adhered to. As a long-term partner to the state of West Virginia, WVI understands the assurance that a documented work order/SOW process provides the agency, especially related to a transition project.

    4.8.3 The State's Project Manager will have overall responsibility for the project schedule and adherence to contract provisions.

VENDOR RESPONSE:

WVI works closely with project managers from the state today and commits to doing so under the transition period. As we state in prior transition related sections, WVI will provide a detailed Transition-Out plan to the state for their review and approval within twelve (12) months after contract award. WVI agrees that the state will have overall responsibility for the transition project schedule and adherence to contract provisions.

> 4.8.4 The Vendor should meet with the State's Project Manager and other State staff as needed to discuss development requirements, architecture, and implementation plans.
>
> VENDOR RESPONSE:

One of the key reasons WVI has been successful during our eight year partnership with the state is a focus on excellent communication. Constant, effective communication is essential for the mutual understanding of goals and expectations. As we have detailed in prior sections, the detailed Transition-out plan that will be delivered includes meetings with the state's project manager and designated staff, discussion of development requirements, architecture, and implementation plans. WVI commits to working with the state to complete a timely and successful transition.

> 4.8.5 The Vendor will be asked to provide a weekly, written status report to the State's Project Manager. This status report should include all tasks accomplished, incomplete, or behind schedule in the previous two weeks (with reasons given for those behind schedule); all tasks planned for the coming week, an outline of the status of tasks (e.g., % completed, completed, resources assigned to tasks, etc.) and the status of any corrective actions.
>
> VENDOR RESPONSE:

WVI currently tracks all of the project related items to be delivered in the written status report for all projects and will gladly deliver the transition related information on a weekly basis to the state's Project Manager. We understand the importance of sound project management practices and the importance to the state that such practices are followed. As stated in section 4.11 later in this response, WVI uses a proven project management methodology today that results in the constant completion of successful projects. WVI will deliver the required information and also commits to working with the state to modify the information delivered, should the state's reporting needs change.

4.9 Objective 9 Communications and Marketing

> 4.9.1 The Vendor should provide experienced marketing, communications and business development resources as part of the self-funded model, at no cost to the State, to design and implement a marketing and communications plan. The plan should incorporate Social Media channels. The plan should outline ways to create awareness, build support and accelerate the interest and use of online services as well as the visibility of www.wv.gov as a primary delivery channel for those services. Work in this functional area includes guiding the State's presence in the various social media channels and multi-media information.
>
> VENDOR RESPONSE:

Marketing e-Government transactions is a key to the success to the self-funded model because the model necessitates that both the vendor and the state participate in order to achieve mutual success. Just as we have operated for the past eight years, the program can only generate revenue once a service is developed and customers begin using it. Applying this type of private-sector motivation to the development of a state online service creates a results-oriented business proposition that has significant benefit to the state and its constituents. As in the past, WVI intends to work with state agencies to provide these services under the self-funded model.

A Best-in-Class Marketing Solution

As the industry's leading marketer of e-Government solutions, WVI and NIC's experience during the last 24 years has consistently shown that an effective, targeted, and sustained marketing effort is essential to the long-term success of a state's e-Government program. WVI's focus on marketing is aligned with our proven capabilities across NIC and specifically here in West Virginia, and we are eager to collaborate with the state to refine this plan to meet the current and future marketing priorities for the state's e-Government program.

e-Government marketing is a core competence for NIC and our organization has more hands-on experience in digital government promotion than any other provider or team of providers. We have designed and implemented hundreds of successful state e-Government campaigns across the nation to build brand awareness and adoption of new online services for our state government partners. This e-Government marketing expertise means we can hit the ground running on day one to build and implement a targeted marketing program that will specifically benefit the state, participating agencies, and the businesses and citizens of West Virginia.

WVI's proven ability will allow us to continue to deliver a relevant and effective e-Government marketing program that results in increased adoption of e-Government services in West Virginia and recognition for the state's efforts from industry experts. Results and experience absolutely do matter, and this section highlights a few examples of WVI's best-in-class e-Government marketing programs that have delivered measurable value for state of West Virginia.

An Industry-Leading Team of Marketing Experts

NIC's marketing leadership team consists of a cross-functional organization of marketing experts with more than 250 years of aggregate hands-on marketing expertise and more than 140 years of combined experience driving adoption for state e-Government portals and online services. In addition to overseeing e-Government marketing programs on behalf of the states that partner with NIC, our marketing professionals have previously served some of the nation's most respected marketing organizations, including The Coca-Cola Company, MCI Communications, Ford Motor Company, J. Walter Thompson, and Gannett.

Our commitment is to prominently feature WVI's e-Government solutions in a manner that raises brand awareness and drives traffic to portal websites and online services. In particular, our marketing approach is driven by the following proven principles:

- **Do your homework:** Though we have fine-tuned our approach across more than two dozen states, we recognize that each state market is different and absolutely do not assume that what is true in

nearby states we serve (such as Maryland or Kentucky) will also apply in West Virginia. WVI believes that location-specific market research is essential to best understand the evolving needs of the state of West Virginia and its constituents.

- **Be inclusive:** While WVI and NIC have significant e-Government marketing expertise, we also know that good ideas and new approaches can come from many places. As part of our standard business practice, we proactively invite participation from state agencies, businesses, and citizens – something we've done successfully in West Virginia over the past eight years across a variety of services. We intend to continue this approach in West Virginia to ensure that the broadest possible audience has a vested interest in making the e-Government services program a success.

- **Make it personal and relevant:** The "what's in it for me?" question is paramount in the minds of e-Government customers, who are bombarded each day with hundreds of marketing messages. By speaking specifically to the audience we wish to reach and giving them timely information that is relevant to their needs, we believe a targeted marketing campaign will create top-of-mind awareness and generate increased interest and adoption of online services.

- **Keep it brief and clear:** We respect our audience's time and don't expect them to pore over paragraphs of copy in an advertisement, press release, direct mail, or e-mail message. We focus on the facts, are succinct in explaining the benefit of online services, and offer clear calls to action to use government websites to receive fast and easy service.

- **Prepare for the long-term:** We recognize that any marketing plan will include aspects that deliver benefits over time as core messages are reinforced and digested by target audiences. WVI has learned that the greatest benefits of e-Government marketing may come after the second, third, or tenth exposure to a digital government marketing message.

- **It's not about WVI:** Our focus is on promoting the state, the hard work of its agency employees, and the collective effort made to improve e-Government services – we are not interested in congratulating ourselves for another successful initiative. In each of our partner states, WVI firmly and intentionally remains in the background by developing marketing programs that raise awareness and drive usage.

Communication Tactics

The proposed WVI marketing plan includes a broad communication component to ensure that key audiences are aware of West Virginia's e-Government services and have relevant reasons to use its online services. A summary of communication tactics WVI may use include:

- **Social Media** – Facebook, Twitter, and other social media venues play an increasingly important part of WVI marketing strategy. With studies suggesting that the average American is spending between 40 minutes to 3 hours a day checking their social feed, social media is not only a valuable tool for getting a user's attention, but also for having organic growth in which users tell their friends and family how great the state's site or service is. Today, WVI works with state agencies to connect their websites to social media accounts. To increase exposure and create a trusted source for state social media resources, WVI developed a state-wide social media directory as part of the new WV.gov. From an advertising perspective, social media sites like Facebook allow WVI to define the target audience through filters of geolocation, gender, age, interests and many more options. This has proven extremely useful in promoting DMV online services over the last year with Facebook ads reaching over 167,000 individuals.

- **Media events** – Throughout NIC, we work closely with our government partners to hold regular media events that draw attention to official government websites and online services. Many of

these events feature the Governor, state CIOs, agency commissioners, or directors and other cabinet members and high-ranking state officials discussing the benefits of going online to connect with the state. This is the approach we also recommend for West Virginia, and WVI is eager to help the state leverage public events to raise awareness of West Virginia's online services.

- **Public service announcements (PSAs)** – NIC has a proven PSA development program in multiple states to generate free broadcast media exposure for official government websites and WVI will use this experience to design a customized program for West Virginia.
- **End user training** – Succinct training to educate end users about new and existing e-Government services and information is an essential part of the communication process. No provider can match WVI's experience at providing knowledge transfer and customized training for agency employees, business users, and citizens. WVI will work closely with the state to develop training to educate targeted audiences about West Virginia online services.
- **Search engine optimization** – Web users use search more frequently than ever before. According to the most recent findings of NIC's exclusive e-Government survey and focus group-based market research, approximately 95% of all web sessions involving government websites are initiated with a web search. As part of our proven website and e-Government services design process, WVI conducts both internal and external assessments to ensure that keywords, external links, and tagging are optimized for search engines. In addition, the media announcements we issue on behalf of partner states are keyword-optimized and link-optimized to ensure online services appear as prominently as possible in search results. Both search engine optimization assessments and keyword-optimized media releases are part of our proposed marketing program.
- **E-mail** – WVI will work closely with participating state agencies to develop a targeted opt-in e-mail marketing program for business and citizen users of online government services. The services developed by WVI already collect e-mail data, and this data has value from a marketing perspective. We strongly encourage West Virginia to consider opt-in e-mail as an option for as many online services as possible as a way to augment existing communication channels.
- **SMS / text messaging** – In our most recent wave of national market research, NIC has found that more than 40% of respondents expressed interest in receiving opt-in SMS messages for time-specific, relevant reasons – for example, as reminders when deadline-driven services like professional license renewals or annual report filings need to be completed. WVI proposes that SMS messaging be part of West Virginia's communication strategy to drive more traffic to specific self-service solutions.
- **Post cards / form redesign** – One communication tactic that above all others has historically been most effective at shifting traffic to the online channel is simple form redesign and the strategic use of post cards and direct mail to deliver reminders and encourage use of a government service. WVI has worked closely with multiple state agencies, such as the Division of Motor Vehicles, Secretary of State, and Workforce WV, to enhance their communication practices by streamlining forms and other official communication with strong calls to action for Internet services, which can lead to significantly lower usage of mailed-out forms and the elimination of the associated expense. WVI is eager to continue to work closely with West Virginia agencies to leverage existing forms and other printed and mailed communications to increase traffic to online services. Specifically, WVI recommends investigating mailings for services such as the Business 4 WV Annual Filings and Vehicle Registration Renewals as prime candidates.
- **Site cross-marketing** – WVI works closely with participating agencies to cross-market similar services to drive adoption. For example, the Secretary of State's Office lists related services for business entities when a user completes a certification of existence to drive traffic to other services. Whenever possible, we encourage the same action to our other agency partners to include links to

related services on the transaction confirmation pages to help direct users to related services. We are eager to continue working closely with the state to develop customized cross-marketing strategies that benefits all customers.

- **Press releases and media outreach** – WVI has been successful in West Virginia by promoting services through press releases. We are highly skilled at developing relevant announcements about government portal enhancements, new services, awards, performance milestones and anniversaries, and other newsworthy items. WVI will leverage strong relationships with national, industry-specific, and statewide media to place stories that highlight West Virginia's innovative efforts and will also develop all press announcements to be search engine-friendly to maximize search placements.

> 4.9.2 The plan should contain specific strategies and tactics, with anticipated measureable outcomes (e.g., numbers of new uses or new transactions per unit time) and specific implementation timelines.
>
> VENDOR RESPONSE:

The marketing plan will contain specific strategies tied to measurable outcomes, as well as timelines for implementation. WVI's high-level marketing strategies and tactics are outlined in our response to RFP requirement *4.9.1* within the Communication Tactics.

Measurable Outcomes

For all communication tactics, the measurable outcomes fall in the major categories below. In some cases, a successful marketing plan involves multiple or all categories and multiple communication tactics. Implementation timelines depend on the goals of the marketing campaign and the item being marketed. Services that have a specific timeframe in which all transactions occur are treated differently than ones that can occur at any time. In general, services that occur throughout the year, such as Vehicle Registration Renewals, should be measured yearly while those with the specific timeframe, such as Electrician License Renewals, should be measured in days, weeks, or months around that time frame.

- **Promote Awareness** – Promoting awareness has the goal of making the public aware of new service services or initiatives for a given agency. This is measured by increased site hits on key pages. It is also measured by agency interaction with the public through surveys asking if the citizen is aware they can do it online. A successful marketing campaign with this goal finds the citizen's response transfers between "No I wasn't aware" towards "Yes, I just wanted to do it in person". Measure this outcome on a yearly basis.
- **Promote Adoption** – Promoting adoption has the goal of reducing offline usage. Online transactions tend to save agencies time and money making this a major focal point of most campaigns. This is measured by comparing online and offline usage over time. Measure this outcome on a monthly or yearly basis depending on the nature of the service.
- **Promote Visitors** – Promoting visitors relates to having the public visit state and agency's websites, such as WV.gov. Through increased usage of online content, the state is presented with a cost efficient solution to distributing information, forms, and other media. This is measured by reviewing site usage over time. Measure this outcome on a weekly or monthly basis

> 4.9.3 The Vendor should describe its approach to extensively promote electronic government self-service applications.

VENDOR RESPONSE:

As discussed in response to section *4.9.1* and *4.9.2*, WVI's experience and vision for marketing electronic government self-service applications is a key element to the success of the self-funded model in West Virginia. For self-service applications, the primary goals are typically promoting awareness and adoption. WVI will work with the Portal Board and the responsible agency to meet these goals based on the defined target audience. When approved by the state, WVI will announce the launch of a service with a press release when it is released. Additionally, WVI has experience using social media, media events, public service announcements, end user training, search engine optimization, e-mail, SMS/test messaging, post cards, site cross-marketing and press releases to promote self-service applications. WVI will work with the responsible agency to select the appropriate marketing tactics based on the target audience to formulate the plan and identify measurable goals.

For example, a professional license renewal service may have 20% adoption for the first year of usage. WVI and the agency may define a goal of 80% adoption for year two. Working with the agency, WVI will assist in redesigning forms and developing postcards or buck slips to drive an increase in adoption. At the conclusion of the renewal period, WVI will review with the agency the success of the marketing campaign and work to identify improvements for year three.

West Virginia e-Government Marketing Successes

WVI has developed multiple campaigns to increase awareness and adoption of WV.gov e-Government services. Some noteworthy examples:

Board of Accountancy Account License Renewals

WVI worked with the Board to promote online license renewals with a goal of 80% usage. Through the tactics explained below, the agency benefited by having 82% of eligible CPAs renew online in 2015.

Communication Tactics

- **E-mail** – Utilizing an agency email list, all licensees were sent a message reminding them it was time to renew and explaining the benefits of renewing online.
- **Post Cards / Form redesign** – WVI worked with the agency to change how renewal notices were mailed to licensees. In the past, the renewal form and instructions were mailed by the agency to each licensee. WVI helped the agency send a reminder notice and stop mailing the renewal forms with the notice.
- **Site cross-marketing** – WVI added prominent links to both the WV.gov search engine and the Board of Accountancy website.

Workforce WV Employer Online Contribution Reporting

Workforce WV has a goal to eliminate paper checks and mandate electronic filings for unemployment contributions made by employers. To achieve this, the agency has set a goal to reach 60% adoption before moving forward with a mandate. In the last year, the adoption of the system has doubled to almost 50% as a result of a cooperative marketing strategy. At the current rate of growth, WVI is expecting the agency to reach their goal within next two filing quarters.

Communication Tactics

- **Post Cards / Form redesign** – WVI worked with the agency to help form communications to employers to encourage them to file online. This included changes to the mailed forms and also mailing inserts.
- **Site cross-marketing** – WVI added prominent links during filing times to WV.gov website and helped the agency to display instructional content on their website.
- **Press Releases** – WVI worked with the agency to issue multiple press releases about current and newly developed online filing options. This helped promote awareness in not only WV but across the county as not all employers are WV based.
- **End User Training** – WVI developed an easy-to-read online filing guide, aided by a tutorial video featured on WorkForce's website.

Division of Motor Vehicles Online Services

The Division of Motor Vehicles has taken the initiative to increase the availability and adoption of online services. The main focus of this marketing campaign has been the promotion of Vehicle Registration Renewals, as it is easily measureable, but the overall objective is to make the public aware that multiple DMV services are online and shift the citizen's mindset to "think online first," when it is time to transact with the DMV. This marketing campaign is a multiple year approach in driving awareness and adoption. The initial goal is to reach 10% adoption of online vehicle renewals. The results are promising. In November 2015, the service saw a 61% increase in online renewals compared to November 2014. Usage continues to grow each month with statewide adoption doubling to 4% in just the last six months.

Communication Tactics

- **Social Media** – WVI has developed four different Facebook ads to promote awareness on social media. These ads have reached over 167,000 people. They also generated a significant amount of comments from users saying that the service exceeded expectations.
- **End user training** – WVI worked closely with the DMV to train and retrain as needed to ensure transactions are completed quickly by DMV staff.
- **Post Cards / Form redesign** – WVI worked with the agency to include a Quick Response (QR) code and link to online vehicle renewals on renewal forms. A quick scan with a QR code reader will take the user directly to the mobile-friendly service.
- **Site cross-marketing** – WVI added prominent links to WV.gov and helped the agency redesign their website to focus on an increased online presence. WVI also helped develop posters and magnets for regional offices.
- **Press Releases and media outreach** – WVI worked with the agency to issue multiple press releases about new transaction types, improved user experience, and faster service. A vast majority of these press releases were picked up by local news and radio. WVI also worked with West Virginia Radio Corporation to arrange for multiple on-radio discussions about online DMV services.

> 4.9.4 The Vendor should describe how marketing strategies will be used to build and measure end-user traffic to www.wv.gov to assure the broadest possible use of these services. Examples include: 1) marketing and publicity associated with the implementation of new online services to include notification through e-mails, web banners or other collateral materials, public service announcements, etc.; 2) Web 2.0 technology such as blogs, wikis, video, social networking sites, widgets and mashups; and 3) software tools and reports that analyze customer and

citizen demand for products and measure adoption rates and customer satisfaction with online services.

VENDOR RESPONSE:

WVI has, and will continue to employ multiple marketing strategies to drive end-user traffic to WV.gov with great success. WVI's marketing strategies have included site cross-marketing, social media exposure, press releases, media events, and public service announcements. Examples of how these strategies have been implemented include:

- **Cross Site Marketing** – Development of the enterprise header and WV.gov branded logo across all sites produced by WVI. This header as shown in the figure below ties each new website back to the state's official website, WV.gov.

    ### Figure 12: WV.gov Enterprise Header

    west virginia   State Agency Directory | Online Services

- **Social Media Exposure** – WVI maintains an official WV.gov Facebook and Twitter account that is used to share state press releases and announcements. The WV.gov Facebook page has received nearly 1,200 "likes."
- **Press Releases** – WVI works with agencies to issue press releases announcing new services and websites. Included in the footer of WVI press releases is a reference stating that the service discussed in this press release is part of the WV.gov e-Government initiative
- **Media Events** – With the most recent release of WV.gov, WVI worked with the Governor's office to host a media even announcing the release of the website.
- **Public Service Announcements** – WVI has attended and exhibited at public events such as the WV Annual Auto Show and DNR Hunt and Fish Days to educate citizens about the numerous convenient resources available at WV.gov

WVI will continue to use a powerful analytics tracking tool, currently Google Analytics, to measure end-user traffic and usage of WV.gov. WVI will continue to constantly review usage of the site to help shape the direction of WV.gov and redesign the site regularly as citizen's needs change or new services are introduced.

Additionally, through the use of Google Site Search and Analytics, WVI shall guide users to online services based on keywords. This approach has been successfully implemented for many state agencies, such as the Division of Motor Vehicles, Secretary of State, and Workforce WV.

In 2015, WVI utilized Google Analytics data to complete the state's third major overhaul of WV.gov with the goals of increasing efficiency and access to visitors using mobile devices. After the redesign, WV.gov experienced a:

- 67% increase in the number of pages viewed
- 76% increase in the number of pages viewed per session
- 87% reduction in bounce rate

WVI uses many tools to evaluate, track and measure on the performance of WV.gov and its services. This includes Google Analytics for website analytics and user tracking, customer surveys and user feedback, call center data, application statistics (adoption, volumes, etc.) and customer research to continually improve the West Virginia service offering.

4.9.5 The Vendor should continually evaluate and highlight customer interest, demand and satisfaction as the drivers and measures of success for visibility of www.wv.gov and affiliated State agencies. Please describe how this will be accomplished.

VENDOR RESPONSE:

Driving the Success of WV.gov

Evaluating Customer Interest, Demand, and Satisfaction

WVI utilizes multiple tools to measure the success of the state's official website, WV.gov and affiliated agency websites. Since WVI provided the first redesign of WV.gov in 2008, citizens have had multiple ways to communicate how WV.gov met or exceeded their expectations, or could better serve them. Customer feedback is evaluated regularly by observing the following:

- **Telephone and Live-Help** – WVI provides first-line support for WV.gov and helps thousands of customers per year find resources on WV.gov and agency sites. Customers regularly share what they liked or dislike about the online tools available to them and suggestions for improvement.
- **User Feedback** – Since 2008 survey and feedback forms have been available on WV.gov and are conveniently located in the footer of every page. Customers have the ability to rate their experience and supply any additional feedback they may have. The feedback received provides valuable insight into the customer's overall satisfaction.
- **Social Media Sharing** – Through the use of social media platforms such as Facebook and Twitter, customers can share or comment on things they like or dislike about WV.gov. These actions are observed and used to identify issues or steer future decisions.

In addition to providing many convenient ways to solicit feedback, WVU utilizes powerful Google Analytics data to evaluate customer behavior as it relates to WV.gov and agency websites. Through this data, we can identify many key metrics, such as:

- Top state websites
- Top pages viewed
- Top search terms
- User navigation flow
- Top Exit pages
- Browsing device including operating system, service provider, browser version, and screen resolution
- Seasonal/cyclical trending topics
- Average session duration

Highlighting Customer interest, Demand, and Satisfaction

All of the above-mentioned tools are used to gauge customers' interactions with state websites and implement changes based on lessons learned. Perhaps the best example, is the most recent redesign of WV.gov. Through the use of the usage metrics data and customer feedback, WVI recently completed our third major redesign of wv.gov.

Figure 13: WV.gov Home Page Analysis

The major key metric discoveries in this redesign were:

1. **Significant increase in mobile device usage** – Visits from mobile devices to WV.gov increased 58% from 2013 to 2014 and made up a significant 12% of total traffic. This was addressed by making the new WV.gov a responsive website that was tailored to support both desktop and mobile device audiences.
2. **Top key search topics** – WVI identified and grouped the top key search areas into the main navigational sections for WV.gov as shown in the red box #2 in the figure above.
3. **Search centric design** – Metrics showed that most users skipped the screen content in favor of search ability. WVI used this to prominently place the search bar at the top of the screen.
4. **Interest in state news** – Metrics suggested that many users visited news feeds on one or more sites. As a result, WVI developed a News Center that has the ability to act as a single news location for all state agencies with an associated RSS feed. The News Center reviews the individual state agency websites to pull the latest news. Through defined rules, this news is categorized and prioritized. Key agencies such as the Governor's Office can be given a higher level of priority to reach more citizens. The top three most recent news articles are displayed on the home page of WV.gov as shown in the red box #4 in the figure above. An additional page will display all news across state agencies.
5. **Top key pages and links** – WVI reviewed the pages accessed across WV.gov and other state agencies along with key search terms to create a Top Resources area on WV.gov home page.

This section provided easy navigation abilities to access resources in 9 key areas as shown in the red box #5 in the figure above.

6. **Seasonal interest changes** – WVI identified key visitor interests and how they changed throughout the year. In response, WVI added a highlights section to WV.gov homepage to highlight related services and events across state agencies. The figure below demonstrates this usage. The section of the page marked within the as shown in the red box #6 in the figure above is a rotating section of key interests. These slides are created and managed by WVI with seasonal focus on new or key applications.

4.10 Objective 10 - Customer Service

4.10.1 The Vendor should provide customer assistance to users of the State's e-Government portal at no cost to the State. The first contact point for customer service should be the Vendor. The Vendor should resolve all issues related to usage, navigation, applications or customer problems regarding an e-Government application. Any issues regarding the back-end processing of State applications or State maintained web pages would be forwarded to the WVOT Service Desk or the help facility within the appropriate Agency.

VENDOR RESPONSE:

WVI understands and will comply with this requirement. WVI has been successfully delivering services in West Virginia for over eight years, and our customer service record is impeccable. Customer service is an integral component of the WVI self-funded model and a key aspect of all of our solutions with the participating agencies and public customers, such as the citizens and businesses who use the online services. We believe that a well-executed customer service platform is one of the most effective ways to market e-Government services, because satisfied users whose customer support needs were met in a timely and effective way are much more likely to return to the site and tell people about their positive experience.

As such, discussions regarding customer support begin at the very start of a project and will be documented in the work order. Furthermore, we understand the evolving nature of customer support and will work together with the state throughout the lifecycle of the application to ensure we are providing accurate information due to policy changes, process changes, enhancements, etc.

In the following sections, WVI has outlined our capabilities to provide the various levels of support identified in *Section 4.10* of this RFP. WVI is confident that we will be able to continue to provide a comprehensive customer support solution that meets the needs of the state, at no cost to the state, and is continually improved by our ongoing experience providing this service in West Virginia.

4.10.2 Telephone and e-mail support should be available 24 hours per day, 365 days per year. This support should be offered to all Customers without charge. The Vendor's proposal should provide a plan to provide telephone and e-mail support for Customers including specific metrics related to staffing, response time to phone calls and e-mails and resolution time for typical inquiries and other issues. The Vendor should also include a description of how customer support will be integrated into the design of the application itself.

Telephone and e-mail support requirements include the following: a) logging of customer telephone calls and e-mails to ensure inquiries are properly addressed in a timely fashion; b) review of telephone calls and e-mail logs to identify and rectify frequent inquiries; c) reporting of telephone calls and e-mail logs to the State on an agreed upon schedule and manner (this will include various reports that will help the State identify customer issues); d) description of how the customers would access and use online help information and references (e.g., icons, directories, tutorials, for its services to customers).

VENDOR RESPONSE:

Direct Telephone & Email Support

Under our current contract with the state of West Virginia, WVI provides telephone and email support without additional charge to the end user 24 hours per day, 365 days per year. Our dedicated help desk is responsible for telephone and e-mail support 24/7 and live-help chat support during business hours, and we will continue to provide this important service.

Responsiveness

Many support questions are answered immediately due to the knowledge of our support resources and our knowledgebase of previous inquiries. WVI maintains a policy of responding to customer support issues as quickly as possible and will continue to strive to respond to all inquiries within one business day.

Specifically, telephone and e-mail support includes:
- Live operators
- Logging of customer telephone calls and e-mails to create an audit trail of inquiries to be later used for process improvements and for documentation purposes
- Review of telephone calls and e-mail logs to identify and rectify frequent inquiries
- Quick response times on all calls and e-mails
- Reporting of telephone calls and e-mail logs as required by the state, including various reports that will help the state identify user issues.
- Support of payment-processing inquiries that might include step-by-step instructions for filling out forms or completing transactions, definitions of terms that clarify information that the customer needs to provide transaction eligibility requirements, and special circumstances that require escalation to the agency or department directly
- Continual improvement of customer service through usage reports and telephone call logs, and e-mails

Over the past eight years in West Virginia, WVI has found that the successfully implemented multi-tier customer support program works best, and we are proposing to a three-tiered, industry-tested approach for West Virginia.

Tier 1 Support

A WVI help desk customer service representative (CSR) or point of contact (POC) will provide Tier 1 phone, e-mail, and live chat support. Tier 1 support will consist of the following:

- First-line level of support for all applications supported by WVI

- CSR responds directly to user, gathers user information, determines issue by
  - Analyzing symptoms
  - Identifying the underlying problem
  - Assigning the appropriate severity level
- Provide solution and closes problem
- Log call and close problem or escalate to Tier 2
  - Issues regarding state applications or state-maintained websites will be forwarded to the help facility in the appropriate agency according to escalation procedures as defined in the Statements of Work for those applications.

Tier 2 Support

Most issues are resolved by Tier 1 customer support, but if an issue is not resolved by the Tier 1, the issue will be escalated to Tier 2 customer support. Tier 2 customer support will also be available from phone, e-mail, and live chat support channels. Tier 2 support will be provided by the WVI-designated Point of Contact (POC) or another team member with detailed knowledge of the application or service. Tier 2 also includes Data Center / Infrastructure support engineers at WVI's Data Center.

Tier 2 after-hours support for critical issues will also be provided. Agencies will have phone and e-mail access to Tier 2 support team consisting of dedicated, knowledgeable WVI resources that will be assigned to individual agencies and will provide POC support to the agency for an assigned SOW.

Tier 2 support will provide the following:

- Review of the Tier 1 ticket
- Confirmation of the validity of the problem and research into known solutions
- In-depth technical analysis and troubleshooting techniques
- A proposed solution
- Log call and close problem or escalate

Tier 3 Support

If WVI determines that an issue resides with a third-party software or hardware product, we will work closely with the third-party vendor to determine what the problem is and immediately notify the impacted agency. WVI will closely monitor the progress of the issue and report status changes to the appropriate customer or agency. When the issue is resolved, WVI will notify all impacted parties and the issuer of the trouble ticket.

Routing of Policy Issues to Agencies

Inquiries regarding issues and complaints outside of WVI's control (such as legal, policy issues, or inquiries about a service, product, or program not currently offered) will be escalated to the appropriate agency or department personnel. These questions will be tracked and monitored to determine the root cause of the issue and whether it can be remedied through a change in the service delivery mechanism. That information will be periodically reviewed and analyzed by the dedicated team for quality control and knowledgebase development. This information will also be analyzed to develop process improvements.

This approach has been extremely successful, allowing constituents to speak directly with those most familiar with the services to provide answers to questions and resolve problems quickly and directly.

Integrating Support into Application Design

Access to online support channels is a win-win for customers and for WVI. When customers are able to help themselves with self-help tools (e.g. icons, tutorials, frequently asked questions, etc.) and live customer support (e.g., telephone, email, chat) customers can have the confidence to use the online service knowing that if a question arises, they have multiple channels available to get an answer to their inquiry in a timely manner.

Throughout the development of the service, care is taken to include the customer support team and usability experts so the design and flow of the application take into account the needs of the customer. Below are descriptions and examples of ways WVI has provided user-friendly services and integrated customer support features.

Help Information

As a standard, West Virginia provides Help links in the top navigation on all pages to ensure that at any point within the application, customers can access help without having to leave where they are within the application. The Help page can provide contact information, tutorials, frequently asked questions and other help instructions to encourage user interaction and self-help. Both the relevant agency and WVI staff will provide continuous enhancements to this section of the application. The following figure provides an example showing the Help Page for the Secretary of State's Uniform Commercial Code application.

Figure 14: UCC Help Page
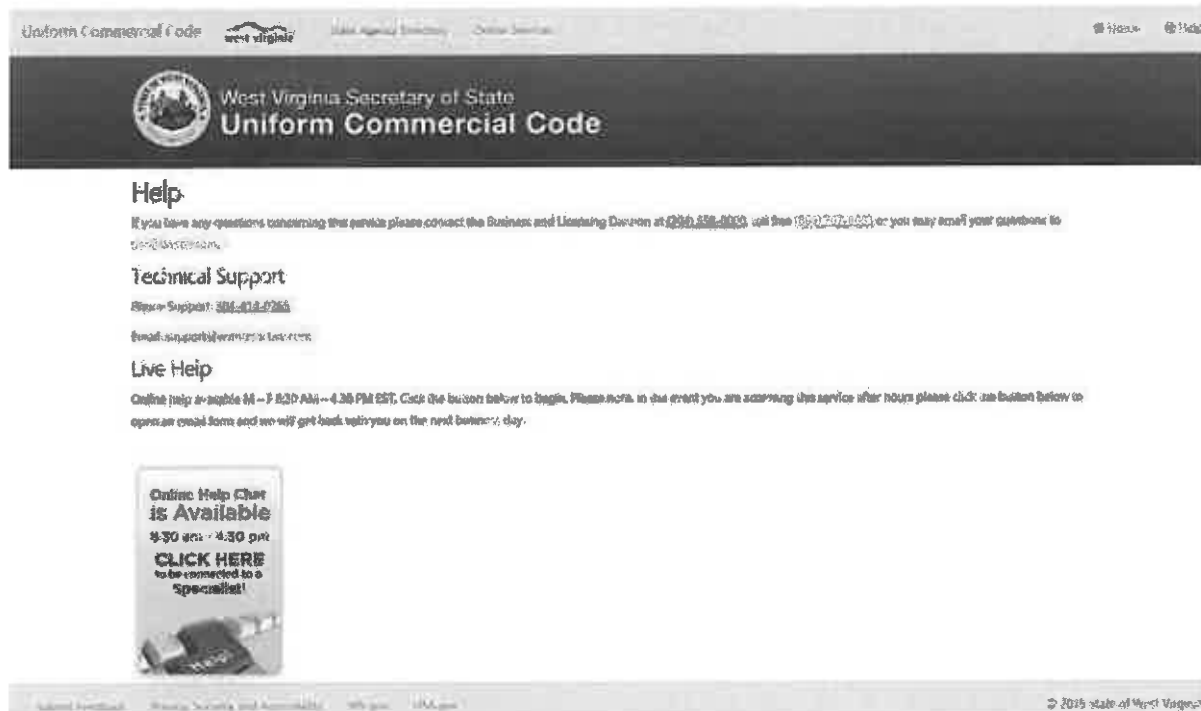
Consistent Design & Navigation

Based on usability and accessibility best practices, WVI has developed a standardized application template for use in the development of e-Government solutions. It provides a unified, seamless "look and feel" among all applications that serves to provide users with a consistent, intuitive experience. Additionally, common web conventions, such as a progress indicator, an e-commerce-style shopping cart, and links for help further assist in providing a user-friendly experience for customers.

Live Chat

During business hours, WVI supplements 24/7 telephone and e-mail support channels with a live chat feature that provides an online channel accessible from WV.gov. This live chat service provides an important enhanced customer option to interact with the state directly through the application or website, while reducing phone calls to customer service representatives.

In addition to providing customers with a web-integrated customer support interface, live chat creates important operational efficiencies. For example, in 2011, WVI helped the Secretary of State's Office launch a live online customer service on WVI's platform. In last two years, SOS received over 4,200 live help requests resulting in significant customer service improvements and phone call reductions. As a result of implementing Live Chat, the Secretary of State's Office received national recognition as a finalist for the National Association of Secretaries of State (NASS) Innovation, Dedication, Excellence, and Achievement in Service (IDEAS) Award.

> 4.10.3 The vendor should describe their plans for performance monitoring and problem resolution. The vendor should describe how it will respond to system malfunctions, and diagnose and solve problems within a time period to be agreed upon with the state. The vendor should describe procedures to be included for interfacing and consulting with hardware and software vendors to identify and correct problems. The vendor should perform maintenance at times that will not adversely impact daily operations. The vendor should coordinate maintenance schedules and procedures based on the state's requirements. Vendor's plans for regularly performing normal and preventive software maintenance should be included in the vendor response.
>
> VENDOR RESPONSE:

WVI is dedicated to the proactive monitoring and resolution of the systems it supports on behalf of its government partners, and we consider meeting this requirement one of our principal roles as a partner in the state's e-Government program. Under the self-funded model, WVI's success is solely driven by the availability of the infrastructure and applications available to the public on behalf of its government partners.

Monitoring, Notification, Problem Resolution

The cornerstone of a proactive monitoring, notification, and problem-resolution approach is the appropriate mix of technology and supporting processes that engage vendors and other service providers to identify and correct problems. WVI uses SolarWinds Orion Network Performance Monitor (NPM) to track system and network performance. Orion allows for performance and health monitoring which provides the foundation to manage service levels, works in heterogeneous environments, and is capable of monitoring VMware virtualized servers. Email and SMS alerts are established for system

metrics that exceed standard and established service level thresholds. WVI will also leverage a third-party monitoring service from Service Uptime. This measures service levels from various checkpoints on the Internet from around the globe. All monitoring and performance resources can be configured to alert key WVI personnel as well as state staff as appropriate.

The proposed solutions will allow WVI to continuously monitor the health of e-Government systems, notifying designated state staff of performance issues as necessary, system alerts, or failures at all times, using the most appropriate and efficient communication methods.

Interface with Hardware & Software Vendors

WVI retains hardware and software maintenance and support contracts on components managed by WVI for the state's e-Government program. Per each maintenance agreement, vendors will guarantee standard response times to identify and correct problems. WVI will ensure these agreements fall within any defined service level agreements with the state. Any exceptions to the defined service level agreements by hardware or software vendors will be communicated to the state prior to execution.

Maintenance Periods

Maintenance periods will be agreed upon and defined for regularly scheduled time windows during off-peak times to allow for standard maintenance activities within the IT systems. All release and configuration changes will be conducted during scheduled maintenance periods approved by the state. All scheduled maintenance windows will be coordinated and approved by the state and will adhere to the seven-day advance notice requirement. Emergency maintenance windows will be planned and scheduled between WVI and the state's Project Manager according to emergency change management procedures.

Security Patches & Software and Hardware Maintenance

WVI is responsible for all aspects of software and hardware maintenance under the proposed self-funded model. WVI will monitor all patch releases and schedule a maintenance period to update the relevant software after full system and regression testing to assure that a particular patch remedies the problem, does not cause other issues, and is stable. WVI will only utilize vendor-certified patches and will verify their authenticity in a secure fashion, either by digitally signing packages, or using a message digest, which is known to be relatively free from collisions prior to implementing them. Emergency security patches will be implemented by following an approved emergency change request process.

4.10.4 The Vendor should periodically conduct customer satisfaction surveys for the purpose of determining the level of use, acceptance, and ease of use of the e-Government portal and Agency e-Government applications. The Vendor should, at agreed upon intervals, report to the Portal Board on how the issues identified in customer surveys are being addressed. Each Agency e-Government application should include online customer satisfaction surveys as one of its features. The proposal shall describe the Vendor's customer survey plan.

VENDOR RESPONSE:

WVI recognizes the value of collecting and assessing customer satisfaction on a regular basis and will continue to incorporate feedback mechanisms into all services developed for the state of West Virginia. We regularly use customer feedback to improve the solutions we offer—to enhance existing services or to identify new areas of opportunity.

WVI currently tracks customer satisfaction by providing on-line surveys that are easily accessible at the conclusion of each service. Surveys are designed to quickly identify satisfaction and elicit feedback on both improvements to the service and future opportunities. Survey responses are reviewed on a regular basis with the customer support and project management teams so that feedback can be easily be incorporated into future releases. The following figure provides an example of a satisfaction survey for one e-Government service.

As an additional value-added service, we offer post-session customer satisfaction surveys as part our customer support ticketing service suite. All of our online evaluation tools provide fast data gathering and reporting that can be accessed in real time. WVI will present survey feedback to the requesting agency and Portal Board on a scheduled basis as determined and will continue to develop a proactive approach to innovation and continuous improvement.

Figure 15: User Survey Feedback Form

4.10.5 The Vendor should provide on-site training, as required, for State personnel on the implementation, initiation, maintenance, monitoring, management and

administration of every service developed and implemented under this contract at no cost to the State for the duration of the contract. Training should be available for each new application for a six month period beginning at a date to be negotiated by the Agency.

VENDOR RESPONSE:

Training and process improvement are critical components of a successful portal delivery. WVI constantly seeks to improve the efficiency and delivery methods of all of our services on behalf of our government partners and recognizes that e-Government training is a critical aspect of overall project success.

WVI will provide training for all services, including functionality, implementation, maintenance, monitoring, management, and administration of every service developed and implemented under this contract. We will work closely with state staff to provide information about tools, approaches, and/or methodologies to allow the state staff to obtain e-Government expertise. The overall objective of the training program will be to provide the staff with the skills, knowledge, and ability to administer and maintain the portal in the most productive manner possible.

On-site training will be provided for technical and operations staff and, as applicable, for end-users. WVI will provide all training materials, including all necessary documentation and procedure manuals.

WVI uses its dedicated West Virginia staff to provide initial and ongoing training as part of the self-funded business model. By leveraging the local staff located in Charleston, WVI can quickly respond to requests for training whether that be for an entire group or for one-on-one training.

WVI will work with the state to provide the necessary training. Over the past eight years, WVI has trained many state partners on the services we have built and managed. A few examples include:

- Vehicle Registration System support training - This formalized training was spread across several sessions at the various DMV regional offices in the state and provided an understanding of the service and its functionality to help the team better serve their users.
- Enterprise Content Management (CMS) System training - WVI provides trainings on the average of one per week, year-round to agency content managers that maintain both new websites and existing websites.
- Uniform Commercial Code Back Office System training - This formalized training was provided on-site to the Secretary of State's Office and was key to a quick implementation of the UCC filing system now utilized daily by the agency.

WVI looks forward to working with the state and identifying new opportunities for training in West Virginia both in the initial six months and as long as the service is managed by WVI.

4.10.6 The Vendor should agree to provide live help during normal business hours of 8:00 a.m. to 5:00 p.m. Eastern Time with a minimum of two operators available at any time. Please describe how you will provide this live help.

VENDOR RESPONSE:

Since 2007, WVI has provided a live help chat feature that is used in conjunction with other online and telephone-based customer support channels to give West Virginia citizens convenient support options. WVI agrees to continue providing live help during normal business hours of 8:00 a.m. to 5:00 p.m. with a minimum of two operators available at any time as part of our comprehensive customer service solution. The live chat service is very popular and provides an important enhanced customer assistance option to get assistance directly through the application or website, while reducing phone calls to customer service representatives. The live chat service is available through the state's web portal and e-Government applications.

4.10.7 Within six months of the starting date of the contract, the Vendor shall launch a project dashboard clearly defining all projects in its pipeline, along with new projects to be considered by the Portal Board during its meetings. Other requirements for this dashboard will be determined and agreed upon by the Portal Board.

VENDOR RESPONSE:

WVI has read, understands, and will comply with this requirement. As the current portal provider, WVI tracks and readily shares this information today at regular meetings with the Portal Board or upon request. WVI understands the state's requirement for a web-based project dashboard and is happy to work with the state to provide a dashboard that defines the list of projects in our pipeline and new projects requiring Portal Board review within six months of the contract start date. WVI will work with the Portal Board to define and implement other additional requirements not defined in this RFP response.

4.11 Objective 11 - Project Management for New Applications and Websites

Project Management: The successful bidder should utilize a formal methodology to project management, which is compliant with the Project Management Body of Knowledge (PMBOK) and WV Office of Technology (WVOT) Enterprise Project Management Office (EPMO) and includes the following:

4.11.1 The successful Vendor should assign a project manager to the project who will be responsible for the successful completion of all work tasks and deliverables as defined within the project work plan.

VENDOR RESPONSE:

WVI has read, understands, and will comply with this requirement. WVI's eight years working with West Virginia has shown that assigning a project manager to each project is key to successful and efficient implementation of all work tasks and deliverables.

4.11.2 The successful Vendor's Project Manager should maintain a detailed project work plan through the full term of the implementation process. The Vendor's Project Manager should submit an updated work plan to the WVOT Project Manager on a date and time that will be determined during contract negotiations. Vendor should complete the entire effort as expeditiously as possible after the contract is awarded.

VENDOR RESPONSE:

WVI has read, understands, and will comply with this requirement. WVI currently provides work plans for each project as Statements of Work, which are reviewed and approved by WVOT Project Manager prior to the start of a project. Work plans from all approved projects determine the roadmap and timeline for the entire portfolio of the West Virginia e-Government Program. WVI continuously communicates program and project statuses to the Portal Board and the state's Project Manager through regularly scheduled status meetings and oversight meetings. WVI will work with the state to continue to refine this approach to effectively communicate program progress, perceived risks, identified problems, and mitigation strategies.

4.11.3 The successful Vendor's Project Manager should track and report on via status reports the following: schedule, scope, budget, issues, risks, specified performance indicators, and other metrics determined appropriate when establishing the project Charter. The successful Vendor will work with the WVOT Project Manager to establish, publish, and follow a formal communications plan.

VENDOR RESPONSE:

WVI has read, understands, and will comply with this requirement.

As previously described, WVI staff will track and report on information that includes:

- Summary of current application development activities, including a status on services (schedule, scope, budget, risks, specified performance indicators, milestone attainment, issues)
- Hosting updates / issues

Currently, WVI supplies the e-government board with a "Pipeline Summary Document" at each bimonthly meeting that includes the status of WVI's projects. Additionally, WVI works with key agencies who have multiple projects in the queue to provide agency specific reports on the status of the agency's projects along with progress updates. Currently, WVI provides reports to Department of Health and Human Resources, Secretary of State's Office, and Division of Motor Vehicles.

WVI will work with the WVOT Project Manager on the final format of the reports as well as the development and following of a formal communications plan.

4.11.4 The Vendor's Project Manager should utilize a formal methodology for project management, which is compliant with the PMBOK. Specifically, project oversight methodology should:

4.11.4.1 Establish a governance structure for projects (and programs) to evaluate project performance, provide resources, address significant project risks and issues, and approve significant changes in scope or objectives.

4.11.4.2 Require formalized project communications to provide accurate, timely communications related to project progress, budget, schedule, scope, and changes.

4.11.4.3 Identify and quantify any issues and risks that could negatively impact the achievement of project objectives.

4.11.4.4   Periodically assess and confirm the concept, scope, and objectives of the project.

4.11.4.5   Validate compliance with the project management methodology and ensure that project management standards and best practices, as appropriate for the given project, are followed and documented throughout a project life-cycle.

4.11.4.6   Evaluate a project team's performance using a prescribed set of checks and balance integral to established processes such as strategic planning, investment management, funding, and project execution.

VENDOR RESPONSE:

WVI Project Management Methodology

WVI uses a formal methodology for project management to design, develop, test, deploy, and maintain projects for the state e-Government program. WVI understands the state has adopted the Project Management Institute's Body of Knowledge (PMBOK) (www.pmi.org) as its project management methodology, and our project management approaches and practices align well with the state's methodology. Our project management practices are PMBOK compliant, and we will adapt our practices to fit any specific needs of the state, if so requested. If awarded this contract, WVI will continue to manage the award-winning solutions that constitute the state's e-Government solution, and continuously seek to improve our project management approach to realize efficiencies and meet the expectations of the state.

WVI's project management methodology provides West Virginia agencies with repeatable processes that consistently deliver quality e-Government applications, while also provides transparency to the state's Project Manager and other entities that require a view into the projects under development. WVI will continue to follow our proven approach to e-Government application development outlined below.

- Continuously seek new e-Government applications
- Work with the state's Project Manager to determine prioritization of application development
- Analyze existing e-Government applications from other WVI states to decrease time to deployment
- Determine commonality/reuse in applications
- Evaluate use of existing WVI/Microsoft/industry frameworks, objects, and complete applications
- Apply strong quality assurance techniques
- Analyze applications after deployment for performance, usage, faults and potential for improvement

Project Management Practices Tailored to West Virginia Government

Over the last eight years, WVI has refined its project management approach to meet the governance needs of the state and to accommodate the complexities of the self-funded model. The established WVI methodology has enabled the state to successfully launch over a 340 new e-Government applications and websites. Structured project management benefits include:

- Cost reduction
- Enhanced communication
- Best practices that improve service delivery
- Higher customer satisfaction (best practices lead to greater professionalism)
- Defined standards and relative project guidance
- Productivity gains and improvements

No other vendor will bring the experience and knowledge WVI brings in terms of experience with the West Virginia state agencies. WVI has become proficient in the state's traditional waterfall application development methodology that can be slightly modified for more rapid application development. WVI has also implemented the Agile Scrum project management methodology when the project and partner are the right fit for this approach to software development and project management. The Agile Scrum methodology creates an environment conducive to rapid application development and enables code deployment and testing from short, iterative development sprints.

Locally Based Project Team

WVI understands that a key component of a successful contract is proximity to the customer. This is why WVI established a team on the ground in Charleston to manage the contract. Close proximity of the team to the state has allowed the members of that team to build the agency relationships that allow for a full understanding of the issues. Frequent in-person meetings smooth the development process, establishing trust and a strong rapport that can frequently speed the development process and produce a better product.

Project Oversight Methodology

4.11.4.1 Program & Project Governance

WVI governance structure consists of three levels of escalation and determination of program objectives and scope.

1. WVI Director(s) review
2. WVI General Manger review
3. NIC Vice President of Operations review

Using input from project managers, projects are reviewed and monitored by the Director of Portal Operations and Marketing along with Director of Technology. Guidance is then discussed and elevated to WVI General Manager on a weekly basis. Projects that represent a significant investment in money and resources are elevated to the final level for review by NIC Vice President of Operations on a monthly basis.

4.11.4.2 Communications Plan

Consistent communication is the foundation of any successful project management plan. One of WVI's first priorities will be to develop an internal communications plan in collaboration with the state Project Manager to define the type and frequency of communications to the various groups internal and external to the project. WVI is responsible for the successful delivery of the services under this contract, which includes providing clear and consistent project coordination and communication to support:

- e-Government program oversight Portal Board
- The state Project Manager
- WVI project staff
- Third parties

The communications plan will address program strategic communication strategies that meet the needs of the oversight board and state Project Manager, as well as define communication approach at the project level that includes agency stakeholder's communication needs. The communications plan will communicate budgets, schedules, potential risks, mitigating strategies, problem/incident management, change management, relevant analytics, resource allocation, agency and customer support, all provided in formats acceptable to the intended audience.

4.11.4.3 Risk Management

Risk is managed accomplished in parallel with financial, schedule, quality, and requirements management by identifying and understanding major events that threaten the success of a project. Risk management requires answers to the following questions:

- What events or circumstances would impair project success?
- What will be the effect to the overall project if these events or circumstances occur?
- What actions can be taken to reduce the probability that the events or circumstances will occur?
- What actions can be taken to reduce the impact if the events or circumstances occur?
- What full set of actions will be taken if the events or circumstances occur?
- Who is responsible for taking these actions?

WVI's approach is to proactively identify, characterize and prioritize each risk so that the proper expectation is set for the project with both WVI and the agency. The team focuses on risk reduction methodologies that include executing corrective measures, monitoring corrections, and evaluating the effectiveness of the corrections.

Whenever a risk is identified, it is assessed to determine the probability of an unsatisfactory outcome. The purpose of risk assessment is to identify risk factors, assess their impact, and rank the factors that require corrective actions. Corrective actions are agreed upon based on the assessed impact of the risk, the project's ability to accept the risk, and the feasibility of mitigating the risk. Throughout the project, risk assessment is conducted at a detailed level, based on specific, quantifiable factors that threaten the project's ability to meet its objectives within schedule and budget.

Throughout the life cycle of the project, WVI staff must watch for signs that a previously identified or new risk is occurring. Each of these signs may indicate that one or more risk factors are affecting the project. The figure below identifies example risk signs and factors that may impact the proposed project.

Figure 16: Risk Identification Matrix

Risk Factors	Risk Signs						
	Software Problems	Quality Staffing Problems	Organizational Problems	Problems Accessing Key State Decision Makers	Team Issues	Requirements Keep Changing	Failure to Meet Milestones
Management Involvement Needed	●	●	●	●		●	
Inadequate Coordination	●		●	●	●		●
Insufficient Resources	●	●					●
Poor Productivity		●			●		
Unreasonable Funding	●		●				●
Unreasonable Schedule	●	●			●		●
Inappropriate Project Scope			●		●	●	●
Insufficient Prerequisites	●					●	

4.11.4.4 Periodically Assess Program

WVI assesses project performance throughout the life of the project. This can vary greatly based on the size and duration of the project. Projects lasting a few weeks to a month in development will have limited review during the project development. Longer projects will have reviews of project status on bi-weekly or monthly periods based on planned length of the project. The period of review will be defined as part of the project analysis. Since this is a self-funded contract, the evaluation will be focused on project execution and progress toward completion. Reviews will consist of defining:

- Current Status
- Significant accomplishment for the period
- Change requests and impact
- Scheduled activities
- Forecasts
- Issues
- Risks

Additionally, WVI will conduct a lessons learned session at the conclusion of each project to identify ways to improve performance on future projects.

4.11.4.5 Validate Compliance with PM Methodology

On a quarterly basis, WVI will review completed and current projects to ensure Project Management methodologies were followed. This review will identify areas for improvement and/or changes that should be implemented based on industry best practices.

4.11.4.6 Evaluate Project Team Performance

At the conclusion of a project or major milestones of a large project, WVI leadership conducts an evaluation on the project team to ensure the project is managed according to proven WVI project management techniques, that project artifacts are archived and compliant, that the project has been executed within reasonable variance of budgetary and investment forecasts unless changes have been approved and scoped, and that issues have been communicated appropriately to stakeholders and state governance entities.

In addition to evaluating project team performance, WVI leadership ensures that each member of the WVI team has aligned individual performance objectives with project performance through documented goals and yearly evaluation against those goals. WVI leadership evaluates individual contributions to the given project and identify areas for improvements. This information is then combined into an annual review for each employee with action planned defined to address major discrepancies. Annual reviews are conducted by the individual's immediate supervisor.

Attachment B: Mandatory Specification Checklist

5.1   The State of West Virginia retains ownership of www.wv.gov and is the sole approving authority of all design and development of the official State of West Virginia e-Government portal.

VENDOR AGREES ____X____

5.2   Oversight

5.2.1   The State has established a multi-Agency oversight committee (Portal Board) which will provide the following oversight functions:
- Review and approve development and implementation priorities
- Review annual operating reports and performance measures of the portal
- Approve all strategic policies governing the portal
- Review proposed fees, however unless otherwise set by statute or other governing entity, the sponsoring Agency is ultimately responsible for working with the Vendor to set fees for a specific application.

5.2.2   All new e-Government applications and websites must be submitted by the Vendor to the Portal Board for consideration. If the Portal Board agrees that an application is not appropriate for development under this contract or if the Vendor cannot accommodate the work in the required timeframe, the Agency may seek a waiver from the Purchasing Division to have this work done on an individual contract basis.

VENDOR AGREES ____X____

5.3   Funding

5.3.1   The Vendor must fund all up-front and ongoing investment and operational costs. The selected Vendor must expend private capital to build and manage the components required to support the services, information and transactions identified in this RFP. The Vendor will be paid for services delivered by the Agency e-Government applications based upon established procedures. The State will cooperate with the awarded Vendor on developing value-added transactions in order for the Vendor to recover costs through Customer Fees, Agency Fees and subscription services.

VENDOR AGREES ____X____

5.3.2   The Vendor must provide 1700 hours of labor each year at no cost to the state. This labor must include ongoing redesign, reporting and performance monitoring of wv.gov, the state's main portal. It may include similar activity for other relevant agency websites agreed to in SOWs, public-facing customer service, technical support for agency users and additional online and mobile services that do not generate any fees. It may also include the development of new websites and applications. The Vendor will submit its proposals for work to be done under this category to the Portal Board for its approval prior to performing this work. The

hours will be tracked by the Vendor and reported monthly by each approved effort to the Portal Board.

VENDOR AGREES ___X___

5.3.3 The Vendor must quarterly remit to the WVOT 5% of all revenue derived from customer charges. These are the charges to end user customers such as Lexus Nexus. The rebate does not apply to revenues from State Agencies. Underlying detail will be included in financial reports.

VENDOR AGREES ___X___

5.4 System Operation and Hosting: The Vendor shall be responsible for hosting the e-Government Portal. The system environment, to include data storage components, must be physically located in the continental United States. Vendor shall provide all necessary infrastructure including hardware, software (e.g., O/S, application middleware, RDBMS), network connectivity, personnel, policies procedures, and facilities to operate all aspects of the e-Government Portal.

5.4.1 The Vendor shall host the State's e-Government application environment at no cost to the State. The Vendor will be responsible for the acquisition and operation of all hardware, software and network support related to the e-Government applications. The Vendor shall ensure that the e-Government application environment is used primarily to meet the objectives set forth by the State of West Virginia in this RFP. The technical and professional activities required for establishing, managing and maintaining the State's e-Government applications are the responsibilities of the Vendor. The e-Government applications must be available on a 24 hour per day, 365 days per year basis, providing around-the-clock service to customers. A summary of the existing websites and applications is provided as Appendix A.

VENDOR AGREES ___X___

5.4.2 The web portal hosting site environment shall include redundant power, fire suppression, and 24 hours per day, 365 days per year on-site security. The hosting environment shall include redundant Internet connectivity, redundant firewalls, Virtual Private Network (VPN) services through an industry recognized VPN solution such as Cisco VPN concentrator or Checkpoint VPN-1 , remote access via methods such as secure shell (SSH) and desktop VPN clients, fault tolerant internal network with gigabit Ethernet backbone, clustered central file and database servers, load balanced application, and web servers, hardware, accelerator, three tier development environment, nightly backups, and 24x 365 monitoring of all services and servers.

VENDOR AGREES ___X___

5.4.3 Maintenance for existing websites and applications will be transitioned to the awarded Vendor with the expectation that the Vendor will provide ongoing support throughout the length of the contract, which may include updates and

enhancements to legacy application code and databases. All enhancements, modifications, or replacements of existing systems should be managed within the context of the self-funded model that is the result of this contract.

VENDOR AGREES ___X___

5.4.4 The Vendor will work with the State and the existing portal Vendor to assume full responsibility for day-to-day operation of this service.

VENDOR AGREES ___X___

5.5 Use of the West Virginia State Treasurer's Office: The Vendor shall utilize the West Virginia Treasurer's Office and its E-Government program for the secure collection of monies via credit/debit cards as well as for Electronic Funds Transfer in accordance with the agreement and conditions presented in Appendix D. See http://www.legis.state.wv.us/WVCODE/Code.cfm?chap=12&art=3A#03A for the complete code relating to the Treasurer's responsibilities and obligations.

VENDOR AGREES ___X___

5.6 The Vendor must comply with Federal ADA guidelines and Section 508 of the Federal Workforce Investment Act of 1998.

VENDOR AGREES ___X___

5.7 The e-Government applications shall convey a true sense of security and privacy to its customers. Customers will, at times, transfer private and personal information through the Internet by means of using the State's e-Government services. The e-Government applications shall be designed to protect this personal and private information. For customers who cannot see the behind-the-scenes efforts to protect data, the e-Government applications shall be designed to communicate the level of security and privacy that is being used. The Vendor must agree to the West Virginia Health Insurance Portability and Accountability Act (HIPAA) Business Associate Addendum for any application that includes Protected Health Information (PHI). See Appendix H.

VENDOR AGREES ___X___

5.8 Service Level Agreement/Statement of Work (SOW) Process

WVOT will manage the Master Contract resulting from this RFP, but services will be purchased by individual State Agencies. For each new application or website developed by the Vendor under this contract, State Agencies will sign a Service Level Agreement (SLA) that includes a detailed Statement of Work (SOW). That document will govern each new application or website. The SLA including the SOW will be filed with the Division of Purchasing as a COO. A copy of the SLA is included as Appendix E. Templates with the minimum requirements for a Website Development SOW and an Application Development SOW are included as Appendices F and G respectively.

VENDOR AGREES ___X___

5.8.1 The State Agency and the Vendor may modify the SOW to add or delete services only by mutual agreement. Any changes will require a change order approved by the Division of Purchasing.

VENDOR AGREES ___X___

5.8.2 Services must be provided via a SOW process using pre-approved funding strategies or labor rates applicable to established labor categories.

5.8.2.1 Agencies will submit a request to the Vendor. Agencies requesting services to be delivered will define the business requirements of the service, identify whether the service would be a premium service, identify any constraints (e.g., must be free to the Customer, could have a Customer fee, etc.) and estimate service volumes.

5.8.2.2 The Vendor will review the requirements and provide the Agency and Portal Board a brief summary of the work using a template provided by the Portal Board. It will include the funding methodology that may be required to deliver the service.

5.8.2.3 If the Portal Board approves the project, the Vendor will prepare and sign a detailed Statement of Work proposal. If the Agency agrees with the proposal, it will sign the SOW and present it to the WVOT for review and approval.

5.8.2.4 If approved by the WVOT, the signed Statement of Work (SOW) will be filed with the Division of Purchasing for approval by it and by the Attorney General. Upon approval it will be filed as a Central Delivery Order distributed to the Agency, the Vendor and WVOT.

VENDOR AGREES ___X___

5.9 Work Product Rights

5.9.1 Any license to pre-existing work shall be held by, and all rights in, title to, and ownership of Work Product shall vest with the State.

VENDOR AGREES ___X___

5.9.2 The State and the Vendor each acknowledge that performance of this Contract may result in a Work Product. Except as specifically set forth in writing and signed by both the State and the Vendor, the Vendor agrees that the State shall have all rights with respect to any Work Product discovered, created or developed under this Contract without regard to the origin of the Work Product.

VENDOR AGREES ___X___

5.9.3   If and to the extent that any pre-existing rights are embodied or reflected in the Work Product, the Vendor hereby grants to the State the irrevocable, perpetual, non-exclusive, worldwide, royalty-free right and license to (i) use, execute, reproduce, display, perform, distribute copies of and prepare derivative works based upon such pre-existing rights and any derivative works thereof and (ii) authorize others to do any or all of the foregoing.

VENDOR AGREES ___X___

5.9.4   To the extent that the System includes application software or other materials generally licensed by the Vendor, then the source code, object code, and other materials shall be placed in escrow, subject to the terms and conditions of an Escrow Agreement to be executed by the Parties and an Escrow Agent that is acceptable to the State. Simultaneously with the State's authorization to the Vendor to commence live operation of the System and with each release or modification to the software, the Vendor shall place in Escrow a true, accurate and complete copy of all source code and object code relating the System and any specific information necessary for the development, production or use of the software. In the event of the Vendor's bankruptcy or insolvency, the State should be given access to this source code and the authority to use the software perpetually.

VENDOR AGREES ___X___

5.10   Accounting and Reporting

5.10.1   The WVSTO shall collect all fees, taxes and assessments associated with the Portal; such fees to be established by statute or developed by the Vendor in consultation with the applicable government Agency. The WVSTO may issue an exemption to this requirement for a specific fee(s). The Vendor shall establish and maintain an accounting capability for Statutory Fees and other Transaction fees, a detailed report for which will be provided monthly for the Portal Board's review.

VENDOR AGREES ___X___

5.10.2   The Vendor shall maintain accounting capability to include a numbered chart of accounts, books of original entry of all transactions, appropriate subsidiary ledgers, a general ledger that includes to-date postings, and an audit trail through financial statements.

VENDOR AGREES ___X___

5.10.3   In instances where the Vendor rather than the WVSTO is collecting fees, it shall establish and maintain one or more accounts ("Portal Accounts") in a federally insured bank or thrift having one or more offices in West Virginia, for the collection and deposit of any Fees it collects. The Vendor shall be responsible for

the timely billing and collection of those fees. The Vendor shall make all disbursements from the Portal Account(s) in accordance with the following:

5.10.3.1   The Vendor shall pay, from Total Fees collected for Electronic access to records and for transactions through the State Portal, all Statutory Fees as provided in the respective agreements with applicable government agencies. Where there is no Statutory Fee, the amount of the fee to be charged for electronic access to the record or to conduct the transaction will be determine in consultation with the appropriate Agency.

VENDOR AGREES ___X___

5.10.4   The State has the Vendor's approval for a comprehensive audit of the Vendor's financials as it pertains to the State of West Virginia. This audit will be completed by an independent entity to be hired by the State beginning at the end of Year 1 and every other year thereafter. Any and all accounting records related to the Portal Accounts, and proceeds therefrom (whether or not disbursed by the Vendor), which are generated from State Portal operations conducted by the Vendor, shall be made available to the State for copies, audits and inspections during reasonable business hours and upon reasonable prior notice to the Vendor.

VENDOR AGREES ___X___

5.10.5   Total fees generated by State Portal operations through transactions involving monthly billing accounts and other state portal transactions shall be deposited in an account maintained by the WVSTO. For any fees that the WVSTO agrees the Vendor shall collect, the Vendor shall pay and deliver all Statutory Fees received through transactions involving monthly billing accounts (including batch and bulk services) due not later than within the next following thirty (30) day payment period or cycle (established by the agreement with the applicable government Agency) immediately after actual receipt of said fees by the Vendor.

VENDOR AGREES ___X___

Signature: _____   Date: _/-6-2016_

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State of West Virginia
Self-Funded State E-Government Portal
CRFP 0212 SWC1600000001

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Attachments and Forms

As required by the RFP the following forms have been completed, attached, and signed as required. Also, as suggested in "Section Two – Instructions to Vendors Submitting Bids," subsection "11. Exceptions and Clarifications," WVI has provided clearly marked exceptions, clarifications, and other proposed modifications.

- Certification and Signature Page
- RFP Cover Sheet, RFP FORM ID: WV-PRC-CRFP-001
- Purchasing Affidavit
- Vendor Preference Certificate
- Addendum Acknowledgement Form
- Proposed Additions to Non-Mandatory Requirements

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Self-Funded State E-Government Portal
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Certification and Signature Page

By signing below, I certify that I have reviewed this Request for Proposal in its entirety; understand the requirements, terms and conditions, and other information contained herein; that I am submitting this proposal for review and consideration; that I am authorized by the bidder to execute this bid or any documents related thereto on bidder's behalf; that I am authorized to bind the bidder in a contractual relationship; and that, to the best of my knowledge, the bidder has properly registered with any State Agency that may require registration.

West Virginia Interactive, LLC

(Company)

Ian McQuinn, General Manager

(Representative Name, Title)

Phone: 304-414-0265 x 106 / Fax: 304-414-0266

(Contact Phone/Fax Number)

January 6, 2016

(Date)

January 6, 2016

Proc Folder: 169126

Doc Description: Addendum 3 Statewide Contract for e-Government State Portal

Proc Type: Statewide MA (Open End)

Date Issued	Solicitation Closes	Solicitation No	Version
2016-01-04	2016-01-06 13:30:00	CRFP 0212 SWC1600000001	4

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

Vendor Name, Address and Telephone Number:

West Virginia Interactive, LLC
10 Hale Street 3rd Floor
Charleston, WV 25301
(304) 414-0265

FOR INFORMATION CONTACT THE BUYER
Stephanie L Gale
(304) 558-7023
stephanie.l.gale@wv.gov

Signature X _____   FEIN #   26-0574888   DATE   January 6, 2016

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

STATE OF WEST VIRGINIA
Purchasing Division

PURCHASING AFFIDAVIT

MANDATE: Under W. Va. Code §5A-3-10a, no contract or renewal of any contract may be awarded by the state or any of its political subdivisions to any vendor or prospective vendor when the vendor or prospective vendor or a related party to the vendor or prospective vendor is a debtor and: (1) the debt owed is an amount greater than one thousand dollars in the aggregate; or (2) the debtor is in employer default.

EXCEPTION: The prohibition listed above does not apply where a vendor has contested any tax administered pursuant to chapter eleven of the W. Va. Code, workers' compensation premium, permit fee or environmental fee or assessment and the matter has not become final or where the vendor has entered into a payment plan or agreement and the vendor is not in default of any of the provisions of such plan or agreement.

DEFINITIONS:

"**Debt**" means any assessment, premium, penalty, fine, tax or other amount of money owed to the state or any of its political subdivisions because of a judgment, fine, permit violation, license assessment, defaulted workers' compensation premium, penalty or other assessment presently delinquent or due and required to be paid to the state or any of its political subdivisions, including any interest or additional penalties accrued thereon.

"**Employer default**" means having an outstanding balance or liability to the old fund or to the uninsured employers' fund or being in policy default, as defined in W. Va. Code § 23-2c-2, failure to maintain mandatory workers' compensation coverage, or failure to fully meet its obligations as a workers' compensation self-insured employer. An employer is not in employer default if it has entered into a repayment agreement with the Insurance Commissioner and remains in compliance with the obligations under the repayment agreement.

"**Related party**" means a party, whether an individual, corporation, partnership, association, limited liability company or any other form or business association or other entity whatsoever, related to any vendor by blood, marriage, ownership or contract through which the party has a relationship of ownership or other interest with the vendor so that the party will actually or by effect receive or control a portion of the benefit, profit or other consideration from performance of a vendor contract with the party receiving an amount that meets or exceed five percent of the total contract amount.

AFFIRMATION: By signing this form, the vendor's authorized signer affirms and acknowledges under penalty of law for false swearing (*W. Va. Code* §61-5-3) that neither vendor nor any related party owe a debt as defined above and that neither vendor nor any related party are in employer default as defined above, unless the debt or employer default is permitted under the exception above.

WITNESS THE FOLLOWING SIGNATURE:

Vendor's Name: _West Virginia Interactive, LLC_

Authorized Signature: _[signature]_ Date: _1-4-2016_
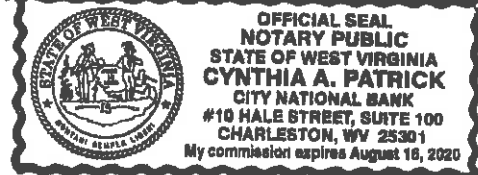
State of _WV_

County of _Kanawha_, to-wit:

Taken, subscribed, and sworn to before me this _4_ day of _January_, 20 _16_.

My Commission expires _August 15, 2020_, 20 20.

NOTARY PUBLIC _Cynthia A. Patrick_

Purchasing Affidavit (Revised 08/01/2015)

State of West Virginia
VENDOR PREFERENCE CERTIFICATE

Certification and application is hereby made for Preference in accordance with *West Virginia Code*, §5A-3-37. (Does not apply to construction contracts). *West Virginia Code*, §5A-3-37, provides an opportunity for qualifying vendors to request (at the time of bid) preference for their residency status. Such preference is an evaluation method only and will be applied only to the cost bid in accordance with the *West Virginia Code*. This certificate for application is to be used to request such preference. The Purchasing Division will make the determination of the Vendor Preference, if applicable.

1. **Application is made for 2.5% vendor preference for the reason checked:**

[ ] Bidder is an individual resident vendor and has resided continuously in West Virginia for four (4) years immediately preceding the date of this certification; or,

[X] Bidder is a partnership, association or corporation resident vendor and has maintained its headquarters or principal place of business continuously in West Virginia for four (4) years immediately preceding the date of this certification; or 80% of the ownership interest of Bidder is held by another individual, partnership, association or corporation resident vendor who has maintained its headquarters or principal place of business continuously in West Virginia for four (4) years immediately preceding the date of this certification; **or,**

[ ] Bidder is a nonresident vendor which has an affiliate or subsidiary which employs a minimum of one hundred state residents and which has maintained its headquarters or principal place of business within West Virginia continuously for the four (4) years immediately preceding the date of this certification; **or,**

2. **Application is made for 2.5% vendor preference for the reason checked:**

[X] Bidder is a resident vendor who certifies that, during the life of the contract, on average at least 75% of the employees working on the project being bid are residents of West Virginia who have resided in the state continuously for the two years immediately preceding submission of this bid; **or,**

3. **Application is made for 2.5% vendor preference for the reason checked:**

[ ] Bidder is a nonresident vendor employing a minimum of one hundred state residents or is a nonresident vendor with an affiliate or subsidiary which maintains its headquarters or principal place of business within West Virginia employing a minimum of one hundred state residents who certifies that, during the life of the contract, on average at least 75% of the employees or Bidder's affiliate's or subsidiary's employees are residents of West Virginia who have resided in the state continuously for the two years immediately preceding submission of this bid; **or,**

4. **Application is made for 5% vendor preference for the reason checked:**

[X] Bidder meets either the requirement of both subdivisions (1) and (2) or subdivision (1) and (3) as stated above; **or,**

5. **Application is made for 3.5% vendor preference who is a veteran for the reason checked:**

[ ] Bidder is an individual resident vendor who is a veteran of the United States armed forces, the reserves or the National Guard and has resided in West Virginia continuously for the four years immediately preceding the date on which the bid is submitted; **or,**

6. **Application is made for 3.5% vendor preference who is a veteran for the reason checked:**

[ ] Bidder is a resident vendor who is a veteran of the United States armed forces, the reserves or the National Guard, if, for purposes of producing or distributing the commodities or completing the project which is the subject of the vendor's bid and continuously over the entire term of the project, on average at least seventy-five percent of the vendor's employees are residents of West Virginia who have resided in the state continuously for the two immediately preceding years.

7. **Application is made for preference as a non-resident small, women- and minority-owned business, in accordance with *West Virginia Code* §5A-3-59 and *West Virginia Code of State Rules.***

[ ] Bidder has been or expects to be approved prior to contract award by the Purchasing Division as a certified small, women- and minority-owned business.

Bidder understands if the Secretary of Revenue determines that a Bidder receiving preference has failed to continue to meet the requirements for such preference, the Secretary may order the Director of Purchasing to: (a) reject the bid; or (b) assess a penalty against such Bidder in an amount not to exceed 5% of the bid amount and that such penalty will be paid to the contracting agency or deducted from any unpaid balance on the contract or purchase order.

By submission of this certificate, Bidder agrees to disclose any reasonably requested information to the Purchasing Division and authorizes the Department of Revenue to disclose to the Director of Purchasing appropriate information verifying that Bidder has paid the required business taxes, provided that such information does not contain the amounts of taxes paid nor any other information deemed by the Tax Commissioner to be confidential.

Under penalty of law for false swearing (West Virginia Code, §61-5-3), Bidder hereby certifies that this certificate is true and accurate in all respects; and that if a contract is issued to Bidder and if anything contained within this certificate changes during the term of the contract, Bidder will notify the Purchasing Division in writing immediately.

Bidder: West Virginia Interactive, LLC   **Signed:** _____

Date: 1/6/2016   **Title:** General Manager

ADDENDUM ACKNOWLEDGEMENT FORM
SOLICITATION NO.: SWC1600000001

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
[ ]	Addendum No. 4	[ ]	Addendum No. 9
[ ]	Addendum No. 5	[ ]	Addendum No. 10

I understand that failure to confirm the receipt of addenda may be cause for rejection of this bid. I further understand that any verbal representation made or assumed to be made during any oral discussion held between Vendor's representatives and any state personnel is not binding. Only the information issued in writing and added to the specifications by an official addendum is binding.

West Virginia Interactive, LLC
Company

Authorized Signature

January 4, 2016
Date

NOTE: This addendum acknowledgement should be submitted with the bid to expedite document processing.
Revised 6/8/2012

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Proposed Additions to Non-Mandatory Requirements

West Virginia Interactive requests inclusion of these additional provisions that are not addressed in the RFP and to offer the State the flexibility to leverage certain software and mobile applications developed by our affiliates in other states. The proposed additions are not a refusal of the mandatory requirements in the RFP or unwillingness to negotiate equitable terms. West Virginia Interactive is confident the parties can arrive at a contract that protects both the State and West Virginia Interactive, if selected for award, based on experience in numerous other states delivering similar services through the State's requested funding model.

1. **Vendor Proprietary Information**

   a. **FOIA Exemption.** The State agrees that the following constitutes trade secrets of the Vendor, which will be exempt from disclosure under the State's Freedom of Information Act, and will be treated as proprietary information of the Vendor not for public disclosure ("Vendor's Confidential Information".)
      i. All books, records, documents, and electronic files that pertain to business or operation of Vendor's company or to that of its corporate parent, affiliate, or subsidiary (as contrasted to Vendor's services for the state portal) unless the same are disclosed publicly by Vendor or its corporate parent, affiliate or subsidiary, and
      ii. Vendor's Software (including object and source code listings).

   b. **Markings.** The State will have access to Vendor's Confidential Information under the provisions of this Contract. When Vendor furnishes or discloses its Confidential Information in a tangible form, it shall mark or otherwise identify the information in a manner to indicate that it is proprietary, confidential, trade secret or otherwise subject to limited distribution as provided herein. Notwithstanding the foregoing, Vendor shall not be required to mark its Software as confidential but the State will treat the Software as Vendor's Confidential Information, which it will not disclose unless specifically agreed to by the Vendor. When Vendor furnishes or discloses Vendor Confidential Information in a verbal or intangible form, it shall identify the information as being proprietary, confidential or a trade secret, or otherwise subject to limited distribution.

   c. **Vendor Confidential Information.** The State agrees not to disclose or produce any of the Vendor's Vendor Confidential Information for any purpose unless required by law. In the event disclosure is required by law, including in response to a subpoena or other court or governmental order, State will give Vendor or its affiliates ten (10) days' written notice and an opportunity to object to the disclosure or production, or to seek a protective order.

   d. **Other Governmental Agency Users.** All other State governmental agencies, bureaus, departments, or units that utilize the State portal or the services of the Vendor under this Contract shall be subject to the same requirement of confidentiality if Vendor's Confidential Information is disclosed to it.

   e. **Use by Successor contractor.** In the event of transition of the State Portal services from Vendor to another company, Vendor shall deliver such records that constitute State records and other Vendor materials as provided by the terms of this Contract. Any such transfer and disclosure will not, by itself, cause any such records which constitute Vendor Confidential Information to lose their protected status hereunder. In the event of any such transition, the Vendor Confidential Information shall not be disclosed unless the successor contractor agrees to sign a confidentiality agreement in form satisfactory to Vendor, which requires the successor contractor to treat all of Vendor's Confidential Information as confidential and trade secrets of Vendor. Use of Vendor's

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Confidential Information by a successor contractor is limited to use required in the transition and operation of the State Portal.

    f. The provisions of the Contract regarding Vendor's Confidential Information shall survive termination or expiration of this Contract.

2. **State Confidential Information.** Vendor agrees to comply with the applicable provisions of the State's Confidentiality Policies and Information Security Accountability Requirements set forth in http://www.state.wv.us/admin/purchase/privacy/default.html. The Parties agree that these requirements are intended to implement, and remain limited to implementation of, the State's security breach notification law as set forth in Article 2A of the West Virginia Consumer Credit and Protection Act ("Breach Notification Act") with respect to Personal Information (as defined in the Breach Notification Act).

3. **Vendor Liability.** Notwithstanding anything to the contrary set forth in the Contract or incorporated by reference into the Contract, and to the extent permitted by applicable law, the Parties agree as follows:
    a. Under no circumstances shall either party be liable to the other for any indirect, special, consequential, or punitive damages.
    b. In no event shall Vendor have any liability to the State in connection with this Contract, unless caused by Vendor's (i) breach of contract, (ii) negligence or intentional misconduct in performing services under the Contract, or (iii) failure to comply with applicable law.
    c. It is agreed that the Vendor's total liability related to this Contract for any cause whatsoever, and regardless of the form of action, whether in contract or in tort, shall not exceed net revenue received by the Vendor under this Contract in the previous twelve-month period.
    d. In no event shall Vendor be liable for any claim, suit, loss or damage, if the same arises from or is based upon any act or omission of, or was otherwise caused or induced by the State, any other governmental body, any of the State's agents, other vendors of the State or any third party, other than affiliates or third-party subcontractors of the Vendor.

4. **Limited Warranty.** Except for the express warranties provided in this Contract, Vendor makes no other warranties, express or implied, relating to any services, deliverables or software furnished or provided to the State under this Contract. Vendor specifically disclaims the implied warranties of merchantability and fitness for a particular purpose.

5. **Force Majeure.** Vendor shall not be responsible for delays or failures in performance, or for portal unavailability, caused directly or indirectly, by fire, flood, elements of nature or acts of God, third-party labor disruptions, acts of war, terrorism, riots, civil disorders, rebellions or revolutions, quarantines, embargoes and other governmental action, state-caused outages due to its servers, or database unavailability or overutilization, unavailability of the internet, utilities, or any other causes beyond the reasonable control of West Virginia Interactive.

6. **Vendor's Cure.** The State agrees to give the Vendor notice of any failure to carry out its responsibilities under this Contract and a cure period of at least thirty (30) days.

7. **Termination by Vendor.** Vendor shall have the right to terminate this Contract for cause, subject to cure, by providing written notice of termination to State. Such notice shall specify the time, the specific provision of this Contract or "for cause" reason that gives rise to the termination. For purposes of the paragraph, the following shall constitute adequate cause for termination of the Contract by Vendor: (i) any material breach by State of the terms or conditions of this Contract which is not cured, within thirty (30) calendar days from Vendor's notice or (ii) the financial base upon which Vendor relies to provide hosting and application development is removed or does not develop.

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8. **Non-Solicitation.** The State shall not knowingly recruit or employ any Vendor employee or contractor who has worked on the Request for Proposal or Contract, for the Contract term and a period of one (1) year following the expiration or termination of the Contract. This provision shall not restrict the right of the State to solicit or recruit generally in the media.

9. **Software License.**

West Virginia Interactive is willing to grant all rights with respect to any Portal Software source code created or developed by West Virginia Interactive during the contract term ("Work Product") to the State as stated in Section 5.9 of the RFP and RFP response Attachment B.

Note, however, that West Virginia Interactive's affiliates provide e-Government services in numerous states. If all rights to new Work Product are conveyed to the State, including the right to exclusively use such Work Product, West Virginia Interactive would not be able to share with the State any Electronic Services hosted by affiliates or any new applications developed by WVI's affiliates in other states during the term of the contract. This would prevent the State from utilizing the good ideas, new intellectual property and developments made by West Virginia Interactive's affiliates during the term of the new contract.

Given that the RFP permits the parties to agree alternatively in writing, West Virginia Interactive proposes that the State receive an improved licensing model from the current contract by adopting the below software license, which gives the State, including any state agency, liberal rights to use Portal Software and Electronic Services (each, as defined below) during the contract term and Portal Software perpetually thereafter upon expiration of the contract or upon State's termination of the contract for Contractor's cause, while allowing the State to utilize a pool of intellectual property generated by Contractor's affiliates previously and during the term of the contract. In WVI's experience, a perpetual license gives a state government all the intellectual property rights it needs to successfully continue operating, even after contract completion, while permitting the Contractor to reuse the intellectual property rights as needed for its business endeavors. The result is typically a more cost-effective and efficient solution forth both parties. Access to software, mobile applications and Electronic Services generated by West Virginia Interactive affiliates will keep pricing low for the State's residents, and will help West Virginia Interactive provide new services more efficiently and more quickly under the contract. The software license follows:

Upon expiration of this Contract, or its earlier termination as a result of an uncured material breach by Vendor, Vendor shall deliver to the State a complete copy of all State portal software applications currently used in the State portal, including documentation, object and matching source code for the applications utilized in the State's portal, whether originally developed by Vendor, or an affiliated subsidiary of NIC, Inc. (but excluding any other third party software and excluding Electronic Services, as defined below) (all such Vendor portal software, documentation, source code, object code other than the excluded software and services are hereinafter collectively referred to as the "Portal Software"). Upon such transfer, Vendor will grant to the State a non-exclusive, non-transferable, royalty free, perpetual license to use such Portal Software solely in connection with the operation and maintenance of the state portal wv.gov, as defined in the RFP and this Contract, for increased electronic access to the public ("Portal"). The license will require that the source code be provided only to State employees who need access in order to maintain or enhance the Portal, and to authorized contractors who have executed Vendor's confidentiality agreement. Specifically, under such license the State, including State agencies, will have the right to: (i) make copies of the Portal Software and source code, for back-up purposes, and for development of modifications for the operation and maintenance of the Portal; (ii) modify the Portal Software or source code as required for the maintenance or enhancement of the Portal; (iii) host the object code of the Portal Software on any State servers as required to operate the Portal; (iv) use State employees or authorized contractors who have executed Vendor's confidentiality agreement to maintain, repair, modify or enhance the Portal Software,

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as required to provide government services and information through the Portal, including, access to or completion of e-government transactions, such as license applications and renewals, with government agencies and departments by users of the Portal (the "Permitted Uses"); and (v) allow end users access to the functions of the Portal Software (but not the source code) through the Portal solely for Permitted Uses.

If the Contract is terminated by the State prior to the end of the term of the Contract for any reason other than material uncured default of the Vendor, then the Vendor shall make the Portal Software available for license by the State upon payment of a mutually agreed to license fee and execution of a mutually agreed to license agreement.

The license to be granted will include the right of the State to allow government agencies and departments to provide information and services through the Portal using the Portal Software. Counties, schools, municipal and other governmental bodies and political subdivisions of the State may not receive a separate license to operate a separate portal using the Portal Software unless a separate license agreement is entered into between such separate political subdivision and Vendor.

Following expiration or termination of this Contract, Vendor will have no responsibility or liability for the maintenance, updates or modifications to the Portal Software, and shall not be responsible for any changes to the Portal Software or the environment upon which it is run made by the State or by its authorized contractors or otherwise.

All intellectual property rights contained in the Portal Software, and source code, including all concepts, ideas, methods, methodologies, procedures, processes, know-how shall be the sole property of the Vendor. The Vendor reserves all rights not expressly licensed to the State under this Contract. Any and all copies of the Portal Software or the source code made by the State shall bear Vendor's notice of copyright, and other restrictive legends. The Parties agree that if the State or any authorized contractor makes any modifications or enhancements to the Portal Software which includes any such intellectual property of Vendor, the State's right to use such modifications or enhancements, shall be the same as the rights and limitations to use the Portal Software for the Permitted Uses.

"Electronic Services" mean services provided through hardware, software and network infrastructure hosted by Vendor or any of its affiliates, including to authorize and capture credit and debit cards for payments, to process all other forms of Electronic Funds Transfer, and to manage the registration of Users and the online transaction logging data, and the billing and collection of funds, for Portal users of fee services. It includes such other online services as may be from time to time developed by Vendor or its affiliates outside of this contract and made available to the State through Vendor.

10. **Limited Agency.** On any occasion that the Vendor receives money from members of the public for transfer to the State (which shall include any West Virginia county or political subdivision for purposes of this paragraph) in connection with the Vendor's services, the Vendor receives and transfers such money as an agent of the State. The State shall regard receipt of money from a member of the public by the Vendor as equivalent for all purposes to receipt of such money by the State directly. In the unlikely event that the Vendor fails to transfer money that it received from a member of the public to the State, the State will nevertheless consider itself to have been paid this money by the member of the public and will not attempt to recover the money from the member of the public. Nothing in this paragraph prejudices any remedies that the State may have against the Vendor. For purposes of this paragraph, "money" includes currency and anything of value that substitutes for money.

11. **PCI DSS Compliance.** To the extent applicable, each of the parties shall be required to comply at all times with the Payment Card Industry Data Security Standard Program ("PCI DSS") in effect and as may be amended from time to time during the term of this Contract. The parties acknowledge that each party is

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responsible for the security of cardholder data in its possession. The parties agree to maintain a list of which PCI DSS requirements are managed by Vendor and which requirements are the responsibility of the State. As the operator of the swipe devices, the State shall be responsible for compliance with PCI DSS version 3.1 and any more current versions regarding the swipe devices, including, but not limited to, the maintenance, inspection, and training obligations set forth in PCI DSS Requirement 9.9.