Request For Qualifications

I-95 Express Lanes
Southern Terminus Extension
Design-Build Project

Submitted By:
Branch Highways

In Association With:
Chesapeake Electrical Systems, Inc.
H&B Surveying & Mapping, LLC (DBE)
Froehling & Robertson, Inc. (SWaM)
Engineering & Materials Technology, Inc. (DBE)

State Project No. 0095-969-720
Contract ID Number: C00T17210DB90
February 8, 2016
February 8, 2016

Mr. Suril R. Shah
Alternate Project Delivery Office
Virginia Department of Transportation
1401 East Broad Street
Richmond, VA 23219

Re: Design-Build I-95 Express Lanes – Southern Terminus Extension | Stafford County, VA
State Project No.: 0095-969-720 | Contract ID Number: C00T17210DB90
Letter of Submittal – Statement of Qualifications

Dear Mr. Shah,

Branch Highways, Inc. (Branch), as the Offeror, hereby submits to the Virginia Department of Transportation (VDOT) this Letter of Submittal and accompanying Statement of Qualifications in response to the Request for Qualifications dated January 4, 2016 and Addendum dated January 28, 2016 for the above-referenced project. For this pursuit, Branch has partnered with Whitman, Requardt & Associates, LLP (WRA) to furnish a product that exceeds expectations with respect to design, cost, and schedule.

3.2.1 Full legal name and address of the Offeror:
Branch Highways, Inc. | 442 Rutherford Ave, NE, Roanoke, VA 24016

3.2.2 Point of Contact and authorized representative of the Offeror:
Mr. Pete Kramer, Vice President – NOVA Region
Address: 10440 Balls Ford Road, Suite 270, Manassas, VA 20109
Tel: (571) 379-5603 | Fax: (571) 379-5896 | Email: PeteK@branchhighways.com

3.2.3 Principal Officer of the Offeror:
Mr. Patrick K. Bartorillo, President
Address: 442 Rutherford Ave, NE, Roanoke, VA 24016
Tel: (540) 982-1678 | Fax: (540) 982-4217 | Email: Patrick.Bartorillo@branchhighways.com

3.2.4 Corporate Structure of the Offeror:
Branch is a registered Corporation in the Commonwealth of Virginia. Branch will take full financial responsibility for the Project, and has no known liability limitations.

3.2.5 Lead Contractor: Branch Highways, Inc. | Lead Designer: Whitman, Requardt & Associates, LLP

3.2.6 Affiliated and/or Subsidiary Companies Table (Attachment 3.2.6) is in the Appendix.

3.2.7 Certifications Regarding Debarment (Attachments 3.2.7(a) and 3.2.7(b)) are in the Appendix.

3.2.8 VDOT Prequalification Branch’s Vendor ID is B319; status is Active. See Appendix for Evidence.

3.2.9 Surety Letter is in the Appendix.

3.2.10 Full Size Copies of SCC Registration and DPOR Licenses (Attachment 3.2.10) are in the Appendix.

3.2.11 DBE Participation Goal: Branch recognizes and is committed to achieving the fifteen percent (15%) DBE goal for the entire value of the contract.

Branch and WRA are well-versed and respected within the Heavy Civil Construction industry, specifically with regard to Design-Build projects. Our Team eagerly anticipates yet another successful delivery with this endeavor.

Sincerely,

Branch Highways, Inc.

Patrick K. Bartorillo, President
3.3 OFFEROR’S TEAM STRUCTURE

**Branch Highways, Inc. (Branch)** will be responsible for managing the project in its entirety, supervising the construction, and performing major elements of the construction work. Additional subcontractors for various specialty items such as tolling systems, ITS, signage, guardrail, and pavement striping will be under direct subcontract to Branch. **Whitman, Requardt & Associates, LLP (WRA)** will lead the design effort for all aspects of the project and will be responsible for the design QA/QC. The Branch | WRA Design-Build Team includes highly qualified subconsultants that bring specific expertise to enhance the Team and ensure a quality project for VDOT. A listing of the Team follows and an organizational chart of the Team is included in Section 3.3.2.

**Branch Highways, Inc. (Branch) – Offeror, Legal Entity, Lead Contractor**

Branch is a member of The Branch Group of employee-owned companies, incorporated in 1986. Company headquarters are located in Roanoke, Virginia with a regional office located in the Manassas area of Northern Virginia. Branch is a full service heavy highway contractor with hundreds of successfully delivered projects to numerous public and private clients throughout the Mid-Atlantic region, including completed projects of similar size and scope to the I-95 Express Lanes – Southern Terminus Extension Project. Branch has an impressive record of successful Design-Build/PPTA projects for VDOT and local governments for over $425 million. Branch has been able to maintain a high level of client satisfaction and is well acquainted with working closely with owners on large and complex projects. Branch has assigned a Construction Design Coordinator (CDC) that greatly enhances the project structure of the Team by providing additional engineering oversight; similar to the role of Responsible Charge Engineer on other Design-Build projects.

**Whitman, Requardt & Associates, LLP (WRA) – Lead Designer**

WRA is a full service architectural and engineering firm that was founded over 100 years ago primarily serving state and local governments in the Mid-Atlantic region of the United States. WRA will serve as the Lead Designer for this project and will be responsible for the design QA/QC. In the last three years, WRA has worked on seven Design-Build projects in Virginia and as a firm we have been a Design-Build leader in the Mid-Atlantic region working on over 50 Design-Build projects for Federal, State, and Local government entities as well as private Design-Build projects.

Branch and WRA have worked together on three Design-Build/PPTA projects over the last three years as shown below:

- **George Mason University (GMU) Campus Connector Design-Build ($13 million)** – Branch was the Lead Contractor for this project. WRA designed the Route 123 improvements, geotechnical engineering and provided QAM services for all construction in VDOT right-of-way.
- **Route 636 Extension over CSXT Augusta County PPTA ($14 million)** – WRA designed the Route 636 Bridge over CSXT, geotechnical engineering and provided QAM services for this Branch project.
- **Greenview Drive Design-Build ($16 million)** WRA is providing QAM services for this Branch project.

The combined Design-Build experience above and our common goal to put the quality and schedule of the project first has proven to be successful on our projects and will be for the I-95 Express Lanes projects. **Branch and WRA have worked closely with Transurban on the I-495 and I-95/395 Express Lanes projects and will leverage those professional working relationships for this project.**

**Subconsultants**

The Branch | WRA Design-Build Team is comprised of highly qualified subconsultants extremely knowledgeable in VDOT policies and procedures and experienced with similar VDOT Design-Build projects. The following subconsultants have been carefully selected based on their relevant past experience and established working history of project success with VDOT, Branch, and/or WRA:

- **Chesapeake Electrical Systems, Inc. (CES)** was founded in 1993 and has grown to become the Mid-Atlantic Region’s electrical contractor of choice working on some of the region’s most recognizable landmarks. They bring significant experience with ITS system construction and integration of dynamic tolling infrastructure through their work on the Elizabeth River Crossing project, the I-495 Express Lanes...
project and the recently completed I-95 Express Lanes project.

**H&B Surveying and Mapping, LLC (H&B)** a Virginia-Certified, DBE/WBE (Woman-Owned Business) founded in 2009 will provide Surveying and Subsurface Utility Locating for the Branch Team. H&B has teamed with WRA to provide surveying services on over 75 projects throughout Virginia including VDOT Design-Build projects.

**Froehling & Robertson, Inc. (F&R),** a SWaM-certified firm founded in 1881, will provide a Quality Assurance Lab for the Branch Team. F&R’s in-house soil, materials, and asphalt laboratories are accredited by AASHTO (AMRL/CCRL), the US Army Corps of Engineers (USACE), and WACEL.

**Engineering & Materials Technologies, Inc. (E.M. Tech)** is a certified DBE firm and will provide QC Inspectors, Testing and Lab Services for the Branch Team. Their in-house laboratory has been inspected and/or accredited by AASHTO Materials Reference Laboratory (AMRL), the Washington Area Council of Engineering Laboratories (WACEL) and the Cement and Concrete Reference Laboratory (CCRL).

### 3.3.1 KEY PERSONNEL

Key personnel Resume Forms are included in Attachment 3.3.1 located in Appendix C. A summary of key personnel is described below, and more detailed project experience for each are listed on the Resume Forms.

**Design-Build Project Manager: Pete Kramer (Branch – 34 years of experience)**

**Pete Kramer (DBPM)** has 34 years of overall experience in the heavy civil/construction industry, 19 of which have been with Branch. He has served as DBPM on numerous high-profile projects in Virginia, including the Prince William County Route 15 PPTA Project ($52M), 2008 Stafford County Transportation Bond Referendum Projects PPTA/Design-Build ($20M), and recently completed Prince William County Parkway Improvements project ($14M). He has been responsible for successful management of overall project design, construction, planning, scheduling, quality, safety, overall contract administration, and procurement of proper resources on projects to which he has been assigned. His responsibilities will be the same for this project. Pete will be the primary point of contact for VDOT and any other stakeholders in the project, and will coordinate all aspects of the project and ensure that appropriate and consistent communication is maintained between all parties. He will be responsible for meeting obligations and avoidance/resolution of disputes per the Contract. The Design Manager, Construction Design Coordinator, Construction Manager, Safety Manager and the PR Manager will all report directly to Pete Kramer.

**Quality Assurance Manager: Lenny Coleman, P.E., CCM, LEED AP (WRA – 11 years of experience)**

**Lenny Coleman (QAM)** will report directly to the DBPM and will have direct, independent access to VDOT. He served in a similar role as Assistant QAM on the Fairfax County Parkway Interchange and Widening Design Build and held the role of QC Manager on the Fall Hill Avenue & Mary Washington Boulevard Extension VDOT Design-Build project in Fredericksburg, VA, and the Walney Road Widening Design Build Project in Fairfax, VA. Lenny’s experience includes QA level oversight as Prince William County’s Construction Manager for Capital Improvement Program managing projects similar to the I-95 Express Lanes Southern Terminus Extension such as the Route 1 North Improvements PPTA project. Lenny will be responsible for the Quality Assurance program and will coordinate with VDOT, supervise project QA inspection staff, and coordinate with the QA Testing firm, F&R. He will ensure conformance with the Contract Documents including the “approved for construction” plans and specifications. Lenny will have overall responsibility for the development of and adherence to the Design-Build QA/QC Plan including coordination with the **Design QA/QC Manager, Mike Russell, P.E.** Lenny will report to the DBPM but will function independently from the Construction QC Manager, auditing and monitoring Branch’s Quality Control Program. He will have the authority to stop construction activities to ensure compliance with the specifications and issue Non-Compliance Reports (NCRs) if necessary. In addition, Lenny will submit monthly written reports on the status of the QA Program to both VDOT and the Branch Design-Build Team.

**Design Manager: John Maddox, P.E. (WRA – 30 years of experience)**

**John Maddox (DM)** will also report directly to the DBPM. John has 30 years of experience designing and
managing major transportation projects including over 20 years on VDOT projects. He is currently the Design Manager on VDOT’s Fall Hill Avenue Design-Build project in the City of Fredericksburg and was the Design Manager for the successfully completed VDOT Design-Build Walney Road Bridge Replacement and widening project in Fairfax County. John has also worked with Branch on two Design-Build projects the GMU Campus Connector project (Route 123 Bridge, geotechnical, roadway, drainage) and the Route 636 PPTA project in Augusta, VA (bridge, geotechnical and QAM). He will be responsible for providing a quality product, meeting all design milestones, continual Design-Build Team coordination and ensuring the Design QA/QC Manager’s involvement throughout the design phase. John is responsible for ensuring all design work is performed in accordance with current VDOT Policies, Procedures and Guidelines and the requirements of the VDOT Request for Proposals. He will manage all aspects of design including roadway; hydraulic; ITS, tolling system, traffic engineering; MOT; environmental; and geotechnical. He will assign resources as needed; oversee the design subconsultant for survey; coordinate design and review schedules; develop and implement corrective measures if necessary; and ensure environmental compliance measures are integrated into the design. He will coordinate the design with CDC, Yieshak Shata to ensure the timely completion of a quality constructible project. John will maintain involvement in the project once construction begins to oversee any plan modifications and shop drawings, and review construction activities with the CM as work progresses.

**Construction Manager: Steve Morris (Branch – 22 years of experience)**

Steve Morris (CM) has over 22 years of industry experience – 15 of which have been with Branch, and has successfully managed over $100M of Design-Build projects, including Branch’s subcontracted portion of the previous I-95 Express Lanes project. Steve will report to the DBPM and will be assigned solely to this Project for its duration, and will be responsible for planning and execution of both internally performed and subcontracted work activities and ensuring that said activities and associated materials meet contract requirements and “approved for construction” plans and specifications, including Quality Control (QC). He will also be accountable for overall project compliance with ancillary regulations, including, but not limited to, environmental, safety, and MOT. The ITS/Electrical Manager, Construction QC Manager, Grading/Roadway Superintendent, Construction Environmental/MOT Manager, Project Controls Manager and the DBE Compliance Manager will all report directly to Steve Morris.

**ITS/Electrical Manager: Kevin Trippe (CES – 18 years of experience)**

Kevin Trippe (ITS EM) has worked for Chesapeake Electrical Systems (CES) since his graduation from his IBEW Apprenticeship Program in 2004. Kevin has served as Project Manager for CES for the installation and integration of the ITS systems for I-95 HOT/HOV Express Lanes, the I-495/Capital Beltway Express Lanes, and the I-495/95/395 Roadside Equipment Maintenance contract, which is on-going. Kevin is very familiar with the systems and work that will be required for the I-95 Express Lanes Southern Terminus Extension, and has proven his capabilities in efficiently handling issues related to ITS/Electrical design and its integration into the project as a whole. Kevin will be responsible for supervision of all designs developed by the ITS Design Team and throughout installation to ensure that the work is done on time and in accordance with a QA/QC Plan similar to the I-495 & 95 Express Lanes. The Master Electrician, Robert Preston is a Certified Master Electrician and will report directly to Kevin the ITS/Electrical Manager. Kevin will report directly to the CM, Steve Morris and will have a lead role in the ITS Integration Team.

**3.3.2 ORGANIZATIONAL CHART**

The Branch Design-Build Team Organizational Chart on Page 7 identifies key personnel members and depicts the reporting structure of the Team. **Solid lines** identify the direct lines of reporting relationships of our Team members from the DBPM to the Design, Construction and QA leads. **Dashed lines** represent indirect reporting relationships and obligations to the DBPM and the team members. Furthermore, the reporting structure shows a clear separation between the Construction Quality Control duties and the Quality Assurance duties. Each function will have independent materials testing laboratory services. **To further...**
enhance our Team structure and to ensure successful integration with the existing tolling system, specific team members will serve on our ITS Integration Team and are highlighted on the organizational chart.

As a continuation of the functional relationships for Key Personnel described in section 3.3.1, the following narrative further defines the roles and functional relationships of the additional team members.

**Safety Manager:** Danny Minnix (Branch – 20 years of experience)

Danny Minnix will report to the DBPM and has held the position of Director of Safety and Risk at Branch for well over a decade, and has 20+ years of experience overall with large-scale heavy civil safety program development and management.

**Construction Design Coordinator: Yisehak Shata, P.E. (Branch – 15 years of experience)**

Yisehak Shata, P.E. (CDC) has 15 years of overall experience in the heavy civil construction industry, 11 of which have been with Branch, and extensive Design-Build project management experience, including the I-95/395 HOT/HOV/Bus Lanes PPTA project ($47M), Heritage Center Parkway D-B (PWC) ($6M), Route 15 Improvements Design-Build/PPTA (PWC) ($52M), and 2008 Stafford County Transportation Bond Referendum Projects D-B/PPTA ($20M). Yisehak has acted as DBPM on nearly $30M of D-B projects, where he was responsible for monitoring the design process for constructability and efficiency. Yisehak is able and qualified to make appropriate directives/decisions regarding design modifications when they arise, and is well versed in the process of managing the design-construction process that is exclusive to Design-Build projects. Yisehak will report to the DBPM, and he will work seamlessly with, and assist in directing, the DM, CM, QAM, and VDOT by maintaining and facilitating constant lines of communication.

**Design**

**Roadway Engineer:** Mark Vasco, P.E. will report to the DM and lead the roadway design efforts for the project. Mark has more than 32 years of experience in the design of transportation projects. Mark recently served as the lead designer of the Fairfax County Parkway Interchange at Fair Lakes Parkway in Fairfax County Virginia and the GMU Campus Drive Connector Design-Build with Branch Highways.

**Geotechnical Engineer:** Jeff Basford, P.E. has over 15 years of experience in subsurface explorations, geotechnical analysis, design of pavement sections and shallow and deep foundations, slope stability analysis, concrete and geosynthetic reinforced earth retaining structures, and in-situ testing and verification during construction. He has provided geotechnical expertise on Design-Build projects for WRA in Virginia and Maryland including the Route 636 Extension and the GMU Campus Connector with Branch Highways. Jeff will report to the DM and collaborate extensively with the CM and CDC.

**ITS & Lighting Design:** Jeff Cheng, P.E. will lead the ITS & Lighting Design. He has 11 years of experience and recently led the ITS & Lighting Design for the I-95 Newark Toll Plaza in Delaware for DelDOT. He has extensive experience on VDOT projects including the preliminary plans for the I-495 Shoulder Use project ITS and the Fairfax County Parkway Interchange at Fair Lakes Parkway project. Jeff will be supported by Dave Newberger, P.E., PTOE, who has extensive experience on the I-495 and I-95 Express Lanes ITS & Lighting systems through his lead role on the GEC contract reviewing the design. Jeff will report directly to the DM, coordinate directly with ITS/Electrical Manager and be a key person on the ITS Integration Team.

**MOT/Traffic Engineer:** Dana Trone, P.E., PTOE has over 19 years of experience in traffic engineering including development of transportation management plans (TMP) and MOT design. Dana has developed several TMPs for construction on interstates in Virginia, and numerous VDOT Design-Build projects. She also prepared the 30% design for the I-495 North Extension Shoulder Use Lane Design-Build project. Dana will report to the DM and collaborate with the **Construction MOT Manager, Anthony Varrati**.

**Drainage/Hydraulics Engineer:** David Gertz, P.E. will report to the DM and lead the design efforts for drainage and SWM. David has over 36 years of experience in roadway drainage design and stormwater management, and has designed numerous projects for VDOT utilizing the new Virginia stormwater regulations that took effect in July 2014. He most recently served as Lead Drainage/Hydraulics Engineer
for three VDOT Design-Build projects.

**EnvironmentalPermitting:** Taylor Sprenkle, PWD will report to the DM and secure all environmental permits needed for the project. Taylor has over 12 years of experience with environmental reviews and permitting required for transportation projects and will work closely with the **Construction Environmental Manager, Anthony Varrati**, to ensure all permit requirements are fulfilled.

**UtilityCoordinationEngineer:** Paul Martin has over 27 years of experience in highway and bridge construction including 12 years specializing in utility relocations for VDOT. Paul will report to the DM and will interact closely with the CM.

**Erosion andSedimentControlReviewer:** Glenn Wilson has 18 years of experience in E&S Control design services for transportation projects. He is a certified DCR Combined Administrator (Certificate #684). Glenn will report to the DM and collaborate with the **Construction Environmental Manager, Anthony Varrati**.

**SoundwallDesign:** Kenneth Bauer, P.E. will report to the DM and has 17 years of experience performing noise analyses and preparing soundwall designs including VDOT Design-Build projects such as Fall Hill Avenue and Route 7 over the Dulles Toll Road.

**DesignQA/QC**

**Design QA/QC Manager, Mike Russell, P.E.** has over 26 years of progressive experience in the transportation industry including 14 years with VDOT most recently as Bristol District Engineer. He will report to the DM and will ensure compliance with the project’s QA/QC Plan. Mike has served as WRA’s PM on the Berkmar Drive Extension Design-Build project in Albemarle County. He also served as VDOT’s PE Manager for the Route 58 Hillsville Bypass PPTA project constructed by Branch.

**ConstructionQC**

**Construction QC Manager: Tom Franzino** has 5 years of industry experience, 2 of which have been with Branch. Tom will report directly to the Construction Manager and will be responsible for managing all QC work for Branch, including coordinating the EM Tech’s QC inspection staff and testing lab. Tom is extensively knowledgeable in all of VDOT Construction requirements, specifications, and testing methods and will coordinate with the QAM and the DBPM on the QC components of the project.

**Construction**

**MasterElectrician:** Robert Preston is a Master Electrician licensed by the Virginia Department of Professional and Occupational Regulation Board for Contractors and Tradesmen with 39 years of experience performing and supervising ITS & electrical work. A relevant recent project is the I-95 HOT/HOV Express Lanes, I-495 Express Lanes. Robert will report directly to **Kevin Trippe, the ITS/Electrical Manager**. He will be responsible for supervision and coordination of fiber, power, wiring, splicing, ITS and other associated device installation, inspection and testing. Robert is 30-Hour OSHA certified, which included Arc Flash Protection training, and has completed separate Lockout/Tagout training.

**DBEComplianceOfficer:** Sheri Maycock has been with Branch for 24 years and will report to the DBPM. She currently serves as the DBE/EEO Compliance Officer for Branch and will oversee day to day DBE compliance for the project.

**Project Controls and PR Manager:** Barry Frank will report to the DBPM and has 5 years of industry experience, all with Branch.

**Grading/RoadwaySuperintendent:** Scott Baldwin has 29 years of heavy civil construction experience in the role of superintendent and will report to the CM. He has worked in the capacity of grading/roadway superintendent on numerous large-scale, high-profile interstate projects, including Phases 2-4 of the I-95/I-495/I-395 Springfield Interchange and the Seminary Road Widening.

**Construction Environmental and Construction MOT Manager:** Anthony Varrati will report to the CM and has 2 years of industry experience in the role of safety/environmental controls, and a B.S. in Safety Management.
3.4 EXPERIENCE OF TEAM

Please refer to Attachment 3.4.1 (a) Lead Contractor Work History Forms and Attachment 3.4.1 (b) Lead Designer Work History Forms, located in the Appendix of the SOQ for detailed relevant project experience.

RATIONALE FOR WORK HISTORY PROJECT SELECTION

As Lead Contractor and Offeror, Branch is proud to present the following projects that demonstrate experience and success with scope, magnitude, risks and associated mitigation that are common to the I-95 Express Lanes Southern Terminus Project.

I-95 HOT/HOV Express Lanes – Section 1: Branch’s portion of this project ties directly into the proposed Express Lanes extension. In fact, the northernmost half mile of the proposed Project was actually graded and manipulated as part of our scope. We are familiar with the highly variable soils conditions that will be encountered as part of the Express Lanes Southern Terminus Extension, as well as the challenges that will be faced with soundwalls and ITS design and installation. The knowledge gained on Section 1, gives the Branch | WRA Team the experience necessary to ensure success on the I-95 Express Lanes Southern Terminus Extension project.

Route 15 PPTA/Design-Build: This project was chosen for several reasons. It was a Design-Build of similar overall dollar magnitude. The same three Branch Key Personnel were on this project as will be on the I-95 Express Lanes Southern Terminus Extension, and these individuals were responsible for management of many of the same elements and challenges that are part of the Proposed Project. These includes high public profile, variable geological conditions, connection to existing high-traffic-volume roadway, and coordination with multiple governing departments and agencies.

Route 58 Hillsville Bypass PPTA/Design-Build: Branch constructed nearly 4 miles of new roadway as the primary scope of the Design-Build project. Similar scope components included varying soils conditions that necessitated utilization of varying forms of treatment, environmental permitting, complex construction sequencing, and connections to existing roadways. One of the most impressive facts about this project is that the entire $83M project was performed without any Branch-requested Change Orders. The continued success of this on-going 36-mile VDOT PPTA/Design-Build project shows Branch Highways’ ability to partner with the Department.

As Lead Designer, WRA is pleased to present the following three projects to showcase definitive experience along I-95 in interstate widening, tolled express lane design and Design-Build expertise.

I-95 Newark Toll Plaza: This highlighted project rehabilitated an existing heavily congested toll plaza on I-95 in New Castle County, Delaware with the addition of highway speed E-ZPass lanes constructed in the median. Many of project features are virtually identical to the I-95 Express Lanes Southern Terminus Extension project. The new E-ZPass lanes in the median of I-95 required very similar roadway, SWM, drainage, MOT and TMP components and more importantly included very similar ITS, electrical, and tolling features to those required for the I-95 Express Lanes Extension project.

I-95/I-495 at Arena Drive from MD 202 to MD 214 Design-Build: This project for the Maryland State Highway Administration highlights WRA’s expertise in successfully delivering Design-Build projects involving improvements on the I-95 corridor in very high traffic volume settings. The project TMP and MOT has similar complexities to the proposed project.

Fall Hill Avenue Widening and Mary Washington Boulevard Extension Design-Build: This project is highlighted because it is a current Design-Build project over I-95 in close proximity to the I-95 Express Lanes Southern Terminus Extension project. As a VDOT Design-Build project, we successfully delivered the design to the Contractor with all of the design constraints and contractual requirements that will be required for the I-95 Express Lanes Southern Terminus Extension project. Additionally, the knowledge gained from developing MOT and TMP components for I-95 and the geotechnical analysis will be invaluable and directly applicable to the I-95 Express Lanes Extension Design-Build project.
3.5 PROJECT RISKS

The combined 150+ years of experience for the Branch | WRA Team in the industry, including over $575 Million in combined Design-Build projects has enabled each firm to build upon their ability to anticipate risks and determine mitigation strategies to manage/eliminate these risks. Branch Highways’ risk assessment and mitigation procedure is described briefly in the diagram, below. It is based on concepts presented in the Breakthrough Project Leadership Institute created by two well-known construction management consultants, Mike Casten and Dave Peterson, owners of Construction Concepts and Sage Limited, respectively.

The cycle starts with choosing partners that compliment your strengths and bring different perspectives to the table much like the Branch | WRA Team has proven to do in numerous endeavors. Working as a Team to evaluate the criteria and assess risks leads to effective solutions that are implemented into the project design. This implementation then leads to an evolving process that runs through the project cycle of performing, evaluating, and adjusting.

While risks involved with every Design-Build project are numerous, the Branch | WRA Team has identified the three risks critical to the success of the I-95 Express Lanes Southern Terminus Extension. These three risks, identified below, each require a unique mitigation strategy.

**RISK #1: INTELLIGENT TRANSPORTATION SYSTEMS (ITS)**

This portion of the project scope consists of installation, testing, and integration of ITS devices to provide reversible lane operation for the I-95 Express Lanes Southern Terminus Extension, as well as providing other traffic control, monitoring, and informational systems. ITS devices specific to the I-95 Express Lanes Southern Terminus Extension project include DMS signs, CCTV cameras, automated incident detection cameras, traffic detectors, vehicular gates and the control cabinets, power generators, communications, and electrical power to support these systems. This effort will also require close coordination with VDOT and the I-95 Express Lanes Concessionaire (Transurban) to integrate all new ITS devices and expand the operation of the existing system. The Branch | WRA Team’s ITS/Electrical subconsultant for this project, Chesapeake Electrical Systems, Inc. (CES) has extensive experience with managing design, coordination, and installation of these same ITS components. Similarly, WRA is well-versed in designing these same elements and coordinating with Transurban.

**Why Critical:** Our Team has identified key elements of risk associated with ITS on this project and how they are fundamental to the completion and overall success of the project. These elements include:

- **Operation of the Existing Express Lanes:** A functioning ITS system is absolutely necessary for the operation and safety of the I-95 Express Lanes. Therefore, it is necessary to complete construction in a manner that does not impact the existing system and to sequence construction of the proposed ITS system to allow for integration and testing so that the project is completed and opened on time. The system also interfaces with VDOT’s Traffic Operations Centers to provide travel information and with E-ZPass Virginia for toll collection. Any disruption to the existing or proposed ITS systems could inhibit these functions.

- **Design Coordination:** Coordination between the roadway design and the electrical drawings is a critical component to project success and can’t be overlooked, especially on those large-scale projects with many detailed elements that require the work of multiple teams to complete. Minimizing the importance of this
coordination will result in schedule impacts, and also potential re-work to correct conflicts in the field. On a project such as this, schedule delays and public perception of re-work would put unnecessary pressure on all parties involved.

- **Schedule:** Our Team understands that the ITS design, construction, activation, testing and integration schedule is critical to the successful completion and opening of the project. Grading along the corridor creates an issue whereas the Electrical/ITS infrastructure installation could be delayed and easily become part of the critical path of the schedule and in turn be subject to increased costs and constrain the time available for turnover and testing of the ITS system. The proposed devices must be installed and activated early in the overall project schedule to provide ample time for integration and programming so that the roadway extension can be opened when completed.

**Impacts:** Failure to implement the ITS systems will result in the following impacts:

- **Operation of Existing Express Lanes:** While the majority of the proposed ITS devices are constructed south of the existing ITS infrastructure, there are still some areas of overlap and communications tie-ins must be made between the proposed and existing systems. Any unplanned impacts to the existing system during the installation of the proposed system can be costly and possibly halt operation of the existing system. As previously noted, the ITS system is vital for the operation of the reversible lane and any impacts during construction causing the existing system to not operate will potentially result in lost toll revenue to Transurban.

- **Design Coordination:** The design for grading, drainage, and ITS infrastructure must coordinate with one another to avoid conflicts during construction. All of these, and other operations in the same area of the project, will be affected in terms of schedule not only in terms of overall time frame, but also the order in which operations are executed. If these conflicts are not resolved during design there is the potential for significant impacts to cost and schedule.

- **Schedule:** Much publicity has been given to the delay currently experienced by both I-95 Express Lane and General Purpose lane users at the existing Express Lanes terminus. The existing conditions with heavy weaving movements are undesirable and commitments have been made to the public through the I-95 Express Lanes Southern Terminus Extension project to provide relief. It is crucial for this project to be constructed and opened on time to reduce congestion and avoid a negative public perception. Any missteps in the ITS implementation will extend current undesirable conditions, delay the project opening, and will decrease customer satisfaction with the Express Lanes system.

**Mitigation:** Our Team will apply our risk management strategy to evaluate, identify, and determine solutions to manage and monitor ITS risks throughout the project delivery process. Given our past experience with these systems, we will bring innovative solutions to the risks identified above.

- **Operation of the Existing Express Lanes:** Our ITS/Electrical Manager has an excellent understanding of the existing ITS systems on the Express Lanes from working on previous projects in the same corridor. Our Team will review in detail the ITS architecture and concept of operations of the existing system so that we have a complete understanding of all channels of communication and the functional requirements of the proposed ITS system. This information and system understanding will allow us to work seamlessly during the integration process. Our ITS subconsultant, CES has assigned both an ITS/Electrical Manager, and a master electrician, who were essential personnel in virtually the same roles on previous Transurban Express Lanes projects. These same individuals are also currently assigned to the maintenance contracts that CES has for both the I-495 Capital Beltway & I-95 Express Lanes. In order to minimize any construction impacts to existing ITS
systems and infrastructure, a thorough review of all available as-built information and field verification will be completed to ensure the location of all existing ITS equipment is known. In addition to spatial considerations, other strategies that will be considered are the use of temporary services, back-up generators and redundant communication systems when tie-ins or disruptions to the existing systems must occur.

- **Design Coordination:** Branch, WRA, and CES all have recent first-hand experience in coordinating design of ITS/Electrical components with site grading. From all previous experiences, the ITS portion has to be installed as early as possible in the construction sequence in order to ensure a successful project. In order to mitigate this issue, portions of fiber lines may need to be installed using “non-traditional” boring techniques as opposed to traditional ductbank. This “boring” method of installation will allow the majority of the conduit systems to be installed concurrently with grading activities. Once grading activities are completed from north to south, boxes, fiber, wire and cabinet foundations can be installed closely behind. To the greatest extent possible, junction boxes and cabinet foundations will be located where there is minimal cut/fill. Along the same lines, equipment cabinets will not be mounted on sign structures and junction boxes will not be located in the shoulders of any roads. Both of these design elements typically delay installation and expose the boxes and wire/fibers to impacts.

- **Schedule:** The Branch | WRA Design-Build Team will develop a detailed schedule to plan the construction, inspection, activation, integration, testing and implementation of the proposed ITS devices. This schedule will be coordinated among all aspects of work so that other elements are completed as required for ITS construction (e.g., ensuring the roadway is completed so that testing of vehicular gates and automated incident detection cameras can occur). CES will work with Branch’s Team to ensure the coordination of work activities of all disciplines is done efficiently and in such a way that critical path for the project is unaffected.

**Role of VDOT and other Agencies:** VDOT’s role will be to provide all available as-built plans during the bidding and design phases, to provide review and approval of the ITS design (along with Transurban), and to facilitate coordination with Transurban during design, activation and integration of the new ITS systems.

**RISK #2: GEOTECHNICAL**

The Branch | WRA Team has reviewed the project information provided with the RFQ including the conceptual plans and typical sections. In addition, we have considered our recent experience on VDOT projects in the area on Route 1, Fall Hill Avenue, and the I-95 HOT/HOV Express Lanes project immediately to the north where coastal plain soils were encountered. The site is underlain by artificial fill materials and sedimentary soils of the Potomac formation. The Potomac formation may include high-plasticity clay strata that can exhibit very low effective residual friction angles. In addition, acidic soils may also be present at the project site. While the southernmost Express Lane grading already performed by Branch, indicated less probability at that point for in situ acidic soils, our other projects in the area such as Fall Hill Avenue and others in the region provides enough evidence that these soils cannot be discounted.

In considering the geotechnical risks associated with this project the most significant factor that we identified is that the subsurface conditions in the project area have not been well defined to a site level. Although we can speculate the conditions of the fill placed as part of the highway based on our knowledge of historic VDOT practices as well as what we have unearthed first hand on the adjacent I-95 Express Lanes project, the actual project site conditions are unknown and therefore are a significant risk to the project.

**Why Critical:** The majority of the project site is within the median area of I-95. The project site has been disturbed by earthwork operations for the original I-95 roadway construction and includes areas of embankment fill and stockpiled materials. It is likely that unsuitable materials from the original roadway construction have been placed in the median area or in side slope fills and will be encountered during
construction. Unsuitable materials can pose a problem with subgrade preparation, and may present slope stability issues with cut slopes and fill slopes in areas of embankment widening. Historic VDOT practice was to dispose of unsuitable materials such as organic soils, stumps, roots, construction debris, asphalt, concrete, and other waste materials in side hill fills and in median areas.

It is possible that portions of the site are underlain by soft or loose soils rather than the heavily over consolidated soils of the Potomac formation. Without subsurface information and laboratory testing the magnitude of settlement induced by the new embankment loading is uncertain. Additional concern related to settlement is the time duration that it takes for the settlement to occur. A 20-foot thick soft clay layer could take more than a year to consolidate without remediation measures. This could have a significant impact on the construction schedule and sequencing.

The overall stability of the proposed cut and fill slopes at maximum slope ratios of 2(H):1(V) must be carefully evaluated. High-plasticity cohesive soils of the Potomac formation (Potomac clay) can be problematic for cut slopes at slope ratios as flat as 4(H):1(V). Unsuitable fill materials at new embankment subgrade and along embankment side slopes may result in sloughing, sliding, or global stability failures. If flattening of the side slopes is required, retaining walls may need to be incorporated into the project. Additionally, the design and construction of the overhead signage, ITS features, and drainage elements may require special considerations to account for the aforementioned geotechnical conditions.

**Impact:** Based on our Team’s review of the data, we identified these major geotechnical issues to be considered during design and construction:

- Earthwork impacts due to the possibility of unsuitable fill materials.
- Settlement of embankment fill.
- Stability of cut and fill slopes.
- Acidic soils.

Each has the potential to impact the cost, schedule, constructability, and future maintenance cost and must be managed throughout design and construction.

**Mitigation:** Based on the Branch | WRA Team’s past experience mitigating geotechnical risk, a thorough field investigation based on a detailed geotechnical boring and testing program is Step One. In order to properly assess the geotechnical risks associated with the proposed construction, we will develop a comprehensive geotechnical investigation to define the subsurface conditions including soil, rock, groundwater, and uncontrolled fill within the project limits. WRA will perform a site reconnaissance walk to identify areas of concern, prior to planning and developing the scope of the geotechnical investigation. The geotechnical investigation will include laboratory testing to develop the appropriate design soil parameters for evaluation of embankment settlement and for slope stability. Additionally, geotechnical evaluation and recommendations for compacted embankment fill, pavement subgrade preparation, pavement thickness design, noise barrier walls, sign structures, light structures, and ITS components will be provided as required.

**Unsuitable Materials:** Due to the previous roadway construction it is likely that we will encounter unsuitable materials within areas of subgrade cut for the new road alignment, subgrade fill for new roadway embankment, or side slope fills for widening existing embankments. The extent and impact of the unsuitable materials will need to be evaluated. If unsuitable materials are encountered they may require undercutting and replacement with select borrow material, as needed to provide stable slopes, to prepare pavement subgrades, and prior to placement of embankment fill for the roadway or widening. If the extent of unsuitable subgrade conditions are not identified early in the project design, additional material and hauling costs could be realized.
Settlement: We anticipate placing fills up to 35 feet in height to accommodate the proposed I-95 Express Lanes roadway grade. We will consider the results of SPT sampling, undisturbed tube sampling, and laboratory consolidation testing, to estimate the magnitude of settlement and time of consolidation under the proposed embankment loads. To mitigate the effects of settlement on the roadway embankment fill a waiting period can be established with periodic monitoring of settlements to determine when most of the estimated settlement has occurred. The scheduling of the final pavement will take into account the settlement and monitoring period to ensure the RFP requirements are met. If calculations show that the settlement period is beyond the construction timeline, surcharging may be necessary to speed the time of settlement. Estimation and monitoring of embankment settlement are key to effective and economical roadway design and construction phasing. Properly evaluating the settlement will allow our Team to avoid:

- Excessive settlement due to underestimating consolidation time.
- Embankment subgrade failure.
- Schedule delays for installing final pavement, if consolidation time is underestimated.

Slope Stability: Our Team is familiar with the site geology consisting of Potomac formation soils, and we understand the potential slope stability issues related to unsuitable soils left along shoulder and median areas from previous construction projects. During the geotechnical investigation we can identify the presence of unsuitable soils and problematic Potomac clay soils. Where unsuitable soils or weak Potomac clay soils are encountered, slope stability issues are generally addressed in design and construction by:

- Removal and replacement with suitable borrow material.
- Reducing the slope ratio to flatten the slope.
- Benching the slope.
- Construction of retaining walls.

Acidic Soils in Design and Construction: Our Team has extensive experience with the geology in the region and the prevalence of acidic soils in the area. We can identify the presence of these soils through pH, and acid-base accounting tests. Issues associated with acidic soils are generally addressed in design and construction by:

- Reuse of Soil from Cut Area.
- Use proper long-term vegetative cover.
- Run-off Control from Acidic Soils during Construction.
- Foundation and SWM Facility Element Selection for Acidic Soils.

Role of VDOT and other Agencies: VDOT’s role will be to provide all existing geotechnical data during the RFP stage to allow full evaluation of the project risk and to review the final geotechnical report for the project.

RISK #3: SOUNDWALLS

The soundwall construction on the I-95 Express Lanes Southern Terminus Extension Project poses a host of potential impacts with the requirement for soundwalls to be incorporated. Not only does this feature require work outside of the general purpose lanes of existing I-95, it also introduces potential right-of-way, utility, and access concerns, and significant schedule impacts to the Project. Branch Highways’ role in the construction of soundwalls on the previous I-95 Express Lanes project was to provide initial grading for...
access and foundation installations and to complete the final drainage, grading, and stabilization in cooperation with the soundwall installation, which was performed and managed by others. Soundwall installation actually extended the project completion date by 7 months. This recent experience offers several “Lessons Learned” that will enable the Branch | WRA Design-Build Team to anticipate critical steps to ensure on-time delivery of the I-95 Express Lanes Southern Terminus Extension Project in its entirety.

**Why Critical:** Our Team has identified three main areas of risk associated with the soundwall component of this project:

**Fabrication Schedule:** While there were multiple causes for the schedule impacts with regard to soundwalls on the previous I-95/395 Express Lanes project, fabrication time ultimately had the biggest impact on schedule – plants could simply not keep up with the demand of the project. If the fabrication lead time is not addressed the I-95 Express Lanes Southern Terminus Extension project could realize these same schedule delays.

**Location:** As with the previous segment of the I-95 Express Lanes, these soundwalls will be on the side slopes of I-95 tight to the right-of-way line or at the edge of an existing embankment. Consequently, there will be several grading and drainage considerations put into question the ability to keep the wall and associated drainage features within the current right-of-way. The conceptual drawings indicate at least eight areas where drainage will need to be accommodated through the wall location and push the line of the wall tight against the existing right-of-way. If adequate right-of-way is not available additional time and expense will be incurred while easements are purchased. Additionally, the proposed soundwalls positioned on top of the embankments present numerous constructability and design concerns to ensure stability of the existing fill slope with protection and drainage in front of the soundwall.

**Construction Access Points:** Careful selection of ingress/egress points for soundwall construction will be critical to the TMP design and soundwall execution of this portion of the project. Since the walls run adjacent to construction on the interior side of the southbound GP lanes, it will be paramount that ingress/egress is provided at points carefully scrutinized and effectively handled in the Maintenance of Traffic Plan. The delivery of concrete and reinforcing steel for foundations, more than 200 posts, and an estimated 100,000 sq. ft. of panels, all must be done without affecting the existing traffic flow, while also providing adequate space for construction activities.

**Impacts:**

**Fabrication Schedule:** While soundwall construction itself does not directly impact the Express Lanes’ functionality, it does affect public opinion regarding the perceived successful completion of the work. Despite the fact that soundwall activities will take place outside of the existing GP lanes, there is always a degree of disruption to the flow of traffic created by the visual distraction of work being performed on the side of the road. Additionally, the old adage of “Time is Money” rings absolutely true: the longer a specific work zone is active, the higher the costs that will be incurred.
Location: It is possible that the final design of the soundwalls on this Project could require acquisition of construction and/or permanent easements to allow for associated grading and drainage. Additionally, at the Dominion power lines located at the southern end of the soundwall may need to be adjusted to provide adequate clearance above the soundwall. As highlighted in our Geotechnical Risk narrative, the likelihood of varying subsoil conditions may warrant additional foundation design efforts and slope stability analysis. These conditions will dictate in large measure the needed right-of-way clearances and allowances for foundation and drainage features. Both of these issues could have a significant effect on cost and schedule. Therefore, it is essential that they be addressed early on in the Design-Build process, and are monitored to ensure that all possible exposures are mitigated.

Construction Access Points: While the width of existing ROW throughout the I-95 corridor for this project are relatively consistent, the slope and grade of existing ground outside of the roadway itself are not. This creates the potential for a safety concern, not only for the public traveling on the GP lanes adjacent to these points, but also in our work areas. The combination of limited work/maneuvering space, crews working, large trucks and equipment, and employees on the ground present risk to both the project and our people.

Mitigation:

Fabrication Schedule: In an effort to mitigate these impacts, the Branch | WRA Design-Build Team has entered into an agreement in principal with the Smith-Midland Corporation (SMC) to set aside precious fabrication and storage assets in order to facilitate the delivery of the estimated 100,000 SF of panels and 200 posts. As a long-time partner of Branch Highways with a proven track record of meeting VDOT quality requirements, SMC has a proven track record and we have full faith in their ability to manufacture and deliver all of the posts and panels required for this soundwall within the tight time constraints that this Project includes. In fact, SMC has recently upgraded its capacity to hold in ready panels and posts fabricated for this Project in an effort to play a role in assuring Success for the Branch | WRA Design-Build Team.

Location: The Branch | WRA Team will analyze the location limitations and closely coordinate the alignment to consider foundation and drainage designs in coordination with grading and existing soils conditions in order to eliminate the need for additional right-of-way to the fullest extent possible and minimize overall cost. In areas where the ground line sinks below the existing roadway elevations, innovative design considerations will be employed to provide the best long-term solution for each specific location.

Construction Access Points: Access points must be carefully considered and located in areas where there will be sufficient room to allow for materials and equipment deliveries to be safely executed. Factors that our Team will consider to ensure that this risk is minimized or eliminated include existing traffic pattern, width and evaluation of existing ROW, existing profile and horizontal alignment of the GP lanes, and the location of existing and proposed ITS/Electrical appurtenances that may create spatial obstacles. The number of access points will be kept to an absolute minimum. At its northernmost point, the wall starts adjacent to the Route 610 on-ramp to I-95 South. In order to best accommodate access so as not to interfere with traffic merging onto I-95, the Branch | WRA Team will incorporate access points at or near the northern end of the soundwall prior to the acceleration lane. Additional access points will be incorporated past the southern end of the acceleration lanes.

Role of VDOT and Other Agencies: The Branch | WRA Design-Build Team requires little from the Department in order to effectively manage the risk associated with soundwall construction on this project. Assistance with our public outreach in terms of simple participation in public meetings, coupled with timely turn-around of submittals satisfies the initial need to expedite reviews and approvals. Beyond that, the Branch | WRA Team will request the Department’s further cooperation by allowing us to manufacture standard panels prior to final design approvals. Of course, we would proceed at our own risk so long as we could receive preliminary approvals of materials and standard panel details.
Offerors shall furnish a copy of this Statement of Qualifications (SOQ) Checklist, with the page references added, with the Statement of Qualifications.

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<th>Statement of Qualifications Component</th>
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## ATTACHMENT 3.1.2

### Project: 0095-969-720

**STATEMENT OF QUALIFICATIONS CHECKLIST AND CONTENTS**

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**Project: 0095-969-720**  
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ATTACHMENT 2.10

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION

RFQ NO. C00T17210DB90
PROJECT NO. 0095-969-720

ACKNOWLEDGEMENT OF RFQ, REVISION AND/OR ADDENDA

Acknowledgement shall be made of receipt of the Request for Qualifications (RFQ) and/or any and all revisions and/or addenda pertaining to the above designated project which are issued by the Department prior to the Statement of Qualifications (SOQ) submission date shown herein. Failure to include this acknowledgement in the SOQ may result in the rejection of your SOQ.

By signing this Attachment 2.10, the Offeror acknowledges receipt of the RFQ and/or following revisions and/or addenda to the RFQ for the above designated project which were issued under cover letter(s) of the date(s) shown hereon:

1. Cover letter of **RFQ – January 4, 2016** (Date)
2. Cover letter of **RFQ Addendum#1 – January 28, 2016** (Date)
3. Cover letter of

[Signature]

Patrick K. Bartorillo
President

PRINTED NAME

DATE

TITLE
ATTACHMENT 3.2.6

State Project No. 0095-969-720

Affiliated and Subsidiary Companies of the Offeror

Offerors shall complete the table and include the addresses of affiliates or subsidiary companies as applicable. By completing this table, Offerors certify that all affiliated and subsidiary companies of the Offeror are listed.

☐ The Offeror does not have any affiliated or subsidiary companies.
☒ Affiliated and/or subsidiary companies of the Offeror are listed below.

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<th>Address</th>
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<td>Affiliate (Parent Company)</td>
<td>The Branch Group, Inc.</td>
<td>P.O. Box 40004, Roanoke, VA 24022</td>
</tr>
<tr>
<td>Affiliate</td>
<td>E.V. Williams, Inc.</td>
<td>925 South Military Hwy, Virginia Beach, VA 23464</td>
</tr>
<tr>
<td>Affiliate</td>
<td>G.J. Hopkins, Inc.</td>
<td>P.O. Box 12467, Roanoke, VA 24025</td>
</tr>
<tr>
<td>Affiliate</td>
<td>Branch and Associates, Inc.</td>
<td>P.O. Box 8158, Roanoke, VA 24014</td>
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ATTACHMENT NO. 3.2.7(a)

CERTIFICATION REGARDING DEBARMENT
PRIMARY COVERED TRANSACTIONS

Project No.: 0095-969-720

1) The prospective primary participant certifies to the best of its knowledge and belief, that it and its principals:

   a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency.

   b) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; and have not been convicted of any violations of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification, or destruction of records, making false statements, or receiving stolen property;

   c) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph 1) b) of this certification; and

   d) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

2) Where the prospective primary participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this form.

The undersigned makes the foregoing statements to be filed with the proposal submitted on behalf of the Offeror for contracts to be let by the Commonwealth Transportation Board.

[Signature] [Date] 1/8/10

President Title

Branch Highways, Inc.

Name of Firm
ATTACHMENT NO. 3.2.7(b)

CERTIFICATION REGARDING DEBARMENT
LOWER TIER COVERED TRANSACTIONS

Project No.: 0095-969-720

1) The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

2) Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this form.

The undersigned makes the foregoing statements to be filed with the proposal submitted on behalf of the Offeror for contracts to be let by the Commonwealth Transportation Board.

Signature Date Senior Vice President
John M. 2/3/16 Title

Whitman, Requardt & Associates, LLP

Name of Firm
ATTACHMENT NO. 3.2.7(b)

CERTIFICATION REGARDING DEBARMENT
LOWER TIER COVERED TRANSACTIONS

Project No.: 0095-969-720

1) The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

2) Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this form.

The undersigned makes the foregoing statements to be filed with the proposal submitted on behalf of the Offeror for contracts to be let by the Commonwealth Transportation Board.

[Signature]
[Date]
[Title]

Chesapeake Electrical Systems Inc.

Name of Firm
ATTACHMENT NO. 3.2.7(b)

CERTIFICATION REGARDING DEBARMENT
LOWER TIER COVERED TRANSACTIONS

Project No.: 0095-969-720

1) The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

2) Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this form.

The undersigned makes the foregoing statements to be filed with the proposal submitted on behalf of the Offeror for contracts to be let by the Commonwealth Transportation Board.

[Signature]
January 18, 2016
Signature

[Date]
Date

[Vice President]

[Title]

H&B Surveying and Mapping, LLC

Name of Firm
ATTACHMENT NO. 3.2.7(b)

CERTIFICATION REGARDING DEBARMENT
LOWER TIER COVERED TRANSACTIONS

Project No.: 0095-969-720

1) The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

2) Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this form.

The undersigned makes the foregoing statements to be filed with the proposal submitted on behalf of the Offeror for contracts to be let by the Commonwealth Transportation Board.

[Signature] [Date] 1/25/16

President
Title

Froehling & Robertson, Inc.
Name of Firm
ATTACHMENT NO. 3.2.7(b)

CERTIFICATION REGARDING DEBARMENT
LOWER TIER COVERED TRANSACTIONS

Project No.: 0095-969-720

1) The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

2) Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this form.

The undersigned makes the foregoing statements to be filed with the proposal submitted on behalf of the Offeror for contracts to be let by the Commonwealth Transportation Board.

[Signature] 1.18.16 [Principal Engineer]

[Title]

Engineering & Materials Technologies, Inc. (EM Tech)

Name of Firm
CERTIFICATE OF QUALIFICATION

BRANCH HIGHWAYS, INC.

Vendor Number: B319

In accordance with the Regulations of the Virginia Department of Transportation, your firm is hereby notified that the following Rating has been assigned to your firm:

PREQUALIFIED

Your firm specializes in the noted Classification(s):

GRADING; MAJOR STRUCTURES; UNDERGROUND UTILITIES

Issue Date: February 28, 2015
This Rating and Classification will Expire: February 29, 2016

Suzanne FR Lucas, State Prequalification Officer

Don E. Silies, Director of Contracts

It is not permissible to alter this document, use after posted expiration date, or use by persons or firms other than those named on this certificate.
February 8, 2016

Mr. Suril R. Shah  
Alternate Project Delivery Office  
Virginia Department of Transportation  
1401 East Broad Street  
Richmond, VA 23219

Re: **Branch Highways, Inc.**  
Request for Qualifications for the Design/Build  
I-95 Express Lanes – Southern Terminus Extension  
From: 0.9 mi. South of the Garrisonville Road Overpass  
To: 1.3 mi. North of the Garrisonville Road Overpass (Current Terminus of the Express Lanes)  
Stafford County, Virginia  
State Project No.: 0095-969-720  
Contract ID Number: C00T17210DB90

Dear Mr. Shah:

The Hartford, through its operating entities, has issued surety bonds to Branch Highways, Inc., a subsidiary of The Branch Group since 1995. During this time we have favorably considered projects up to $150,000,000 with an aggregate program of $850,000,000 for member companies of The Branch Group. Our experience with Branch Highways, Inc. has been excellent, and we highly recommend them to you.

As surety for Branch Highways, Inc., The Hartford will favorably consider providing a 100% Performance Bond and a 100% Labor and Materials Payment Bond for the referenced project in the estimated project amount of $40,000,000 and said bonds will cover the Project and any warranty periods as provided for in the Contract Documents on behalf of the Contractor, provided a contract is awarded to, and executed by Branch Highways, Inc.

Please understand that any arrangement for any bonds is a matter between Branch Highways, Inc. and The Hartford and we assume no liability to third parties or you if, for any reason, we do not issue requested bonds.

The Hartford expressly reserves the right to review the terms and conditions of the contract, contract amount and bond form, evaluate pertinent underwriting data, and verify the adequacy of project financing prior to the issuance of bonds for the referenced project.
Branch Highways, Inc. bonds are issued through Hartford Fire Insurance Company which is listed on the U.S. Treasury Department List and has an A.M. Best Rating of “A+” with Financial Size Category: XV ($2 Billion or greater). They are licensed to do business in the State of Virginia.

This letter will expire one hundred and eighty (180) days from the above date.

Sincerely,

Theresa S. Stump, Attorney-In-Fact

cc: Branch Highways, Inc.
    Hartford Fire Insurance Company
POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS THAT:

☐ Hartford Fire Insurance Company, a corporation duly organized under the laws of the State of Connecticut
☐ Hartford Casualty Insurance Company, a corporation duly organized under the laws of the State of Indiana
☐ Hartford Accident and Indemnity Company, a corporation duly organized under the laws of the State of Connecticut
☐ Hartford Underwriters Insurance Company, a corporation duly organized under the laws of the State of Connecticut
☐ Twin City Fire Insurance Company, a corporation duly organized under the laws of the State of Indiana
☐ Hartford Insurance Company of Illinois, a corporation duly organized under the laws of the State of Illinois
☐ Hartford Insurance Company of the Midwest, a corporation duly organized under the laws of the State of Indiana
☐ Hartford Insurance Company of the Southeast, a corporation duly organized under the laws of the State of Florida

having their home office in Hartford, Connecticut, (hereinafter collectively referred to as the “Companies”) do hereby make, constitute and appoint, up to the amount of unlimited:


their true and lawful Attorney(s)-in-Fact, each in their separate capacity if more than one is named above, to sign its name as surety(ies) only as delineated above by ☐, and to execute, seal and acknowledge any and all bonds, undertakings, contracts and other written instruments in the nature thereof, on behalf of the Companies in their business of guaranteeing the fidelity of persons, guaranteeing the performance of contracts and executing or guaranteeing bonds and undertakings required or permitted in any actions or proceedings allowed by law.

In Witness Whereof, and as authorized by a Resolution of the Board of Directors of the Companies on 10/1/98, 9/19/00, 7/21/03, 1/22/04, 3/1/07, 8/1/09 or 8/1/12 the Companies have caused these presents to be signed by its Vice President and its corporate seals to be hereeto affixed, duly attested by its Assistant Secretary. Further, pursuant to Resolution of the Board of Directors of the Companies, the Companies hereby unambiguously affirm that they are and will be bound by any mechanically applied signatures applied to this Power of Attorney.

John Grady, Assistant Secretary

Gary W. Stumper, Vice President

STATE OF CONNECTICUT } SS. Hartford

COUNTY OF HARTFORD }

On this fifteenth day of March, 2013, before me personally came Gary W. Stumper, to me known, who being by me duly sworn, did depose and say: that (s)he resides in the County of Hartford, State of Connecticut; that (s)he is the Vice President of the Companies, the corporations described in and which executed the above instrument; that (s)he knows the seals of the said corporations; that the seals affixed to the said instrument are such corporate seals; that they were so affixed by authority of the Boards of Directors of said corporations and that (s)he signed his/her name thereto by like authority.

Kathleen T. Maynard
Notary Public
My Commission Expires July 31, 2016

I, the undersigned, Assistant Vice President of the Companies, DO HEREBY CERTIFY that the above and foregoing is a true and correct copy of the Power of Attorney executed by said Companies, which is still in full force effective as of February 8, 2016.

Kevin Heckman, Assistant Vice President
Offerors shall complete the table and include the required state registration and licensure information. By completing this table, Offerors certify that their team complies with the requirements set forth in Section 3.2.10 and that all businesses and individuals listed are active and in good standing.

### SCC & DPOR INFORMATION FOR BUSINESSES (RFQ Sections 3.2.10.1 and 3.2.10.2)

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<th>DPOR Information (3.2.10.2)</th>
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<tr>
<td>Whitman, Requardt &amp; Associates, LLP (Baltimore, MD)</td>
<td>K000382-4 Limited Liability Partnership Active 801 South Caroline Street Baltimore, MD 21231 ARC, ENG, LS, LA 0407001676 12/31/2017</td>
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<tr>
<td>Whitman, Requardt &amp; Associates, LLP (Richmond, VA)</td>
<td>K000382-4 Limited Liability Partnership Active 9030 Stony Point Parkway, Suite 220 Richmond, VA 23235 ENG 0411000133 02/29/2016</td>
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<tr>
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<td>K000382-4 Limited Liability Partnership Active 3701 Pender Drive, Suite 450 Fairfax, VA 22030 ENG 0411000134 02/29/2016</td>
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<tr>
<td>Whitman, Requardt &amp; Associates, LLP (Bristol, TN)</td>
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<td>Chesapeake Electrical Systems, Inc.</td>
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<td>H&amp;B Surveying and Mapping, LLC</td>
<td>S290560-4 Limited Liability Company Active 612 Hull Street, Suite 101B Richmond, VA 23224 LS 0407005432 12/31/2017</td>
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<td>Froehling &amp; Robertson, Inc.</td>
<td>0027211-2 Corporation Active 22923 Quicksilver Drive, Suite 111 Sterling, VA 20166 ENG 0411000051 02/28/2016</td>
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<td>Engineering &amp; Materials Technologies, Inc.</td>
<td>0478633-1 Corporation Active 7857 Coppermine Drive Manassas, VA 20109 ENG 0407005994 12/31/2017</td>
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## ATTACHMENT 3.2.10

**State Project No. 0606-088-653, C501 & 0606-088-622, C501, B634**

### SCC and DPOR Information

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<th>Business Name</th>
<th>Individual’s Name</th>
<th>Office Location Where Professional Services will be Provided (City/State)</th>
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<tr>
<td>Whitman, Requardt &amp; Associates, LLP</td>
<td>John Maddox</td>
<td>Richmond, Virginia</td>
<td>2825 Willbrook Drive</td>
<td>Professional Engineer</td>
<td>0402026613</td>
<td>01/31/2018</td>
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<tr>
<td>Chesapeake Electrical Systems, Inc.</td>
<td>Robert Preston</td>
<td>Laurel, Maryland</td>
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Commonwealth of Virginia

STATE CORPORATION COMMISSION

Richmond, November 25, 1986

This is to Certify that the certificate of incorporation of
BRANCH HIGHWAYS, INC.

was this day issued and admitted to record in this office
and that the said corporation is authorized to transact its
business subject to all the laws of the State applicable to the
corporation and its business.

State Corporation Commission

[Signature]

Clerk of the Commission
Alert to corporations regarding unsolicited mailings from VIRGINIA COUNCIL CORPORATIONS is available from the Bulletin Archive link of the Clerk’s Office with the following details:

**Commonwealth of Virginia**

**State Corporation Commission**

---

**CORPORATE DATA INQUIRY**

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<td>CITY:</td>
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(Screen Id:/Corp_Data_Inquiry)
DEPARTMENT OF PROFESSIONAL AND OCCUPATIONAL REGULATION
COMMONWEALTH OF VIRGINIA
9960 Mayland Dr., Suite 400, Richmond, VA 23233
Telephone: (804) 367-8500

BOARD FOR CONTRACTORS
CLASS A CONTRACTOR
"CLASSIFICATIONS" H/H

BRANCH HIGHWAYS INC
PO BOX 40004
ROANOKE, VA 24022-0004

(SEE REVERSE SIDE FOR NAME AND/OR ADDRESS CHANGE)
STATE CORPORATION COMMISSION

Richmond, August 10, 2000

This is to Certify that the statement of registration of

Whitman, Requardt & Associates, LLP

a limited liability partnership registered under the laws of MARYLAND; was this day admitted to record in this office and that the partnership is registered to transact business in Virginia as a foreign Registered Limited Liability Partnership, subject to all laws applicable to the partnership and its business.

State Corporation Commission
Attest:

[Signature]

Clerk of the Commission
CERTIFICATE OF FACT

I Certify the Following from the Records of the Commission:

On August 10, 2000, a statement of registration as a foreign limited liability partnership was filed in the Clerk's Office of the Commission by Whitman, Requardt & Associates, LLP, a Maryland registered limited liability partnership.

As of the date below, this statement of registration is in effect.

Nothing more is hereby certified.

Signed and Sealed at Richmond on this Date:
July 15, 2015

Joel H. Peck, Clerk of the Commission
Dear Customer:

This is your receipt for $50.00 to cover the fee for filing the annual continuation report for the above-referenced registered limited liability partnership.

The annual continuation report was filed on June 19, 2015.

If you have any questions, please call (804) 371-9733 or toll-free in Virginia, 1-866-722-2551.

Sincerely,

Joel H. Peck
Clerk of the Commission
BOARD FOR ARCHITECTS, PROFESSIONAL ENGINEERS, LAND SURVEYORS, CERTIFIED INTERIOR DESIGNERS
AND LANDSCAPE ARCHITECTS
BUSINESS ENTITY BRANCH OFFICE REGISTRATION

PROFESSIONS: ENG

WHITMAN REQUARDT AND ASSOCIATES
9030 STONY POINT PKWY STE 220
RICHMOND, VA 23235

ALTERATION OF THIS DOCUMENT, USE AFTER EXPIRATION, OR USE BY PERSONS OR FIRMS OTHER
THAN THOSE NAMED MAY RESULT IN CRIMINAL PROSECUTION UNDER THE CODE OF VIRGINIA.
BOARD FOR ARCHITECTS, PROFESSIONAL ENGINEERS, LAND SURVEYORS, CERTIFIED INTERIOR DESIGNERS
AND LANDSCAPE ARCHITECTS
BUSINESS ENTITY BRANCH OFFICE REGISTRATION

PROFESSIONS: ENG

WHITMAN REQUARDT AND ASSOCIATES
3701 PENDER DRIVE
SUITE 450
FAIRFAX, VA 22030-6045

Alteration of this document, use after expiration, or use by persons or firms other than those named may result in criminal prosecution under the code of Virginia.

(See reverse side for name and/or address change)
DPOR License Lookup  License Number 0411001228

License Details

Name  WHITMAN, REQUARDT AND ASSOCIATES LLP
License Number  0411001228
License Description  Business Entity Branch Office Registration
Rank  Business Entity Branch Office
Address  100 5TH ST STE L2000, BRISTOL, TN 37620
Initial Certification Date  2015-11-06
Expiration Date  2016-02-29

Related Licenses 1

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Showing 1 to 1 of 1 entries

1 The data located on this website are not the public records of the Department of Professional and Occupational Regulation (DPOR). All public records are physically located at DPOR's Public Records Section: 9960 Mayland Drive, Suite 400, Richmond, VA 23233. While DPOR works to ensure the accuracy of the data provided online, the data available on these pages are updated routinely but may not be up to date at all times (due to document processing delays, technical maintenance, etc.).

DPOR assumes no liability for any errors, omissions, or inaccuracies in the information provided or for any reliance on data provided online. While DPOR has attempted to ensure that the data contained herein are accurate and reflect the status of its regulants, DPOR makes no warranties, expressed or implied, concerning the accuracy, completeness, reliability, or suitability of this data. If discrepancies or errors are discovered, please inform the Broker and DPOR so that appropriate action may be taken.

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DPOR assumes no liability for any errors, omissions, or inaccuracies in the information provided or for any reliance on data provided online. While DPOR has attempted to ensure that the data contained herein are accurate and reflect the status of its regultants, DPOR makes no warranties, expressed or implied, concerning the accuracy, completeness, reliability, or suitability of this data. If discrepancies or errors are discovered, please inform DPOR so that appropriate action may be taken.

DPOR License Lookup build 1,172 (built 2016-01-27 11:52:07).
CERTIFICATE OF GOOD STANDING

I Certify the Following from the Records of the Commission:

That CHESAPEAKE ELECTRICAL SYSTEMS, INC., a corporation incorporated under the law of Maryland, is authorized to transact business in the Commonwealth of Virginia;

That it obtained a certificate of authority to transact business in Virginia from the Commission on October 16, 2000; and

That the corporation is in good standing in the Commonwealth of Virginia as of the date set forth below.

Nothing more is hereby certified.

Signed and Sealed at Richmond on this Date:
January 28, 2016

Joel H. Peck, Clerk of the Commission
Alert to corporations regarding unsolicited mailings from VIRGINIA COUNCIL CORPORATIONS is available from the Bulletin Archive link of the Clerk’s Office with the following details:

**CORPORATE DATA INQUIRY**

**CORP ID:** F124990 - 5  **STATUS:** 00 ACTIVE  **STATUS DATE:** 12/03/13

**CORP NAME:** CHESAPEAKE ELECTRICAL SYSTEMS, INC.

**DATE OF CERTIFICATE:** 10/16/2000  **PERIOD OF DURATION:**  **INDUSTRY CODE:** 00

**STATE OF INCORPORATION:** MD MARYLAND  **STOCK INDICATOR:** S STOCK

**MERGER IND:**  **CONVERSION/DOMESTICATION IND:**

**GOOD STANDING IND:** Y  **MONITOR INDICATOR:**

**CHARTER FEE:** 50.00  **MON NO:**  **MON STATUS:**  **MONITOR DTE:**

**R/A NAME:** CT CORPORATION SYSTEM

**STREET:** 4701 COX ROAD, SUITE 285  **AR RTN MAIL:**

**CITY:** GLEN ALLEN  **STATE:** VA  **ZIP:** 23060-0000

**R/A STATUS:** 5  B.E. AUTH IN VI  **EFF. DATE:** 10/04/13  **LOC:** 143

**ACCEPTED AR#:** 215 13 8777  **DATE:** 09/04/15  **HENRICO COUNTY**

**CURRENT AR#:** 215 13 8777  **DATE:** 09/04/15  **STATUS:** A  **ASSESSMENT INDICATOR:** 0

**YEAR FEES PENALTY INTEREST TAXES BALANCE TOTAL SHARES**
15 100.00

1,000
BOARD FOR CONTRACTORS
CLASS A CONTRACTOR
*CLASSIFICATIONS* ELE

CHESAPEAKE ELECTRICAL SYSTEMS INC
9381 DAVIS AVE
LAUREL, MD 20723

DEPARTMENT OF PROFESSIONAL AND OCCUPATIONAL REGULATION
COMMONWEALTH OF VIRGINIA

EXPIRES ON: 05-31-2016

NUMBER: 2705603850
This is to certify that the certificate of organization of

H & B Surveying and Mapping, LLC

was this day issued and admitted to record in this office and that the said limited liability company is authorized to transact its business subject to all Virginia laws applicable to the company and its business. Effective date: April 27, 2009

State Corporation Commission
Attest:

Joel H. Rees
Clerk of the Commission
Alert to corporations regarding unsolicited mailings from VIRGINIA COUNCIL CORPORATIONS is available from the Bulletin Archive link of the Clerk’s Office with the following details:

**State Corporation Commission**

**Company Details**

- **LLC ID**: S290560
- **Status**: 00 ACTIVE
- **Status Date**: 04/27/09
- **LLC Name**: H & B Surveying and Mapping, LLC
- **Date of Filing**: 04/27/2009
- **Period of Duration**: INDUSTRY CODE: 00
- **State of Filing**: VA VIRGINIA
- **Principal Office Address**:
  - **Street**: 612 HULL STREET STE 101B
  - **City**: RICHMOND
  - **State**: VA
  - **Zip**: 23224-0000
- **Registered Agent Information**:
  - **Agent**: TIMOTHY H GUARE
  - **Street**: TIMOTHY H GUARE PLC
  - **City**: HENRICO
  - **State**: VA
  - **Zip**: 23230-0000

**Year Fees Penalty Interest Balance**

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**Note**: The above information is a snapshot of the details available on the Virginia Corporation Commission's website.
COMMONWEALTH of VIRGINIA
Department of Professional and Occupational Regulation
9960 Mayland Drive, Suite 400, Richmond, VA 23233
Telephone: (804) 367-8500

BOARD FOR ARCHITECTS, PROFESSIONAL ENGINEERS, LAND SURVEYORS, CERTIFIED INTERIOR DESIGNERS
AND LANDSCAPE ARCHITECTS
BUSINESS ENTITY REGISTRATION

PROFESSION: LS

H & B SURVEYING & MAPPING LLC
612 HULL ST
SUITE 101B
RICHMOND, VA 23224

Status can be verified at http://www.dpor.virginia.gov

(SEE REVERSE SIDE FOR PRIVILEGES AND INSTRUCTIONS)
CERTIFICATE OF GOOD STANDING

I Certify the Following from the Records of the Commission:

That FROEHLING & ROBERTSON, INCORPORATED is duly incorporated under the law of the Commonwealth of Virginia;

That the date of its incorporation is October 11, 1924;

That the period of its duration is perpetual; and

That the corporation is in existence and in good standing in the Commonwealth of Virginia as of the date set forth below.

Nothing more is hereby certified.

Signed and Sealed at Richmond on this Date: 
March 12, 2015

Joel H. Peck, Clerk of the Commission

CISECOM
Document Control Number: 1503125805
Alert to corporations regarding unsolicited mailings from VIRGINIA COUNCIL CORPORATIONS is available from the Bulletin Archive link of the Clerk’s Office with the Screen Id:/Corp_Data_Inquiry.

CORPORATE DATA INQUIRY

CORP ID: 0027211 - 2 STATUS: 00 ACTIVE STATUS DATE: 11/13/09
CORP NAME: FROEHLING & ROBERTSON, INCORPORATED

DATE OF CERTIFICATE: 10/11/1924 PERIOD OF DURATION: INDUSTRY CODE: 00
STATE OF INCORPORATION: VA VIRGINIA STOCK INDICATOR: S STOCK
MERGER IND: CONVERSION/DOMESTICATION IND:
GOOD STANDING IND: Y MONITOR INDICATOR:
CHARTER FEE: 2480.00 MON NO: MON STATUS: MONITOR DTE:
R/A NAME: WILLIAM H HOOFNAGLE III

STREET: 1900 ONE JAMES CENTER AR RTN MAIL:
901 E CARY ST
CITY: RICHMOND STATE : VA ZIP: 23219-0000
R/A STATUS: 4 ATTORNEY EFF. DATE: 09/21/11 LOC : 216
ACCEPTED AR#: 215 14 1079 DATE: 09/10/15 RICHMOND CITY
CURRENT AR#: 215 14 1079 DATE: 09/10/15 STATUS: A ASSESSMENT INDICATOR: 0
YEAR FEES PENALTY INTEREST TAXES BALANCE TOTAL SHARES
15 1,700.00 1,100,000

(Screen Id:/Corp_Data_Inquiry)
BOARD FOR ARCHITECTS, PROFESSIONAL ENGINEERS, LAND SURVEYORS, CERTIFIED INTERIOR DESIGNERS
AND LANDSCAPE ARCHITECTS
BUSINESS ENTITY BRANCH OFFICE REGISTRATION

PROFESSIONS: ENG

FROEHLING & ROBERTSON, INC
22923 QUICKSILVER DR STE 111
STERLING, VA 20166

Nick A. Christen
Interim Director
Commonwealth of Virginia

STATE CORPORATION COMMISSION

Richmond, January 29, 1997

This is to Certify that the certificate of incorporation of

ENGINEERING & MATERIALS TECHNOLOGIES, INC.

was this day issued and admitted to record in this office
and that the said corporation is authorized to transact its business
subject to all Virginia laws applicable to the corporation and its
business. Effective date:

January 29, 1997

State Corporation Commission

[Signature]

William J. Bridges
Clerk of the Commission
Alert to corporations regarding unsolicited mailings from VIRGINIA COUNCIL CORPORATIONS is available from the Bulletin Archive link of the Clerk’s Office with the following details:

**Commonwealth of Virginia**
**State Corporation Commission**

**02/04/16**
**CISM0180**
**CORPORATE DATA INQUIRY**
**18:21:16**

**CORP ID:** 0478633 - 1 | **STATUS:** 00 ACTIVE | **STATUS DATE:** 01/29/97

**CORP NAME:** ENGINEERING & MATERIALS TECHNOLOGIES, INC.

**DATE OF CERTIFICATE:** 01/29/1997 | **PERIOD OF DURATION:** | **INDUSTRY CODE:** 70

**STATE OF INCORPORATION:** VA VIRGINIA | **STOCK INDICATOR:** S STOCK

**MERGER IND:** CONVERSION/DOMESTICATION IND:

**GOOD STANDING IND:** Y | **MONITOR INDICATOR:**

**CHARTER FEE:** 50.00 | **MON NO:** | **MON STATUS:** MONITOR DTE:

**R/A NAME:** SHAHZAD S MOOSA

**STREET:** 7857 COPPERMINE DR | **AR RTN MAIL:**

**CITY:** MANASSAS | **STATE:** VA | **ZIP:** 20109-0000

**R/A STATUS:** 2 OFFICER | **EFF. DATE:** 07/20/06 | **LOC:** 176

**ACCEPTED AR#:** 216 01 5764 | **DATE:** 12/30/15 | **PRINCE WILLIAM**

**CURRENT AR#:** 216 01 5764 | **DATE:** 12/30/15 | **STATUS:** ACTIVE ASSESSMENT INDICATOR: 0

**YEAR FEES** | **PENALTY** | **INTEREST** | **TAXES** | **BALANCE** | **TOTAL** | **SHARES**
|---|---|---|---|---|---|---|
| 16 | 100.00 | | | | | 5,000

(Screen Id:/Corp_Data_Inquiry)
COMMONWEALTH of VIRGINIA
Department of Professional and Occupational Regulation
9960 Mayland Drive, Suite 400, Richmond, VA 23233
Telephone: (804) 367-8500

BOARD FOR ARCHITECTS, PROFESSIONAL ENGINEERS, LAND SURVEYORS, CERTIFIED INTERIOR DESIGNERS
AND LANDSCAPE ARCHITECTS
BUSINESS ENTITY REGISTRATION

PROFESSIONS: ENG

ENGINEERING & MATERIALS TECHNOLOGIES, INC
7857 COPPERMINE DR
MANASSAS, VA 20109

Status can be verified at http://www.dpor.virginia.gov

(SEE REVERSE SIDE FOR PRIVILEGES AND INSTRUCTIONS)

DPOR-LIC (05/2015)
(DETACH HERE)

COMMONWEALTH of VIRGINIA
Department of Professional and Occupational Regulation

BOARD FOR APELS Dichotoma
BUSINESS ENTITY REGISTRATION
NUMBER: 0407005994 EXPIRES: 12-31-2017
PROFESSIONS: ENG
ENGINEERING & MATERIALS TECHNOLOGIES, INC
7857 COPPERMINE DR
MANASSAS, VA 20109

Status can be verified at http://www.dpers.virginia.gov

DPOR-PC (05/2015)
COMMONWEALTH of VIRGINIA
Department of Professional and Occupational Regulation
9960 Mayland Drive, Suite 400, Richmond, VA 23233
Telephone: (804) 367-8500

BOARD FOR ARCHITECTS, PROFESSIONAL ENGINEERS, LAND SURVEYORS, CERTIFIED INTERIOR DESIGNERS
AND LANDSCAPE ARCHITECTS
PROFESSIONAL ENGINEER LICENSE

JOHN PATRICK MADDOX
2825 WILLBROOK DRIVE
RICHMOND, VA 23233

Status can be verified at http://www.dporvirginia.gov

(SEE REVERSE SIDE FOR PRIVILEGES AND INSTRUCTIONS)
**ATTACHMENT 3.3.1**

**KEY PERSONNEL RESUME FORM**

<table>
<thead>
<tr>
<th>Brief Resume of Key Personnel anticipated for the Project.</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Name &amp; Title:</td>
</tr>
<tr>
<td>Pete Kramer – Vice President, NOVA Region</td>
</tr>
<tr>
<td>b. Project Assignment:</td>
</tr>
<tr>
<td>Design-Build Project Manager</td>
</tr>
<tr>
<td>c. Name of Firm with which you are now associated:</td>
</tr>
<tr>
<td>Branch Highways, Inc.</td>
</tr>
<tr>
<td>d. Employment History: With this Firm 19 Years With Other Firms 15 Years</td>
</tr>
<tr>
<td>Please list chronologically (most recent first) your employment history, position, general responsibilities, and duration of employment for the last fifteen (15) years. (NOTE: If you have less than 15 years of employment history, please list the history for those years you have worked. Project specific experience shall be included in Section (g) below):</td>
</tr>
<tr>
<td><strong>Vice President</strong> Branch Highways, Inc. March 2014 – Present</td>
</tr>
<tr>
<td>Pete oversees and ensures the successful operation of all components of Branch’s business that are managed out of the Northern Virginia regional office in Manassas, including Design-Build and PPTA Project oversight, resource assignment, contract execution and monitoring, client relations, employee staffing, scheduling, production management, quality control, training, safety compliance, and project close-out. To date, Pete has played a critical role in over $200 Million of Design-Build work, the majority of which his primary role was either Design-Build Project Manager or Design-Build Construction Manager.</td>
</tr>
<tr>
<td><strong>Senior Project Manager/Area Manager</strong> Branch Highways, Inc. March 2009 – February 2014</td>
</tr>
<tr>
<td>Responsibilities included oversight of all northern Virginia projects including both public and private sectors. Clients consisted of state and local departments of transportation, federal government agencies and private corporations. Typical projects incorporated one or more of the following: interstate widening, primary and secondary road widening/relocation, and interchange work. While serving as the Area Manager for Northern Virginia, duties included field operations and production management, as well as Value-Engineering Proposal development and administration. On several Design-Build projects during this time, Pete was responsible for contract administration, owner relations, internal reporting and overall project monitoring along with oversight authority for design, utility relocation, environmental permitting, ROW procurement, and all construction activities. These efforts required interfacing directly with landowners regarding specific proffer terms and conditions, as well as acting as the point person for specific project-related property owner interactions for the Owner.</td>
</tr>
<tr>
<td><strong>Project Manager</strong> Branch Highways, Inc. January 1996 – February 2009</td>
</tr>
<tr>
<td>In this role, Pete was responsible for managing the construction process, including Quality Control (QC) and executing the work in accordance with “approved for construction” plans and specifications. He was also accountable for compliance with all material and construction requirements. Additional responsibilities included planning, scheduling, and allocation of manpower and equipment resources. Management of Owner/subcontractor/supplier contracts also fell under Pete’s direct charge. He supported EEO compliance, enforcement &amp; compliance with corporate safety regulations &amp; associated training. During this time, Pete also served as the Bridge Construction Manager concurrently with other project management duties for approximately three dozen bridge structures throughout North Carolina and Virginia. Duties included all scheduling, requests for information, and submittal preparations/monitoring, along with crew and equipment scheduling for all bridge crews, as well as overall contract management and oversight including correspondence, owner and subcontractor notifications, and compliance issues.</td>
</tr>
<tr>
<td>e. Education: Name &amp; Location of Institution(s)/Degree(s)/Year/Specialization:</td>
</tr>
<tr>
<td>Virginia Military Institute – Lexington, VA</td>
</tr>
<tr>
<td>f. Active Registration: Year First Registered/ Discipline/VA Registration #:</td>
</tr>
<tr>
<td>2009</td>
</tr>
<tr>
<td>2007</td>
</tr>
<tr>
<td>g. Document the extent and depth of your experience and qualifications relevant to the Project.</td>
</tr>
<tr>
<td>1. <strong>Note your role, responsibility, and specific job duties for each project, not those of the firm.</strong></td>
</tr>
<tr>
<td>2. <strong>Note whether experience is with current firm or with other firm.</strong></td>
</tr>
<tr>
<td>3. <strong>Provide beginning and end dates for each project; projects older than fifteen (15) years will not be considered for evaluation.</strong></td>
</tr>
<tr>
<td>(List at least three (3), but no more than five (5) relevant projects* for which you have performed a similar function.)</td>
</tr>
<tr>
<td>Segment 1 – Prince William and Stafford Counties, VA Project Role: Area Manager With Current Firm? Yes</td>
</tr>
</tbody>
</table>
**Responsibility/Specific Job Duties:** As *Area Manager*, Pete directed Branch Highways’ efforts as a key subcontractor for this project, ensuring that design, construction, quality management, contract administration, and client communications were valuable and efficient. The ~9 miles of new I-95 HOT Lanes within Branch’s scope of work adjoins the I-95 Express Lanes Southern Terminus Project. Consequently, Pete supported, directed, and provided guidance to Branch’s Project Team in order to ensure that similar Geotechnical, Safety, and Scheduling challenges as can be expected on the I-95 Express Lanes Southern Terminus Project were mitigated and/or eliminated. Other specific duties that required Pete’s focus entailed oversight of the coordination of Branch’s work with the concessionaire, contractors, sub-tier specialty contractors, and QA/QC staff to accommodate a very aggressive construction schedule combined with extensive and project-specific standards of quality and safety for this multifaceted project. His diligent communication, effective staffing, and global awareness of the project and its needs created an environment where resources were allocated as needed to maximize efficiency of operation.

**Client:** Prince William County  | **Total Cost:** $55 Million

**Relevancy:** Same I-95 Corridor Location/Traffic Volume, VDOT Design-Build/PPTA, FHWA guidelines and requirements, interstate alignment/widening, ROW acquisition, utility relocations, environmental monitoring, geotechnical challenges/mitigation, Traffic Management Plan development and execution, public involvement/communications, QA/QC coordination.

**Stafford County PPTA – Heritage Center Parkway and Garrisonville Road Improvements – Stafford County, VA**  
**Project Role:** Design-Build Project Manager  
**Dates:** February 2013 – May 2017  
**With Current Firm?** Yes

**Responsibility/Specific Job Duties:** As *Design-Build Project Manager*, Pete played an essential role in the procurement process for this PPTA one of the first for Stafford County, and remains ultimately responsible for all DBPM duties on this project including, overall design, construction, quality management, contract administration, procurement, ROW acquisition, development of Traffic Management Plans, environmental permitting and monitoring, and communication/coordination with the Owner and the affected public. These two projects have the same critical factors have been faced: multiple challenging soils conditions that require various methods of mitigation, effective Maintenance of Traffic, particularly on the Heritage Parkway portion at the tie-in with Route 1, and expedited schedule. Pete’s leadership abilities and extensive knowledge and experience in Design-Build work is evidenced by the ongoing success of this project.  
**Client:** Stafford County  | **Total Cost:** $20 Million

**Relevancy:** Design-Build, roadway alignment/widening, ROW acquisition, extensive utility relocations, environmental permitting and monitoring, geotechnical challenges, Traffic Management Plan development and execution, public involvement/communications, QA/QC coordination.

**Design-Build Route 15 James Madison Highway**  
**Haymarket, VA**  
**Project Role:** Design-Build Project Manager  
**Dates:** February 2007 – December 2009  
**With Current Firm?** Yes

**Responsibility/Specific Job Duties:** As *Design-Build Project Manager* Pete directed Branch’s project team for this 22 lane miles project, including a Construction Manager, 3 area superintendents, project engineers and staff. In addition to managing actual construction activities onsite, Pete’s duties included constructability reviews during the design phases for the 5 distinct and separate roadway segments adjacent to the I-66/US-15 Interchange, including 5 bridge structures, which comprised this project. He also led the development and enforcement of Quality Control Program prior to and during construction, much as he will do for the I-95 Express Lanes Southern Terminus Project. Coordinating with DEQ and USACE, Pete played a crucial role in developing Construction Sequencing Plans that allowed for early starts to construction activities in each segment of the project. These plans included Maintenance of Traffic coordination with VDOT and Prince William County. Another similar and significant feature of this project to the I-95 Express Lanes Southern Terminus Project involves Geotechnical challenges and associated remedies. There were intermittent segments of highly plastic, light, and/or saturated soils and rock in all 5 segments and each required a unique approach for mitigation. These approaches included removal and replacement, mechanical manipulation, and chemical stabilization. Pete’s duties also required him to meet with local businesses, communities, and developers through public outreach and simple face-to-face communications to address concerns and create a team atmosphere with shareholders.

**Client:** Prince William County  | **Total Cost:** $55 Million

**Relevancy:** Design-Build, roadway alignment/widening, ROW acquisition, utility relocations, environmental permitting and monitoring, geotechnical challenges, Traffic Management Plan development and execution, public involvement/communications, QA/QC coordination.

*On-call contracts with multiple task orders (on multiple projects) may not be listed as a single project.*

**Key Personnel Required to be on-site full-time for the duration of construction, provide a current list of assignments, role, and the anticipated duration of each assignment.**  
**N/A**
**ATTACHMENT 3.3.1**

**KEY PERSONNEL RESUME FORM**

<table>
<thead>
<tr>
<th>Brief Resume of Key Personnel anticipated for the Project.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>a.</strong> Name &amp; Title:</td>
</tr>
<tr>
<td>Leonard Coleman, PE, CCM, LEED AP – Senior Construction Manager</td>
</tr>
<tr>
<td><strong>b.</strong> Project Assignment:</td>
</tr>
<tr>
<td>Quality Assurance Manager</td>
</tr>
<tr>
<td><strong>c.</strong> Name of Firm with which you are now associated:</td>
</tr>
<tr>
<td>Whitman, Requardt &amp; Associates, LLP</td>
</tr>
<tr>
<td><strong>d.</strong> Employment History:</td>
</tr>
<tr>
<td>With This Firm: 1 Years With Other Firms: 10 Years</td>
</tr>
<tr>
<td>Please list chronologically (most recent first) your employment history, position, general responsibilities, and duration of employment for the last fifteen (15) years. (NOTE: If you have less than 15 years of employment history, please list the history for those years you have worked. Project specific experience shall be included in Section (g) below):</td>
</tr>
<tr>
<td>Mr. Coleman has over 11 years of progressive experience in construction management and project management of major infrastructure projects in Virginia, managing the quality program for teams of Quality Assurance and Quality Control inspectors on roadway, bridge and utility, including federally and state funded VDOT and locally administered Design-Build and Design-Bid-Build projects, ensuring compliance with plans and specifications.</td>
</tr>
</tbody>
</table>
| **Senior Construction Manager** Whitman, Requardt & Associates, LLP October 2014 – Present
| Manages Quality Assurance and Quality Control staff, leading quality management teams on Design-Build and Design-Bid-Build projects implementing QA plans. Serves as Quality Control Manager on over $40 million worth of VDOT Design-Build projects, and manages QA inspection staff on over $80M worth of construction and maintenance. |
| **Construction Manager** Prince William County DOT March 2012 – October 2014
| Served as County’s Project Construction Manager for the Capital Improvement Division on two PPTA projects valued at over $90 million and two design-bid build projects valued at over $75M. In an Independent Assurance role, oversaw QA staff and the quality program, and ensured testing and inspection frequencies in accordance with QA/QC Plan. |
| **Lead Engineer** McDonough Bolyard Peck, Inc. January 2006 – March 2012
| Assistant Quality Assurance Manager on $150M VDOT Design-Build project, assisting in developing and implementing the quality management program, including overseeing QA staff and testing and inspection frequencies. Also served as Project Controls Engineer on multiple projects, including constructability review, cost estimating, CPM schedule review, claim analysis, material testing review and overseeing project record keeping systems. |
| **Engineer-in-Training** The Engineering Groupe May 2005 – August 2005
| **e.** Education: Name & Location of Institution(s)/Degree(s)/Year/Specialization: |
| George Mason University – Fairfax County, Virginia | B.S. | 2009 | Civil Engineering |
| **f.** Active Registration: Year First Registered/ Discipline/VA Registration #: |
| 2013 | Professional Engineer | VA Registration #0402051494; Certified Construction Manager (#3392); LEED AP; VDOT Certifications: Int. WZ Traffic Control w/ LEO (6/2017), Soil/Aggr. Field Compaction (12/2018), Asphalt Field Level I & II (12/2018), Hyd. Cement Concrete Field (12/2017), Pavement Marking (12/2018), GRIT Inspector (4/2016), Slurry Seal (12/2018), Surface Treatment (12/2018); ACI Grade I Testing Tech (8/2017); DEQ E&SC Inspector (5/2016); Nuclear Gauge Safety Training; OSHA 10-Hour Safety; NASSCO PACP (12/2017) |
| **g.** Document the extent and depth of your experience and qualifications relevant to the Project. |
| 1. Note your role, responsibility, and specific job duties for each project, not those of the firm. |
| 2. Note whether experience is with current firm or with other firm. |
| 3. Provide beginning and end dates for each project; projects older than fifteen (15) years will not be considered for evaluation. |
| (List at least three (3), but no more than five (5) relevant projects* for which you have performed a similar function.) |
| **Fairfax County Parkway Interchange and Widening** Design-Build – Fairfax County, VA Dates: August 2009 – March 2012
| **Project Role:** Assistant Quality Assurance Manager |
| **Responsibility/Specific Job Duties:** Assistant Quality Assurance Manager providing Quality Assurance oversight on an Eastern Federal Lands (EFLHLD) Design-Build project to VDOT standards for 2 miles of new roadway, including six new bridges, widening of an existing bridge and three limited access interchanges. The project also included the construction of gravity retaining walls, overhead sign structures, roadway lighting, soundwalls, stormwater management facilities, pedestrian facilities, major excavation and filling of embankment, subgrade stabilization, in-plan utility relocations, rock blasting, and earthwork for the future Saratoga Park and Ride Lot. Responsibilities included assisting the Quality Assurance Manager oversee the quality assurance and quality control program for the project by ensuring that all work and materials, testing, and sampling were performed in conformance with the contract requirements, the | **With Current Firm?** No |
Responsibility/Specific Job Duties: *Quality Control Manager* on this VDOT Design-Build project to widen Fall Hill Avenue and extend Mary Washington Blvd. Includes a 5-span bridge over I-95, bridge support of excavation, MSE walls, soil nail walls, stream diversions, soundwalls, a precast double cell box culvert, earthwork, shared use path, sidewalk, storm drainage and a multi-phase MOT plan. Responsibilities included coordinating with Design-Build Manager and Quality Assurance Manager to ensure Quality Control services are in compliance with the approved QA/QC Plan, coordinating all inspections and testing to frequencies required by the Plan, managing and assigning QC inspection staff and the QC laboratory, facilitating meetings, review and acceptance of material testing reports, and reviewing field issues and recommending solutions. He is also responsible for revising and updating the QA/QC Manual for the project, overseeing the compliance of the VDOT Materials Book, maintaining an electronic project documentation system, reviewing and approving contractor material submittals, reviewing work for compliance with plans and specifications, and VDOT coordination. **Client:** VDOT | **Total Cost:** $31 million

**Relevancy:** VDOT Design-Build, large project with traffic control on I-95. Quality Management duties, implementing QA/QC Plan, Non-compliance reports and resolving quality issues, managing staff; coordination with Design-Builder, Quality Team and VDOT; Materials Book certification and oversight. Similar project features include sound walls, geology in the project area, roadway alignment/widening, new connector road, utility relocations, environmental, geotechnical, hydraulics, traffic control devices, TMP, public involvement/communications, QA/QC.

**Walney Road Widening Design-Build – Fairfax County, VA**

**Dates:** December 2014 – February 2016

**Project Role:** Quality Control Manager  
**With Current Firm?** Yes

Responsibility/Specific Job Duties: *Quality Control Manager* for this VDOT Design-Build project to widen Walney Road from Westfield Blvd to Willard Road, including the replacement of a bridge over Flatlick Branch, construction of a shared use path, sidewalk, utility relocation, grading, asphalt paving and modification of two signalized intersections. Mr. Coleman’s responsibilities included overseeing QC inspection services and staff, ensuring inspections, sampling, and testing of all work and materials are performed in accordance with the contract requirements and the QA/QC Plan. He coordinated with the design teams to resolve plan discrepancies and recommend solutions. Attended progress meetings, maintained project documentation, coordinated Punchlist inspections, and coordinated with the Quality Assurance team to document and resolve non-compliant work. **Client:** VDOT | **Construction Cost:** $12.2 million

**Relevancy:** VDOT Design-Build project, Quality Management duties, implementing QA/QC Plan, resolving Non-compliance reports, managing staff; coordination with Design-Builder, the Quality Team and VDOT; Materials Book certification and oversight. Critical utility relocations, multiple stakeholders, environmentally sensitive areas.

**Route 1 North Improvements PPTA – Prince William County, VA**

**Dates:** August 2013 – October 2014

**Project Role:** Construction Manager  
**With Current Firm?** No

Responsibility/Specific Job Duties: *Construction Manager* for Prince William County on a 2-mile long road widening project to expand the existing four-lane roadway to a six-lane divided roadway. Construction included retaining walls, embankment widening, paving, subsurface slope stabilization, major in plan and out of plan utility relocations, six traffic signal modifications, multiple traffic shifts, major drainage improvements, a quadruple box culvert, environmental impact mitigation and a shared use path. Responsibilities included overseeing the Design-Builder’s quality assurance program for compliance with testing and inspection requirements, ensuring the County’s compliance with VDOT’s LAP program and coordinating County/IA inspection staff. Facilitated project meetings, cost and budget controls and progress reporting, pay application approval, material price adjustments, change order analysis and negotiation, utility company coordination and relocation, serving as point of contact for the community, right-of-way acquisition assistance, and contractor submittal review and approval. He coordinated construction and shop drawing plan review and approvals with VDOT and other state/local agencies, coordinated with adjoining construction projects, ensured project environmental compliance, managed staff, reviewed and approved the CPM Schedule, and coordinated directly with VDOT TOC for major traffic control operations. **Client:** Prince William County, Virginia | **Total Cost:** $58 million

**Relevancy:** Major Design-Build project built to VDOT standards, Quality Management program oversight; coordination with Design-Builder, the Quality Team, and VDOT; manage staff, ensure resolution to quality issues.

* On-call contracts with multiple task orders (on multiple projects) may not be listed as a single project.

h. For Key Personnel required to be on-site full-time for the duration of construction, provide a current list of assignments, role, and the anticipated duration of each assignment. N/A
## Brief Resume of Key Personnel anticipated for the Project.

<table>
<thead>
<tr>
<th>a. Name &amp; Title:</th>
<th>John Maddox, P.E. – Senior Vice President</th>
</tr>
</thead>
<tbody>
<tr>
<td>b. Project Assignment:</td>
<td>Design Manager</td>
</tr>
<tr>
<td>c. Name of Firm with which you are now associated:</td>
<td>Whitman, Requardt &amp; Associates, LLP</td>
</tr>
<tr>
<td>d. Employment History:</td>
<td>With this Firm: 20 Years With Other Firms 10 Years</td>
</tr>
<tr>
<td></td>
<td>Please list chronologically (most recent first) your employment history, position, general responsibilities, and duration of employment for the last fifteen (15) years. (NOTE: If you have less than 15 years of employment history, please list the history for those years you have worked. Project specific experience shall be included in Section (g) below):</td>
</tr>
<tr>
<td>Senior Vice President/Design Manager</td>
<td>Whitman, Requardt &amp; Associates, LLP</td>
</tr>
<tr>
<td></td>
<td>June 1995 – Present</td>
</tr>
<tr>
<td>John has served as a Project Manager for major VDOT design projects continuously since August 1997 and recently as the Design Manager on two VDOT Design-Build projects, including the Fall Hill Avenue Design-Build project in the VDOT Fredericksburg District. He routinely manages the design of major transportation interchange projects ranging in construction value from $30 million to $100 million, including interstate widening and other capacity improvement projects on heavily traveled Virginia highways. He specializes in the design of complex projects requiring a multi-discipline design team. As Design Manager, John is responsible for the complete design efforts, including interchange, roadway, bridge, retaining walls, H&amp;H, traffic engineering, utility relocation, environmental compliance, ROW coordination and QA.</td>
<td></td>
</tr>
<tr>
<td>e. Education: Name &amp; Location of Institution(s)/Degree(s)/Year/Specialization:</td>
<td>West Virginia Institute of Technology (is now a division of West Virginia University) – Montgomery, West Virginia</td>
</tr>
<tr>
<td>f. Active Registration: Year First Registered/ Disciplines/VA Registration #:</td>
<td>1996</td>
</tr>
<tr>
<td>g. Document the extent and depth of your experience and qualifications relevant to the Project.</td>
<td></td>
</tr>
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<td>1. Note your role, responsibility, and specific job duties for each project, not those of the firm.</td>
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<td>2. Note whether experience is with current firm or with other firm.</td>
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<tr>
<td>3. Provide beginning and end dates for each project; projects older than fifteen (15) years will not be considered for evaluation.</td>
<td></td>
</tr>
<tr>
<td>(List at least three (3), but no more than five (5) relevant projects* for which you have performed a similar function.)</td>
<td></td>
</tr>
<tr>
<td>Fairfax County Parkway Interchange at Fair Lakes Parkway</td>
<td>Dates: October 2001 – October 2013</td>
</tr>
<tr>
<td>Fairfax County, VA</td>
<td>Project Role: Design Manager</td>
</tr>
<tr>
<td>With Current Firm? Yes</td>
<td></td>
</tr>
<tr>
<td>Responsibility/Specific Job Duties: As Design Manager, John was responsible for the design, which widened Fairfax County Parkway (FCP) from four to six lanes for 2.3 miles, and provided an innovative split diamond interchange at Fair Lakes Parkway and Monument Drive. The interchange included two new bridges and over 43,000 SF of retaining walls. There were also minor modifications to the interchanges at I-66 and Route 50. John oversaw and coordinated all design elements, including interchange roadway, hydraulic, river mechanics, SWM, structural, utility relocation, ITS, traffic engineering, environmental permits, traffic forecast and analysis, public involvement, geotechnical engineering for retaining walls and bridge foundations, and Quality Assurance. He provided a leadership role in stakeholder outreach to the Homeowners’ Associations, Fair Lakes League and the Fairfax County Park Authority to minimize ROW impacts. Extensive coordination with FHWA for the traffic forecasting and analysis due to the potential for operational impacts to the I-66 interchange. During construction, John attended progress and partnering meetings with the construction team, shop drawing review and technical support. Client: VDOT</td>
<td>Construction Cost: $44 Million</td>
</tr>
<tr>
<td>Relevancy: Design of freeway improvements on a heavily traveled corridor in Northern Virginia allowing traffic operations to be maintained during all construction phases, developed a complex TMP, designed roadway and over 70,000 SF of sound barriers along the 2.3-mile corridor, roadway widening, ROW, utility design, permit sketch, geotechnical, hydraulics, traffic control devices, TMP, public involvement/communications, QA/QC, and construction engineering.</td>
<td></td>
</tr>
<tr>
<td>I-81 Widening and Bridge Replacements over Buffalo Creek</td>
<td>Dates: August 1999 – December 2007</td>
</tr>
<tr>
<td>and Maury River – Rockbridge County, VA</td>
<td>Project Role: Design Manager</td>
</tr>
<tr>
<td>With Current Firm? Yes</td>
<td></td>
</tr>
</tbody>
</table>
Responsibility/Specific Job Duties: Mr. Maddox was the Design Manager responsible for the design of both projects under a single design contract. The project construction included widening 2 miles of I-81 from four to six lanes. The project included the replacement of the I-81 Bridge over Buffalo Creek with an approximate length of 600 feet and the bridge over Maury River with an approximate length of 800 feet. The design included a complex maintenance of traffic plan to maintain two lanes of traffic in each direction during all phases of construction. Mr. Maddox provided oversight and coordination for all elements of the design, including roadway, hydraulic, SWM, structural, geotechnical, environmental permits, public involvement, and Quality Assurance. Duties included coordination of the design with FHWA and VDOT staff. During construction provided shop drawing reviews and coordinated with the Construction Team. The projects received the 2008 ACEC Grand Award and the Buffalo Creek was awarded the “VDOT Virginia Statewide Construction Quality Award” and NPHQ Award “Breaking the Mold”.

Client: VDOT | Construction Cost: $45 million

Relevancy: The I-81 widening added one additional lane primarily in the median in each direction and total replacement of the existing pavement required a complex maintenance of traffic plan that carefully evaluated access points to the work zone. Similar elements of design include; roadway alignment/widening, ROW, survey, permit sketches, geotechnical, hydraulics, traffic control devices, TMP, public involvement/communications, QA/QC, construction and engineering.

Design-Build Fall Hill Avenue Widening and Route 123 Interchange at Route 1

Mary Washington Boulevard Extension – Fredericksburg, VA

Dates: March 2014 – January 2017

Prince William County, VA

Dates: Dec. 2007 – Construction Plans: Phase I – Sept. 2015; Phase II: June 2018

Responsibility/Specific Job Duties: As Design Manager, John is responsible for WRA’s design and construction inspection roles for this widening and reconstruction project of 2.2 miles of Fall Hill Avenue (FHA) and Mary Washington Blvd. (MWB), including a roundabout at the intersection with FHA and MWB. There is a five span, 419-foot long bridge over I-95 and future CD lanes. The proposed roadway is a four-lane divided curb and gutter section with a sidewalk on the south side and a shared-use path on the north side. The project has significant 4(f) coordination requirements and includes relocating/reconstructing Snowden Park with baseball fields and basketball courts. John is overseeing design elements, including roadway, hydraulic, SWM, bridge, retaining walls, sound barriers, utility relocation and coordination, traffic engineering, lighting, environmental coordination of permits, public involvement, ROW acquisition, park design, quality assurance and coordination during construction. Design is completed on this Design-Build project.

Client: VDOT | Total Cost: $30.8 million

Relevancy: VDOT Design-Build, design of 3 sound barriers, maintenance of traffic on I-95, geology in the project area is similar to the I-95 Express Lane Extension requiring the evaluation of retaining walls and slopes in Potomac clays, roadway alignment/widening, utility relocations, survey, environmental, geotechnical, hydraulics, traffic control devices, TMP, public involvement/communications, QA/QC, construction engineering and inspection.

Route 123 Interchange at Route 1

Dates: March 2014 – January 2017

Prince William County, VA

Dates: Dec. 2007 – Construction Plans: Phase I – Sept. 2015; Phase II: June 2018

Responsibility/Specific Job Duties: As Design Manager, John is responsible for the design of this tight urban interchange project at Route 123 and Route 1 and the widening from four to six lanes for 1.7 miles of Route 1 and Route 123 with sidewalks and shared-use path. The project requires three new bridges; Route 123 over Route 1, Route 123/Belmont Bay Drive over CSXT, and Route 1 over Marumsco Creek. The geotechnical analysis and design required careful consideration of the settled MSE approaches to the bridges over Route 1 and CSXT tracks. The extensive improvements along the Route 1 corridor carefully considered access management for numerous commercial entrances in the vicinity of proposed signalized intersections. John oversees and coordinates all design elements, including surveys, interchange, roadway, hydraulics, river mechanics, SWM, structural, sound barriers, geotechnical, traffic engineering, utility design/coordination, ITS, TMP, traffic forecasting/analysis, permitting, public involvement and Quality Assurance. Client: VDOT | Construction Cost: $83 Million (Utility Undergrounding, Phase I Widening & Phase II Interchange)

Relevancy: Geotechnical analysis carefully considered the poor soils (Potomac Clays) along the project, roadway alignment/widening, ROW, utility undergrounding/relocations, survey, permit sketches, hydraulics, traffic control devices, TMP, public involvement/communications, QA/QC, construction & engineering.

* On-call contracts with multiple task orders (on multiple projects) may not be listed as a single project.

For Key Personnel required to be on-site full-time for the duration of construction, provide a current list of assignments, role, and the anticipated duration of each assignment. N/A
ATTACHMENT 3.3.1

KEY PERSONNEL RESUME FORM

<table>
<thead>
<tr>
<th>Brief Resume of Key Personnel anticipated for the Project.</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Name &amp; Title:</td>
<td>Steve Morris – Construction Manager</td>
</tr>
<tr>
<td>b. Project Assignment:</td>
<td>Construction Manager</td>
</tr>
<tr>
<td>c. Name of Firm with which you are now associated:</td>
<td>Branch Highways, Inc.</td>
</tr>
<tr>
<td>d. Employment History: With this Firm 15 Years With Other Firms 22 Years Please list chronologically (most recent first) your employment history, position, general responsibilities, and duration of employment for the last fifteen (15) years. (NOTE: If you have less than 15 years of employment history, please list the history for those years you have worked. Project specific experience shall be included in Section (g) below):</td>
<td></td>
</tr>
<tr>
<td>Construction Manager</td>
<td>Branch Highways, Inc.</td>
</tr>
<tr>
<td>Steve supervises trade and project superintendents to ensure that manpower, equipment, and subcontracted needs are being met and shared amongst multiple operations as needed so that schedules for projects are being met and the overall flow of the project is consistent. As part of that, he is responsible for communicating with his superintendents and foremen to assess operational labor and equipment needs, and ensuring that those resources are utilized effectively and efficiently. He promotes field employee development in all levels, and ensures that all work performed meets the highest of safety, quality, and environmental standards. Steve has a thorough understanding of project contracts, design plans/means and methods, company resources and assets, schedule, and budget. Steve will also lead the process of identification, communication, and implementation of best practices to ensure that all operations on the project are able to perform efficiently and safely, and that the order in which operations move through any specific area complement one another.</td>
<td></td>
</tr>
<tr>
<td>Superintendent</td>
<td>Branch Highways, Inc.</td>
</tr>
<tr>
<td>As a project-level superintendent, Steve was jointly responsible with the Project Manager for project success. He was responsible for developing and executing operational schedules that fulfill overall schedule requirements, controlling costs and maximizing production of all operations, as well as managing manpower, equipment, Quality Control, and environmental quality on assigned projects. Steve provided hands-on field supervision of construction operations, including subcontractors and other construction-related personnel by directing them in the planning, scheduling, execution of work on time, within budget, and with high standards of workmanship. Steve understands the necessity of and facilitates workplace safety while meeting or exceeding owner’s expectations.</td>
<td></td>
</tr>
<tr>
<td>Steve was responsible for supervision of all construction activities onsite, manpower, equipment, materials, and QC management as a superintendent at Angler. He was responsible for long-and short-term planning and scheduling of projects to ensure timely delivery of critical milestones.</td>
<td></td>
</tr>
<tr>
<td>Superintendent</td>
<td>Ryan Incorporated Eastern</td>
</tr>
<tr>
<td>Steve was responsible for supervision of all construction activities onsite, manpower, equipment, materials, and QC management as a superintendent at Ryan. He was responsible for long-and short-term planning and scheduling of projects to ensure timely delivery of critical milestones.</td>
<td></td>
</tr>
<tr>
<td>e. Education: Name &amp; Location of Institution(s)/Degree(s)/Year/Specialization:</td>
<td>North Harford High School – Pylesville, MD</td>
</tr>
<tr>
<td>f. Active Registration: Year First Registered/ Discipline/VA Registration #:</td>
<td></td>
</tr>
<tr>
<td>11/2008</td>
<td>VDOT Erosion Sediment Control Contractor Certification (ESCCC)</td>
</tr>
<tr>
<td>01/2016</td>
<td>Virginia Responsible Land Disturber</td>
</tr>
<tr>
<td>11/2008</td>
<td>VDOT Intermediate Work Zone Traffic Control</td>
</tr>
<tr>
<td>01/2011</td>
<td>OSHA 30-Hour</td>
</tr>
<tr>
<td>02/2009</td>
<td>MSHA General Mineral Miner</td>
</tr>
<tr>
<td>1981</td>
<td>First Aid/CPR</td>
</tr>
<tr>
<td>03/2013</td>
<td>ACI Concrete Field Testing Certification</td>
</tr>
<tr>
<td>2009</td>
<td>Competent Person – Excavation</td>
</tr>
<tr>
<td>g. Document the extent and depth of your experience and qualifications relevant to the Project.</td>
<td></td>
</tr>
<tr>
<td>1. Note your role, responsibility, and specific job duties for each project, not those of the firm.</td>
<td></td>
</tr>
<tr>
<td>2. Note whether experience is with current firm or with other firm.</td>
<td></td>
</tr>
<tr>
<td>3. Provide beginning and end dates for each project; projects older than fifteen (15) years will not be considered for evaluation.</td>
<td></td>
</tr>
<tr>
<td>(List at least three (3), but no more than five (5) relevant projects* for which you have performed a similar function.)</td>
<td></td>
</tr>
</tbody>
</table>
### Design-Build/PPTA I-95 HOT/HOV Express Lanes

**Segment 1 – Prince William and Stafford Counties, VA**  
**Dates:** August 2011 – May 2015  
**Project Role:** Construction Manager  
**With Current Firm?** Yes

**Responsibility/Specific Job Duties:** Branch Highways was a key subcontractor for this project consisting of constructing 9 miles of new I-95 HOT Lanes in one of the most congested regional corridors in the US, from Dumfries to Stafford, at the current terminus of the Express Lanes. As Construction Manager, Steve managed and/or coordinated all construction for the entire length of Branch’s portion of the project. Major items of work in this corridor were clearing, erosion and sediment control in highly sensitive areas, earthwork, extensive drainage improvements, MSE & soundwall construction, 2 new flyover bridges with interchange improvements, three sets of merge lanes with widened shoulders to provide ingress and egress to the newly constructed HOT/Express lanes, and installation of ITS & electrical devices. Steve was also responsible for initiating several Field Change Orders (FCO), which helped to mitigate issues arising from unforeseen field conditions and coordination of different sets of drawings. These FCO’s improved coordination among all contractors onsite, resulting in an overall smoother project flow.

**Client:** Prince William County | Total Cost: $55 Million

**Relevancy:** VDOT Design-Build, Express Lane construction, roadway alignment/widening, ROW acquisition, utility relocations, survey, environmental, geotechnical, hydraulics, traffic control devices, TMP, public involvement/communications, QA/QC, construction engineering & inspection.

### Design-Build Route 15 James Madison Highway

**Haymarket, VA**  
**Dates:** February 2007 – December 2009  
**Project Role:** Construction Superintendent  
**With Current Firm?** Yes

**Responsibility/Specific Job Duties:** Steve served as Construction Superintendent for this Design-Build/PPTA project for Prince William County that consisted of the widening of 22 lane miles of Route 15 from a two-lane roadway to a four-lane median divided facility along with improvements to adjacent secondary roadways. MOT during construction was a major component as this portion of Route 15 provides access to several large developments in the area and a multi-purpose recreational facility. There were three bridge structures spanning environmentally-sensitive areas, including live streams. Utility relocations included water and sanitary sewer public utilities and the electric, telephone, cable, fiber optic, and communication utilities servicing the area. There were five separate phases/roadways, which were delivered within a 3-year timeframe. Steve managed all construction, including QC activities to ensure materials used and work performed met the contract requirements, managed relationships and continuously coordinated with stakeholders that included two major developers, Prince William County Supervisors, local businesses, and VDOT, during construction.

**Client:** Prince William County | Total Cost: $55 Million

**Relevancy:** VDOT Design-Build, Express Lane construction, roadway alignment/widening, ROW acquisition, utility relocations, survey, environmental, geotechnical, hydraulics, traffic control devices, TMP, public involvement/communications, QA/QC, construction engineering & inspection.

### Lorton Road Improvements

**Fairfax County, VA**  
**Dates:** May 2014 – August 2016 (projected)  
**Project Role:** Construction Superintendent  
**With Current Firm?** Yes

**Responsibility/Specific Job Duties:** Steve serves as the Construction Manager for this project that consists of widening/new construction of approx. 3 miles of existing Lorton Road & Furnace Road from 2 lanes to 4 lanes between Ox Road & Silverbrook Road in Lorton, VA. Steve’s responsibilities on this project include sequencing and management of all activities on-site, ensuring Quality Control requirements are fulfilled, and communication/coordination with the client. Scope of work includes over 400,000 CY of onsite and borrow excavation, 15,000 LF of storm sewer, 8,000 LF of sanitary sewer and force main, 9,000 LF of large (>30”) and 3,500 LF of small (8-12”) water main, three retaining walls, two vehicular crossings over existing waterways, a precast pedestrian arch, and extensive Low Impact Development structure work. Working with Fairfax County, Steve and his project team have thus far been able to improve constructability and lessen impact on existing traffic flow by re-sequencing the project from its depiction on the plans. To date, multiple unforeseen site conditions and delays caused by others have impacted the critical path throughout this project; however, Steve’s team has identified as many potential issues as possible ahead of these delays, and has successfully managed these challenges to minimize impact on projected completion date.

**Client:** Fairfax County | Total Cost: $29 Million

**Relevancy:** Roadway alignment/widening, new connector road, ROW acquisition, utility relocation coordination, survey, environmental, geotechnical, and hydraulics analyses, TMP, public involvement/communications, QA/QC, construction engineering & inspection.

* On-call contracts with multiple task orders (on multiple projects) may not be listed as a single project.

**Current Project Assignment:** Lorton Road Improvements, Fairfax County, VA  
**Current Project Role:** Construction Manager

**Anticipated Duration of Current Role:** Summer 2016
**ATTACHMENT 3.3.1**

**KEY PERSONNEL RESUME FORM**

<table>
<thead>
<tr>
<th>Brief Resume of Key Personnel anticipated for the Project.</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Name &amp; Title:</td>
</tr>
<tr>
<td>b. Project Assignment:</td>
</tr>
<tr>
<td>c. Name of Firm with which you are now associated:</td>
</tr>
</tbody>
</table>

d. Employment History: With this Firm 4 Years With Other Firms 14 Years

Please list chronologically (most recent first) your employment history, position, general responsibilities, and duration of employment for the last fifteen (15) years. (NOTE: If you have less than 15 years of employment history, please list the history for those years you have worked. Project specific experience shall be included in Section (g) below):

<table>
<thead>
<tr>
<th>Project Manager</th>
<th>Chesapeake Electrical Systems</th>
<th>January 2012 – Present</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kevin is responsible for management of multiple ongoing multimillion-dollar projects for well-known clientele such as Transurban, VDOT, and local airport authorities. As Project Manager, Kevin oversees superintendents on projects to ensure that proper planning and foresight are being applied that will result in a successful project for both the company and the client during design and construction. Typical duties include assignment and distribution of manpower resources, promoting a safe and productive work environment, ensuring quality standards are upheld, management of financial tracking and reporting, and contract and subcontract management.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>In this role Kevin was responsible for materials management and procurement, review of drawings for potential conflicts, submitting RFIs, and fulfilling manpower needs on ITS/Tolling projects. He was also responsible for the installation and coordination of complex ITS, electrical, and security/communications systems on several major HOT/Express Lanes projects in the region.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>In this role Kevin was responsible for materials management and procurement, review of drawings for potential conflicts, submitting RFIs, and fulfilling manpower needs on the projects to which he was assigned. He was also responsible for the installation and coordination of complex ITS, electrical, and security/communications systems on several major projects similar to those that will be involved with the I-95 Express Lanes Southern Terminus Extension.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

e. Education:

<table>
<thead>
<tr>
<th>Name &amp; Location of Institution(s)/Degree(s)/Year/Specialization:</th>
</tr>
</thead>
<tbody>
<tr>
<td>NECA Project Management for Electrical Contractors</td>
</tr>
<tr>
<td>NECA Electrical Project Supervision Levels I, II, &amp; III</td>
</tr>
<tr>
<td>International Brotherhood of Electrical Workers</td>
</tr>
<tr>
<td>NEC Code; Associated Builders and Contractors Electrical Trade School</td>
</tr>
<tr>
<td>University of Maryland, College Park, MD</td>
</tr>
<tr>
<td>School of Engineering</td>
</tr>
</tbody>
</table>

f. Active Registration: Year First Registered/ Discipline/VA Registration #:

<table>
<thead>
<tr>
<th>Date</th>
<th>Certification</th>
<th>Registration #</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003</td>
<td>OSHA 30-Hour Certification</td>
<td>600037504</td>
</tr>
<tr>
<td>2013</td>
<td>IMSA Fiber Level II</td>
<td># FP_104764</td>
</tr>
<tr>
<td>2012</td>
<td>IMSA Fiber Level I</td>
<td># FO_104764</td>
</tr>
<tr>
<td>2012</td>
<td>VDOT Intermediate Traffic Control Technician</td>
<td># 120812027</td>
</tr>
<tr>
<td>2012</td>
<td>First Aid &amp; CPR Certification</td>
<td>995001</td>
</tr>
<tr>
<td>2011</td>
<td>USCOE Construction Quality Management for Contractors</td>
<td>2011</td>
</tr>
<tr>
<td>2010</td>
<td>NECA Comprehensive Aerial &amp; Scissor Lift Training Program</td>
<td>2010</td>
</tr>
<tr>
<td>2010</td>
<td>OSHA Lockout/Tagout</td>
<td>2010</td>
</tr>
<tr>
<td>2010</td>
<td>OSHA Worker Fall Prevention</td>
<td></td>
</tr>
</tbody>
</table>

g. Document the extent and depth of your experience and qualifications relevant to the Project.

1. *Note your role, responsibility, and specific job duties for each project, not those of the firm.*
2. *Note whether experience is with current firm or with other firm.*
3. *Provide beginning and end dates for each project; projects older than fifteen (15) years will not be considered for evaluation.*

(List at least three (3), but no more than five (5) relevant projects* for which you have performed a similar function.)

<table>
<thead>
<tr>
<th>Design-Build/PPTA I-95 Capital Beltway Express Lanes</th>
<th>Dates: June 2009 – June 2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fairfax County, VA</td>
<td>Project Role: Project Manager</td>
</tr>
<tr>
<td>With Current Firm? Yes</td>
<td></td>
</tr>
<tr>
<td>Responsibility/Specific Job Duties: Kevin combined his strong knowledge of code with his ability to lead, plan, clearly communicate and follow up in the execution of the work on this complex ITS/Tolling project. His supervision and control of the work resulted in the <em>early installation and turnover</em> of over 180 Roadside Equipment Cabinets, 80 Electronic messaging signs, 100 PTZ cameras, 97 Microwave detectors, 59 electrical services, 10 Tech shelters including 9 generators with UPS systems and 56 reversible HOV Gates, over 600 light poles, 113 miles of new electrical conduit</td>
<td></td>
</tr>
</tbody>
</table>
systems, and over 216 miles of electrical, fiber optic, and communication cables throughout the construction of this 14-mile project – all in the midst of the building/re-routing of over fifty bridges and overpasses on the project. Kevin’s specific responsibilities included providing design input, planning, directing, coordinating, and executing the ITS and electrical work for the project. **Client: Fluor-Lane, LLC | Construction Cost: $42 Million**

**Relevancy:** The ITS/Electrical work and infrastructure components for the I-495 Capital Beltway Express Lanes is the same as what will be required for the I-95 Express Lanes Southern Terminus Extension project including installation of power, fiber optic, communication cables, generators, and all associated tolling equipment.

<table>
<thead>
<tr>
<th>Project Role</th>
<th>Project Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prince William and Stafford Counties, VA</td>
<td>With Current Firm? Yes</td>
</tr>
<tr>
<td>Responsibility/Specific Job Duties:</td>
<td>Kevin was responsible for allocation and assignment of over sixty (60) employees on this 28-mile project, with the specific goal of completing portions of the ITS (Intelligent Transportation System). In addition to manpower, Kevin also managed, supervised and coordinated installation of the majority of the ITS/Electrical components of the project including Dynamic Message Signs and Reversible Lane Signals, as well as large sections of communication power, and lighting for the project. Kevin’s leadership, planning skills, and careful review of drawings for potential conflicts and subsequent proposed solutions were essential to the success of the ITS/Electrical components of this project’s scope, as they will be to the I-95 Express Lanes Southern Terminus Extension Project. **Client: Fluor-Lane 95, LLC</td>
</tr>
</tbody>
</table>

**Relevancy:** The ITS/Electrical work and infrastructure performed for the I-95 HOT/HOV Lanes is identical to that required for the I-95 Express Lanes Southern Terminus Extension Project, as the two projects will actually tie into one another. Major components of work included installation of power, fiber optic, communication cables, reversible lane signals, generators, and all associated tolling equipment.

<table>
<thead>
<tr>
<th>Project Role</th>
<th>Project Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elizabeth River Crossing Tolling Infrastructure</td>
<td>Dates: March 2012 – July 2015</td>
</tr>
<tr>
<td>City of Portsmouth, VA</td>
<td>With Current Firm? Yes</td>
</tr>
<tr>
<td>Responsibility/Specific Job Duties:</td>
<td>Kevin led a team providing communications, electrical, ITS, and associated underground and overhead infrastructure for toll locations along the Mid-Town and Down-Town Tunnels, as well as the MLK extension in Portsmouth, VA. He was responsible for management, procurement, installation, and quality of typical scope items, such as corridor lighting, generators, roadside ITS cabinets, and 143 traffic loops to support the ITS. In addition to these items that are fairly typical for a toll road project, Kevin also managed and developed a complex MOT/TMP plan for this project for the erection of several large, overhead gantries that spanned well of 160’ of active roadway to ensure that minimal traffic impacts were induced on the two tunnels. After months of planning and coordination, the operations Kevin developed was executed successfully. Kevin’s understanding of and ability to minimize traffic impacts, especially in highly congested areas will serve VDOT and its shareholders well on the I-95 Express Lanes Southern Terminus Extension. **Client: 3M</td>
</tr>
</tbody>
</table>

**Relevancy:** The ITS/Electrical work performed for the Elizabeth River Crossing is very similar to that required for the I-95 Express Lanes Southern Terminus Extension project including installation of power, fiber optic, communication cables, reversible lane signals, generators, and all associated tolling equipment.

* On-call contracts with multiple task orders (on multiple projects) may not be listed as a single project.

h. For Key Personnel required to be on-site full-time for the duration of construction, provide a current list of assignments, role, and the anticipated duration of each assignment. **N/A**
**LEAD CONTRACTOR - WORK HISTORY FORM**

**LIMIT 1 PAGE PER PROJECT**

<table>
<thead>
<tr>
<th>a. Project Name &amp; Location</th>
<th>b. Name of the prime design consulting firm responsible for the overall project design.</th>
<th>c. Contact information of the Client or Owner and their Project Manager who can verify Firm’s responsibilities.</th>
<th>d. Contract Completion Date (Original)</th>
<th>e. Contract Completion Date (Actual or Estimated)</th>
<th>f. Contract Value (in thousands)</th>
<th>g. Dollar Value of Work Performed by the Firm identified as the Lead Contractor for this procurement (in thousands)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name: I-95 HOT/HOV Express Lanes Segment 1 Design-Build/PTA Location: Prince William and Stafford Counties, VA</td>
<td>Name: HDR, Inc.</td>
<td></td>
<td>12/2014</td>
<td></td>
<td>$46,999</td>
<td>$46,847</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>h. Narrative describing the Work Performed by the Firm identified as the Lead Contractor for this procurement. If the Offeror chooses to submit work completed by an affiliated or subsidiary company of the Lead Contractor, identify the full legal name of the affiliate or subsidiary and the role they will have on this Project, so the relevancy of that work can be considered accordingly.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Verifiable Evidence of Performance**
- Completion Under Budget
- Completion On Time of ~9 Miles of I-95 Express Lanes & Widening
- Several Field Design Changes to Mitigate Geotechnical Challenges
- Coordination with Bridge, ITS, MSE/Retaining/Wall Soundwall throughout the Corridor
- No Significant Quality Control Deficiencies
- No Employee Ingress/Egress Accidents

**Scope & Complexity Similarities**
- Identical I-95 Corridor Location/Traffic Volume
- VDOT Design-Build
- FHWA Guidelines and Requirements
- Interstate Construction/Widening
- Complex Construction
- Sequencing/Coordination
- Soundwall Construction
- ITS and Lighting Facilities
- ROW Acquisition
- Utility Relocations
- Median Crossovers
- Environmental Permitting and Monitoring
- Geotechnical Challenges and Treatments
- Traffic Management Plan/MOT
- Public Involvement/Communications
- QA/QC Coordination

As a key contractor for this project, Branch was the primary constructor/coordinator of the 9 new miles of roadway (Segment 1), which extended the I-95 HOT/Express Lanes from just south of Exit 152 in Dumfries to Exit 143 in Garrisonville. Similar to the work on the I-95 Express Lanes – Southern Termminus Extension project. Segment 1 included construction of new Express Lanes in the median between existing general purpose lanes and general purpose lane widening in three locations totaling over 7,500 LF, to provide ingress and egress to the newly constructed HOT/Express lanes. Major items of work in this corridor were clearing, erosion and sediment control in highly sensitive areas, nearly 1,000,000 CY of earthwork, extensive drainage improvements, box culverts, sound wall construction for nearly the entire length of the project, 2 new flyover bridges with interchange improvements, MSE & retaining walls, and installation of ITS & electrical components. Extensive coordination was necessary with other trades and contractors on the project to ensure that all work was performed in the most cost effective, efficient way possible.

One of the first contractors to join the project, Branch participated in working design review meetings, providing constructability analysis before and during construction. The schedule for this project was critical, requiring precise coordination between all major work types in order to bring the project to a successful completion in such a short amount of time. Through careful planning and extensive coordination, Branch was able to accelerate the schedule for their contractual work, which included:

- All Earthwork including access and final grading
- MSE Retaining Walls/Bridge Approaches
- Subbase
- Soil Nail Retaining Wall
- RW3 Retaining Walls
- Storm Drainage, Retention Ponds, Water Quality Structures
- Paved Ditches
- E&D Control, Wetland Protection
- MOT
- Demolition

Branch also coordinated with and provided additional access grading for the following activities performed by other subcontractors, such that all phases of work could achieve their respective milestones: Bridges & Abutments, Soundwalls, Permanent Barrier Wall, ITS & VDOT Utilities, Paving, Signage, Guardrail, and Pavement Markings.

Branch played an active role in mitigating various conflicts and challenges throughout the project. Numerous Field Design Changes (FDC) were initiated to resolve design conflicts and make efficient use of onsite material. These FDC’s resulted in reductions to both cost and schedule. One of the first priorities was designing safe ingress/egress throughout the project. Construction entrances were designed to minimize impacts to the traveling public and reduce cost by utilizing existing guardrail and shoulder facilities wherever possible. Diligent maintenance to these entrances ensured that minimal repairs were needed at the conclusion of the project.

High plasticity clay, highly weathered acidic rock, and saturated materials each posed its own set of geotechnical concerns, and were dealt with on a case-by-case basis. Although offsite disposal was employed for the worst material encountered, thorough analysis of in-situ materials presented the opportunity to utilize mechanical and chemical manipulation to generate suitable roadway fill. These methods accelerated schedule, and in some cases reduced cost. It is likely that similar conditions will be encountered on the proposed I-95 Express Lanes – Southern Termminus Extension project, and Branch has the proven knowledge and experience to mitigate them efficiently and effectively.

The extensive soundwall requirements on this project placed an enormous demand on available design and fabrication resources. While Branch did not control the processes associated with those activities on this project, our grading and final backfilling operations were impacted by associated delays, as was overall project completion. These and other experiences with soundwall construction will assist us with better and earlier coordination efforts for the I-95 Express Lanes – Southern Termminus Extension project, as discussed in 3.5 Project Risks of this SOQ. ITS and electrical work was another key component that this project shares with the I-95 Express Lanes – Southern Termminus Extension project; coordination with the design and construction of the roadway prism was critical to allow for ample time for installation and testing of ITS & electrical facilities.

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**ATTACHMENT 3.4.1(a)**

**LEAD CONTRACTOR - WORK HISTORY FORM**

(LIMIT 1 PAGE PER PROJECT)

<table>
<thead>
<tr>
<th>a. Project Name &amp; Location</th>
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<th>c. Contact information of the Client or Owner and their Project Manager who can verify Firm’s responsibilities.</th>
<th>d. Contract Completion Date (Original)</th>
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<th>g. Dollar Value of Work Performed by the Firm identified as the Lead Contractor for this procurement (in thousands)</th>
</tr>
</thead>
<tbody>
<tr>
<td>James Madison Highway (Route 15) Design-Build/PPTA</td>
<td>Rinker Design Associates, P.C.</td>
<td>Name of Client/Owner: Prince William County DOT Phone: (703) 792-6825 Project Manager: Mr. Thomas Blaser Phone: (703) 792-6825 Email: <a href="mailto:tblaser@pwc.gov">tblaser@pwc.gov</a></td>
<td>12/2009</td>
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<td>Location: Haymarket, VA</td>
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<td></td>
<td></td>
<td>$54,126 *Owner Requested Changes to Scope</td>
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</tr>
</tbody>
</table>

**h. Narrative describing the Work Performed by the Firm identified as the Lead Contractor for this procurement.**

If the Offeror chooses to submit work completed by an affiliated or subsidiary company of the Lead Contractor, identify the full legal name of the affiliate or subsidiary and the role they will have on this Project, so the relevancy of that work can be considered accordingly.

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</tr>
</thead>
<tbody>
<tr>
<td><strong>Route 58 Hillsville Bypass Design-Build/PPTA</strong></td>
<td><strong>HNTB Corporation</strong></td>
<td>Name of Client/Owner: VDOT Phone: (540) 387-5345 Project Manager: Robert Williams Phone: (540) 387-5345 Email: <a href="mailto:Robbie.Williams@VDOT.Virginia.gov">Robbie.Williams@VDOT.Virginia.gov</a></td>
<td>11/2011</td>
<td>11/2011</td>
<td>$83,000</td>
<td>$83,197</td>
</tr>
<tr>
<td>Location: Carroll County, VA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>*Owner requested changes to scope</td>
</tr>
</tbody>
</table>

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**Verifiable Evidence of Performance**

- Completed ahead of schedule
- Completed on budget
- No Change Orders Initiated by Branch
- Superior Safety Record
- Delivered required DBE goal
- VDOT elected to proceed with subsequent phases for additional sections of roadway
- As the Design-Build Contractor for this second phase of the Route 58 PPTA Corridor Improvements project, Branch was responsible for design, construction, right-of-way acquisition, utility relocation, permitting, wetlands/environmental mitigation, and quality control involved with building this 3.7-mile stretch of new 4-lane divided highway in Hillsville, VA. In addition to mass cut-to-fill operations in excess of 1 Million CY, drainage, roadway construction, construction of 17 acres of wetlands, and extensive stream mitigation, the project included 8 bridges and 3 full interchanges – one of which ties into I-77 southwest of Hillsville, VA. This 3-year, $83M project was completed by the Branch Team ahead of schedule and within original budget, with no change orders requested, and no major quality or safety issues.

**Scope & Complexity Similarities**

- VDOT Design-Build
- New Roadway Construction
- Median crossovers
- Geotechnical Challenges
- Environmental Permitting
- Traffic Management Plan
- Public involvement/communications
- QA/QC
- FHWA/NPS
- Complex Construction Sequencing
- Adjacent Project/Developer/Coordination

Post-award additions of environmental surveys from the FHWA threatened to delay the Hillsville Bypass project by a full construction season. Working together, VDOT, FHWA, and the Branch Project Team revised the design and construction schedules to mitigate these impacts resulting in no additional costs to VDOT (besides the actual surveys) and no delay to the project. Branch recognizes that the permitting process that will be a part of the I-95 Express Lanes Southern Terminus Project may pose similar risks, and based on experience on this project and others, will incorporate realistic time frames into the plan and schedule for the permitting process for this project.

After construction had begun, VDOT received multiple requests by local elected officials for changes to the lighting at the interchanges on the project. The Project Team, VDOT, and the local officials found common ground through frank and open discussions. While Branch had to perform additional work under previously unnecessary “live traffic conditions,” the overall schedule was maintained and no extra costs were incurred by VDOT, despite the late-date changes. While it is unlikely that lighting specifically will be a politically driven issue that requires similar attention on the I-95 Express Lanes Southern Terminus Extension, there is a potential that environmental concerns, particularly with regard to soundwall location and design, may arise. The organizational structure Branch has developed for the I-95 Express Lanes Southern Terminus Extension positions the team to address these concerns as they come up. Together with VDOT and other stakeholders, the Branch/WRA Team will find solutions that fit the best interests of all involved.

Strategies were developed to handle these materials that had minimal impacts to cost and schedule, while still meeting all required specifications. A significant portion of subgrade material was treated with 11% soil cement. In other areas, undercut and replacement, mechanical drying, lime drying, and lime stabilization methods were used to treat unacceptable materials. It should be anticipated that similarly varying soils types will be encountered on the I-95 Express Lanes Southern Terminus Extension, and Branch is experienced at choosing the best method of treatment that maximizes the benefit to all invested parties.

The Route 58 Hillsville Bypass project was a highly visible, complex project that attracted significant public attention and frequent questions. The organizational structure for this project, which created a balanced, clear and effective communication model among Key Personnel and VDOT was essential for handling these issues in an efficient, professional manner. The success of Branch’s on-going management of this project is evidenced by the continued award of subsequent phases of the massive Route 58 Corridor Improvements PPTA Project.

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LEAD DESIGNER - WORK HISTORY FORM

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</thead>
<tbody>
<tr>
<td>I-95 Newark Toll Plaza</td>
<td>Name: A-DEL Construction Company Name of Client: Delaware DOT Phone: (302) 760-2274 Project Manager: Mr. Darren O’Neill Phone: (302) 760-2274 Email: Darren.O'<a href="mailto:Neill@state.de.us">Neill@state.de.us</a></td>
<td></td>
<td>04/2010</td>
<td>07/2011</td>
<td>$32,000</td>
<td>$32,000</td>
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</table>

h. Narrative describing the Work Performed by the Firm identified as the Lead Designer for this procurement. Include the office location(s) where the design work was performed and whether the firm was the prime designer or a subconsultant. *For a project with multiple phases or multiple contracts, only one phase or one contract will be considered. If additional phases or contracts are shown under the same Work History Form, only the first phase or contract listed will be evaluated.

WRA’s Role – WRA’s Baltimore, MD Office led the design of two highway-speed E-ZPass toll collection lanes in each direction along with seven north and southbound cash toll lanes in less than 9 months. The approximately 2 miles of interstate E-ZPass lanes constructed in the median of I-95 and their associated tie-ins to the mainline function very much like the I-95 Express Lanes in Virginia. Included in the roadway design for the median E-ZPass Lanes were concrete barriers, impact attenuators, roadway signing, pavement markings and lighting to help drivers pass safely through the toll plaza at highway speeds. A series of 10 Wavetronix Radar sensors and one 75 foot CCTV camera were installed on the toll approaches that communicated through over 11,000 linear feet of fiber optic cable to provide traffic monitoring and incident detection capabilities. WRA designed a storm drainage system and wet pond stormwater management facilities. The tolling design incorporated an enclosed open road tolling gantry system, consisting of two parallel, 98-foot long structural steel trusses which span over four highway-speed lanes and adjoining shoulders. The enclosed gantry system keeps maintenance workers safe while eliminating the need to close travel lanes for maintenance. The new overhead walkway to the gantry and northbound cash toll lanes is temperature-controlled, ventilated, access-controlled, and camera-equipped to ensure maintenance workers can safely access the tolling equipment, ensures safe and secure toll collector access, and ensures that toll revenues are protected. WRA and our specialty subconsultant designed and specified the toll collection system, which utilized RF antennae, IR cameras, and laser sensors and supported E-ZPass Interagency Group electronic toll collection technology. In construction, we reviewed all levels of installation and testing completed by the contractor before the system was integrated into DelDOT’s overall network. In addition to the open road tolling upgrades, many of the 11 remaining cash booths were replaced with new booths. A new walk-up E-ZPass customer service vestibule at the Main Administration Building was added to provide better service to E-ZPass users. Aside from the cash tolling lanes, the improvements for this project are very similar to the I-95 Express Lane Extension project.

Efficient Design – The design included a variety of construction techniques and unique materials, many of which would not be found on ten individual projects, let alone one project in order to minimize disruption to the traveling public. Four low-cover microtunnels and one standard-cover jack/bore were pushed under the interstate and existing buildings in an effort to maintain traffic while constructing storm sewer outfalls to/from the SWM-ponds and a primary electrical duct-bank for the new toll-gantry. Caissons and micro-piles were used in order to minimize the footprint of structural foundations. The steel trusses for the walkways and tolling gantry were designed to be shop fabricated, field spliced and lifted into place under short duration lane closures. The Transportation Management Plan (TMP) developed by WRA incorporated many facets that allowed us to maintain the Toll Collection system and the transportation network during the project. Alternative routes were evaluated and upgraded through signal timings changes, additional turn lanes, and paving improvements. Public communications programs were developed, designed and circulated throughout the immediate area as well as along the regional Mid-Atlantic cities along I-95. Technology was utilized through cameras and sensors and supported E-ZPass Interagency Group electronic toll collection technology. In construction, we reviewed all levels of installation and testing completed by the contractor before the system was integrated into DelDOT’s overall network. In addition to the open road tolling upgrades, many of the 11 remaining cash booths were replaced with new booths. A new walk-up E-ZPass customer service vestibule at the Main Administration Building was added to provide better service to E-ZPass users. Aside from the cash tolling lanes, the improvements for this project are very similar to the I-95 Express Lane Extension project.

Scope & Complexity Similarities

- Interstate Median Improvements
- New E-ZPass Lanes
- ITS & Tolling Integration
- Survey
- Environmental
- Geotechnical
- Hydraulics and SWM
- Traffic Control Devices
- TMP
- MOT and Interstate Lane Closures
- Public Involvement/Communications
- QA/QC
- Construction Engineering Support

This project received the 2013 ACEC National Recognition Award for Engineering Excellence.
**LEAD DESIGNER - WORK HISTORY FORM**

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</tr>
</thead>
<tbody>
<tr>
<td>I-95/I-495 at Arena Drive from MD 202 to MD 214 Design-Build</td>
<td>Lane Construction Corporation</td>
<td>Name of Client: Maryland State Highway Administration (MSHA) Phone: (410)-545-8770 Project Manager: Mr. Eric Marabello Phone: (410)-545-8770 Email: <a href="mailto:emarabello@sha.state.md.us">emarabello@sha.state.md.us</a></td>
<td>06/2007</td>
<td>12/2009</td>
<td>$26,600</td>
<td>$29,500</td>
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<td>Location: Prince George’s County, MD</td>
<td></td>
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<td><strong>Completed I-95/495 Widening</strong></td>
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### Scope & Complexity Similarities
- Design-Build
- Interstate Widening
- Survey
- Environmental
- Geotechnical
- Hydraulics and SWM
- Traffic Control Devices/ITS
- TPL
- MOT and Interstate Lane Closures
- Public Involvement/Communications
- QA/QC
- Construction Engineering & Inspection

### WRA’s Role
- WRA was the prime design firm for this Design-Build project responsible for preparing final engineering design documents and approvals for improvements to I-95/I-495 at Arena Drive. The project was designed in our Baltimore, Maryland office. The project enabled the Arena Drive interchange with I-95/I-495 (Capital Beltway) to operate as a full-time interchange instead of only during special events. I-95/I-495 was widened for an additional lane and incorporated two collector-distributor lanes. The project features include:
  - **Roadway Rehabilitation and Widening** – I-95/I-495 was widened for an additional lane and incorporated two collector-distributor lanes. The project features include: I-95/I-495 was widened for an additional lane and incorporated two collector-distributor lanes. The project features include:
  - **Interchange Reconstruction** – Ramps at two interchanges were reconfigured to eliminate inadequate weaving lengths on I-95/I-495. The northeast and northwest loop ramp at MD 214 and northwest ramp at MD 202 were eliminated. Existing quadrant ramps were widened to accommodate additional traffic with new connections to MD 214 and MD 202. As a result of traffic analyses performed during final design, a ramp from MD 202 to I-95/I-495 was identified as needing to be widened to address congestion along MD 202. As a modification to the contract, an Interstate Modification Report (IMR) was completed and ramp widening was designed and constructed, including additional NEPA approval and environmental permitting.

### Geotechnical and Pavement Analysis/Design
- Geotechnical services included jacking and boring a 48” RCP under I-95/I-495, a reinforced slope, and subgrade and pavement design for full-depth pavement and the rehabilitation of existing concrete pavement. Also, the existing shoulders along I-95/I-495 were analyzed for traffic bearing capacity during construction and it was determined that the shoulders were adequate for temporary use and did not require full-depth replacement.

### Maintenance of Traffic
- Extensive multi-phase maintenance of traffic plans were required on I-95/I-495, MD 214 and MD 202 to maintain traffic throughout the interchanges since over 190,000 vehicles per day traveled on I-95/I-495 at that time. To maintain adequate levels of service for traffic during construction, all lanes were required to remain open during peak hours of 6 to 9 AM and 3 to 7 PM. Limited lane closures were permitted from 9 AM to 3 PM, while multiple lane closures were permitted from 10 PM to 5 AM. As a result, a majority of the pavement resurfacing for the project was performed during nighttime hours.

### Traffic Control Devices
- This project re-used six (6) existing sign structures, including two cantilever, two overhead, and two overhead dynamic message systems. Additionally, four new cantilever structures were installed and all ground-mounted signing throughout the three interchanges was upgraded. Partial interchange roadway lighting was completed consisting of 80 new light fixtures. Also, four new traffic signals were installed with modifications to another existing traffic signal.

### Public Involvement
- Public information materials and advanced notification of traffic impacts were provided to MSHA to keep the public informed.

### Partnering During Design and Construction
- WRA participated in partnering agreement, which set goals and objectives during the early stages of work. Subsequent monthly meetings were held to ensure goals and objectives were being met by discussing the project progress, quality, resolve issues, and current/future schedule.
## LEAD DESIGNER – WORK HISTORY FORM

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<tbody>
<tr>
<td><strong>Name:</strong> Fall Hill Avenue Widening and Mary Washington Boulevard Extension Design-Build <strong>Location:</strong> Fredericksburg, VA</td>
<td><strong>Name:</strong> Corman Construction, Inc. <strong>Phone:</strong> (540) 899-4214 <strong>Project Manager:</strong> Michael Coffey, P.E. <strong>Phone:</strong> (540) 899-4214 <strong>Email:</strong> <a href="mailto:michael.coffey@vdot.virginia.gov">michael.coffey@vdot.virginia.gov</a></td>
<td></td>
<td>04/2014</td>
<td>Estimated 01/2017 (Design Completed: 02/2015)</td>
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### Scope & Complexity Similarities

- Design-Build
- Roadway Realignment/Widening
- New Connector Road
- Survey
- Environmental & Geotechnical
- Hydraulics and SWM
- Noise analysis and Soundwall design
- Traffic Control Devices
- TMP
- MOT and Interstate Lane Closures
- Public Involvement/Communications
- QA/QC
- Construction Engineering & Inspection

WRA’s Role: Prime design firm responsible for the final engineering design documents and approvals for major improvements to the existing Fall Hill Avenue corridor and extension of Mary Washington Boulevard. Existing Fall Hill Avenue is largely a two-lane roadway with no bike facilities and limited pedestrian facilities. Along the project alignment are the Snowden Park, Rappahannock Canal Park, and several historic resources that are impacted by the project construction requiring strict adherence to all commitments in the environmental documentation. The project was led from the WRA Richmond, VA office and additional design support was performed from the Baltimore, MD office. Services included highway design, hydrologic and hydraulic design, stormwater management (SWM) design, erosion and sediment control design, geotechnical engineering, pavement evaluation and design, noise analysis and soundwall design, maintenance of traffic, signing, lighting, pavement markings, traffic signalization, bridge, retaining walls, park design, utility relocation/coordination, public involvement, permitting and coordination with project stakeholders. Also, WRA is providing quality control and construction inspection related services.

Roadway – The proposed improvements provide for a four-lane divided curb and gutter urban typical section with a 10-foot shared-use path on the north side and a 5-foot sidewalk on the south for a length of 1.5 miles on Fall Hill Avenue. Mary Washington Boulevard is extended on new location for 0.3 miles with an urban section including a sidewalk on the west side and the existing Rappahannock Canal trail network providing for bike and pedestrians to the east and intersects with the roundabout at Fall Hill Avenue. The remaining portion of Mary Washington Boulevard 0.4 miles is widened to a four-lane divided urban section with sidewalks and the intersection with Route 19 is improved for 0.2 miles to provide additional turn lanes at Mary Washington Boulevard. A key element of the project is the roundabout at the Fall Hill Avenue and Mary Washington Boulevard.

Hydraulic Analysis and Stormwater Management – The project includes the design and analysis of a tributary to the Rappahannock Canal, which required a 10’ x 8’ box culvert to ensure the 100-year storm event would have no impact on private property. A complete new storm drainage system was provide for the length of Fall Hill Avenue. WRA’s design was able to eliminate one SWM facility on the frontage of a commercial property saving VDOT approximately $300,000 in right-of-way cost.

Geotechnical Engineering – The project is located in diverse and changing geology. The western portion of the project is located over relatively shallow residual soils of the Piedmont Province, while the eastern portion is more typical of the Coastal Plain Province with over-consolidated Potomac Clays. It is expected that these same formations and their associated risks will be encountered on the I-95 Express Lanes Southern Terminus Extension project. The bridge over I-95 is supported on driven steel H-piles with MSE wall abutments and were designed to mitigate downdrag forces induced by settlement. The design in the Potomac Clays included 20-foot cuts below the location of the historic civil war trenches. To avoid impacts to the trenches WRA designed a soil nail retaining wall.

TMP and MOT Plans – The two major elements of the TMP were the phased construction of the bridge over I-95 and the three-phase reconstruction of Fall Hill Avenue. The TMP carefully evaluated the impacts to traffic operations on I-95 for placement of concrete barrier, beams and removal of the existing bridge. Similar to what is anticipated on the I-95 Express Lanes Extension project, work requiring lanes closures on the heavily traveled I-95 was limited to nights and carefully coordinated with the regional traffic operations center and emergency responders.

Traffic Engineering – The project includes the design of three traffic signals and three pedestrian crossing using Rectangular Rapid Flash Beacons (RRFBs). A major focus of WRA efforts was to carefully evaluate the high pedestrian movements along the corridor to provide opportunities for residents to access the transit stops along the corridor and access the extensive system of trails in the City.

Public Involvement – A key element of the success of the project is communicating the goals of the project and how the project affects the public. The project included significant access management controls restricting movements to and from developments, which was a major discussion item at the “Pardon Our Dust” public meeting and the public’s concern with the traffic operations at the proposed roundabout. Being able to address these concerns quickly and effectively with the VDOT Team resulted in the project moving forward with minimal redesign efforts.

![Fall Hill Avenue Bridge over I-95](image1.png)

![Fall Hill Avenue Approach to Bridge (Phase I of Construction)](image2.png)
I-95 Express Lanes
Southern Terminus Extension
Design-Build Project

Submitted By:

In Association With:
Chesapeake Electrical Systems, Inc.
H&B Surveying & Mapping, LLC (DBE)
Froehling & Robertson, Inc. (SWaM)
Engineering & Materials Technology, Inc. (DBE)