

STATEMENT OF QUALIFICATIONS



# IS 270 – Innovative Congestion Management Contract

MONTGOMERY AND FREDERICK COUNTIES

CONTRACT # MO0695172 | JULY 25, 2016



WELLINGTON POWER CORPORATION

IN ASSOCIATION WITH **JACOBS**

# IS 270 – Innovative Congestion Management Contract Montgomery and Frederick Counties



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KEY STAFF EXPERIENCE  
AND QUALIFICATIONS

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### Design Key Staff



#### **Stanley Niemczak, PE — Project Design Manager — Primary Contact — Jacobs**

**Education:** MS, Civil Engineering, Villanova University; BS, Civil Engineering, Drexel University

**Registration:** Professional Engineer, PA; MD Registration In-Progress

Mr. Niemczak has diversified experience in traffic and highway engineering, transportation planning, ITS, communication network design, and utility coordination and design in both the public and private sectors. In his 20+ years in the field, he has performed management and engineering for numerous traffic and highway design, transportation studies, ITS planning, ITS design, ITS PS&E review, communication networks, and utility projects. Stan developed a strong project management foundation and coordination skills during his tenure with the City of Philadelphia where he was heavily involved with their capital improvement program. He is well versed in preparing technical reports and computer applications for highway capacity analysis, traffic signal optimization, and traffic simulation. Stan is also an active participant in the PennDOT / ACEC / PA Staff Hour Estimating Guide Through Mutual Gains Negotiation Task Force.

### Experience

#### ***PennDOT, District 8-0, York County ITS Design-Build, York County, PA***

As Project Principal, Mr. Niemczak oversaw all Jacobs' lead designer responsibilities for the installation this ITS DB project

#### ***Pennsylvania Turnpike Commission, Installation of ITS RWIS between MP 10.2 and MP 317.5, MP A57.4 and MP A129.5, Statewide, PA***

As ITS Project Manager, Stan led our ITS design efforts in providing complete design services for the installation of these RWIS locations, including site/civil development, design of power and communication services, including wireless and fiber optics, as well as support throughout testing and integration of this additional equipment.

#### ***PennDOT, District 6-0, I-76, Section ITS, Montgomery and Philadelphia Counties, PA***

Project Manager for the preliminary engineering, final design, and services during construction. The Schuylkill Expressway Intelligent Transportation System (ITS) project encompasses a 16-mile section of I-76, as well as portions of SR 1 (Roosevelt Expressway), SR 3003 (26th Street), and SR 291 (Penrose Avenue). The included roadways will be outfitted with ITS devices, including closed circuit television cameras, dynamic message signs (DMS), vehicle detection system, travel time system, communication network, and traffic control center integration / modification.

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***PennDOT, District 6-0, SR 0202, Section 300, ITS Design, Chester and Delaware Counties, PA***  
Assisting in the development of Construction Plans, Specifications, and Estimate to expand the TIMS program into Chester County to monitor and manage traffic along 25 miles of roadway. Working toward development of the communication architecture (fiber optic & wireless) to transport video and data from the field to the PennDOT TCC. Subsystems implemented within the project include but are not limited to CCTV, DMS, and vehicle detection.

***PennDOT, District 6-0, I-95, Section ITF, Bucks and Philadelphia Counties, PA***  
Design Project Manager for this design-build contract that included design, procurement, construction, installation, integration, training, testing and documentation of the I-95 ITS expansion project.

***PennDOT, Bureau of Highway Safety and Traffic Engineering, Open End for Highway Safety and Traffic Engineering, Statewide, PA***  
Project Manager for this statewide open end agreement that includes various traffic engineering, highway occupancy permits, pavement markings, ITS, safety and highway engineering services on various projects throughout the Commonwealth.

***PennDOT, District 6-0, SR 3037, Section JFK, Philadelphia, PA***  
Project Principal for the preliminary and final design services for three bridge superstructure replacements, full depth reconstruction of JFK Boulevard to incorporate widened sidewalks and streetscape, and a new pedestrian stair and ramp access to connect JFK Boulevard to 22nd Street.

***PennDOT, District 6-0, SR 202, Section 700, ITS Design, Bucks and Montgomery Counties, PA***  
Assisting in the exploration of ITS technologies and strategies to enhance traffic safety, operations and management, and efficiency of the transportation system in the new 9-mile bypass. Assisting with design services for deployment and expansion of existing subsystems such as CCTV, DMS, and Vehicle Detection. Developing plans for a RWIS, which is a new element for District 6-0.

***PennDOT, District 4-0, SR 6, Section 408, Pike County, PA***  
Project Manager for the preliminary engineering, final design, and services during construction for 3R improvements along US Route 6 between Milford and Matamoras Boroughs. Improvements include widening of US Route 6 to two lanes in each direction with a center turn lane and traffic signal upgrades.

***PennDOT, District 2-0, Open End for Traffic Services and Engineering, Various Counties, PA***  
Project Manager for this Open End Agreement that includes various traffic services and traffic engineering in Engineering District 2-0.

***PennDOT, Program Management Oversight of Capacity Enhancement Program, Philadelphia, PA***  
Project Principal for the program management of the \$6.4 billion Capacity Enhancement Program (CEP) at Philadelphia International Airport. The CEP is a multi-year, multi-phased program comprised of major, complex projects. The team is assisting the airport in the areas of program management, planning and program/project definition, program / project phasing, design and design coordination, project controls, requests for proposal and bid specification development, contracts and contract administration, and public outreach.

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### Design Key Staff



#### **Anthony R. Frascarella, PE — Highway Engineer**

**Education:** MBA, Loyola College; BS, Civil / Environmental Engineering, Clarkson University

**Registration:** Professional Engineer, MD

With over 30 years in his field, Mr. Frascarella is a professional engineer with expertise in project management, highway design / planning, and project quality control. He has extensive experience in design and management of transportation design projects including freeways, interchanges, at-grade intersections, arterials, and streetscapes for design-build projects and design-bid-build and. He is familiar with SHA, FHWA, and AASHTO design criteria, standards and specifications. His project responsibilities include the development of highway planning and geometric design, stormwater management design, hydraulics/hydrology studies and designs, structure design, utility coordination, traffic engineering and studies, environmental assessment / documentation and coordination with state / federal agencies and other project stakeholders. He manages and coordinates all aspects of projects including scope development, manpower resource planning, design development, and quality control.

### Experience

#### ***MDSHA, I-95 / Contee Road Interchange Design-Build Preliminary Engineering, Prince George's County, MD***

Project Manager for the design of a proposed new partial cloverleaf interchange of I-95 and relocated Van Dusen Road, 1.8 miles of 4-lane arterial roadway for relocated Contee Road on new alignment and realignment of two lane County Connector roadways of Sweitzer Lane and Van Dusen Road. Responsibilities included project management, geometric design, extensive stormwater management (2007 MD SWM Act criteria), development of dual three-lane and optional single 4-lane Bridge(s) over I-95 and future ICC Contract D collector-distributor roads, traffic engineering for signals at five intersections, interchange and pedestrian lighting, signing and ITS, major quantity cost estimates, and design-build IFB preparation. Mr. Frascarella conducted extensive project coordination efforts with stakeholders including agencies, adjacent owner improvements (Konterra) and Prince George's County DPW&T

#### ***MDSHA, I-95 Express Toll Lanes (ETL), Section 100, Baltimore City and County, MD***

Quality Control Engineer responsible for quality control design reviews and documentation (prime and subconsultant design) for horizontal and vertical alignments and for constructability, project interrelationships and phasing between structures, drainage, erosion/ sediment control and utility relocations. The project included reconstruction of I-95 from north of Hazelwood Avenue to south of the I-395 interchange, approximately 2.7 miles, and I-395 from the I-95

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interchange to south of Herring Run, approximately 1.7 miles, reconfiguration of the I-95 / I-395 interchange, and modifications to the Moravia Road interchange. The segment includes six new bridges, three of which are major bridges within the I-95 / I-395 interchange, each over 1,400 feet long, over four miles of retaining walls and/or noise abatement walls.

### ***MDSHA, MD 7 / US 40 TO I-695, Baltimore County, MD.***

Project Manager for the reconstruction of this 2010 ACEC/MD Award of Excellence winning, \$12M, 2.5 mile long 2-lane urban arterial roadway. The project included roadway design, ROW, drainage, utility design and coordination with Baltimore County DPW and BGE gas & electric, multi-phase maintenance of traffic plan, stormwater management, erosion and sediment control, structures including the design of three retaining walls, lighting, five signals, streetscape / landscaping and public involvement. Provided project management, scheduling and design quality control for both Century and MBE subconsultant design.

### ***MDSHA, I-95 / Ritchie Marlboro Road Interchange, Prince George's County, MD***

The project involved adding a new interchange along I-95. Structures included modified expansion joints on the existing I-95 / I-495 bridge over Ritchie-Marlboro Road to include a drainage trough per SHA standards and modified existing slope protection to incorporate a sidewalk / bikeway with a retaining wall and concrete barrier. Anthony gave QA/QC project reviews of the roadway design, typical sections, roadside design, drainage, Maintenance of Traffic and staged construction.

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### Design Key Staff



#### **Rebecca Myrick, PE, PTOE — Traffic Engineer**

**Education:** BS, Environmental Engineering, University of Delaware

**Registration:** Professional Engineer, MD, DE, PA, VA; Professional Traffic Operations Engineer

Ms. Myrick has over 15 years of experience in traffic/transportation engineering with a focus on performance of traffic studies. She has managed large and small projects in the public sector. Her experience includes simulation optimization, development of travel forecasts, performance of traffic studies and safety analyses, and performance of planning-level intersection and corridor analyses, studying traffic flows and behaviors to identify where systems are experiencing congestion or conflict and finding solutions to alleviate these friction points that are unique to the conditions at each site. She has knowledge and experience in the use of various civil design, traffic analysis, and traffic modeling software packages including Synchro/SimTraffic, Vissim, Sidra Intersection, HCS, and MicroStation.

### Experience

#### ***MDSHA and MDTA, Intercounty Connector, Montgomery and Prince George's Counties, MD***

Traffic Engineer for the development of preliminary interchange designs, and for evaluation of the final roadway and interchange designs for this new roadway. Responsible for the following tasks:

- Preliminary analysis of interchange alternatives for the ICC and I-95 corridors (work completed before design began).
- Developing and evaluating alternative interchange, ramp, and collector/distributor (CD) road configurations to incorporate the new ICC and Contee Road interchanges along I-95 between the existing MD 198 and MD 212 interchanges, including performance and organization of numerous HCS2000 analyses for the I-95 Interstate Access Permit Application (IAPA) Report.
- Development and analysis of alternatives to incorporate new ICC interchanges along existing arterial roadways, including development of Corsim and Synchro models, and presentation of analysis results to representatives from SHA and MdTA.
- Development of a signing concept plan for I-95 in the vicinity of the ICC.
- Development of a Vissim model of the ICC and the interchanging roadways, from Metro Access Road to I-95, including development of balanced turning movement volume sets, completion of Vissim models for the AM and PM peak hour, review of the simulation results, and production of summary reports.

#### ***MDSHA, I-70 Corridor Study, Hagerstown to Baltimore, MD***

Traffic Engineer for the development of a Vissim model of approximately 70 miles of the I-70 corridor from Hagerstown to Baltimore. Responsible for compiling existing traffic volume data and managing the development and calibration of the Vissim models for the AM and PM peak hours of the existing condition.



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### ***MDSHA, MD 32 Corridor Study, Montgomery County and Howard County, MD***

Traffic Engineer for this study to assess multiple improvement concepts proposed along the MD 32 corridor from MD 108 to I-70, and performed cost/benefit analyses to determine the order in which the improvements should be implemented. Responsible for development and calibration of an existing conditions model using Synchro / SimTraffic software, assessment of multiple previously developed improvement concepts for 2020 conditions, performance of a field visit to observe existing operations, reviewing volumes and crash data for the study area, developing additional short-term improvement concepts, and producing a technical memorandum including summary tables and recommendations

### ***MDSHA, I-81 at MD 68, Williamsport, MD***

Traffic Engineer for a before and after study at the I-81 / MD 68 interchange to assess the effects of the addition of a Park & Ride lot within the interchange. Developed balanced AM and PM peak hour turning movement volumes and ADTs for the network, produced a Vissim model to assess operations, and completed a technical memorandum summarizing the results.

### ***MDSHA, MD 295 Corridor Study***

Traffic Engineer for a series of studies along MD 295 from south of MD 197 to north of I-695. Responsible for the following tasks:

- Developed balanced volume sets for Existing and Future conditions,
- Produced and calibrated Vissim models of MD 295, including MD 175 from Brock Bridge Road to Clark Road / Max Blobs Park Road,
- Performed a detailed assessment of operations along both northbound and southbound MD 295 to identify sources of slowing / congestion, and developed and analyzed a series of potential improvement concepts for 2035 conditions,
- Performed a study to assess improvement concepts for the MD 295 / MD 175 interchange, and
- Performed a before and after study to assess the effects of implementation of a Diverging Diamond Interchange (DDI) at the MD 295 / Arundel Mills Boulevard interchange.
- Compiled outputs, developed summary reports, and presented the results of each study to MDSHA.

### ***MDSHA, I-81 at SR 309 / SR 115 Interchange Study, Baltimore County, MD***

Traffic Engineer for this study to determine if provision of the missing ramp at the study intersection would alleviate congestion along a nearby arterial route, SR 315. Responsible for developing balanced turning movement volume sets for the AM and PM peak hours, producing and calibrating Vissim models of the study network, assessing existing traffic operations along the roadways in the study area, identifying potential U-turning traffic via an origin-destination study, determining the potential benefit of relocating traffic destined for the missing interchange movement, and preparing a summary report detailing the results of these analyses.

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### Design Key Staff



#### **Carolyn Keeler — Environmental Compliance Manager**

**Education:** MS, Biology, Virginia Commonwealth University; BS, Biology, Susquehanna University

Ms. Keeler has over 21 years of environmental permitting and environmental consulting experience. She has worked as an environmental consultant, a state regulator for water quality permits, and as the project manager for a non-profit compensatory mitigation in-lieu fee fund. This varied experience provides a sound knowledge of federal and state environmental regulations, the ability to perform oversight and management at both a project and program level, and strong relationships with the regulatory community.

Ms. Keeler has worked as a private environmental consultant working primarily with public sector clients, a state regulator under the Virginia Water Protection Permit Program with the Virginia Department of Environmental Quality (VDEQ) and as the lead stream restoration program manager for The Nature Conservancy where she served as the main point of contact for 29 stream compensatory mitigation projects exceeding \$8.5 million in funding.

### Experience

#### ***VDOT, Fairfax Route 1 Widening Project Preliminary Engineering Study, Fairfax County, VA***

Leading the efforts to conduct a Preliminary Environmental Inventory to assess the potential environmental resources within the Route 1 Widening Project Study Area. This work involves an extensive desktop survey using both GIS and agency database review. Resources which are being reviewed and analyzed include wetlands, streams, resource protection areas, federal and state, threatened and endangered species, cultural resources (architectural and archeological), socioeconomic and environmental justice populations, community facilities, land use, and hazardous materials. Based on the findings of the desktop survey, a recommendation on the level of the required NEPA documentation and required permitting will be presented to the County.

#### ***DDOT Florida Avenue Project NEPA Documentation, Washington, DC***

Serving as the Environmental Team Leader for the NEPA evaluation for the DC Department of Transportation Florida Avenue project. She is conducting the desktop survey, field review, and database surveys for all natural resources within the developed study area. She is involved with the stakeholder / agency scoping and coordination, as well as the public outreach program. She will be preparing a number of the technical reports and sections of the document including the natural resources technical report (including wetlands, streams, floodplains, water quality, and threatened and endangered species), the purpose and need, engineering alternatives, and indirect and cumulative effects, she is also the primary reviewer of all technical reports and document sections including alternatives development, traffic, public safety, socioeconomic, parks and recreational areas, cultural resources, hazardous materials, visual quality, air quality, and noise analysis.

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### ***FHWA Eastern Federal Lands Highway Division, I-564 Intermodal Connector -Build, Norfolk, VA***

Ms. Keeler is managing the environmental permitting and natural resources requirements for this project involving new four-lane limited access highway at Naval Station Norfolk. Ms. Keeler is also assisting in the noise monitoring and analysis for the required noise study.

### ***VDOT, I-64 Environmental Impact Statement, Richmond to Hampton Roads, VA***

Ms. Keeler was responsible for managing the natural resources studies and documentation for this 75-mile corridor EIS. Ms. Keeler coordinated the wetland/waters delineations, threatened and endangered species reviews, and agency coordination involving all natural resources. Ms. Keeler also prepared the natural resources technical report, participated in agency scoping and public outreach efforts, and prepared numerous sections of both the Draft and Final EIS documents.

### ***VDOT Limited Services for Statewide Environmental Document and Related services - U.S. Route 460 Supplement EIS, Prince George, Sussex, Surry, Southampton, and Isle of Wight Counties and the City of Suffolk, VA***

Ms. Keeler assisted in the review of the ICE technical report and the preparation of the final Noise Technical Report.

### ***Chesapeake Bay Bridge-Tunnel, Thimble Shoal Parallel Tunnel – NEPA Approval Process, Geotechnical Investigation, Mapping Existing Conditions, Hampton Roads, VA***

Ms. Keeler is serving as a lead document writer and overseeing the development of the various disciplines and technical reports for the environmental assessment. She is also preparing a number of chapters of the environmental assessment and is involved in the agency coordination and public outreach efforts. Ms. Keeler also led the water quality permitting efforts for the geotechnical investigation, whose permits were issued within one month of the application submittal to meet the aggressive schedule.

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### Design Key Staff



#### **Jeffrey Randall, PE, PTOE — ITS Engineer — Secondary Contact, Jacobs**

**Education:** BS, Civil Engineering, The Pennsylvania State University

**Registration:** Professional Engineer, MD, DE, PA, FL, NY, VA; Professional Traffic Operations Engineer

Mr. Randall has more than 30 years of domestic and international experience in traffic/transportation engineering and ITS. He has led programs and managed major projects in both the public and private sectors, has published numerous papers and sits on the Freeway Operations Committee of TRB (AHB20), a national standing committee. His experience includes research, engineering and management of projects focused on safety, traffic control systems, traffic operations, transportation systems management, environmental impact, transportation management centers, freeway and incident management and ITS planning, design and installation / integration/testing, as well as ITS training.

### Experience

#### ***MDSHA, CHART Statewide Operations Center Reconfiguration, Statewide, MD***

Project Manager for Jacobs, who as the primary subconsultant to the University of Maryland Center for Advanced Transportation Technology, is leading the majority of the effort to redesign and reconfigure the MDSHA CHART Statewide Operations Center (SOC). The existing SOC was first commissioned in 1994, and is in need of a technology refresh and physical reconfiguration to enhance its efficiency. This project will involve developing an RFP package together with 65% concept-level design drawings, specifications, design-build cost estimate and design-build schedule to allow for bidding by design-build contractors.

#### ***Montgomery County DOT, Traffic Signal System Modernization TSSM Integration and Technical Support Services, Montgomery County, MD***

Task Manager for the ATMS Detection Master Plan Task Order: Examine, evaluate and document recommended system detection needs, subsequently providing a deployment master plan. Utilizing the systems engineering approach and working in partnership with the county, attention will be given to identifying county detection needs, identifying gaps in detection, the appropriate technology and proposing a deployment plan that meets those needs.

Task Manager for the Adaptive Signal Control Technology (ASCT) Task Order: Examine, evaluate and document recommended ASCT, subsequently providing a deployment plan. Utilizing the systems engineering approach and working in partnership with the county, examined alternative ASCT, identified an ASCT solution and ASCT-applicable corridors, designed a pilot test on a corridor and proposed a county-wide deployment plan.

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### ***Port Authority of New York and New Jersey, ITS Master Plans, New York, NY***

Responsible for systems engineering oversight for a project to develop ITS Master Plans for the George Washington Bridge, Lincoln Tunnel, Holland Tunnel, and the Outerbridge Crossing in the New York City metropolitan area. Overseeing the application of the systems engineering process for tasks including operation needs assessment, regional perspective of the plan, development of functional specifications and concept plans, and lastly the master plan document.

### ***FDOT, District One, I-75 Freeway Management System and Satellite Traffic Management Center, Sarasota County and Manatee County, FL***

Responsible for 90% and 100% QA/QC review for the ITS design for a project to design, install, and integrate freeway management system (FMS) field elements, including closed-circuit television cameras, dynamic message signs, RWIS, highway advisory radio, non-intrusive microwave vehicle detectors, an emergency generator back-up system and fiber optics communications cable and transmission equipment along approximately 56 miles of I-75.

### ***FDOT, District Four, Advanced Traffic Management System Installation in Central Broward County, FL***

Responsible for 90% and 100% QA/QC review for the ITS design for a design-build project to design, permit, construct, integrate, and test for the ATMS in central Broward County. This system includes the deployment of fiber optic communications infrastructure, closed circuit television cameras, arterial dynamic message signs, transit signal priority system, microwave vehicle detection system, arterial travel time system, and field and central communications and computing systems.

### ***NYSDOT, Technical Support and Strategic Plan Development Services for NYSDOT Statewide ITS Program, Albany, NY***

Program Manager for a multi-year, multi-task project to enhance statewide ITS program. Various tasks included the development of a statewide ITS strategic plan for state federation of New York State Department of Transportation, New York State Thruway Authority and New York State Bridge Authority, the development of a Statewide Standardization Plan to identify and recommend standards for ITS equipment and deployment, the design and integration of an integrated exchange network to allow multiple stakeholders to share incident management information, the concept design for a statewide 511 system, the development of a transit standards dictionary, and an on-call task-order subtask.

### ***FHWA, Updating Freeway Management Handbook, Washington, DC***

Jeff was primary author to update four of fourteen chapters of the Freeway Management and Operations Handbook, a US Department of Transportation publication that provides professional practice solutions for transportation professionals involved in managing freeways and implementing ITS solutions. Chapters written included: traffic management centers, information dissemination, detection and surveillance, and high occupancy vehicle lanes.

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### Construction Key Staff



#### **John W. Bale, PE, DBIA, MBA — Design-Build Project Manager — Wellington**

Mr. Bales has over 31 years experience in civil engineering and over 15 years of management experience in innovative contracting including design-build and CMGC / CMAR for large transportation projects and experience in design-build for vertical construction projects. Mr. Bale has design experience in 10 states in geotechnical, hydraulic, landfill design, and RCRA and NEPA environmental fields. His leadership roles are on all sides of design-build teams from owner procurement, owner construction management oversight, and design-builder design manager.

#### DESIGN-BUILD / CMGC PROGRAM AND DESIGN ROLES

Mr. Bale is proficient in risk analysis with design-builders and owners, including performance analysis to define individual partner contingencies. He authored design-build and CMGC procurement manuals, design-build construction manuals, and design-build quality management programs.

### Experience

#### ***MDSHA and MDTA, Intercounty Connector, Montgomery and Prince George's Counties, MD***

Acted as project consultant, providing critical consultation to the company's Project Manager and GEC team with regard to procurement and quality for the program.

#### ***TxDOT, Loop 375 Design-Build Project, El Paso, TX***

Acted as project consultant, analyzing approach to design changes needed. Cost: \$200,000,000

#### ***UDOT, Hill Field Interchange Modifications Design-Build Project, Davis County, UT***

Acted as design manager and responsible for leading team in the SOQ process and project delivery. Cost: \$25,000,000

#### ***UDOT, Davis County Operation Upgrades Design-Build Project, Davis County, UT***

Acted as design manager and responsible for design schedule, budget, and quality. Worked with design-build contractor to meet project design needs. Cost: \$90,000,000

#### ***Cuyahoga County Department of Public Works, Pedestrian and Bicycle Bridge Design-Build Project, Cuyahoga County, OH***

Acted as program consultant, assisted program management team in developing procurement documents. Cost: \$25,000,000

#### ***MnDOT, General Engineering Consultant Innovative Contracting, MN***

Acted as program manager, responsibilities included managing a team of professionals in developing procurement documents and performing preliminary engineering for the MnDOT design-build program. Delivered 10 design-build projects including:

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- Steele County Bridges, Steele County, MN
  - TH169 Nine Mike Creek, Minnetonka, MN
- Cost: \$350,000,00

### ***Honolulu Department of Transportation, High Capacity Transit, Honolulu, HI***

Acted as project consultant for the program manager, responsibilities included prepared the design-build and design-build operate and maintain (DBOM) consultant resident engineer manual for PB as the GEC to use in contract management and performing contracts oversight. Cost: \$200,000,000

### ***Utah Department of Transportation, SR-92 Highway, Lehi, UT***

Acted as quality management sponsor, developed and lead team of professionals in establishing approaches for providing both design and construction quality. Established quality systems and consultation during start up and execution to ensure proper, timely communication. Cost: \$120,000,000

### ***MoDOT, Page Olive Connector Design-Build Projects, St. Louis County, MO***

Acted as program project consultant, responsibilities included directing team developing procurement documents and preliminary engineering for the project. Assisted owner with design-build interview and one-on-one team meetings during procurement. Established selection criteria for County used in evaluating proposals and assisted in evaluating qualifications. Cost: \$52,000,000

### ***Utah Transit Authority, Legacy Highway Design-Build Project, Davis County, UT***

Acting as quality manager, responsibilities included quality acceptance and quality assurance for highway construction including design review, plan submittal review, environmental compliance, right of way compliance, and construction of all activities. Cost: \$335,000,000

### ***Health Campus Design-Build Projects, St. Louis County, MO***

Acted as the programs project design-build sponsor, responsibilities included providing assistance to the project team in establishing procurement documents. Cost: \$20,000,000

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### Construction Key Staff



### Craig Robash — Primary Contact — Wellington

Mr. Robash is Director of Wellington Power Corporation Infrastructure with 37 years of electrical construction industry experience ranging from procurement, estimation, and project management. Mr. Robash's emphasis is on client relationships and team building for the delivery of technology based transportation projects, responsibilities include market development, contract administration, and management and oversight of all transportation based projects. His experience includes the successful delivery of transportation projects including marine, class-1 rail, light rail, surface transportation, SCADA, and ITS projects.

### Experience

***MDSHA and MDTA, Intercounty Connector, Montgomery and Prince George's Counties, MD***

Project Executive / Director for design-build electrical/ITS/ETC systems. Cost: \$22,617,000

***Chesapeake Bay Bridge and Tunnel District, SCADA Project, Southeastern VA***

Project Executive / Director for ITS / traffic signal / fiber plant communications / SCADA / life safety. Cost: \$13,900,000

***PennDOT, District 8-0, Harrisburg Metropolitan Area, PA***

Project Executive / Director for ITS State Route 83, Section 063. Cost: \$3,950,000

***PennDOT, District 11-0, Pittsburgh, PA***

Project Executive / Director for central business district signalization, Phase 1B. Cost: \$2,980,000

***Pennsylvania Turnpike Commission, Roadway Weather Information Systems Design-Build, Statewide, PA***

Project Executive / Director for ITS / Roadway Weather Information Systems. The project furnished and installed a complex design-build RWIS between Milepost 10.2 and Milepost 317.5 and Milepost A57.4 and Milepost A129.5 across Pennsylvania. Cost: \$1,685,000

***Pennsylvania Turnpike Commission, Fog Detection System, PA***

Project Executive / Director for ITS / fog detection system. Cost: \$909,000

***PennDOT, District 11-0, Liberty Tunnel, Pittsburgh, PA***

Project Executive / Director for Phases I, II & III and Rehabilitation of Entire Tunnel Lighting System

***PennDOT, District 8-0, Harrisburg ITS Regional Design-Build Project, Harrisburg, PA***

Project Executive / Director for Harrisburg Area Intelligent Transportation System. Awarded Pennsylvania ITS Project of the Year. Cost: \$19,800,000

***PennDOT, District 11-0, Squirrel Hill Tunnel, Pittsburgh, PA***

Project Executive / Director for Squirrel Hill Tunnel Rehabilitation of Distribution System. Cost:



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### Construction Key Staff



#### G. James Fuss — Construction Manager — Wellington

Mr. Fuss has over 35 years of electrical construction and heavy civil construction experience ranging from Journeyman Electrician, General Superintendent, and Project Manager. His responsibilities include overall managerial aspects such as contract administration, safety, planning, pre-construction planning, scheduling, subcontractor coordination, and site point of contact for the client. His past projects include management and supervision of long-term projects in the heavy / highway transportation markets, as well as waste water treatment, rail transportation, and power generation and distribution.

### Experience

***MDSHA and MDTA, Intercounty Connector, Montgomery and Prince George's Counties, MD***  
Construction Manager for design-build electrical / ITS / ETC systems. Cost: \$22,617,000

***CSX Transportation, CSX Intermodal, McKees Rocks, PA***  
Construction Manager for on-going McKees Rocks Intermodal electrical and fiber-optic communication infrastructure. Cost: \$3,100,000

***Chesapeake Bay Bridge and Tunnel District, SCADA Project, MD***  
Construction Manager for ITS / traffic signal / fiber plant communications / SCADA / Life Safety. Cost: \$13,900,000

***MDSHA, The Woodrow Wilson Memorial Bridge, Oxon Hill, MD***  
Construction Manager for BR-3A bascule span portion and BR-3C Maryland approaches, I-95 / I-495 Capital Beltway. Cost: \$30,637,000

***Allegheny County Sanitary Authority, Primary Aeration and Odor Control Electrical Systems, Pittsburgh, PA***  
Construction Manager for dewatering Process Electrical Systems Digital Control and Fiber Optic Systems. Cost: \$13,162,000

***Virginia Department of Corrections, Sussex Maximum Security Prison***  
Construction Manager for multi-building maximum security prison. Cost: \$11,480,000

***ABB Environmental Systems, PENELEC Conemaugh Power Station, New Florence, PA***  
Construction Manager for flue gas desulfurization system. Cost: \$17,500,000

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### Construction Key Staff



#### Michael Hogg — Cost Estimator — Wellington

Mr. Hogg has over 21 years of heavy / highway construction industry experience with an emphasis on electrical, civil, and engineering cost estimating. Responsible for all aspects of the estimating process from cost and scope development through bid delivery process.

He has extensive experience in the transportation technologies industry and electrical construction markets, including the development of several major design-build transportation based projects. Mr. Hogg created and executed work assignment design scope and task negotiated driven construction and engineering cost justifications and possesses strong estimating, negotiating, management, risk, and project scheduling skills.

### Experience

***MDSHA and MDTA, Intercounty Connector, Montgomery and Prince George's Counties, MD***  
Project Estimator / Estimating Manager for design-build electrical / ITS / ETC systems. Cost: \$22,617,000

***Chesapeake Bay Bridge and Tunnel District, SCADA Project, MD***  
Project Estimator / Estimating Manager for ITS / traffic signal / fiber plant communications / SCADA / life safety. Cost: \$13,900,000

***PennDOT, District 8-0, ITS Design-Build, York County, PA***  
Project Estimator / Estimating Manager for York County ITS. Cost: \$3,900,000

***PennDOT, District 11-0, Central Business Signalization, Pittsburgh, PA***  
Project Estimator / Estimating Manager for central business district signalization, Phase 1B. Cost: \$2,980,000

***PennDOT, Intelligent Transporations Systems, Roadway Weather Information System***  
Project Estimator / Estimating Manager for system and associated structure install, wireless system infrastructure, fiber-optic communication systems, UPS and battery back-up systems. Cost: \$1,685,000

***PennDOT, District 11-0, West End Bridge, Pittsburgh, PA***  
Project Estimator / Estimating Manager for West End Bridge bypass lane control – ITS/Signals. Cost: \$1,130,000

***Port Authority of Allegheny County, North Shore Connector, Pittsburgh, PA***  
Project Estimator / Estimating Manager for North Shore Extension Tunnel for Pittsburgh light rail transit system general construction, rail signal, communication, CCTV, and SCADA system. Cost: \$91,500,000



## IS 270 – Innovative Congestion Management Contract Montgomery and Frederick Counties

***PennDOT, District 8-0, North Atherton Street Project, State College, PA***

Project Estimator / Estimating Manager for ITS / Signals Awarded ITS Project of the Year. Cost: \$1,000,000

***PennDOT, District 8-0, Harrisburg ITS Regional Design-Build Project, Harrisburg, PA***

Project Estimator / Estimating Manager for Harrisburg Area Intelligent Transportation System. Awarded Pennsylvania ITS Project of the Year. Cost: \$19,800,000

***PennDOT, District 11-0, Fifth and Forbes Avenues Pedestrian Safety and Mobility Improvements, Pittsburgh, PA***

Project Estimator / Estimating Manager for signals project. Cost: \$543,000

## IS 270 – Innovative Congestion Management Contract Montgomery and Frederick Counties



### Construction Key Staff



#### **Amy Heine, PE, CCP — Project Controls — Wellington**

Ms. Heine has over 20 years of experience in the heavy civil construction industry focused on project management and project controls. Her expertise in both Primavera P3 and P6 scheduling software with extensive construction operations knowledge and design-build experience. Proficient in the client services, including change order and claim preparation, strategic planning and dispute resolution, quality control planning, and technical document preparation.

### Experience

#### ***MDSHA and MDTA, Intercounty Connector, Montgomery and Prince George's Counties, MD***

CPM scheduling services, construction team interfacing for construction sequencing, and responsible for project generation and submission of all time impact analysis. Cost: \$22,617,000

#### ***MDSHA, Woodrow Wilson Bridge, Maryland Approach, Oxon Hill, MD***

Served as assistant project director, administering contracts, subcontract and vendor management, critical correspondence, planning and scheduling, and managing change order processing. Responsible for as-built integrity and as-planned accuracy of the project CPM schedule. Cost: \$265,000,000

#### ***Capital Beltway Express, LLC, I-495 HOT Lanes, Commonwealth of VA***

CPM scheduling services, analyzing and modifying schedule development to fit project parameters. Cost: \$1,300,000,000

#### ***Transurban, I-495 HOT Lanes, Commonwealth of VA***

Developed baseline tolling and traffic management schedule. Provided monthly updates. Cost: \$1,300,000,000

#### ***I-95 Express, LLC, I-95 HOT Lanes, VA***

CPM scheduling, monitoring, and analyzing. Cost: \$600,000,000

#### ***MnDOT, TH 36 Stillwater Bridge, Lunda Ames Joint Venture, Stillwater, MN***

CPM scheduling services, sequence determination of construction, and progress updates. Cost: \$200,000,000

#### ***Crosstown Transit Constructors, Eglinton-Scarborough Crosstown Tunnel, Ontario, CN***

Construction from Keele to Yonge. CPM scheduling services, overall project management support including planning, claim preparation, and disputes before the DRB. Cost: \$282,000,000

#### ***New York State Thruway Authority Tappan Zee Hudson River Crossing Project, Westchester, NY***

CPM scheduling services. Cost: \$3,125,000,000

## IS 270 – Innovative Congestion Management Contract Montgomery and Frederick Counties



**Metropolitan Council, Central Corridor Light Rail, Civil West, Minneapolis and St. Paul, MN**  
CPM scheduling services, generation, and submission of all time impact analysis. Cost: \$113,000,000

**MnDOT, I-90 Dresbach Bridge, Winona County, MN**  
CPM scheduling services, interfacing with construction team for construction sequencing. Cost: \$200,000,000

**US Bureau of Reclamation, Hoover Dam Bridge, Las Vegas, NV**  
CPM scheduling services. Cost: \$114,000,000

**MnDOT, I-35W, St. Anthony Falls Bridge, Minneapolis, MN**  
CPM scheduling services and bi-monthly update submissions of cost loaded project schedule. Interfacing with Minnesota Department of Transportation. Cost: \$265,000,000

**Utah Transit Authority, Legacy Parkway Design-Build Project, State of Utah**  
Acting as Assistant Structures Manager, responsibilities included contract administration, planning, cost control, scheduling of structure portions, coordinated post design services including field change requests, information requests, design change requests, and as-build documentation. Oversight and participation in joint venture business management and administrative functions. Cost: \$335,000,000

**Utah Transit Authority, I-215 LRT Bridge Structure, State of Utah**  
Served as project manager responsible for contract administration. Responsibilities included planning, cost control, scheduling, subcontractor coordination, quality control, safety, and field operation oversight to ensure timely finish. Developed short interval plan and schedule for reconfiguring of track, turnouts, signalization, and OCS elements in two 52-hour shut down windows. Cost: \$3,500,000



PROJECT UNDERSTANDING AND  
PROGRESSIVE DESIGN-BUILD APPROACH



## IS 270 – Innovative Congestion Management Contract Montgomery and Frederick Counties

### 3. PROJECT UNDERSTANDING AND PROGRESSIVE DESIGN-BUILD APPROACH

#### 3i. Understanding of the Project Goals

The Interstate 270 (IS 270) corridor ranks as the most congested corridor in the entire state with traffic volumes reaching up to 240,000 vehicles per day. To alleviate congestion issues, the Wellington Power Corporation – Jacobs Engineering Group Team (**Wellington/Jacobs Team**) will utilize a progressive design-build (PD-B) procurement method, partnering with you to deliver a well-managed product that improves mobility, safety, and is operable, maintainable, and adaptable. Our focus will be on the reduction of recurring and non-recurring congestion and improving travel time reliability along the corridor.

IS 270 runs north-south with two connections to I-495 at the south end, with peak period HOV lanes in each directions. IS 270 connects to I-495 to the east in the Bethesda area at the MD 355 interchange and the IS 270 Spur connects to I-495 to the south/west to and from the American Legion Bridge/NOVA area. The east connection serves Washington DC, Bethesda, College Park, the I-95 corridor, US 50/Annapolis/Eastern Shore, and Andrews AFB/Southern Maryland locales, while the south/west connection serves the Clara Barton and George Washington Parkways, Dulles Airport, I-66 and I-95 toward Richmond.

IS 270, the networked area arterials, and major streets serve as parallel routes and feeders complementing and supporting IS 270's function. They are the economic life-stream of the businesses and communities along the Washington-to-Frederick corridor. The quality-of-life for the 1.5 million residents of the affected corridor is hugely dependent upon effective and efficient highway transportation operations, accomplished in concert with ample, interconnected mass transit opportunities.

While contract's goals address mobility and safety improvements, as well as delivering maintainable and operable solutions, **the most important outcome of the IS 270 project is to reduce congestion in the corridor. Through a wide range of incremental improvements, road users will experience an increase in vehicle throughput and delay reductions.**

This will entail a 24 hour a day, seven day a week, 365 days a year operational plan consisting of continuous traffic flow detection and evaluation, immediate response to issues and incidents, automatic traffic control and information implementation, instantaneous communications between operating agencies and, as the case may require, a quick restoration of highway operations giving due regard to medical and hazardous material emergencies.

Mobility, the ability to reasonably move freely about the corridor, is a major project goal and it is also a clear indication of transportation safety achievement. IS 270 corridor travelers should expect an efficient trip predictable with minimum disruptions, rapid removal of incidents, adequate real-time communication of roadway conditions, corrective action taken at operational and safety hot-spots, and the provision of alternate/bypass routes for the diverting of traffic to maintain traffic flow within the corridor. In other words, **IS 270 corridor travelers expect the total management of the corridor network at all times.**



## IS 270 – Innovative Congestion Management Contract Montgomery and Frederick Counties

With their current knowledge and envisioned future operations, CHART, Montgomery County, state police, other law enforcement, and other agencies, will play a significant participatory role in the operational design of this project.

There are a myriad of opportunities to improve mobility and as a result, safety, along the corridor:

- Geometric improvements at key interchanges and intersections
- Provision of auxiliary lanes and widened ramps to avoid unnecessary queuing
- Local arterial roadway improvements to efficiently and safely accommodate diverted traffic
- Provision of traffic responsive traffic signal systems

Any improvement will have to work in conjunction with the existing HOV lanes.

Road user understanding and resultant road user behavior is of paramount importance along a heavily travelled and highly active expressway such as IS 270, a roadway whose diverse communities and users are unique at every interchange and whose wellbeing relies to a large degree upon the economic vitality that highly mobile and safe traffic operations bring to the corridor.

The success of the IS 270 corridor to adequately serve the community and business transportation needs depends to a large degree on a balancing of highway and transit needs – pedestrian vehicles, buses, motor-carriers, metro rail and bus operations, and long-distance railroad operations. The noted transportation forms are increasingly dependent upon, or involved with, pedestrian and bicycle movements and access.

There are hundreds of operational improvements that might be made to the IS 270 corridor to enhance vehicle-throughput, reduce delay, and provide greater system performance and predictability, and better travelling experiences. The improvements should take shape with an eye to the future so that the envisioned needs plan for in the future (e.g., mobility as a service, autonomous vehicle operation, V2x, etc.).

Whatever strategies and tactics are employed at this time, they should be staged to be expandable in the future as new ITS and other technologies become available and the corridor traffic flow characteristics change to utilize these advances in traffic operations.

### Risk

The project will utilize the Progressive Design Build (PD-B) procurement method, which utilizes qualifications as the basis for selection, offers many significant benefits, and alleviates some risk to SHA over traditional delivery methods, such as design-bid-build. These include:

- A simplified design-build procurement process, saving the SHA time and money
- Lower proposal costs resulting in an increased level of industry interest and competition
- A procurement process that allows SHA to select the service provider that best supports their community and not just the “low bidder”
- Early cost certainty and ability to work to a budget, ensuring appropriate funding is available and not exceeded,
- Creates a collaborative environment that encourages innovation and produces a thoughtful, tailored, solution to all of the owner’s specific project challenges,
- Allows for the highest degree of SHA interaction and control, ensuring all SHA direction and intent is addressed during design and construction,





## IS 270 – Innovative Congestion Management Contract Montgomery and Frederick Counties

- Provides a transparent price development process that includes an off-ramp to SHA should they decide not to proceed.

This is not to say that there is no risk. The PD-B process still requires the management of design and construction risks like schedule, funding, personnel commitment, etc., but other risks exist as well. Indeed the uncertainty associated with environmental permitting outcomes and mitigation commitments during the PD-B process makes the ability to link these processes more challenging.

This is especially true if the permit conditions result in unexpected additional design and/or construction requirements that are more costly and/or more time consuming. When these conditions are available to the Design-Builder in advance of entering into the PD-B contract, there is a reduced element of risk to the Design-Builder. However, if the contract were advanced to a point where it begins immediately after NEPA approval is received, thereby incorporating more of the responsibility for permitting activities into that contract, the overall delivery of the project could potentially be accelerated, although the potential for NEPA or permit reanalysis may be greater.

Coordination with the Watkins Mills (WM) Interchange project will be closely maintained. Since the schedules of these independent projects are not aligned, and the WM design will influence this project. Coordination is essential to prevent issues with each project. It will be imperative to form a joint committee of members from each project and meet regularly to ensure this coordination and risk management.

Integration with SHA's CHART system will be important for project success. It is very probable that ITS will encompass much of the solution to the IS 270 Corridor. SHA is no stranger to ITS and has long understood the importance of a reliable and available system. To provide a solution that does not fit into the CHART system architecture will inevitably hinder the efficiency of the delivered solution, and as such work against the goals of the project. The Wellington/Jacobs Team is intimate with the CHART system and a sub consultant has done extensive integration for CHART. Early and often coordination with the CHART integration group and the Team will serve to ensure that any delivered ITS system maintains CHART's efficiency.

### Project Management

The Wellington/Jacobs Team prides itself as a working partner with every client and its subcontractors in a "team approach" to executing a project through to successful completion – a critical success factor in meeting the schedule and project goals. Wellington Power and Jacobs have worked successfully together on all types of design and construction projects, which will facilitate team coordination and communication activities on this project as well.

Planning and scheduling is the first step to organizing and controlling the execution of any project. The project management plan (PMP) establishes the project procedures adhered to during the execution of the project and directs work activities. Strict adherence to these procedures is essential to the successful completion of the project, meeting requirements on time and on budget. Contents of the PMP shall include, at a minimum, the following:

- **Project Overview** –basic project description, project background and project goals.
- **Organization and Responsibility** –identifies team members, roles, and responsibilities.
- **Project Management** –administration processes and procedures for managing the project
- **Task Plan** –work breakdown of tasks and activities necessary to perform the work scope.



## IS 270 – Innovative Congestion Management Contract Montgomery and Frederick Counties

- **Schedule** – A complete Primavera project schedule based on critical path method (CPM)
- **Quality Assurance and Control (QA/QC) Plan** –define and establish the quality objectives and procedures that will assist the team in providing a quality product to SHA.
- **Project Management Software**- Implement and manage ACONEX software.
- **Risk Sharing Pool** – Development of a risk sharing pool with the SHA

Cost control will be critical to the project's success. We approach cost control early by:

- Establishing budgets and contingencies
- Developing a cost-based risk analysis of conditions impacting cost
- Evaluating possibilities of outside influence – including labor shortages or design uncertainties
- Using parametric estimating techniques at each milestone
- Adjusting to the design (by system) to adhere to established cost targets.

Schedule control will identify efficiencies and strategies for avoiding potential schedule delays before start-up and throughout the life of the contract. This involves the analysis and evaluation of alternative technical and design solutions, work sequencing, and resource needs.

The Wellington/Jacobs Team will employ value engineering (VE) to optimize the allocation of your limited funds without reducing the quality of a project. Our VE team with diverse backgrounds will be assembled and use the five phases of VE to guide the team through the VE process:

- Investigation (function analysis/team focus)
- Speculation (creative brainstorming)
- Evaluation (analysis of alternatives/life cycle costs)
- Development (development of technical and economic supporting data)
- Presentation (presentation of team findings)

We view value engineering as an opportunity to enhance the success of the IS 270 project by analyzing the major system choices. It is most effective if begun earlier in the development of the project, before irreversible design decisions have been made.

### 3iii. Design-Builder's Approach to Progressive Design-Build

The Wellington/Jacobs Team have considerable past teaming experience in the challenging technology based DB market. These projects, among others, emphasized Intelligent Transportation Systems and supported roadway improvement infrastructure. The Wellington/Jacobs Team received the 2009 Intelligent Transportation Society of Pennsylvania Project of the Year Award for the Harrisburg Regional ITS DB Project.

#### Approach to Design-Build Contracting

The Wellington/Jacobs Team has established multiple past DB teaming agreements. These agreements have been based upon a collective desire to deliver high value transportation-based technology solutions with a focus on owner value and project performance. **It should be noted that the team was the last active engineering/construction team to deliver large scale Intelligent Transportation System and Communication System Assets in the IS 270 corridor as part of the Intercounty Connector Phase A Project.** The team's executive staff, project management, engineering, and craft trades are established, long term employees of their respective firms and have collaborated in the team environment on multiple past projects.



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### Program Schedule Management

The Wellington/Jacobs Team will actively and aggressively manage the design and construction phase schedule utilizing critical path method scheduling tools. Staff members who constructed, managed, and maintained the ICC-Phase A ITS Schedule Program Schedule will be employed on the IS 270 Project. These team members are diligent in scheduling critical engineering and construction tasks, including the operational challenges associated with the IS 270 Corridor.

### Design Program Management

The design program will be managed using Jacobs' corporate practices and policies that are anchored in understanding project goals, ensuring coordination and communication with the client, and managing cost, schedule and budget. Success will be achieved if and only if this approach is maintained from conceptual development, to pre-design and preliminary engineering, through final design and into construction support design services.

### Design and Construction Management

In accordance with Wellington's standard DB program management practices, the Wellington/Jacobs Team will proactively manage the design and construction program. Since the DB process is management and engineering intensive, the team will hold weekly meetings with provisions to add meetings based upon requirements and needs. The project meetings will:

- Establish and maintain a partnership with SHA
- Establish and maintain direct lines of communications between all of the stakeholders, subconsultants, and subcontractors
- Establish common project goals and track progress to achieve established goals
- Establish and maintain design standards and practices
- Establish and maintain safety goals and standards
- Establish and maintain project design and construction schedules
- Establish and maintain QA/QC design-construction standards and practices
- Establish and maintain environmental standard and practices

### 3iii. Composition of the Design Builder

Wellington Power in association with Jacobs will be recognized as the project team. Wellington will act as the prime contractor while Jacobs will serve as the lead design firm. As documented in Section 4, Wellington Power Corporation and Jacobs Engineering Group have partnered on a number of successful design-build projects.

**Wellington Power Corporation**, headquartered in Pittsburgh, Pennsylvania, is a leading provider of electrical construction services nationwide. Wellington provides the diversification and innovation necessary for meeting the electrical, energy, and communications needs of the 21st century. Corporate, institutional, and governmental entities across the United States have drawn upon Wellington's specialized expertise to complete a vast array of projects that span Transportation, Healthcare, Utility, Educational, Institutional, and Commercial markets.

Wellington Infrastructure has championed the installation of intelligent transportation systems. This roadway management infrastructure is comprised of fiber optic networks, dynamic or variable messaging, closed circuit monitoring systems, and highway advisory radio. The integration of these components provides for more synchronized, efficient traffic management. Working in



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conjunction with SHA and Departments of Transportation in Pennsylvania and Virginia, as well as the Federal Highway Administration, Wellington Infrastructure has installed in excess of 200 miles of intelligent transportation systems on active urban interstate highways. Wellington will be responsible for all contractual and financial obligations associated with engaging in a prime contract with the SHA. Wellington will also be fully responsible for the overall management and execution of contract work and tasks assignments.

**Jacobs Engineering Group** is a national leader in the engineering industry, delivering services that encompass traffic operations, ITS, communications, environmental engineering, planning, design, program management, and construction services for some of the nation's largest and most complex projects. Jacobs staff includes engineers, planners and other professionals specializing in the areas of ITS planning, design and integration, traffic engineering, roadway design, right-of-way research, environmental permitting and planning, transportation planning, geographic information system (GIS) services, and drainage and erosion control. Jacobs has a long history of providing transportation design services to SHA.

Jacobs will be responsible for all professional design services, including oversight and management of the entire engineering program. Jacobs will also enlist the services of subconsultant Century Engineering to provide highway and traffic engineering design.

The project team will jointly execute and manage all tasks assigned by contract from a local office. From a single location, the team will execute all construction management, construction services, and design change management. This office will be located near or within the limits of the project location and exclusively used for the execution of all of the tasks associated with this contract.

### Wellington-Construction Management

Wellington will build and maintain the following team for the duration of the proposed contract:

#### DB Project Manager –John Bale, PE

The DB Project Manager will be responsible for the design and construction of the project in its entirety and will report to an executive committee within Wellington Power Corporation. The DB Project Manager will have complete oversight of all Key Staff. The DB Project Manager will also be responsible for the following management functions:

- Point of contact between the Wellington/Jacobs Team and SHA
- Administration of pre-construction and construction services
- Management of DBE goals

#### Construction Manager – James Fuss

The Construction Manager will be responsible for the management of construction services delivery and will oversee the following key elements of the construction program:

- Pre-construction services
- Construction services delivery
- DBE Coordination
- Coordination with sub-contractors
- Safety Management
- Schedule management



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### Cost Estimator – Michael Hogg

The Cost Estimator will have overall responsibility for development of construction and engineering estimates and budgets, as well as the following key elements of the construction program:

- Development of OPCC and CAP(s)
- SHA/independent cost estimator meetings

### JACOBS – Design Team

JACOBS will lead the Wellington/JACOBS Team in the design of the IS 270 project. While JACOBS is the Lead Design Firm, they will rely on significant support from Century Engineering, Inc.

### Project Design Manager – Stanley Niemczak, PE (JACOBS)

The Project Design Manager will have complete oversight of the design Key Staff and is responsible for the following management functions:

- Administration of concept and preliminary engineering services
- Design sub-contractors coordination
- Administration of final design

### Highway Engineer – Anthony Frascarella, PE (Century)

The Highway Engineer will be responsible for the management of highway design services delivery and will oversee the following key elements of the design program:

- Highway design services
- All civil engineering services

### Traffic Engineer – Rebecca Myrick, PE, PTOE (Century)

The Traffic Engineer will manage the development and delivery of the traffic engineering services and will lead the following key elements of the design program:

- Modeling, simulation and optimization services
- Maintenance of Traffic design
- Traffic Engineering studies
- Traffic Engineering design

### Environmental Compliance Manager – Carolyn Keeler (JACOBS)

The Environmental Compliance Manager will oversee all environmental issues related to the project, and will manage the following key elements of the design program:

- Development of MEPA/NEPA documentation and technical reports
- Design/coordination of environmental features mitigation
- Coordination with federal, state and local permitting/approval agencies
- Developing/monitoring environmental commitments and permit application

### ITS Design Manager – Jeffrey Randall, PE, PTOE (JACOBS)

The ITS Design Manager will be responsible for all design services related to ITS and transportation management/operations, and will manage the following key elements of the design:

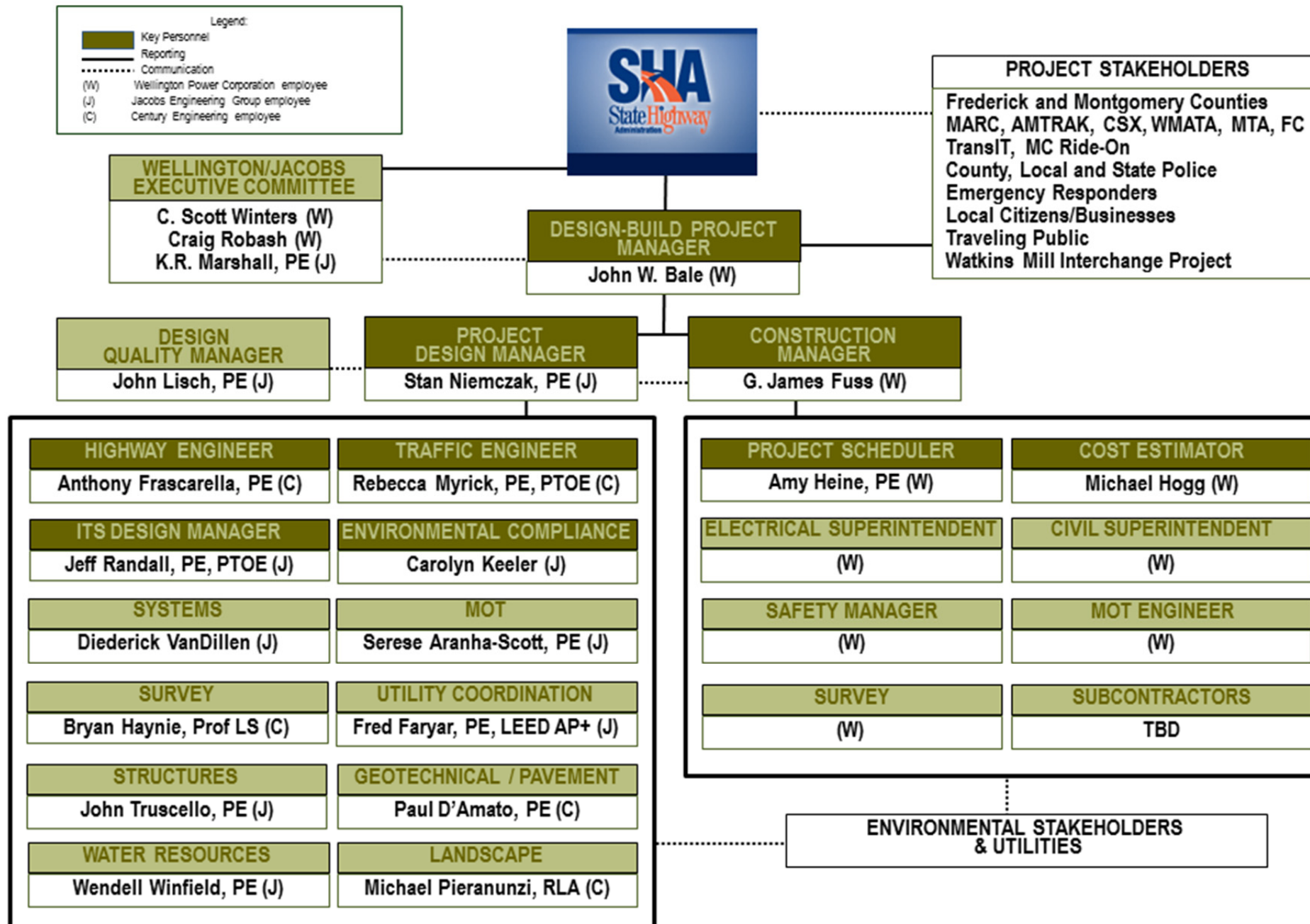
- Advanced traffic management solutions development
- Integration, testing and commissioning of ITS
- Systems Engineering application
- ITS central and field design services

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Organization Chart

Commitment Chart



	OPCC	CAP	Pre-Construction Services	NEPA/MEPA	Utility Coordination	Right of Way	DBE Compliance	Construction Services	Design Services	Schedule Controls	Dedicated Hours Per Week Design	Dedicated Hours Per Week Construction
Design-Build Project Manager	✓	✓	✓	✓	✓	✓	✓				20	20
Construction Manager			✓		✓		✓	✓		✓	40	40
Cost Estimator	✓	✓	✓								40	40
Project Scheduler			✓							✓	10	30
Project Design Manager	✓	✓	✓		✓				✓	✓	30	20
Highway Engineer					✓				✓		40	16
Traffic Engineer									✓		40	16
Environmental Compliance Manager				✓					✓		40	16
ITS Design Manager									✓		40	30



DESIGN-BUILD TEAM'S ABILITY  
AND/OR EXPERIENCE

# IS 270 – Innovative Congestion Management Contract Montgomery and Frederick Counties



## 4. DESIGN-BUILD TEAM ABILITY & EXPERIENCE

Our Wellington/Jacobs Team brings the experience, skill sets, and services you require to address any challenges and execute the project successfully. Our staff experience was presented in previous sections of the statement of qualifications and this section will demonstrate our team’s ability to deliver a sustainable, adaptable, and maintainable IS 270 project through our project experience.

**Most importantly, Wellington Power and Jacobs have worked extensively together on multiple design-build contracts.** The team has provided and is providing these services through contracts for SHA, the Pennsylvania Department of Transportation (PennDOT), and other state agencies. These projects were highly successful and this relationship ensures that the IS 270 project will be as well. In the Mid-Atlantic area, we worked together on the Intercounty Connector, Contract A, PennDOT Harrisburg Area ITS DB, PennDOT 8-0 York County ITS DB, Installation of ITS RWIS between MP 10.2 and MP 317.5, MP A57.4 and MP A129.5 for the Pennsylvania Turnpike Commission, and the Chesapeake Bay Bridge and Tunnel Sign Control and Data Acquisition System (SCADA) project. Below is a matrix summarizing much of our team’s experience and detailed project descriptions follow.

Project	Firm(s)	Key Staff	TIC	DB	On budget delivery	Adjacent project coordination	Minimized impacts	HOV	CCTV	ITS	NEPA/MEPA	Geotechnical	Utilities	ROW	Permits	Traffic	Structures	Noise	MOT	SWM	Public outreach	
MdDOT ICC Contract A	WP + JEG + CEI	JB/JF/CR/MH/AH	\$487M	✓	✓	✓			✓	✓			✓			✓						✓
PennDOT Harrisburg ITS	WP + JEG	CR/MH	\$19.8M	✓	✓	✓			✓	✓		✓	✓			✓	✓		✓			
PA Turnpike RWIS between MP 10.2 and MP 317.5, MP A57.4 and MP A129.5	WP + JEG	CR/MH/SN	\$1.7M	✓	✓					✓			✓			✓	✓		✓			
CBBT SCADA	WP + JEG	JF/CR/MH	\$13.9M		✓				✓	✓						✓	✓		✓			
PennDOT Fort Pitt Tunnel & Bridge	WP	CR/MH	\$31M		✓				✓	✓						✓	✓		✓			
Pittsburgh North Shore Connector	WP + JEG	CR/MH	\$91.5M	✓	✓	✓			✓													✓
PG&E Smart Metering	WP		\$365M		✓								✓									✓
MDOT Woodrow Wilson Memorial Bridge	WP	CR/JF	\$30.6M		✓	✓			✓	✓						✓	✓					✓
Louisville-Southern Indiana Ohio River Bridges – Downtown Crossing	JEG	JR	\$860M	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
PennDOT I-95, Section ITC-ITS & ITF-ITS	JEG	SN	\$32.2M	✓	✓	✓			✓	✓						✓	✓		✓	✓		✓
PennDOT I-76 ITS Enhancements	JEG	SN	\$800K*			✓	✓			✓			✓	✓		✓	✓		✓	✓		✓
VDOT Capital Beltway HOT/HOV Lanes	JEG		\$1.4B		P3	✓	✓	✓			✓				✓				✓			✓
PennDOT York County ITS	WP + JEG	CR/MH/SN	\$4M	✓	✓				✓	✓												
Montgomery County TSSM	JEG	JR	\$49M				✓			✓		✓				✓						
CBBT Thimble Shoal Channel Tunnel	JEG		\$750M	✓	✓		✓				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

**Legend:** \* = contract value, not construction value, WP = Wellington Power, JEG = Jacobs, CEI = Century Engineering  
JB = John Bale, JF = James Fuss, CR = Criag Robash, MH = Michael Hogg, AH = Amy Heine, SN = Stan Niemczak, JR = Jeff Randall



## IS 270 – Innovative Congestion Management Contract Montgomery and Frederick Counties



### INTERCOUNTY CONNECTOR – CONTRACT A DESIGN-BUILD



#### Client

Maryland Department  
of Transportation  
ICC Project  
Management Office  
11710 Beltsville Drive  
Beltsville, MS 20705

#### Client Contact

Eric Marabello  
410.545.8770  
emarabello@  
sha.state.md.us

#### Contract Duration

2008-2012

#### Contract Type

Subcontract

#### Construction Value

\$22,617,000

#### Contract Status

Complete

#### Location

Rockville, MD

Wellington Power, in conjunction with Jacobs and Century, provided a design-build solution for the electrical and ITS infrastructure, servicing the Intercounty Constructors joint venture for the entirety of the Intercounty Connector, Contract A.



This contract consisted of 7.1 miles of new intercounty connections. The extension of electrical construction, intelligent transportation assets, and infrastructure followed interstate highways I-270 and I370, Maryland state route MD 97, and municipal roadway Shady Grove Road. Extensive coordination was required with adjacent Contract B and Contract C.

**Jacobs** led the ITS design efforts and was responsible for overseeing the implementation of the electronic toll collection (ETC) open road tolling (ORT) elements. **Century** provided project quality management for design, construction and environmental, preparing a project quality management plan which defined the quality requirement for the project and a design qc plan, construction qc plan and environmental qc plan to address all aspects of quality oversight for the project. **Wellington Power** provided, installed, and commissioned the following key construction elements for the intelligent transportation system, electronic toll collection system, traffic signal systems, highway lighting system, and sign lighting system.

The ITS assets included:

- 14,650 12 fiber single mode spur cable
- Level 3 fiber-optic system interconnection to I-270
- 40 ITS control cabinets pole and pad mount

The highway and sign lighting included:

- 44 Sign lighting systems
- 160 Mast arm highway lighting structures and luminaries
- 20 Decorative bridge mount lighting structures
- 102,400LF Multi-conductor cable-duct
- 41 Metered electric utility services

Traffic signal system included:

- 19 Traffic signal support structures
- 5 Microprocessor based traffic signal controllers
- 55 Vehicular traffic signal heads

## IS 270 – Innovative Congestion Management Contract Montgomery and Frederick Counties



### HARRISBURG AREA ITS DESIGN-BUILD



#### Client

PennDOT District 8-0  
2140 Herr Street  
Harrisburg, PA 17103

#### Client Contact

Richard Deen, PE  
717.783.3949  
rdeen@state.pa.gov

#### Contract Duration

2006-2011

#### Contract Type

Prime

#### Construction Value

\$19,800,000

#### Contract Status

Completed on  
schedule

#### Location

Harrisburg  
metropolitan area, PA

Wellington Power Corporation, acting as prime contractor, partnering with Jacobs Engineering Group, delivered a design-build ITS solution for the PennDOT Engineering District 8-0. This multi-phased, progressive design-build project provided a complete operational ITS solution for the entire five county region of central Pennsylvania and the greater Harrisburg area.

With a growing metropolitan population of 630,000, the project encompassed 60 miles of heavily traveled, high speed, limited access interstate highway. Included with this project was the entire Harrisburg Capital Beltway system and adjacent highways I-81, I-283, I-83, US 11 and US 15, PA 322, PA 283, and PA 581.

This \$19.8 million project resulted in the implementation of:

- 40 CCTV cameras and structures
- 20 Variable message signs
- 11 Highway advisory radio transmitters
- 22 Highway advisory radio advisory signs
- 1 Roadway detection system
- Workstation software upgrades
- Traffic management sensor
- Video wall and distributive video control

The project included the design and construction of a TMC for PennDOT District 8-0 and integration of all TMC and video management subsystems. A key element of the TMC was the implementation of a video management system that not only distributed video to PennDOT internally, but also provided video distribution to other agencies and, eventually through an XML interface, to the public via the Internet. The video management system was integrated with the CCTV system to provide a single platform for camera controls pan, tilt, and zoom as well as the video and data wall for high resolution video image display and traffic condition data.

The following additional construction elements were associated with this project:

- Maintenance and protection of traffic
- Temporary concrete barrier
- Overhead VMS structures
- Center mount dynamic message signs structures
- 55-foot and 70-foot CCTV structures
- Overhead static sign structures and static signage
- VMS structural foundations
- In-ground power raceway systems
- Raceway boring
- Power distribution
- Center mount dynamic message signs (DMS) structures

## IS 270 – Innovative Congestion Management Contract Montgomery and Frederick Counties



### ITS ROADWAY WEATHER INFORMATION SYSTEMS (RWIS) DESIGN-BUILD



#### Client

Pennsylvania Turnpike  
Commission (PTC)  
700 S. Eisenhower Blvd.  
Middletown, PA 17057

#### Client Contact

Amber Reimnitz  
717.831.7267  
areimnit@paturnpike.com

#### Contract Duration

2012-2013

#### Contract Type

Prime

#### Construction Value

\$1,685,000

#### Contract Status

Completed on schedule

#### Location

Beaver, Allegheny,  
Cumberland, Dauphin,  
Chester, Lehigh, Luzerne  
and Wyoming, PA

Wellington Power Corporation, as prime contractor, furnished and installed a complex design-build RWIS between Milepost 10.2 and Milepost 317.5 and Milepost A57.4 and Milepost A129.5 across Pennsylvania. The project spanned across multiple counties, including Beaver, Allegheny, Cumberland, Dauphin, Chester, Lehigh, Luzerne and Wyoming.

The project included the following electrical elements:

- 8 RWIS and the associated structures and equipment
- 9 UPS and battery back-up systems for RWIS and wireless repeater equipment
- 5 Wireless system infrastructure for third party PTC wireless contractor
- 1 Repeater station infrastructure for third party PTC wireless contractor
- 6 Halo grounding system for third party PTC wireless contractor
- 3 Fiber optic communication systems for fiber optic RWIS sites
- 2,500LF 12SM outside plant distribution cable and associated testing
- Training for PTC maintenance personnel on electrical equipment

The following additional construction elements were associated with this project:

- Guide rail
- RWIS site fencing



## IS 270 – Innovative Congestion Management Contract Montgomery and Frederick Counties



### CHESAPEAKE BAY BRIDGE AND TUNNEL



WELLINGTON POWER CORPORATION  
**JACOBS**

#### Client

Chesapeake Bay  
Bridge and Tunnel  
District  
32386 Lankford Hwy.  
Cape Charles, VA  
23310

#### Client Contact

Timothy Holloway  
757.331.2960  
tholloway@cbbt.com

#### Contract Duration

2013-2015

#### Contract Type

Prime

#### Construction Value

\$13,900,000

#### Contract Status

Complete

#### Location

Cape Charles, VA

Wellington Power, acting as the prime contractor, was awarded the sign control and data acquisition system (SCADA) project as designed by Jacobs. for the Chesapeake Bay Bridge and Tunnel. The 20 mile long crossing of the lower Chesapeake Bay saves vehicles traveling between the Virginia Beach Norfolk area and north and east of the Delaware Valley an average of 1.5 trip hours utilizing the CBBT. Since its opening, over 100 million vehicles have crossed the roadway.



Wellington's \$13,900,000 contract included upgrades to existing equipment and the installation of new equipment on both the northbound and southbound structures, roadways, tunnels, ventilation buildings, and two toll plazas.

In conjunction with our technology subcontractor, Wellington installed, tested, and commissioned the new fiber-optic based SCADA System. Included were automated regulatory roadway signs, new dynamic message signs, navigation lighting, CCTV cameras, access control systems, and all infrastructure components.

Specifics of the commissioned infrastructure included bridge mounted cable tray system, the fiber optic, control, and power cabling, the Power SCADA System, and structure foundations.

The following additional construction elements associated with this project:

- 22,210 LF high speed, copper plant data cables
- 40,450 LF fiber-optic network cable
- 119,000 LF 600 volt power cable
- 36,000 LF cable tray
- 86 blankout advisory signs
- 121 CCTV cameras
- 147 emergency assistance motorist telephones
- 7 dynamic variable message signs
- 142 navigation lighting aids
- 87 high speed, fiber-optic network switches
- 3 client controlled operators stations

## IS 270 – Innovative Congestion Management Contract Montgomery and Frederick Counties



### FORT PITT TUNNEL – PHASES B & C

### RENOVATION OF TUNNEL AND BRIDGE – ELECTRICAL, ITS, TRAFFIC, SIGNAL SYSTEMS, AND NAVIGATION LIGHTING



WELLINGTON POWER CORPORATION

#### Client

PennDOT District 11-0  
45 Thoms Run Road  
Bridgeville, PA 15017

#### Client Contact

Frank Wytiaz  
Hill International  
412.382.1000  
fwytiaz@dckww.com

#### Contract Duration

Phase B – 2001-2003  
Phase C – 2002-2004

#### Contract Type

Prime Contractor/  
Subcontractor

#### Construction Value

Phases B & C -  
\$31,000,000

#### Contract Status

Completed on  
schedule

#### Location

Pittsburgh, PA

The Fort Pitt Tunnel and Bridge provides access between the South Hills and downtown Pittsburgh areas to over 150,000 commuters daily. The double-decker bridge spans the Monongahela River. When renovations of both the tunnel and bridge were necessary, the project was divided into multiple phases, the two largest of which were contracted to Wellington Power.



Phases B & C consisted of the total electrical renovation of the tunnel, including installation of ITS infrastructure for future implementation of CCTV and traffic management assets. Phase B of the project included:

- 9,000LF Fiber optic distribution cable and cable management system
- 6,200LF Microwave traffic detector cable
- Tunnel control system with ITS control functions
- Local area network
- Maintenance and protection of traffic
- 96,260LF Exposed raceway installation
- Fire alarm system and carbon monoxide detection system.
- Carbon monoxide detection system
- Wireless communications system
- Ventilation/exhaust motor upgrade
- Utility power upgrade
- 650,000LF Power and control cabling
- Uninterruptible power supply system

Phase C of the project included:

- 11 CCTV cameras tunnel mount
- 17- CCTV cameras structure mount
- 30 RTMS vehicle detection units (tunnel and structure mount)
- 10 Wireless communication stations
- 4 T-1 communication stations
- 57,000LF Fiber optic distribution cable
- Tunnel control CCTV subsystem and incident detection subsystem
- 59,390LF Exposed raceway installation
- 235,330LF Power and control cabling
- 2,463 Tunnel luminaries
- Navigation lighting system
- 6 Axial fan ventilation systems
- Bridge overheight detection system

## IS 270 – Innovative Congestion Management Contract Montgomery and Frederick Counties



### NORTH SHORE CONNECTOR



WELLINGTON POWER CORPORATION

**JACOBS**

#### Client

Port Authority of  
Allegheny County  
345 Sixth Avenue  
Pittsburgh, PA 15222

#### Client Contact

Keith Wargo  
412.566.5171  
kwargo@  
portauthority.org

#### Contract Duration

Wellington, 2009-2012  
Jacobs, 2001-2012

#### Contract Type

Prime

#### Construction Value

Wellington,  
\$91,500,000  
Jacobs, \$524,000,000

#### Contract Status

Complete

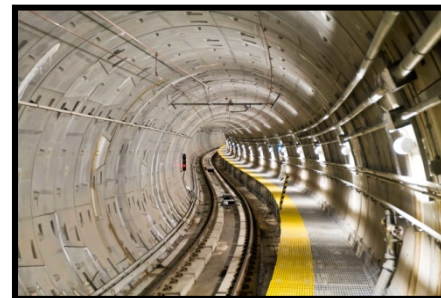
#### Location

Pittsburgh, PA

#### Award

2013 Engineering  
Excellence Awards –  
Honor Award,  
American Council of  
Engineering  
Companies (ACEC)

The North Shore Connector is an extension of the existing Port Authority of Allegheny County Light Rail Transit System under the Allegheny River from Downtown Pittsburgh to the North Shore. This new tunnel furthers continuity between the downtown area and major Pittsburgh attractions, businesses and education centers such as PNC Park, Heinz Field, the Rivers Casino, and the Community College of Allegheny County.



Jacobs and their joint venture partner had overall program and construction management responsibilities for the North Shore Connector project. The project was comprised of 2.5 miles of direct fixation track and 5 miles of concrete plinth anchorage, tunnel ventilation fans and dampers, 2.5 miles of emergency walkways and fire protection systems.

Wellington's role as a prime contractor in this project included the furnishing of all labor, materials, tools, equipment, and incidentals necessary for the construction of the North Shore Connector Train Systems for the entire length of the light rail system extension, as well as finishes for three new stations.

Highlights of Wellington's work on this project included:

- Trackwork general construction
- High voltage electrical service
- 480V power and motor control
- Prefabricated-type outdoor 27kV traction power substation
- Design-build overhead contact (catenary) systems
- Design-build rail signal and communication systems
- Modifications and additions to the Port Authority's Operations Control Center and Pitt Tower facilities
- Tunnel lighting
- All systems: CCTV, radio, telephone, digital video, variable messaging, public address, life safety, SCADA, and all commissioning and integration
- System testing and certification prior to revenue service
- Decommissioning of the existing Gateway Station
- Installation of a double crossover at Wood Street Station
- Station electrical power distribution
- Station lighting
- Station life safety systems

## IS 270 – Innovative Congestion Management Contract Montgomery and Frederick Counties



### SMART METERING



WELLINGTON POWER CORPORATION

#### Client

Pacific Gas & Electric  
77 Beale Street  
San Francisco, CA  
94105

#### Client Contact

Tim Cottengim  
415.973.4340  
tcottengim@pge.com

#### Contract Duration

2005-2013

#### Contract Type

Prime

#### Construction Value

\$365,000,000

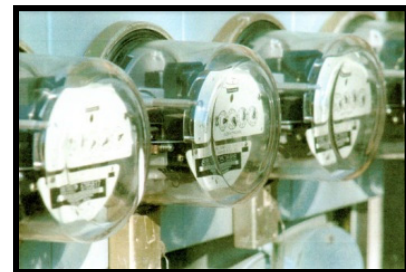
#### Contract Status

Complete

#### Location

Statewide, CA

Wellington Energy, Inc., a wholly-owned, subsidiary of Wellington Power Corporation, acting as the prime contractor, provided advanced metering infrastructure (AMI) installation and support services for Pacific Gas & Electric's SmartMeter project. When Wellington secured the contract, the exchange of approximately 10.3 million meters alone presented an obvious challenge. Like some projects, the hurdles that Wellington would face in the coming months and years would be numerous. These obstacles, however, were overcome with seeming ease due to innovative thinking and a dedicated workforce.



The \$2.65 billion PG&E endeavor led to many notable and unparalleled achievements for Wellington Energy. The company reached the following milestones:

- 24,000 meters installed in a single day
- Operation of 15 deployment facilities concurrently
- Nearly 1.6MM pieces of inventory worth in excess of \$165MM in Wellington's care and custody
- More than 120,000 work orders dispatched daily
- In excess of 3,000 SERVAnywhere® data transactions processed every second
- More than 1,200 outgoing/incoming calls to Wellington's Call Center on a daily basis
- 96% of inbound calls handled within 120 seconds
- 300,000+ appointments set with fewer than 0.2% of the appointments missed by Wellington
- Wellington Energy OSHA EMR 2010 Rate = .993
- More than 10,000,000 miles driven with approximately one at fault vehicle accident per 200,000 miles
- Wellington's field errors are typically less than 0.2%.
- Wellington has achieved unprecedented scale on its projects; annual installation rates are more than 3 times greater than had been previously achieved anywhere and more than 10 times greater than a typical large AMI project.

## IS 270 – Innovative Congestion Management Contract Montgomery and Frederick Counties



### WOODROW WILSON MEMORIAL BRIDGE BR-3A BASCULE SPAN PORTION AND BR-3C MARYLAND APPROACHES I-95/I-495 CAPITAL BELTWAY



WELLINGTON POWER CORPORATION

#### Client

Maryland Department  
of Transportation  
7201 Corporate  
Center Drive  
Hanover, MD 21076

#### Client Contact

Ken Hirschmugl  
410.878.6312  
khirschmugl@  
hhaconsulting.com

#### Contract Duration

2003-2008

#### Contract Type

Subcontract

#### Construction Value

\$30,637,000

#### Contract Status

Completed on  
schedule

#### Location

Maryland, Virginia,  
and Washington, DC

The Woodrow Wilson Memorial Bridge is a bascule bridge between Alexandria, VA and Oxon Hill, MD. This double leaf, movable bridge carries I-95 and I-495, the Capital Beltway, over the Potomac River.

The project consisted of three prime contracts: BR-3A Bascule Span, BR-3C Maryland Approach, and BR-3B Virginia Approach.

Wellington Power was the electrical and ITS contractor of choice for both the bascule spans and Maryland approach. Additionally, Wellington's contract included the Virginia approach ITS and fiber-optic infrastructure.

Wellington Power performed the electrical and ITS construction for this major project to better serve the Washington, DC metropolitan area. This challenging project included the largest inland submersible power, control, and fiber-optic cabling installation in the United States.

The project included the following key elements:

- 16 RTMS vehicle detection units, structure mounted
- 2 RWIS
- 8 CCTV cameras, structure mounted
- 1 fiber-optic communication station
- 90,000LF 4 fiber-optic distribution cables
- 11,000LF 8 fiber-optic distribution cables
- 14,000LF 48 fiber-optic distribution cables
- 8,000LF 96 fiber-optic distribution cables
- Design-build bridge control CCTV software subsystem
- Design-build bridge control incident detection software subsystem
- Design-build bridge control roadway weather software subsystem
- Communication huts, head end equipment, and racks
- 2 35kV Substations and dual standby generators
- 27,500LF Power and communication submersible cabling

The project included the following construction elements:

- 60,500LF Exposed raceway installation
- 865,000LF Power, control, and fiber-optic cabling
- 480 Bridge and bascule luminaries
- Navigation lighting system
- Bascule drive motors, brakes, and locks
- Bascule bridge control system





## IS 270 – Innovative Congestion Management Contract Montgomery and Frederick Counties



### LOUISVILLE-SOUTHERN INDIANA OHIO RIVER BRIDGES – DOWNTOWN CROSSING

## JACOBS

#### Client

Kentucky  
Transportation Cabinet  
200 Mero Street  
Frankfort, KY 40622

#### Client Contact

Todd Hood  
TRIMARC (KYTC)  
502.587.6624, ext. 2  
todd.hood@ngc.com

#### Contract Duration

2012 – 2016

#### Contract Type

Subcontract

#### Construction Value

\$860,000,000

#### Contract Status

Warranty

#### Location

Louisville, KY

Jacobs was the lead designer of a design-build team for the Ohio River Bridges' Downtown Crossing project, located in downtown Louisville, KY, and northward to Jeffersonville and Clarksville, IN. It will greatly improve traffic movement across the river on the vital I-65 north/south corridor and provide congestion relief and safety improvement within the interchange of I-65, I-64, and I-71. The project had three sections:

- **Section 1** – Kentucky Approaches to the Downtown Ohio River Bridges
- **Section 2** – New I-65 Northbound Cable-stayed Ohio River Bridge and Rehabilitation of Existing JFK Memorial Bridge.
- **Section 3** – Indiana Approaches to the Downtown Ohio River Bridges



Along with these sections, a concurrent project for the east end of the corridor was underway requiring extensive coordination with not only the project, but with a different client/owner, Indiana Department of Transportation.

Extensive maintenance of traffic plans were developed to stage activities for a very aggressive construction schedule within a highly-

congested urban corridor. All highway design infrastructure is included in the project, such as: storm water collection-distribution system, earthwork, barrier walls and guardrail, signing, striping, signalized intersections, ITS, erosion and sediment control, streetscaping, and landscaping.

Final plans include 48 conventional bridges consisting of permanent widening and new construction. Additionally, three temporary bridges were constructed for maintenance of traffic. Reconstruction also includes constructing 25 ramps and approximately 1.2 miles of retaining walls (total of 30 walls) varying in height from a few feet to over 30 feet.

The Downtown Crossing project included the installation of 12 Dynamic Message Signs, radar vehicle detection, Road Weather Information Systems, communications huts wireless base stations, 22 roadway surveillance cameras, and 15 security cameras throughout the project. Security cameras will incorporate analytics technology as an added security measure.

## IS 270 – Innovative Congestion Management Contract Montgomery and Frederick Counties



### I-95 ITS DESIGN-BUILDS

# JACOBS

#### Client

PennDOT District 6-0  
7000 Geerdes Blvd.  
King of Prussia, PA  
19406

#### Client Contact

Manny Anastasiadis  
610.205.6590  
eanastasia@state.pa.us

#### Contract Duration

2009–2013

#### Contract Type

Subconsultant design  
build

#### Construction Value

#1, ITC = \$13,633,000  
#2, ITF = \$18,776,530

#### Contract Status

Complete

#### Location

Philadelphia  
metropolitan area, PA

Under two design-build contracts, Jacobs led the design and integration for the construction of ITS along two sections of I-95 in the Philadelphia, PA metropolitan region. The first contract (#1 – section ITC) includes I-95 from the Delaware state line to the Broad Street Interchange in Philadelphia and I-476 from I-95 to US 30 in Delaware County. The second project's (#2 – section ITF) limits include I-95 from US 1 to the New Jersey state line, US 1 from the Pennsylvania Turnpike (I-276) to the New Jersey state line, and Woodhaven Road (PA 63) from I-95 to US 1.

Both I-95 projects are part of the 2009 American Recovery and Reinvestment Act. As such, the project is being designed to sustain continuous, rapid construction. Both projects include the procurement, construction, installation, integration, testing, and documentation of the ITS expansion and are part of an initiative to complete Pennsylvania's ITS coverage along I-95 from its start/end points in the state at the borders with New Jersey and Delaware.

Design and construction elements include:

- CCTV camera system
- DMS system
- Vehicle detection system
- Portable DMS
- E-ZPass travel time system tag readers
- Travel time system
- Communication network
- Conversion of existing dial-up devices
- Regional TMC integration/modification
- Relocation of portable DMS system
- Video conference and sharing systems
- Maintenance and protection of traffic
- Erosion and sedimentation control
- ITS device locations/power supply system
- ITS device structures
- Fiber optic and synchronous optical network (SONET) communication system
- Delaware County emergency operation center video sharing
- Municipal video sharing
- Traffic police headquarters video sharing
- Delaware DOT fiber connection and video sharing
- Philadelphia Airport fiber connection and video sharing
- TMC building/floor plan modification and video wall



## IS 270 – Innovative Congestion Management Contract Montgomery and Frederick Counties



### I-76 ITS ENHANCEMENTS

**JACOBS**

**Client**

PennDOT District 6-0  
7000 Geerdes Blvd.  
King of Prussia, PA  
19406

**Client Contact**

Manny Anastasiadis  
610.205.6590  
eanastasia@state.pa.us

**Contract Duration**

2014-2019

**Contract Type**

Prime

**Contract Value**

\$800,000

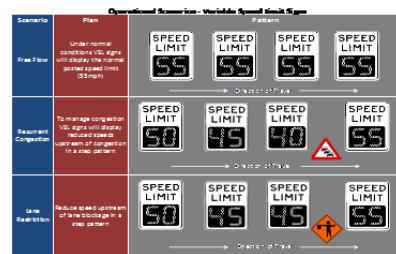
**Contract Status**

Ongoing

**Location**

Philadelphia  
metropolitan area, PA

The Schuylkill Expressway (I-76) is the primary highway connecting the north-western suburbs and the City of Philadelphia. The expressway is critically important to the state's and region's economies, as well as to the general well-being of local residents and businesses. Far too frequently the Expressway does not function properly, regularly experiencing congestion due to volume, crashes, weather, and routine maintenance activities. During these situations, those using the highway and nearly everyone on nearby roads are affected.



The logical next step in achieving the vision of PennDOT and its stakeholders of seamlessly optimizing traffic and transit operations along the Schuylkill Expressway is the implementation of ITS enhancements focused on active traffic management (ATM) strategies and technologies that build upon the framework put in place by the SECTSM efforts.

Under the first work order of this open-ended project, Jacobs developed a concept of operations for the implementation of enhancements along the Schuylkill Expressway including variable speed limits, queue detection, ramp metering, dynamic lane use and junction control, dynamic shoulder lanes, connected vehicles, and multi-modal improvements including transit and bicycle infrastructure.

Jacobs is currently designing a variable speed limit and queue detection/warning system throughout the corridor limits. These two concepts, when implemented, will address the high prevalence of rear-end crashes that have been observed throughout the project area (many segments experiencing crash rates at over twice the statewide average).

Jacobs will develop the full plan, specification, and estimate package for the deployment of approximately 60 variable speed limit signs, 8 dynamic message signs, and upgrades to 20 vehicle detection stations along the corridor. A major focus on the design efforts will be to integrate these new technologies into the operational environment of both PennDOT RTMC and Pennsylvania State Police Operations. This will include bringing up to date information into PennDOT's device management software as well as into patrol officer vehicles and/or dispatch centers.

Additionally, the Jacobs team will be developing a concept level design for the entire ATM deployment as outlined in the Concept of Operations including locations for ITS equipment and Lane Use Control Gantries and signs. This work will also include substantial public outreach and education efforts on behalf of the Department.

## IS 270 – Innovative Congestion Management Contract Montgomery and Frederick Counties



### CAPITAL BELTWAY HOT/HOV LANES

## JACOBS

#### Client

Flour-Lane, LLC  
(P3 to VDOT)  
6315 Bren Mar Drive  
Alexandria, VA 22312

#### Client Contact

Ms. Sharon Gookin  
703-342-7898  
sharon.gookin  
@fluor.com

#### Contract Duration

2009-2012

#### Contract Type

Subconsultant

#### Construction Value

\$1,400,000,000

#### Contract Status

Complete

#### Location

Fairfax County, VA

Jacobs managed the environmental reevaluations for the HOT/HOV lanes on the Virginia side of the Capital Beltway, including updates of environmental analyses and documentation for VDOT and FHWA concurrence/approval. The HOT lanes will extend 11.5 miles from west of the Springfield interchange south of the Hemming Avenue Bridge to near the Old Dominion Drive Bridge (Route 738) south of the Georgetown Pike (Route 193). The mainline consists of 12-lanes configured in 4-2-2-4 typical section. The two inner lanes in each direction are dedicated for HOT lane traffic and are separated from the adjacent general-purpose lanes by a four-foot striped buffer. The eight general-purpose lanes (four in each direction) will be maintained.

The PPTA (public-private) proposal was modified from the original concept included in VDOT's final environmental impact statement (FEIS) and record of decision (ROD) based on design refinements, more detailed mapping, and a more detailed operational analysis. Environmental analyses (air, noise, natural, etc.) were updated to reflect these changes (as well as a change in the design year from 2020 to 2030) and documentation was prepared for VDOT and FHWA review and approval on a fast-track basis without adversely affecting the project schedule or financial close.



Following the initial reevaluation, Jacobs has continued to provide planning and environmental support and has submitted subsequent reevaluations for the proposed operations building as well as continued refinements and more detailed drainage and utility design.

Requested changes to outfall design to improve water quality resulted in increased impacts to several parks along the corridor. Jacobs has helped coordinate with the Fairfax County Parks Authority regarding the change in impacts to these Section 4(f) resources and has prepared the required documentation to support approval of the increase in impacts. Jacobs is also reviewing and assuring consistency between the impacts to water resources approved in the joint permit application and those presented in the environmental documentation.

This project has been unique due to the level of detail in the current design as compared to the conceptual engineering included in the original FEIS and ROD.

## IS 270 – Innovative Congestion Management Contract Montgomery and Frederick Counties



### YORK COUNTY ITS DESIGN-BUILD



WELLINGTON POWER CORPORATION  
**JACOBS**

#### Client

PennDOT District 8-0  
2140 Herr Street  
Harrisburg, PA 17103

#### Client Contact

Richard Deen  
717-783-3949  
rdeen@state.pa.us

#### Contract Duration

2013-2014

#### Contract Type

Prime

#### Contract Value

\$4,000,000

#### Contract Status

Complete

#### Project Location

York County, PA

Jacobs was the lead designer for Wellington Power for the installation of for an ITS DB project in York County, PA. Jacobs' services for the project included the following key design services.

- Development of ITS design submittals
- CCTV system integration services in the field and in the RTMC
- Procure and configure/install the communications equipment – switches and encoders both in the field and in the RTMC
- Manage the modification of the existing video management software and controls. Our sub was VidSys.
- Manage and coordinate the full upgrade of the video wall control system from analog to a digital platform. Jacobs subs were Barco and VidSys.
- Manage and provide documentation and oversight of the testing and training of the new digital system

The following Wellington Power construction elements were associated with this project:

- MOT
- Power distribution
- In-ground raceway system
- Structure mounted raceway system
- DMS structures
- Warranty
- Testing and documentation
- Traffic signals



## IS 270 – Innovative Congestion Management Contract Montgomery and Frederick Counties



### TRAFFIC SIGNAL SYSTEM MODERNIZATION

# JACOBS

#### Client

Montgomery County  
Department of  
Transportation 101  
Orchard Ridge Drive  
Gaithersburg, MD 20878

#### Client Contact

Michael Kinney  
240.777.8760  
Michael.Kinney@  
montgomerycountymd.gov

#### Contract Duration

2006-2019

#### Contract Type

Subcontract

#### Construction Value

\$53,000,000

#### Contract Status

Ongoing

#### Location

Montgomery County, MD

The Traffic Signal System Modernization (TSSM) project includes all programming, planning, evaluation, design, and integration efforts to upgrade Montgomery County's aging UTCS-style centralized traffic control system, on-street equipment, supporting communications network, and other related components into a modern, distributed, regionalized, and standards-based advanced traffic management system (ATMS).

**Phase 1:** Jacobs led the effort to develop the communications master plan to for a county-wide communications infrastructure upgrade to support future ATMS applications as part of the TSSM replacement project. This included technology evaluation; architecture, design, and cost evaluations; field survey and inspection; cable infrastructure reconfiguration and related asset database and GIS/CAD documentation; development of phased deployment plans; vendor/product evaluation and selection; and integration oversight.



**Phase 2:** Jacobs is currently developing a Traffic System Detection Master plan to guide deployment of county detection to support advanced traffic control modes and network performance measures; and designing adaptive signal control technology for integration into the ATMS following FHWA SE guidelines. Tasks included providing technical services to locate and mark all underground facilities; developing subsurface utility maps and associated management tools; developing, administering, and overseeing the program to provide these services on behalf of the county.

**Phase 3:** Jacobs is currently developing an Adaptive Signal Control Technology evaluation and deployment plan. In this task, Jacobs developed a Concept of Operations and system requirements, assessed alternatives and recommended a development and deployment approach and for the selected technology. Jacobs also provided preliminary engineering for the pilot corridor. Lastly, Jacobs has developed the functional requirements and integration plan to integrate the adaptive technology to the County's central advanced transportation management system.

## IS 270 – Innovative Congestion Management Contract Montgomery and Frederick Counties



### PARALLEL TUNNEL AT THE THIMBLE SHOAL CHANNEL DESIGN MANAGER / CONSTRUCTION MANAGER

## JACOBS

#### Client

Chesapeake Bay  
Bridge and Tunnel  
District  
32386 Lankford Hwy.  
Cape Charles, VA  
23310

#### Client Contact

Jeffrey Holland  
757.331.2960  
jholland@cbbt.com

#### Contract Duration

2013-2020

#### Contract Type

Prime

#### Construction Value

\$750 million

#### Contract Status

Ongoing

#### Location

Cape Charles, VA

Jacobs is responsible for providing the CBBT District professional services for procuring a DB team to design and construct a parallel tunnel, trestles, two portal islands, and associated facilities adjacent to the existing Thimble Shoal Channel tunnel. This project provides unique challenges in terms of agency coordination, industry engagement and resource management due to its location in the Chesapeake Bay and a unique approach to procuring a mega-project on nearly 100% performance specifications. Jacobs' responsibilities include:

- Preparation of an environmental assessment and all required technical reports and documentation
- Geotechnical exploration, geotechnical data and geotechnical baseline reports
- Analysis of offshore disposal of dredge material
- Public involvement for both citizens and the project stakeholders
- Extensive agency coordination in support of CBBT
- Laser scanning survey and mapping services
- Engagement and coordination with navigation organizations
- Participation in over a dozen confidential contractor and design build team meetings
- Facilitating risk, procurement and basis of design workshops with FHWA, district staff, and representatives from Virginia Office of Transportation P3.
- Conceptual design and preparation of performance and technical specifications for:
  - Immersed tube tunnel option
  - Earth pressure tunnel boring machine option
  - Island reclamation
  - Trestle
  - Electrical, SCADA and ITS systems
  - Mechanical and fire/life safety systems
  - Architectural design
  - Geotechnical soil improvements
- Developing and running full procurement services including advertisement of request for proposal, request for proposal, evaluation of proposals, and recommendation for award



WELLINGTON POWER CORPORATION | 177 THORN HILL ROAD | WARRENDALE, PA 15086



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