



# TECHNICAL PROPOSAL

Contract No. WO6355170

F.A.P No. AC-NHPP-327-1(39)N

## US 113 (Phase 4)

from North of MD 365 to  
North of Five Mile Branch Road  
Design-Build

Worcester County



# 2.09.02

## LEAD DESIGN FIRM EXPERIENCE/QUALIFICATIONS AND PAST PERFORMANCE

- i. KEY STAFF
- ii. PAST PERFORMANCE

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# 2.09.02

## i. KEY STAFF

**EDUCATION:** BS in Civil Engineering, Saint Mary's University, 2000

**EXPERIENCE:** 11 Years with WM, 17 Years in Industry

**PROFESSIONAL REGISTRATIONS:**  
MD Registered PE #44063  
Design-Build Institute of America DBIA #174762

## QUALIFICATIONS & EXPERIENCE

Will has over 17 years' experience in the design and management of highway projects varying from new roadways and interchanges, expressway-arterial realignments and safety/capacity improvements. He offers tremendous knowledge and management skills to apply unique combinations of design requirements that are often conflicting and develop a cost effective solution to the design problem. Will's experience also encompasses preparation of MOT schemes, ADA and bicycle requirements, specialized details and specs and utilities coordination. Will is skilled in the development of studies, designs,

and construction documents. ***Will has extensive knowledge of the US 113 corridor based on his experience as the Project Manager for the US 113 J-Turn at MD 365 (Public Landing Road) and Deputy Design Manager for the US 113 Phase 3 Design-Build project. This understanding will allow him to anticipate potential design pitfalls and develop a rolling submittals approach for maintaining project objectives, critical paths and a continual flow of construction.***

## PROJECT EXPERIENCE

**US 113 Dualization (Phase 3) Design-Build, \$32M (SHA – Worcester County, MD)** – Project Deputy Design Manager in charge of delivering all aspects of design for the Allan Myers Team for this safety and traffic operations project to convert 4 miles of US 113 from the existing 2-lane highway to a 4-lane divided median highway. Design includes highway, hydrologic and hydraulic (H&H), stormwater management (SWM), erosion & sediment control (ESC), traffic management plan (TMP), maintenance of traffic (MOT), structural, pavement and geotechnical, traffic (lighting, signal, signs/markings), landscaping, construction plans development and securing permits. Served as liaison with discipline-specific project managers and stakeholders such as MD-DE Railroad Company, Delmarva Power, Choptank Electric, Verizon and MD Broadband. Relocation concurrence from utility stakeholders was vital to the success of this project. Developed 5 ATCs providing \$1M in cost savings and safety & mobility enhancements. The schedule is currently being adhered to and substantial completion of the project (Final Roadway, Drainage/SWM) is projected for March 2017.

**I-95 Interchange at Contee Road Design-Build, \$34M (SHA – Prince George's**

**County, MD)** – Highway Engineer for the construction of Contee Road, a divided 4-lane urban arterial road, and its grade separated partial cloverleaf interchange connection with I-95. Responsible for final design efforts of the road geometrics, drainage, construction staging, and construction support services including preparation of as-built plans.

**US 113 J-Turn Intersections, \$4M (SHA – Worcester County, MD)** – Highway Engineer for the design and development of contract documents for J-Turn intersections along US 113 at MD 12 and MD 365 under an on-call engineering services contract with SHA District 1. Served as responsible professional in charge for all aspects regarding highway design, including geometrics, road widening, median modifications, and traffic barrier design.

**Father Hurley Boulevard, \$11M (Montgomery County DOT – Montgomery County, MD)** – Highway Engineer for the design of a 1¼ mile four-lane divided highway. The project included a new bridge over a CSXT rail line, 2 retaining walls and 4 major intersections with State and County Roads. Responsible for design of road geometrics, typical sections, traffic barrier, storm drainage collection, and pedestrian and bicycle (bike paths) facilities.

**EDUCATION:** BS in Civil Engineering, University of Delaware, 2006

**EXPERIENCE:** 10 Years with WM, 11 Years in Industry

**PROFESSIONAL REGISTRATIONS:**  
MD Registered PE #44456

## QUALIFICATIONS & EXPERIENCE

Siu Kei Li has 11 years of experience in evaluation, design, and construction consulting engineering services related to transportation projects ranging from capital improvements to safety and resurfacing projects. His expertise is with AASHTO and MUTCD criteria, along with SHA Policies, Standards, Guidelines, and Specifications. He serves as Lead Highway Design Engineer for the US 113 Phase 3 Design-Build project. His advanced skills with 3D modeling in MicroStation and

highway design programs such as InROADS and AutoTURN enables him to develop rough grading, roadway designs, drawings, and cost estimates in an efficient manner. ***In this position, Siu Kei will utilize his knowledge to provide essential design guidance for other Engineers within the team and support and coordination for other discipline groups. He will also provide assistance to the Project Design Manager in order to complete the project's objective.***

## PROJECT EXPERIENCE

**US 113 (Phase 3) Design-Build, \$32M (SHA – Worcester County, MD)** – Highway Engineer for this 4-mile roadway reconfiguration project to upgrade the existing 2-lane highway to a 4-lane divided median highway. Responsibilities included development of roadway design criteria including revision of the horizontal and vertical alignment and superelevation, typical section, and all roadway construction related detail design. Siu Kei was a key team member in the development of ATCs during the bidding process for this project. Other tasks included coordination with other department groups to minimize conflicts during the design phases.

**I-95 Interchange at Contee Road Design Build, \$34M (SHA – Prince George's County, MD)** – Highway Engineer for this divided 4-lane urban arterial road with grade separated partial cloverleaf interchange connection of Contee Road at I-95. Responsibilities included horizontal and vertical alignment establishment, typical section, and other related design elements including roadway drainage planning and calculation.

**Lusby Southern Connector Road, \$10M (Calvert County DPW, Calvert County, MD)** – Highway Engineer responsible for the design and development of advertisement ready plans, specifications, and estimates for this new roadway corridor project. Primary work included the development of roadway geometrics (horizontal and vertical alignment),

typical sections, drainage design, cross-sections, and provided assistance to the Project Manager in the review of material submittals and shop drawings.

**Dutchman's Lane Widening, \$1.5M (Talbot County DPW, Talbot County, MD)** – Highway Engineer responsible for development of the concept study to widen Dutchman's Lane with sidewalk and close-section drainage system. Responsibilities included development of horizontal realignment, roadway plan, sidewalk and ramps designed to ADA and SHA Standards for accessibility, right-of-way impact study, proposed typical section, and construction cost estimate.

**MD 273 at Appleton Road Roundabout, \$2M (SHA – Cecil County, MD)** – Highway Engineer for the conversion of the existing four-legged, two-way stop-controlled intersection into a single lane, 150-foot inscribed diameter roundabout. Responsibilities included horizontal and vertical alignment reconfiguration, typical section, intersection detail, and other related design elements including site drainage. Additionally, AutoTURN was utilized for the roundabout layout to ensure proper path for the design vehicle through the proposed roadway facility.

**EDUCATION:** MS in Environmental Engineering, Johns Hopkins Univ, 1994

BS in Civil Engineering, University of Maryland College Park, 1982

**EXPERIENCE:** 29 Years with WM, 33 Years in Industry

**PROFESSIONAL REGISTRATIONS:**  
MD Registered PE #16142

## QUALIFICATIONS & EXPERIENCE

Glenn has 33 years of experience specializing in hydrologic and hydraulic (H&H) analysis and design including stormwater management (SWM), erosion and sediment control (ESC), drainage, bridge and culvert design, bridge scour, TR-55 & TR-20 modeling, HEC-RAS & HY-8 modeling, and stream restoration. Glenn is approved by the Maryland Department of the Environment (MDE) as a Technical Reviewer of SWM and ESC plans for compliance with regulatory criteria. **Glenn provides a vast understanding of MDE SWM and ESC criteria and guidelines and SHA Plan Review Division (PRD) procedures and policies.**

## PROJECT EXPERIENCE

**I-95 Interchange at Contee Road Design-Build, \$34M (SHA – Prince George’s County, MD)** – Water Resources Project Manager managing H&H, SWM and ESC design for this Design-Build contract to construct a grade-separated interchange, including a new bridge over I-95. Responsibilities included technical management of water resources work, assuring compliance with SHA and MDE criteria, cross culvert design, and coordinating storm drain/structure design with SWM needs, including 8 ponds and 53 Environmental Site Design (ESD) practices.

**US 113 Dualization (Phase 3) Design-Build, \$32M (SHA – Worcester County, MD)** – Water Resources Project Manager responsible for general oversight, technical consultations and QA/QC of the H&H, SWM, and ESC aspects for this project to convert 4 miles of an existing 2-lane highway to a 4-lane divided median highway.

**US 113 from Jarvis Road to Delaware Line (SHA – Worcester County, MD)** – Water Resources Project Manager responsible for SWM and ESC design of this 2½-mile roadway dualization project to an ultimate 4-lane divided highway with partial control of access and 1½-miles of service roads. The project was delivered as a design-build procurement, and therefore utility coordination, right-of-way acquisition, and environmental permitting clearance were integral to the project’s success.

**US 301 at MD 304, \$36M (SHA – Queen Anne’s County, MD)** – Water Resources Project Manager responsible for all water resources aspects of this interchange project

including H&H, SWM, stream relocation and ESC designs. SWM design includes 56 ESD micro-scale SWM facilities, primarily wet swales. Coordinated SWM soil boring locations to verify high ground water. H&H design included analysis of impacts to 5 existing cross culverts and design of 2 new cross culverts. Stream relocation design included design of plunge pool systems and riprap protection for outfall stabilization at cross culverts.

**On-Call H&H Engineering Services – Contracts BCS 2001-14A & BCS 2007-20H (SHA – Statewide, MD)** – Water Resources Project Manager responsible for staffing, and technical oversight of two on-call contracts with 48 tasks to provide H&H engineering services to SHA’s Highway Hydraulics Division. Designs complied with SHA and MDE requirements and included preparing plans, specs, and cost estimates for SWM facilities; ESC design; H&H/floodplain analyses, culvert/bridge design, and stream stabilization. Specific tasks included assessment/prioritization of SHA outfalls along US 40 and MD 10, SWM retrofits for 7 I-95 interchanges and along US 40 in Cecil County, and retrofit of MD 228 SWM pond.

**Middletown Road Phase 1B2 Design-Build, \$7M (Charles County PGM – Charles County, MD)** – Water Resources Engineer for Design-Build construction to realign/upgrade 1.5 miles of Middletown Road from a 2-lane to a 4-lane divided raised-median highway on a new alignment. Responsibilities included design and securing approvals for SWM, drainage, and ESC.

**EDUCATION:** MS in Civil Engineering, University of Maryland, 2004

BS in Civil Engineering, West Virginia University, 1998

**EXPERIENCE:** 4 Years with WM, 18 Years in Industry

**PROFESSIONAL REGISTRATIONS:**  
MD Registered PE #29220

## QUALIFICATIONS & EXPERIENCE

Justin has 18 years of experience in the design, inspection, and repair of bridges, foundations, culverts, retaining walls and other highway related structures. He is experienced in “hands on” inspection, structural analysis, load rating, design, contract documents and reports, and construction phase services, for a wide variety of structures including steel beam and girder bridges, prestressed concrete bridges, concrete slab bridges, box culverts, structural plate culverts, retaining walls and other incidental structures throughout Maryland including many projects on the Eastern Shore. Justin is vastly familiar with AASHTO Bridge

Design Specs (LRFD), SHA Policies & Procedures, SHA Standards & Specifications. **Justin’s 7 years of experience at the SHA Office of Structures where he was responsible for both new design and remedial design of bridges and various highway structures will provide tremendous benefit to the bridge and wall design and approval.**

## PROJECT EXPERIENCE

**US 113 Dualization (Phase 3) Design-Build, \$32M (SHA – Worcester County, MD)** – Structural Engineer responsible for the design and preparation of contract plans for replacement of two existing culverts. Project includes complete removal of existing culverts and replacement with new reinforced concrete pipe culverts. Services included field investigations, alternatives development, sequence of construction development, and concept, preliminary and final design.

**Inter County Connector (Contract A) Design-Build, \$464M (SHA – Montgomery County, MD)** – Construction Engineer responsible for assisting in the preliminary development of design and sequence of construction for the Project. Project included rehabilitation and widening of existing bridges, and new construction of interchange and overpass bridges. Services included preliminary sequence of construction development, and concept design.

**I-95/I-395 Bridge Rehabilitations, \$935K (MDTA – Baltimore, MD)** – Structural Engineer for a bridge rehabilitation project that involved replacing 67 roadway joints at 16 bridges and LMC deck overlays at 18 bridges on I-95 and ramps. Included design of repairs for on-call contractors to address emergency defects discovered during routine bridge inspections. Developed ABC concepts, performed constructability reviews, established construction schedule used for

the incentive/ disincentive specification, and prepared construction cost estimates.

**Lafayette Avenue over AMTRAK, \$676K (Baltimore City DOT – Baltimore City, MD)** – Structural Engineer for the superstructure replacement and widening of an existing 52’ long, two span, simply supported, reinforced concrete T-beam bridge. Responsible for new superstructure design that includes a precast prestressed concrete slab, design of abutment and pier modifications, and replacement of three existing wing walls. Coordinated structural work with approach roadways, SWM and ESC.

**Mechanics Valley Road over Little Northeast Creek, \$264K (Cecil County DPW – Cecil County, MD)** – Lead Structural Engineer responsible for the design and preparation of contract documents for this bridge replacement project. Includes the removal of the existing bridge and replacement with a new 80’ long single span prestressed concrete bridge. Performed field investigations; developed alternatives for repairs; responsible for all structural design and preparation of construction documents. Developed ABC concepts and innovative methods to minimize impacts to local businesses that included precast superstructure and substructure element options to provide flexibility and expedite construction. Coordinated structural work with approach roadways, SWM, and ESC. Also performed load ratings.

2.09.02

ii. PAST PERFORMANCE



## OWNER CONTACT

MD State Highway Admin  
Mr. David Phillips, PM  
T 410-545-8823  
dphillips@sha.state.md.us

## CONTRACT/PROJECT NO.

WO6365170

## DELIVERY METHOD

Design-Build

## CONSTRUCTION COST

**Initial Contract Value:**

\$32,157,777

**Final Contract Value:**

\$32,157,777 Currently

## SCHEDULE

### PERFORMANCE

**Initial Completion Date:**

October 2017

**Final Completion Date:**

October 2017 – On Schedule

## PROJECT DESCRIPTION

**Wallace Montgomery (WM)** is teamed with **Allan Myers** to partially realign and upgrade 4 miles of US 113 for SHA. **WM** is serving as the Engineer of Record on this project, located south of Berlin, and begins North of Massey Branch and continues to Five Mile Branch Road (abutting Phase 4). The project consists of the construction of two additional lanes along the existing US 113 alignment to create a dual four-lane divided highway. It also includes the construction of new service roads to maintain access to residential and commercial properties. Roadway improvements include new pavement construction and pavement rehabilitation of existing roadways and shoulders, reforestation, closed/open drainage systems, stormwater management (SWM) facilities, roadway intersection lighting, signing & pavement markings, and culvert extensions and/or replacement. The Team was awarded the project based on a “best value selection” process and a total bid price of \$32.1M. Scope of services provided by **WM** include surveys, highway and structural design, geotechnical engineering, storm drain and SWM design, maintenance of traffic (MOT) design, erosion & sediment control (ESC), traffic analyses and design, landscape design, utility coordination for the relocations and clearing of aerial and underground facilities, and environmental compliance.

## SUCCESSFUL METHODS, APPROACHES, AND INNOVATIONS

- Schedule – Myers/WM** have staged the project in the minimum number of stages (five) and divided the project into two halves. This staging is seamless with utility clearance and the progression of right-of-way (ROW) acquisition. We revised the pavement section through an approved ATC – providing cost savings while exceeding the structural requirements, reducing construction impacts, and compressing the schedule by requiring less lifts of asphalt during pavement construction. We have been emphasizing strong communication with the Railroad in order to coordinate and minimize the shutdown - and we expect the embargo to be reduced by 3 months. We have emphasized continuous and clear communication with the Utility Companies (and District Utility Engineer) so that utility clearance does not impede the roadway work.
- Safety – WM** designed the intersection of Basket Switch Road as a Maryland ‘T’ with specific focus on the weaving movements for farm vehicles to maximize safety. We integrated a U-Turn movement into the Newark Road South connection which eliminated an unsafe conflict of J-Turn movement with merging Newark Rd South to US 113 NB traffic. This was presented and approved through an ATC. To enhance multi-modal operations and safety, **WM** designers integrated corridor-wide bicycle facilities utilizing the existing 10 ft. wide shoulders and bicycle pocket lanes at right turn acceleration/deceleration lanes for intersections and access roads/drives and at J-Turn Loons/acceleration lanes.
- Mobility – The Myers/WM** Team sequenced the project in conjunction with environmental restriction (FIDS), SHA’s acquisition of the corridor’s ROW, and in conjunction with utility relocations to accomplish the work in the minimum number of stages. **WM** completed a comprehensive TMP with phase specific Traffic Control Plans. The TMP included operational analyses of each phase of construction to ensure proper operation and maintaining, at a minimum, existing (pre-construction) roadway LOS during MOT operations. **WM** integrated a U-Turn movement into the Newark Road North connection, which introduces a return to US 113 SB from NB traffic; reducing NB vehicles’ trip distance to head SB by 3 miles. Integrated mountable curbs/islands to enhance emergency and farm equipment movement through the intersection.
- Environment & Maintenance – Multiple features of the US 113 project** come together to support a facility that is in sync with the environment and offers low-maintenance benefits:
  - SWM – SWM** is being implemented uniformly to mimic existing hydrologic conditions rather than in end of line facilities. **Myers/WM** is phasing construction for separate areas of the Project with required SWM design for that section. In that way, the SWM permit can be obtained for each construction phase prior to construction. SWM includes ESD facilities within the roadside ditches to maintain and look more natural in the roadway environment. On US 113, a driving factor in ESD are the existing soil conditions, including water table and hydrologic soil type. In areas of high groundwater, wet swales are permissible. Wet swales are an efficient stormwater treatment facility type that are easy to maintain. **Myers/WM will take advantage of wet swales wherever feasible – preferably in the median where the edge of pavement of the dualized roadway is close in elevation. By utilizing the roadway median, fewer facilities would be required outside of the roadway, thereby minimizing the project footprint and maintenance requirements.**
  - Geotechnical – WM** recognizes that the corridor is sited in the coastal plain province which is typically characterized by fine and coarse grain soil deposits. It is also evident based on some of the existing boring information that the groundwater table may play a role in the design of the geotechnical features for this Project. One of the objectives of the **Myers/WM** supplemental subsurface investigation will be focused on narrowing down the areas and depths of the watertable. No global slope stability or long-term settlement issues are anticipated, but these characteristics will be analyzed and assessed during the geotechnical evaluation. Typical issues found in the area include erosion at pipe outfalls and fill slope failures in terms of maintenance concerns.
  - Pavement Design – Myers/WM** considered existing conditions, material selection, construction methods, future rehabilitation activities, and overall service life provided to the pavement network. Based on our understanding, we prepared an approved ATC where savings are achieved by reducing the thickness of the Hot-Mix Asphalt base without hindering the essential functions, characteristics, or expected performance of the project. All pavement elements including the rehabilitation sections meet or exceed the performance criteria in terms of structural capacity, skid resistance, visual appearance and ride quality for long-term maintenance.

## RELEVANCE OF WORK TO WO6355170

This project adjoins the Phase 4 project and is relevant because of the Design-Build delivery method involving construction of two additional lanes to create a dual four-lane divided major corridor highway serving commuters, commercial trucking, adjacent farming and summer vacationers. It also includes design of Maryland “T” and J-Turns intersection geometrics to eliminate right angle collisions by reducing the number of conflict points and protecting left-turning traffic to and from US 113. Intersection design and access points were fully checked and developed in consideration of sight distances and turning movements with standard SHA criteria design vehicles and farm vehicles. Involved extensive coordination of roadside and drainage/SWM designs with MD-DE RR, Delmarva Power, Choptank Electric, Verizon and MD Broadband for their concurrent aerial/UG facility relocations. Developed construction staging, CPM schedule, and design submittal packages to perform necessary clearing for the overhead aerial utility relocations. Advanced drainage/SWM final design efforts and coordinated proposed roadway cross culvert locations with underground utility facility relocation design efforts to eliminate/avoid conflicts between the future construction of roadway cross culverts and roadside grading with relocated underground utilities.

**"I have never had a Design Build Team put forth the effort to assist, facilitate and coordinate the utility relocations on a Project as I have with the Myers/Wallace Montgomery Team. Mark (Atkinstall) has been a pleasure to work with." - Mr. Bruce Poole, SHA D1 Utility Engineer**

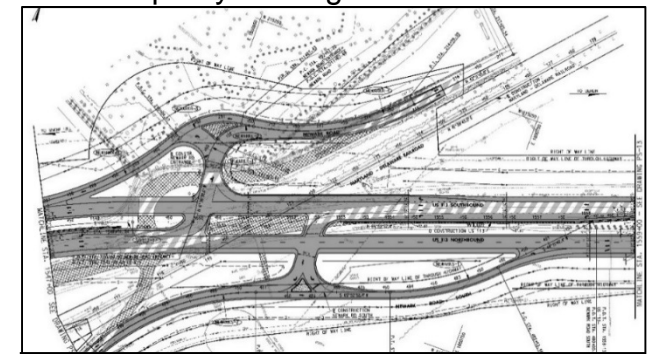
## Relevance to WO6355170

- ✓ 2-Lane to 4 Lane Divided Road
- ✓ Design-Build Delivery for SHA
- ✓ Delmarva Region Project
- ✓ Access Management
- ✓ Phased R/W Acquisition
- ✓ Concurrent Utility Relocations

## Proposed Staff Involvement

- Will Fiorillo, PE, DBIA\*
- Siu Kei Li, PE \*
- Justin Myers, PE \*
- John Rectanus, PE, PTOE
- Robert Evans, PE, PTOE
- Roberto Barcena, PE
- Jessica Klinefelter, CEP
- Eric Cooper, PLS

\* Proposed Key Staff



Approved ATC – Turning Movement Reconfiguration at Newark Road South

## OWNER CONTACT

MD State Highway Admin  
Mr. David Phillips, PM  
T 410-545-8823  
dphillips@sha.state.md.us

## CONTRACT/PROJECT NO.

Various

## DELIVERY METHOD

Design-Bid-Build

## CONSTRUCTION COST

### Total for All Assignments

### Initial Contract Value:

\$35.0M

### Final Contract Value:

\$35.0M

## SCHEDULE

## PERFORMANCE

### Initial Completion Date:

2013

### Final Completion Date:

2013

## PROJECT DESCRIPTION

**Wallace Montgomery (WM)** provided engineering services through an SHA open-end contract to dualize sections of the corridor and improve intersection design for safety. The existing two-lane corridor has sustained accident rates and fatality rates higher than the statewide average for similar facilities. The need for the dualization arose from the State's need to improve corridor safety. Services range from studies through PS&E, including highway design, structural design, traffic analysis, traffic engineering, maintenance of traffic (MOT) design, utility design, landscape design, hydrology and hydraulics (H&H), environmental permits, stormwater management (SWM), erosion and sediment control (ESC) and right-of-way (ROW) plats. **WM** served as reviewer for final design documents and constructability during construction phase.

**US 113 Dualization from Jarvis Road to Delaware Line:** Prepared Design-Build documents for dualization of 2.6-miles of four-lane divided highway with partial control of access, including 1.5-miles of service roads. Utility coordination, ROW acquisition, and permit clearance were integral to project success. **WM** prepared the highway design so the typical section, alignment, and profile met environmental commitments, constrained by the flat terrain. The design implemented solutions, such as a 3% cross-slope and selective use of closed section. The MD-DE at-grade railroad crossing in the project required extensive coordination. **WM's** environmental and H&H designs ensured drainage feasibility and confirmed SWM requirements with the associated ROW needs. The SWM design focused on meeting water quality requirements, while minimizing use of ponds. **WM's** design ensured compliance with environmental commitments, including the USCOE blanket permit.

**US 113 Dualization Snow Hill Bypass:** Prepared Design-Build documents for dualization of 4.0-miles of four-lane divided highway with partial control of access. **WM's** highway design was developed through specific challenges. We evaluated alternatives for east-side versus west-side dualization to minimize ROW and resource impacts. We also performed intersection and interchange studies for accessibility and safety. Studies considered J-turns and closing of certain median crossovers. **WM's** design specified a structural plate-pipe arch culvert extension. We obtained all required environmental permits.

**US 113 / MD 12 Intersection Study:** This intersection was identified as problematic both from an operational and safety standpoint. The dualization project was considered a "short-term" solution for collisions at the MD 12 intersection. Alternatives that included at-grade and grade separated concepts were developed through this study. Alternatives considered included a diamond interchange and dual roundabout interchange. **WM** developed alternatives, evaluated operations and impacts, and provided a summary report.

**US 113/MD 12 and US 113/MD 365 Intersections Design:** Following the occurrence of a fatal accident, SHA requested that **WM** complete a comprehensive intersection study at two at-grade unsignalized intersections. Studies concluded that an elevated number of "far-side" angle crashes occurred where minor street approach motorists were advancing into the median and not looking to the right to proceed into mainline traffic to complete their through or turning movement. The comprehensive summary report included near-term and long-term improvement recommendations. Near-term recommendations included installation of additional and oversized signing, installation of rumble strips, and improved pavement markings. Long-term improvement recommendations included reconstruction to incorporate J-Turns. Following the submission and acceptance of the two studies, **WM** completed concept designs and associated planning level cost estimates, followed by full construction documents for the J-Turn recommendation. The J-Turn design incorporated bike compatibility design to facilitate minor street bicyclists crossing the intersections.

## Relevance to WO6355170

- ✓ 2-Lane to 4 Lane Roadway
- ✓ Delmarva Region
- ✓ Safety Improvements
- ✓ Access Management
- ✓ Concurrent Utility Relocations

## Proposed Staff Involvement

- Will Fiorillo, PE, DBIA\*
- John Rectanus, PE, PTOE
- Robert Evans, PE, PTOE
- Roberto Barcena, PE
- Jessica Klinefelter, CEP
- Eric Cooper, PLS

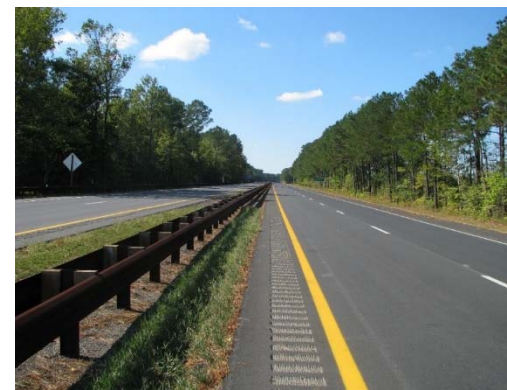
\* Proposed Key Staff

## SUCCESSFUL METHODS, APPROACHES, AND INNOVATIONS

- **Schedule** – All assignments were delivered on schedule and when **WM** served in the role of design reviewer, reviews were completed expeditiously in order to meet commitments within the specifications. **WM** introduced a "Utility Corridor" into the design for the dualization due to the intensity of the utility relocations in the area. This resulted in an AASHTO Award for Innovation and expedited concurrent utility work.
- **Safety & Mobility** – The focus of all assignments on this contract has been safety. The dualization projects were directed to minimizing/eliminating head-on collisions by introducing a 34' median protected with metal barrier. The intersection studies and designs were directed toward minimizing/eliminating angle collisions and the consideration of alternative solutions with a 'J' Turn design being the preferred concept. Both dualization projects included a significant amount of service roads in order to control and limit access while improving safety and mobility.
- **Environment & Maintenance** – SWM was implemented uniformly to mimic existing hydrologic conditions rather than in end of line facilities. SWM includes ESD facilities within the roadside ditches to maintain and look more natural in the roadway environment. In areas of high groundwater, wet swales were allowed and preferred to be located in the median where the edge of pavement of the dualized roadway is close in elevation. By utilizing the roadway median, fewer facilities would be required outside of the roadway, thereby minimizing the project footprint and maintenance requirements.

## RELEVANCE OF WORK TO WO6355170

These dualization projects are along the very same US 113 corridor and are highly relevant because of the Design-Build method of innovative project delivery involving the construction of two additional lanes to create a dual four-lane divided corridor serving commuters, commercial trucking, adjacent farming and vacationers. Also, the work included studies and designs for development of J-Turns intersection geometrics to eliminate right angle collisions by reducing the number of conflict points and protecting left-turning traffic to and from US 113. Designs of intersections and access points were fully checked and developed in consideration of sight distances and turning movements with not only standard SHA criteria design vehicles, but also with farm vehicles. The Project involved extensive coordination of proposed road/drainage/SWM designs with MD-DE RR, Delmarva Power, Choptank Elec, Verizon and Maryland Broadband for concurrent relocations. We took extreme measures to assure that utility relocations would be seamless. We advanced drainage/SWM final design efforts to minimize impacts and to fit within the context of the surrounding environment.



**AASHTO Award for Innovation**

# I-95 at Contee Road Interchange Design-Build Project

Prince George's County, MD



## OWNER CONTACT

MD State Highway Admin  
Mr. David Phillips, PM  
T 410-545-8823  
dphillips@sha.state.md.us

**CONTRACT/PROJECT NO.**  
PG4195172

**DELIVERY METHOD**  
Design-Build

## CONSTRUCTION COST

**Initial Contract Value:**  
\$30,700,000

**Final Contract Value:**  
\$33,744,188

**Reason for Difference:**  
Updated design requirements for bike lanes and discover of unknown WSSC water main conflict

## SCHEDULE

**Initial Completion Date:**  
May 2014

**Final Completion Date:**  
November 2014

**Reason for Difference:**  
Owner directed changes to scope and an approved schedule extension.

## PROJECT DESCRIPTION

**Wallace Montgomery (WM)** teamed with **Allan Myers** and served as Lead Designer on the SHA's I-95 at Contee Road Interchange Design-Build Project. The project located in Prince George's County was to construct Contee Road Relocated, an urban arterial roadway, and its grade separated connection with I-95 using a partial cloverleaf interchange configuration. Contee Road Relocated was constructed parallel to the north and replaced existing Van Dusen Road and its crossing over I-95 connecting the I-95 collector-distributor (CD) roadway system between MD 198 and the ICC - MD 200. The roadway project limits are from east of the Van Dusen Road/Virginia Manor Road intersection to approximately 1/3 mile west of Sweitzer Lane for a distance of approximately 1¼ miles. The project consisted of constructing a grade separated 519 ft. 4-span steel girder bridge crossing over I-95, two interchange directional ramps, two interchange cloverleaf ramps, and the relocation and at-grade connections of Sweitzer Lane and Van Dusen Rd to Contee Road.

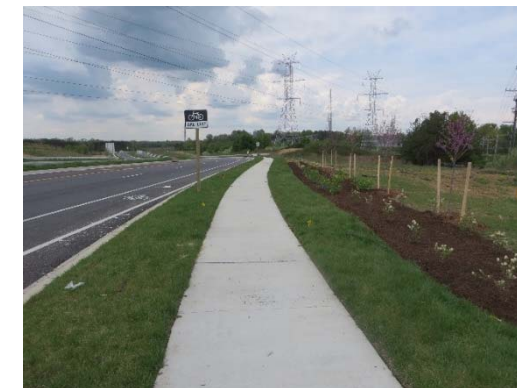
Our Team was awarded the Project based on a "best value selection" process and a total bid price of \$30.7 million - **\$2M below the project budget of \$33.5M - as a result of our innovative solutions (Approved ATCs).**

## SUCCESSFUL METHODS, APPROACHES, AND INNOVATIONS

- **Schedule** – Completing the design and construction of the proposed Contee Bridge was vital to project success; as this work needed to be completed in order to remove the existing Van Dusen Bridge and allow for the completion of I-95 CD roadway system. **WM** developed a schedule and approach that ensured all necessary activities were completed on time, so that minimal review was required by SHA, and all elements were constructed without delay. Minimizing impacts or clearing impacted utilities was critical, given the project's high visibility and short time frame for completion. In order to meet the Critical Path, utility coordination was a priority. To ensure forward progress was being maintained, monthly Utility Coordination Meetings were held and facilitated by the Team. Also, our SWM design allowed us to eliminate SWM pond facilities east of the Van Dusen/Virginia Manor intersection and therefore avoided impacts to WSSC and overhead communication line facilities.
- **Safety & Mobility** – Our design's safety benefits are great and exist on multiple levels. The geometry of existing Van Dusen Road included relatively sharp curvature – significantly improved by the new Contee Road crossing. The existing intersection with Sweitzer Lane was on a sharp curve and the intersection serving the Laurel Regional Hospital included deficient curvature for which sight distance was poor and emergency vehicle access/safety was compromised. The new intersections are all at 90 degrees with good storage for turns, improved traffic control with signals and good sight distance. **WM** sequenced the project in conjunction with roadway profile refinements reducing vertical differential and meeting grade between existing and proposed roadways to maximize safety and mobility – during and after construction. To further enhance safety and mobility, we updated the SHA RFP concept design and incorporated full bicycle compliance in accordance with SHA's revised Bicycle Policy & Design Guidelines.
- **Environment** – Our SWM approach included Environmental Site Design (ESD) micro-scale practices along the proposed roadways in lieu of treatment in end-of-line pond facilities. In maximizing use of ESD micro-scale facilities such as bio-swales the Project footprint was reduced; resulting in reduced environmental impacts, easier/low cost maintenance and more visually pleasing SWM facilities. MD DNR permitted forest impacts at 24.43 acres—we achieved 19.65 acres in actual forest impacts; a reduction of 4.78 acres. In decreasing the footprint, increased area was available for on-site reforestation. MD DNR permitted 14.52 acres of on-site reforestation and then 9.91 acres off-site by SHA for a 1:1 replacement of the 24.43 acres impacts. We achieved 27.57 acres of on-site reforestation, therefore we replaced (1:1) the final 19.65 acres of impacts plus an additional 7.92 acres. Waters of the US (WUS) impacts were also decreased by 123 LF. The JPA permitted WUS impacts at 1,366 LF—we achieved 1,243 LF in actual WUS impacts.
- **Maintenance** – Our successful approaches and approved ATCs resulting in a shorter bridge with reduced number of girders offers tremendous long-term maintenance benefit – since there is notably less structure to maintain in future years. Our progressive approach to SWM resulted in fewer facilities and lowered maintenance requirements. As we reduced the LOD and forest impacts, we provided a low-maintenance footprint relative to new plantings and grassed surfaces. Our design improved access for maintenance forces in the immediate I-95 corridor (and County Road system).

## RELEVANCE OF WORK TO WO6355170

This project is very relevant to the US 113 Phase 4 project. First, the construction procurement methodology and contract requirements are SHA Design-Build Delivery. Secondly, both projects are extremely time-sensitive. On US 113, the embargo on the Railroad and the overall construction duration are both factors in the selection and have been identified as critical to project success. On Contee Road, a completion date was determined for the new bridge to be opened to allow for mobility in the area and specifically for access to the local hospital. Third, both projects value practical design solutions. On US 113 (and all current MDOT projects), the concept of Practical Design is to be broadly applied. On Contee Road, we succeeded in delivering Practical Design solutions! – by successfully proposing ATCs that reduced the bridge, facilitated earthwork management, minimized environmental impacts, avoided utility relocations and minimized costs. On both projects, the existing road crosses the new road at multiple locations with a profile differential and therefore well-conceived MOT staging and contract packaging are critical. On both projects, management of access is very important and a stated goal.



2016 MDQI Award Winner in the categories of Partnering Gold Award and Award of Excellence

## Relevance to WO6355170

- ✓ SHA Design-Build Delivery
- ✓ Time Sensitive Elements
- ✓ Practical Design Concepts
- ✓ MOT Challenges
- ✓ Access Management
- ✓ Concurrent Utility Relocations

## Proposed Staff Involvement

- Will Fiorillo, PE, DBIA\*
- Siu Kei Li, PE \*
- Glenn Marschke, PE\*
- John Rectanus, PE, PTOE
- Robert Evans, PE, PTOE
- Roberto Barcena, PE
- Eric Cooper, PLS

\* Proposed Key Staff

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# 2.09.03 LEAD CONSTRUCTION FIRM EXPERIENCE/QUALIFICATIONS AND PAST PERFORMANCE

- i. KEY STAFF
- ii. PAST PERFORMANCE

# 2.09.03

## i. KEY STAFF



ALLAN  
**MYERS** +



WALLACE  
MONTGOMERY

**EDUCATION:** BS in Civil Engineering, Pennsylvania State University, 1975

**EXPERIENCE:** 17 Years with Myers, 41 Years in Industry

**CERTIFICATION & TRAINING:**

OSHA 10-hr; OSHA 30 hr

## QUALIFICATIONS & EXPERIENCE

Lewis has 41 years of experience in heavy civil construction and project management. His experience includes managing large highway and bridge projects up to \$211M. He has served as the Design-Build Project Manager for four projects in MD and has constructed over \$500M in projects for SHA. ***Through his highway experience, Lew has learned to safely expedite construction schedules while minimizing delays for existing roadway users.***

## PROJECT EXPERIENCE

**US 113 Dualization (Phase 3) Design-Build, \$32M (SHA – Worcester County, MD) –** Design-Build Project Manager for the Myers/WM Team responsible for design and construction of two additional lanes along the existing US 113 alignment to create a dual divided highway. The project improvements include the design and construction of new service roads, J-Turn intersections and a modified Maryland T intersection to maintain access to residential and commercial properties. Construction phasing was developed to maintain mobility while supporting utility clearance and phased right-of-way acquisition. Coordination with MD-DE Railroad is expected to reduce the railroad embargo by three months. ATC's included an alternative pavement section which reduced cost and introduction of a bicycle pocket lane which improved corridor safety and mobility.

**I-95 Interchange at Contee Road Design-Build, \$34M (SHA – Prince George's County, MD) –** Design-Build Project Manager for the Myers/WM Team responsible for the design and construction of a new interchange on I-95 between MD198 and ICC. Roadway improvements include a divided 4-lane urban arterial road replacing the existing 2-lane Van Dusen Road, a grade separated partial cloverleaf interchange connection with I-95, and a new bridge over I-95. The Team's accepted ATC shortened the bridge over I-95 by 82 feet. Coordination of an expedited design resulted in completion of the new bridge four weeks ahead of schedule. The advertised SWM plan was optimized during design phase eliminating need for two basins through use of bio-swale and bio-retention treatment facilities.

**MD 43 Extended From West of US 40 to MD 150, \$50M (SHA – Baltimore County, MD) –** Construction Manager for this project which constructed 3.8 miles of new four-lane divided highway through environmentally sensitive areas including five bridges, rehabilitation of four bridges, and three parallel 180' runs of 84" RCP under the roadway.

**I-95 Express Toll Lanes, \$54M (MDTA – Baltimore County, MD) –** Sr. Construction Manager for the construction 1.80 miles of I-95 north from the I-695 interchange between Rossville and Campbell Boulevards and contingent repairs to the existing MD 43 bridges over I-95. The project involved the reconstruction of the existing eight-lane divided highway to eight general purpose lanes and four express toll lanes separated by concrete barriers. The work included over 300,000 CY of excavation; major E&S control measures due to proximity to the Chesapeake Bay; and comprehensive MOT planning to ensure safe, uninterrupted traffic flow on this busy corridor.

**US 40 at MD 715 Interchange Improvements Design-Build, \$17.7M (SHA – Harford County, MD) –** Design-Build Project Manager for the reconstruction of the interchange at US 40 and MD 715 and upgrade of MD 715 from a 4-lane to a 6-lane highway. Adjacent to Aberdeen Proving Ground (APG), the project was needed to accommodate additional personnel being relocated to APG as part of the BRAC. Included widening MD 715 bridge over US 40, new ramps, intersection reconstruction, signalization and lighting, stream relocation, drainage, SWM, and relocation of Aberdeen and APG utilities.

**EDUCATION:** BA in Finance,  
Texas Tech University, 1993

**EXPERIENCE:** 4 Years with  
Myers, 24 Years in Industry

**CERTIFICATION & TRAINING:**  
OSHA 10-hour; OSHA 30-hour

## QUALIFICATIONS & EXPERIENCE

As a Senior Project Manager, Eric plans, directs and coordinates the activities of large, complex, and fast-tracked projects. He ensures that project goals and objectives are accomplished within scheduled timeframes and established budget, while ensuring safety during construction. Under Eric's oversight as Sr. Project Manager, the BWI Airport

Runway Expansion project was the first project at the airport ever to achieve the runway opening date. This goal was accomplished through daily schedule management and subcontractor coordination, and implementation of a project specific safety project "Don't Know, Don't Care". Eric's commitment to safety and schedule will ensure the success of the US 113 Phase 4 project.

## PROJECT EXPERIENCE

**US 113 Dualization (Phase 3) Design-Build, \$32M (SHA – Worcester County, MD) –** Sr. Construction Manager for the project consisting of the design and construction of two additional lanes along US 113 alignment to create a dual divided highway. The project improvements include design and construction of new service roads, J-Turn intersections and a modified Maryland T intersection to maintain access to residential and commercial properties. Eric is responsible for working with the design engineer on phase drawings including edits and recalculations to create the most cost effective solutions for the project.

**I-95 Express Toll Lanes North of MD 43 to Joppa Rd, \$42M (MDTA – Baltimore County, MD) –** Project Manager for reconstruction of 1.5 miles of I-95 to expand to eight general purpose lanes and four express toll lanes separated by concrete traffic barrier. The scope includes full depth pavement construction, resurfacing, stormwater management (SWM) facilities, retaining wall structures, and maintenance of traffic (MOT). Local and Harford County utility relocations and coordination were also required. A new gate structure and enhanced security measures were necessary, requiring extensive coordination with ASACE & APG Security to maintain the existing system while performing renovations to this heavily used APG entrance. Through detailed planning and coordination the project is proceeding on schedule and within budget. Eric was involved in value engineering a caisson wall to mitigate global sliding failure at the owner's request.

**I-95/I-695 Interchange, \$57M (MDTA – Baltimore, MD) –** Project Manager for reconstruction of I-695 (Baltimore Beltway) at I-95 for a distance of 1.5 miles. The project involves the reconstruction and re-alignment of an existing 6-lane divided highway. Major items of work include full depth pavement reconstruction, milling and resurfacing, storm drain, SWM basins, noise wall and retaining wall structures, two new culverts, one new bridge, stream re-alignment, and MOT.

**T-Rex Design-Build Project, \$1.67B (Colorado DOT– Denver, CO) –** Segment Field Supervisor for this project which improved 17 miles of highway and added 19 miles of light rail through southeast Denver, Aurora, Greenwood Village, Centennial and Lone Tree. Highway improvements included new storm drain, sanitary sewer, pavement sections, bridges, and transportation facilities. The project completed 22 months ahead of schedule and 3.2% under budget. Eric was responsible for all field work activities performed for approximately \$450M of the \$1.3B project.

**The Big I, \$160M (New Mexico DOT– Albuquerque, NM) Night Shift Superintendent** responsible for supervision for all company and subcontractor night operations. The Big I is a stack structure interchange where I-25 and I-40 intersect in downtown Albuquerque, NM. Bid at 60% design, the project included mass excavation, pipe, MSE walls, and 55 bridges within the project area, eight of which are precast concrete.

2.09.03

ii. PAST PERFORMANCE



# US 113 Dualization (Phase 3) Design-Build Project

Worcester County, MD



## OWNER CONTACT

MD State Highway Admin  
Mr. David Phillips, PM  
T 410-545-8823  
dphillips@sha.state.md.us

**CONTRACT/PROJECT NO.**  
WO6365170

**DELIVERY METHOD**  
Design-Build

**CONSTRUCTION COST**  
**Initial Contract Value:**  
\$32,157,777

**Final Contract Value:**  
\$32,157,777 Currently

**SCHEDULE PERFORMANCE**

**Initial Completion Date:**  
October 2017

**Final Completion Date:**  
October 2017 – On Schedule

## PROJECT DESCRIPTION

**Myers** is teamed with **Wallace Montgomery (WM)** to partially realign and upgrade 4 miles of US 113 for SHA. **Myers** is serving as the Design-Builder and Lead Contractor on this project, located south of Berlin, which begins North of Massey Branch and continues to Five Mile Branch Road (abutting Phase 4). The project consists of the design and construction of two additional lanes along the existing US 113 alignment to create a dual four-lane divided highway. It also includes the new service roads to maintain access to residential and commercial properties. Roadway improvements include new pavement construction and pavement rehabilitation of existing roadways and shoulders, reforestation, closed/open drainage systems, stormwater management (SWM) facilities, roadway intersection lighting, signing & pavement markings, and culvert extensions and/or replacement. The **Myers/WM** Team was awarded the project based on a “best value selection” process and a total bid price of \$32.1M.

Currently, design is approximately 75% complete and Stage 1 construction, which includes clearing and grubbing, erosion and sediment controls, and rough grading the northern half of the project, is approximately 80% complete. This summer, work will be finished on Stage 2. Stage 2 includes all the work of Stage 1 on the southern half of the project and installation of large diameter storm drain crossings.

## SUCCESSFUL METHODS, APPROACHES, AND INNOVATIONS

- **Schedule** – **Myers** construction staff finalized the sequence of construction immediately after project award to allow work to begin as soon as possible while still providing the design team with sufficient time to plan and develop the design. **Myers/WM** have staged the project in the minimum number of stages (five) and divided the project into two halves (northern and southern). **Myers** included rough and final grade phases as well as created separate plans for key work areas such as large storm drains. This staging is seamless with utility clearance and the progression of right-of-way (ROW) acquisition which is currently in process. We have been emphasizing strong communication with the Railroad to shorten the railroad embargo by 3 months. Coordination with the District Utility Engineer and Utility Companies (Verizon, Maryland Broadband Cooperative, Choptank Electric, and Delmarva Power) has included pre-construction meetings so that utility clearance does not impede the roadway work.

- **Safety and Mobility** – Through the use of a Maryland ‘T’ intersection, as a presented and approved ATC, **Myers/WM** were able to enhance both safety of the intersection of Basket Switch Road and improve the multi-modal operations. The **Myers/WM** Team was able to meet with property owners to minimize the impact of access to their farms and coordinate with planting schedules to make the best plan of action for all parties. **Myers/WM** also coordinated with SHA and internal Public Relations teams to notify residents of disturbances on a monthly basis so they could plan accordingly. An integrated U-turn movement at Newark Road North connection reduces NB vehicles’ trip distance to head SB by three miles.

- **Environment & Maintenance** – Multiple features of the US 113 project come together to support a facility that is in sync with the environment and offers low-maintenance benefits. **Myers/WM** are phasing construction for separate areas of the Project with required SWM design for that section. In that way, the SWM permit can be obtained for each phase prior to construction. In addition an emphasis has been put on making sure scheduled construction does not affect regulations regarding live streams such as storm drain crossings. Additional subsurface investigation is being utilized to narrow down the areas and depths of the water table to avoid erosion at pipe outfalls and fill slope failures in terms of maintenance concerns. The pavement design was considered existing conditions, material selection, and construction methods to meet or exceed the performance criteria in terms of structural capacity, skid resistance, visual appearance and ride quality for long-term maintenance.

## RELEVANCE OF WORK TO WO6355170

This project adjoins the Phase 4 project and is relevant because of the Design-Build delivery method involving construction of two additional lanes to create a dual four-lane divided major corridor highway serving commuters, commercial trucking, adjacent farming and summer vacationers. It also includes design of Maryland “T” and J-Turns intersection geometrics to eliminate right angle collisions. Coordination efforts with project stakeholders have included MD-DE RR, Delmarva Power, Choptank Electric, Verizon and MD Broadband. Construction staging and design submittal packages were developed to perform the necessary clearing for the overhead aerial utility relocations.

*"I have never had a Design Build Team put forth the effort to assist, facilitate and coordinate the utility relocations on a Project as I have with the Myers/Wallace Montgomery Team. Mark (Atkininstall) has been a pleasure to work with." - Mr. Bruce Poole, SHA D1 Utility Engineer*



## Relevance to WO6355170

- ✓ SHA Design-Build Project
- ✓ 2-Lane to 4 Lane Divided Road
- ✓ Adjacent US 113 Dualization Project
- ✓ Access Management
- ✓ Phased R/W Acquisition
- ✓ Concurrent Utility Relocations

## Proposed Staff Involvement

- *Low Glassmire\**
- *Eric Eastin\**
- *Richard Dungan*
- *Rob Sinclair*
- *Jonathon Fryberger*

\* Proposed Key Staff

## OWNER CONTACT

State Highway  
Administration of Maryland  
Kevin Oberheim, PE, CCM  
410-808-3493  
koberheim@sha.state.md.us

**CONTRACT/PROJECT NO.**  
PG4195172

**DELIVERY METHOD**  
Design-Build

## CONSTRUCTION COST

**Initial Contract Value:**  
\$30,700,000

**Final Contract Value:**  
\$33,744,188

## Reason for Difference:

Updated design requirements for bike lanes and discovery of unknown WSSC water main conflict

## SCHEDULE PERFORMANCE

**Initial Completion Date:**  
May 2014

**Final Completion Date:**  
November 2014

**Reason for Difference:**  
Owner directed changes to scope and an approved schedule extension.

## PROJECT DESCRIPTION

**Allan Myers** teamed with **Wallace Montgomery (WM)** and served as the lead contractor on the Maryland State Highway Administration's (SHA) project to construct a new interchange at I-95 and Contee Road in Prince George's County, that will benefit current and future development east and west of the I-95 corridor. Design and construction of an urban arterial roadway, Contee Road, which is known now as Konterra Drive, and its grade separated connection with I-95 using a partial cloverleaf interchange configuration. Contee Road was constructed parallel to the north and replace the existing Van Dusen Road and its crossing over I-95. The Contee Road (Konterra Drive) Interchange connects within the I-95 collector-distributor (CD) roadway system between MD 198 and the Intercounty Connector (ICC) - MD 200. The project limits along Konterra Drive are from east of the Van Dusen Road intersection to approximately 0.5 mile west of Sweitzer Lane for a distance of approximately 1¼ miles. The work included constructing a 4-span bridge over I-95, two interchange directional ramps and two cloverleaf ramps, and the relocated at-grade connections of Sweitzer Lane and Van Dusen Road to Konterra Drive. The project required close coordination with several adjacent state, county, and private contracts. The new bridge was required to be opened and the existing bridge demolished in advance of project completion in order for adjacent contractors to complete work.

The **Myers/WM** Team applied innovative and cost-effective solutions that resulted in over \$2 million in cost savings. These solutions included reducing bridge costs and refining roadway geometrics and SWM features to eliminate significant earthwork and pavement reconstruction, construction staging/sequencing simplification, minimize utility impacts, and reduction of impacts to environmental features.

## SUCCESSFUL METHODS, APPROACHES, AND INNOVATIONS

- **Schedule** – The completion of the new Konterra Road Bridge and the demolition of the existing Van Dusen Bridge over I-95 to allow for the completion of the ICC's CD Roadways with I-95 was vital to the success of Project. The **Myers/WM** Team developed an ATC that shortened the bridge over I-95 by 82 feet to 519 feet in length that resulted in completion of the new bridge 4 weeks ahead of the required interim milestone.
- **Safety & Mobility** – No traffic incidents occurred with the traveling public during construction due to the Team's proactive approach to safety and an additional Interim MOT Phase that properly maintained traffic for a water main betterment that conflicted with the proposed road alignment. **Myers** used detailed TMPs, limited construction access points, and isolated work to specific areas at a time in order to minimize safety risks to the traveling public. To further enhance access, safety and multi-modal features, the **Myers/WM** Team updated the RFP conceptual design to comply with SHA's revised Bicycle Policy & Design Guidelines by providing 6' shoulders for marked bike lanes along the Konterra Drive and 6' pocket lanes between the travel through lane and right turn lanes at the relocated at-grade intersections of Sweitzer Lane and Van Dusen Road.
- **Environment** – Incentives were achieved related to forest impact reduction and reforestation. The final completed project achieved 19.65 acres in actual forest impacts; a reduction of 4.78 acres. As a result of decreasing the Project footprint, increased area was available within right-of-way for on-site reforestation. The MD DNR permit requirement was to provide 14.52 acres of on-site reforestation and then 9.91 acres off-site by SHA for a 1:1 replacement of the 24.43 acres impacts. The final completed project achieved 27.57 acres of on-site reforestation. Therefore the completed project replaced (1:1) the final 19.65 acres of impacts plus an additional 7.92 acres. In addition, Waters of the US (WUS) impacts were decreased by 123 LF. The MDE/USCOE Joint Permit Application permitted WUS impacts at 1,366 LF based on SHA's Concept/ Preliminary Design. The final completed project achieved 1,243 LF in actual WUS impacts.
- **Maintenance** – Our successful approaches and approved ATCs that resulted in a shortened bridge with reduced number of girders offers tremendous long-term maintenance benefit – since there is now much less structure to maintain in future years. Our progressive approach to SWM resulted in a minimized approach with fewest facilities and lowered maintenance requirements. As we reduced the LOD and forest impacts, we provided a low-maintenance footprint relative to new plantings and grassed surfaces. The design inherently improves access for all maintenance forces in the immediate I-95 corridor (and County Road system) for inspection, mowing, plowing and related operations.

## Relevance to WO6355170

- ✓ SHA Design-Build Project
- ✓ Accelerated Schedule
- ✓ Utilized ATC to reduce schedule and cost
- ✓ Minimized traffic impacts for the travelling public
- ✓ Reduced environmental impacts
- ✓ Two-lane to four-lane divided highway/roadway widening

## Proposed Staff Involvement

- Lewis Glassmire \*
- Rick Tisa
- Kevin Denny

\* Proposed Key Staff

## RELEVANCE OF WORK TO WO6355170

This project was provided through SHA Design-Build delivery method and was extremely time-sensitive as is the case with US 113 Phase 4 Project. Due to the tie-in with the ICC D/E project, the Contee Road project had very specific milestones that needed to be met so as to not hold up construction activities on the adjacent project. This is similar to US 113 Phase 4's embargo in place on the Railroad and the overall construction duration.

**The I-95 at Contee Road Interchange Design-Build Project was well-received by stakeholders and exemplified a partnership in design-build delivery while meeting the Owner's budgetary and scheduling needs and the future needs of the region and users. 2016 MDQI Award Winner in the categories of Partnering Gold Award and Award of Excellence**



## OWNER CONTACT

Maryland Transportation Authority: David Ferrara  
410-537-7882  
dferrara@mdta.state.md.us

**CONTRACT/PROJECT NO.**  
25-201107

**DELIVERY METHOD**  
Design-Bid-Build

## CONSTRUCTION COST

**Initial Contract Value:**  
\$52,477,777

**Final Contract Value:**  
\$53,748,069

**Reason for Difference:**  
Additional work requested by owner.

## SCHEDULE PERFORMANCE

**Initial Completion Date:**  
October 2010

**Final Completion Date:**  
October 2010

**Reason for Difference:**  
This project was completed on time.

## PROJECT DESCRIPTION

Construction of I-95 north from the I-695 interchange between Rossville Boulevard and Campbell Boulevard for a total distance of 1.80 miles and contingent repairs to the existing MD 43 bridges over I-95. The project involved the reconstruction of the existing eight-lane divided highway to eight general purpose lanes and four express toll lanes (managed roadway) separated by concrete barriers. The work included: extensive earthwork with over 243,500 CY of excavation and 87,000 CY of common borrow; major sediment & erosion control measures due to proximity to the Chesapeake Bay; carbide grinding and resurfacing, full depth pavement construction, resurfacing totaling 206,000 tons of asphalt; new storm drain improvements with 41,500 lf of underground utilities; arch culvert replacement under the entire width of I-95; new storm water management facilities; new wetland mitigation facilities; new retaining wall structures and construction of 3 noise walls; landscaping; signing and marking; intelligent transportation system; toll gantry foundations and conduit; and new non-public turn around ramps.

*Allan Myers completed this project on schedule and under budget.*

## SUCCESSFUL METHODS, APPROACHES, AND INNOVATIONS

- Schedule** – The most challenging aspect of this project was maintaining four lanes of traffic through this congested corridor while widening to the outside of NB & SB I-95 for future lanes. This work was complicated by the phased replacement of a deteriorating major large diameter structural plate pipe arch culvert under the entire width of I-95 with a pre-cast concrete arch culvert in the middle of the project. Despite the high volumes of traffic and challenging weather conditions, **Myers** completed this project ahead of schedule and under budget.
- Safety** – Zero lost time injury project. To minimize traffic delays and enhance safety to the traveling public, particularly in rush hour, an abundant amount of night work was utilized. In addition, safety was increased by eliminating left exits, improving interchanges and reducing conflict points. A major sheeted storm drain arch culvert passing under all lanes of I-95 NB/SB was reconstructed in phases while maintain traffic safely despite a crumbling existing structural steel plate arch culvert and was subject to drastic flow fluctuations during storm events. This project interfaced with two other major projects to the north and south. Maintenance of traffic and lane shifts were safely coordinated between Prime Contractors to minimize impacts.
- Mobility** – The heavily traveled I-95 corridor was safely and efficiently maintained while constructing additional lanes to the outside of the existing NB and SB roadways. Once the outside lanes were completed, traffic was placed on these lanes & the middle of I-95 was reconstructed. The toll facility will provide seven lanes of free flowing traffic thus improving mobility throughout the whole region. **Myers** performed the bulk of the work at night to utilize the longer allowed closure times at night and reduce impact to the traveling public.
- Environment** – **Myers** received an “A” rating on Environmental Management (from MTA’s E&S consultant Greenman-Pederson). The project required major erosion and sediment control measures due to close proximity to the Chesapeake Bay. The project was complicated by the phased replacement of a deteriorating major large diameter structural plate pipe arch culvert under the entire width of I-95 with a pre-cast concrete arch culvert. This was an environmentally sensitive critical path item that literally cut the project in two. The stream in this area, which was subject to drastic flow fluctuations during storm events, had to be flumed directly through the work area. The project team implemented an innovative stream diversion/support of excavation scheme.
- Maintenance** – Replacement of two structurally deficient bridges reduced future maintenance requirements in the corridor.

## Relevance to WO6355170

- ✓ Roadway widening and pavement reconstruction
- ✓ Safety/operational improvements
- ✓ Phased construction to maintain traffic flow
- ✓ Sensitive environmental conditions and wetlands

## Proposed Staff Involvement

- Lew Glassmire\*
- Richard Dungan

\* Proposed Key Staff

## RELEVANCE OF WORK TO WO6355170

Similar to US 113 Phase 4, I-95 had lots of MOT work such as the new alignment of US 113 crosses existing roadway a few times. This will require an elaborate MOT plan, while maintaining traffic on existing roadway. I-95 was a widening to the outside of NB/SB, similar to US 113, which is adding 2 lanes & shoulders. This project was similar in size and scope to US 113 phase 4. This included similar lengths and monetary value, comparable highway elements such as guide rail, signing, lighting, striping, seeding, landscaping, utility relocations, storm drain & structures, earthwork, erosion and sediment control in sensitive areas, permanent storm water management facilities, concrete barrier, and concrete medians. I-95 Express Toll Lanes was a successful project for both Myers and MTA. Partnering worked very well on this contract and was a key to our continued success.



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# 2.09.04 PROJECT UNDERSTANDING AND DESIGN-BUILD APPROACH



ALLAN  
**MYERS** +



WALLACE  
MONTGOMERY



**UNDERSTANDING OF THE PROJECT SCOPE**

US 113 (Worcester Highway) is classified as a rural principal arterial extending from Pocomoke City, Maryland to Milford, Delaware. The corridor is primarily a dualized roadway which functions as a major artery serving a variety of users such as commuters, commercial trucking, agricultural equipment and summer vacationers traveling along the Delmarva Region and is designated as a Hurricane Evacuation Route. Land use and development consists primarily of agricultural lands with forested pockets and some commercial and institutional uses located near the two bordering towns of Newark and Snow Hill. The length of this phase is approximately 4.3 miles and is the final phase needed to complete the dualization of the entire corridor as per the Final Environmental Impact Statement (FEIS).

The project scope includes the design and construction of two additional 12' wide travel lanes, 10' wide outside shoulder, and 4' wide inside shoulder along the existing alignment to create a dual divided four-lane highway. The median typical section provides a 34' wide section except at the median south of US 113 business which transitions from 27' to 3' at the bridge over Purnell Branch. Current at grade intersections will be replaced with the implementation of J-Turns and two Maryland "T" intersections to restrict unprotected left turns and through movements from side streets thus creating a safer facility.

The Project's southern tie-in to the dualized section was built under Phase 1. There is a J-Turn loop at approximately Station 1200+00 that was designed by **Wallace Montgomery (WM)** under a SHA District contract. We understand SHA's goal is to provide the highest quality facilities to the public, although the concept plans show the limit of pavement rehabilitation starting at station 1201+00, the **Myers/WM** Team will begin the work at Station 1197+00 to remove the transition (pavement markings, signing & rumble strips) from two 12'-lanes to 18' single lane along northbound section.

The proposed roadway crosses the Purnell Branch (Bald Cypress Swamp) area from Station 1209+00 to 1231+50, which requires special care as a critical environmental resource. The **Myers/WM** Team understands the importance of these swamps, as they are critical habitats for many rare, threatened or endangered species of plants. The crossing over Purnell Branch requires a new single span bridge, which will consist of precast, prestressed beams, and two new retaining walls (constraint soldier pile & concrete lagging) along the outside shoulder of US 113 NBR immediately north and south of the new bridge. The proposed walls will minimize the amount of fill in the Bald Cypress Swamp (Wetland W-8) and it is part of the Mitigation and Commitments as stated in the latest Environmental Reevaluation.

The other two major waterway crossings are Poor House Branch, which requires extending the existing 60" RCP pipes and Five Mile Branch that requires extending the existing 8' wide x 6' high box culvert and by replacing the existing culvert with a 8' wide x 5' high box culvert. Measures will be taken to perform a thorough inspection of the existing portion of pipes that are to remain to provide rehabilitative measures needed in conjunction with the development of the culvert extensions.

Near Station 1231+00 the proposed roadway crosses the MD-DE railroad tracks at a 40 degree angle. The bicycle compatible shoulder will be designed to approach the track at an angle between 60 and 90 degrees as directed by SHA's Bicycle Policy & Design Guidelines.

Project improvements also include construction of access roads/service driveways, median concrete barrier south of US 113 business, elimination of temporary crossovers from the new dual highway to the existing two-lane roadway (from Phase 1 & Phase 3), new pavement construction and pavement rehabilitation, reforestation, closed/open drainage systems, stormwater management facilities, roadway lighting, signing, pavement marking, and culvert extensions/ replacements.



## UNDERSTANDING OF PROJECT GOALS

The project goals have been defined by the Administration within the RFP. **Myers/WM** have a strong appreciation of these goals and we offer specific strategies that will help achieve each goal.

### 1. **Schedule** – Minimize the outage of the MD-DE Railroad line and construction project schedule.

Our familiarity with key stakeholders gained while working on the US 113 Phase 3 project (including the MD-DE RR and various corridor utility companies) will provide great benefit to the Administration.

**Strategies to Achieve this Goal:** We have identified the following strategies that will help expedite the design and construction process:

- Holding additional design coordination meetings with the stakeholders, especially the utility companies, to plan joint design activities in detail and ensure a smooth design process which minimizes delays to the schedule.
- Enabling key stakeholders as identified in our organizational chart to interface directly on Railroad, right-of-way, MOT and utility relocations among others.
- Developing ATCs and selecting design, materials and construction methods that support the project goals by promoting efficiency, reducing risks, and accelerating delivery schedules.
- Creating realistic and expeditious submittal and review/approval processes that are in harmony with the expected schedule and other Project goals.
- Creating a direct line of communication between design and construction which will ensure efficient design development and feedback that will streamline review times.

### 2. **Safety** – Safe roadway during and after construction.

We will implement safety-focused solutions in a collaborative manner with design and construction staff so that safety is maximized during construction and in the permanent condition.

**Strategies to Achieve this Goal:** The need for the Project is demonstrated by a high number of fatal accidents, which have occurred along the two-lane portions of US 113 at a rate that exceeds the statewide average. As such, maintenance of safe vehicular traffic during construction is a critical goal. In order to limit unnecessary risks and to mitigate safety we will implement the following strategies:

**During Construction:** A staged construction approach coupled with easy to follow MOT practices will balancing mobility and safety throughout the Project. Our approach to successful development and execution of the Traffic Management Plan (TMP) includes:

- Developing a comprehensive TMP to understand the existing traffic users, patterns and challenges, and analysis/develop a design that is sensitive to those existing traffic conditions;
- Maintaining the existing 2-lane, 2-way traffic along US 113 and existing intersection operations throughout construction including the railroad crossing and Worcester County Tech High School;
- Maintaining the existing signal or provide for a temporary signal at the entrance to the Worcester County Technical High School;
- Carefully designing geometrics/MOT and execute traffic control at the numerous “crossover” areas, where the existing road switches from the northbound to southbound, to continually maintain 2-lane, 2-way traffic and minimize safety risk to motorists and workers;
- Constructing portions of the new dualized roadway where it does not interfere with maintaining the existing movements to maximize traffic throughput and minimize conflicts with construction traffic entering/exiting the travel way;
- Implementing construction staging and traffic control at roadway transitions and accelerate access road construction to minimize impacts to side street tie-ins, driveways, and farm access points; and
- Utilizing advanced media, CHART notifications and VMS/temporary signage prior to all traffic shifts.

**Permanent/Final Conditions:** The **Myers/WM** Team has implemented a “Lessons Learned” review procedure after each Design-Build project. The objective is to evaluate safety features, including geometrics, detail level of design, driveway/side road connections and roadside elements, of completed projects and identify any aspect of the project that negatively affect safety. This procedure

has generated good information related to traffic barrier placement and end treatment transitions, permanent signing and striping and pedestrian crossings/ADA features (when applicable). An example of a safety improvement we've identified on this Project is the need to start at Station 1197+00 (prior to the current limit of work) to address the taper transition, signing and removal of rumble strips from the transition from the dualized section to the two-lane roadway.

**Special Considerations:** It is imperative to maintain constant communication and partner with all emergency responders, including local 911 dispatchers and law enforcement. Monthly progress updates utilizing a project flyer and maps will define and identify when changes to existing access points of traffic patterns are occurring. Update meetings will be held with emergency responders at the Newark Volunteer Fire Co. and the Snow Hill Fire and EMS stations as the primary responders to an incident. In addition, we will meet with other local and state law enforcement and invite/coordinate with representatives from Atlantic General Hospital. In the event of a major hurricane evacuation, we will assist with MOT signage removal and will support local agencies in preparing for a traffic switch.

### 3. Mobility – Minimize delay for all roadway users.

Although traffic volumes are not excessive in the corridor, seasonal (summer) traffic can be high. In addition, the corridor is an important N-S link for trucking along the eastern parts of MD-VA-DE.

**Strategies to Achieve this Goal:** Myers/WM understands that mobility is an important measure of effective transportation. Our Team has assessed the entire corridor, beyond just this phase, to ensure continuity and have identified at least two areas where we can improve the current design. These alternatives, explained in Table 2.09.04.1 ATCs Meeting Project Goals will directly favor overall system performance and will minimize delays to roadway users while keeping the Project's commitment to safety and accessibility to private properties, local businesses and agricultural lands.

### 4. Environment – Reduce impacts to Environmental Resources including no impacts to FIDs.

The Bald Cypress Swamp is clearly a focal point on the Project, given the sensitive resources and large/complex construction requirements. In addition to this crossing, there are multiple stream crossings in the corridor that demand a context-sensitive approach for minimizing impacts.

**Strategies to Achieve this Goal:** Our Team's environmental permitting efforts will focus on proactive and timely permit design, evaluation, review, and submission efforts for the SHA PRD issued SWM/E&SC approvals. To assist with PRD's SWM/E&SC review, The Myers/WM Team will commit to pre-submittal reviews by qualified members of the Independent Design Quality Team. These reviews will ensure that the plans/reports submitted to PRD have been reviewed for compliance and that any comments have been addressed, thus reducing overall PRD efforts. Also, we will meet with reviewers as formal design efforts commence and coordinate thereafter to confirm design/calculations criteria and to fully understand special conditions. In addition, the Team has identified four ATCs which will contribute to achieving the environmental commitment as illustrated in Table 2.09.04.1.

### 5. Maintenance – Provide a facility that is able to be adequately maintained.

We apply principles of Practical Design in order to deliver on cost-effective and low-maintenance solutions that meet the projects fundamental purpose and need.

**Strategies to Achieve this Goal:** Our Team has identified four ATCs (see Table 2.09.04.1) that will help reduce maintenance needs. One of the biggest items is general surface maintenance which is closely related to the quality of design and construction. Improperly designed drainage facilities result in erosion or deposition of material and costly removal operations or other corrective measures. In addition, the Myers/WM Team will develop an ATC that prevents debris from accumulating under the new bridge and around the existing bridge piers and abutments.

## PROPOSED ATCS TO MEET/EXCEED PROJECT GOALS & DELIVER ON PROJECT SCOPE

The Myers/WM Team has spent significant energy seeking to implement solutions that provide benefit to the Project while achieving project goals and delivering the scope. We recognize that Alternative Technical Concepts (ATCs) are not due until October 2016, however we believe that the

benefits to the Administration from a cost, mobility and safety standpoint merit discussion herein. These ATCs meet the Project Objectives and are in sync with the principles of Practical Design – and we commit to pursuit of these ATCs. Some of these ATCs that we propose are briefly presented in Table 2.09.04.1.

Table 2.09.04.1 ATCs Meeting Project Goals

Proposed ATC	Practical Design	Schedule	Safety	Mobility	Environment	Maintenance
<b>ATC #1 Acceleration/Deceleration Lane Length Reduction:</b> Reduces amount of pavement to be maintained and treated for SWM. This reduction is consistent with the dimensions provided on previous phases of US 113 dualization and <u>will not affect capacity and running speeds.</u>	◆	◆		◆	◆	◆
<b>ATC #2 US 113 Business Intersection Configuration:</b> Eliminates three traffic conflict points by creating a J-Turn for left turn movement from US 113 Business.	◆	◆	◆	◆		
<b>ATC #3 Steel Pile Bent Abutment for New Bridge over Bald Cypress Swamp:</b> Reduces the structure footprint which minimizes excavation in the swamp, reduces construction costs, accelerates construction, and reduces wetland impacts to Bald Cypress Swamp.	◆	◆			◆	◆
<b>ATC #4 Pre-Stressed Slab Panel for New Bridge:</b> Reduces construction costs and maintenance, and accelerates schedule.	◆	◆			◆	◆
<b>ATC #5 Debris Mitigation Method:</b> Reduces maintenance and ensures proper waterway operation.	◆	◆			◆	◆

### SIGNIFICANT ISSUES AND RISKS

In consideration of the significant issues and risks facing our Team and the Administration, we have analyzed the existing conditions along the corridor and reviewed the conceptual design and requirements of the RFP. Through this review, we have identified the following issues and risks.

Table 2.09.04.2 Significant Issues and Risks

Risk / Issue	Description
<b>R/W Clearance</b>	A significant number of properties are yet to be acquired and will not be acquired prior to NTP, potentially limiting work areas for the DB Team.
<b>MD-DE Railroad Crossing</b>	The proposed dualization at the railroad crossing and removal of the existing at-grade crossing will introduce overlapping construction activities and a Railroad embargo will be put into place.
<b>Environmental Restrictions through the Corridor</b>	The significant environmental resources - which include wetlands, streams, forestlands and FIDS – require adherence to permits, Time of Year restrictions, special conditions, etc. and require avoidance of further temporary and permanent impacts then permitted.
<b>Emergency Response Access</b>	In the interest of public safety, emergency responders - including law enforcement, ambulance and fire – require continued access through the corridor and good communication with regard to staging, lane shifts and intersection controls. Hurricane evacuation is an important coordination effort if such an event occurs.
<b>Outreach and Property Owner Coordination</b>	In order to ensure positive public perception and coordination of construction activity, a successful Public Outreach program and good communication with affected property owners must occur.



<b>Safety During Construction Phasing</b>	The project includes 3 “crossover” areas where the existing road switches from being northbound to southbound. Additionally, grade changes of 2’ to 3’ are proposed. In order to safely maintain 2-lane, 2-way traffic for motorists and workers, we must implement a comprehensive TMP; carefully design the geometry to minimize risk of transitions; and develop detailed MOT plans that account for safety during construction phasing.
<b>Concurrent Utility Relocations</b>	Utility relocations must be proactively coordinated in order to avoid potential delay to roadway construction activities and additional impacts.
<b>Impacts Beyond the LOD</b>	Roadway, MOT, SWM and E&SC features must be carefully designed so that the LOD is not exceeded.
<b>Safety on the Permanent / Constructed Facility</b>	Given historically high accident rates on US 113, it is critical that the intersections, access points, and corridor as a whole be designed to support requirements in sight distance, operations, and safety. Measures such as J-Turns, Maryland ‘T’s, and service roads need holistic reviews for safety.
<b>Farm Vehicle Access</b>	Since farming is a critical part of the local economy, road design must account for the turning movements and sight distance requirements associated with these vehicles.
<b>Bald Cypress Swamp</b>	Any work including equipment stages or access areas will be planned carefully to avoid additional impacts to these wetlands (W-8).
<b>New Bridge</b>	The new bridge to be constructed at the swamp includes multiple challenges, including construction access, extensive retaining walls, sandy soils, tidal influence with future sea level rise, time of year restrictions and a debris mitigation system.
<b>High Ground Water</b>	The presence of high groundwater can impose upon good design for SWM and E&SC facilities.
<b>Agency Approvals</b>	Multiple agencies have jurisdiction on the Project, given the federal funding and the presence of federally protected resources – including USCOE, DNR, SHA-PRD, and NPDES.
<b>Corridor Mobility</b>	Although volumes of traffic are not excessive in the corridor, seasonal (summer) traffic can be high. In addition, the corridor serves as an important N-S link for trucking along the eastern parts of MD-VA-DE.

**THREE UNIQUE PROJECT RISKS**

Based on further consideration of the project risks, our Team feels the three most relevant and critical risks to meeting or exceeding the Project Schedule Goals, including minimizing the outage of the MD-DE Railroad Line and the total days to complete the Project are:

- Safety and Mobility During Construction
- Third Party Approvals
- Design, Permits and Construction at the Bald Cypress Swamp

We did NOT select the work at the Railroad as a “Top 3 Unique Risk”. We have determined that the same approach and effective communication used on US 113 Phase 3 will be applied to Phase 4 – thus neutralizing any concern.

We will proactively identify, assign, avoid, mitigate, and manage the project risks to achieve the Administration’s and our collective stakeholders’ goals.

**Unique Risk #1: Safety and Mobility during Construction**

**Why is it a Critical Risk?** Safety and mobility are a challenge for this Project because the existing road and the new road have three “crossovers”. Furthermore, vertical changes in the profile are common. Combine these geometric factors with the new intersection designs, new service roads, existing side roads, railroad crossing and entrances – and it becomes clear that a logical construction sequence and effective MOT design is necessary to ensure safety and mobility.

**Impact to Schedule:** MOT is identified as a unique risk due to the potential delay that it can cause if coordination with third party stakeholders such as the MD-DE Railroad, clearance and coordination

of utilities and permits are not properly managed. In addition to these two reasons, the proposed geometry includes significant grade differentials of up to 2.5' and multiple crossovers of new road at existing road. These geometric challenges have inherent potential impacts on schedule as the needs of safety and mobility are balanced against MOT and construction packaging/staging. When a particular design package is not approved on time it causes additional submittals which creates a ripple effect that impacts the construction schedule.

**Myers/WM Team Mitigation Strategies:** Our Team will focus on constructing the new sections of dualized roadway offset and parallel to the existing road to minimize MOT impacts and construction traffic entering the travel way. Another successful strategy that will be applied is the careful design of the geometrics/MOT and execute traffic control at the “crossover” areas and vertical differences in pavement tie-ins, where the existing road switches from northbound to southbound, to continually maintain 2-lane, 2-way traffic and minimize safety risk to motorists and workers. A comprehensive TMP will be developed to understand the existing traffic users, patterns and challenges, and analysis/develop a design that is sensitive to those existing traffic conditions.

Throughout the design, Alvin Straufer (Construction Traffic Manager) will work hand-in-hand with John Rectanus (Traffic Engineer) and Robert Evans (MOT Coordinator), performing MOT constructability reviews to ensure that implementation of traffic patterns during construction will meet all performance specifications. During construction, Alvin will reach back to John and Robert to develop methods to improve traffic operations and/or delays that actually occur along the corridor. Communication strategies implemented by our team will include door-to-door conversations with local residents and advanced VMS/temporary signage will be provided to assist with corridor mobility.

The Traffic “Task Team”, which includes design and construction staff, will communicate with emergency responders and stakeholders throughout design and construction.

In order to allow simultaneous/concurrent construction of multiple segments to expedite construction, the US 113 Phase 4 will be built in three sections:

Section 1 – Approx. Sta. 1201+00 to Sta. 1255+60 – This section will include reconstruction of the railroad crossing over US 113, the proposed bridge over Purnell Branch, the proposed walls along the Bald Cypress Swamp and the US 113/US 113 Business intersection:

- Stage 1 – Complete construction activities on NB side with traffic on the existing roadway. Do not construct within 100' of each side of the railroad until embargo has been executed.
- Stage 2 – Construct NB side of railroad.
- Stage 3 – Construct SB side of railroad. Traffic will be transitioned onto roadway built in Stage 1.
- Stage 4 – Complete construction activities on SB side (existing roadway) with traffic switched to the newly built northbound side. Transition to existing roadway by Sta. 1255+60.

Section 2 – Approx. Sta. 1255+60 to 1327+40:

- Stage 1 – Complete construction activities to the east and west of the existing roadway, while still maintaining two way traffic on the existing roadway.
- Stage 2 – Complete construction activities on the existing roadway. Traffic will be on the SB side of the dualization (east of the existing roadway).

Section 3 – Approx. Sta. 1327+40 to 1430+00:

- Stage 1 – Complete construction activities on SB side of dualization with traffic on existing roadway.
- Stage 2 – Complete construction activities on NB side of dualization with traffic flip to newly built road from stage 1. Transition to existing roadway by Sta. 1327+40. This stage will be carefully developed with consideration for access points to the Worcester County Technical School.
- Culverts will be completed with staged construction per the above stages.

**Experience Mitigating Similar Risks:** We have a public outreach team which is already experienced in coordinating with the District and property owners along the US 113 corridor. This unique experience will facilitate and support public relations efforts on the Project. Related to the Railroad Crossing, Our Team has already concluded the Pre-Design and Pre-Construction

coordination meeting for US 113 Phase 3 Design-Build project where important design elements have been discussed and the approach to implement has been accepted. Those proposed elements include the proposed locations of railroad signals, coordinating the power drops and meters with the appropriate utility company, requirements for conduit placement for railroad signals, preliminary MOT needs and the necessary signing and pavement markings required. In addition and as requested by the Railroad Company, we developed an intersection layout detail to confirm acceptable elevation tolerances between US 113 Phase 3 mainline and proposed railroad crossing, final location of the railroad signals with regards to W-beam traffic barrier placement and end treatments, size and location of necessary conduits and handboxes, MOT staging and coordination due to the new rail placement being in conflict with the temporary road and the removal of the existing crossing.

Related to this Phase, our Team has already had informal dialog with the railroad representatives to confirm that the approach applied on US 113 Phase 3 Design-Build project as described above will be the preferred and most effective approach in terms of schedule thus minimizing the outage of the rail. Based on our coordination and knowledge of the railroad's business practices and needs, we anticipated the embargo period to be approximately 30 calendar days for both the crossing in Phase 3 and a similar effort for the crossing in this Phase.

The **Myers/WM** Team has already established a relationship with the third-party stakeholders, including the utility companies identified in the organization chart, and already set expectations to ensure the design packages are in sync. We realize that any change to the design has a big effect on the utility design packages. On Phase 3, the utility relocation efforts were in advanced stages of design in comparison to our design status. This unique situation put a lot of pressure on our designers and it demanded design accuracy or a "design it once" approach. Early coordination is critical given the relocation time frame, between 6 to 12 months. Coordination associated with initial clearing and rough grading packages to ensure utilities relocations are accounted for and permitted is crucial.

**Role of the Administration and Other Agencies:** It is expected that the Administration will facilitate coordination meetings between the **Myers/WM** Team and third parties and will provide expeditious approvals once the design packages are submitted.

### Unique Risk #2: Third Party Approvals

**Why is it a Critical Risk?** As with many projects, the role of third-party stakeholders presents a great risk and a critical path concern. Right-of-Way (ROW) clearance, utility clearance and permit acquisition are three great examples. On US 113 Phase 4, the anticipated NTP for the Project has been defined as February 27, 2017 but the anticipated ROW clearance for 59 properties is expected to be on June 20, 2017. This approach provides four months to get design packages approved prior to total ROW clearance. It is **critical** to effectively plan design packages, plan early coordination and accelerate the work in order to get timely approvals.

**Impact to Schedule:** Utility relocations by Choptank Electric, Delmarva Power, and Verizon will occur concurrently with construction. If the Line & Grade package is not approved on time, our Team will not be able to provide the utility designers with the roadway elevations and SWM/Drainage footprint needed to attain proper clearance.

**Myers/WM Team Mitigation Strategies:** Our main strategy will be to design/develop construction phased packages for approval, proceeding from the Southern project limit towards the Northern project limit to coincide with the phased ROW clearance as defined in the RFP. This approach allows us to start coordination with the third party stakeholder, such as the utility companies, to provide them the required information needed to finalize their relocation plans.

Early involvement of ROW, at the design level, is imperative to the success of the Project. Coordination with the Administration to define areas where clearance has progressed will limit the associated schedule risk. Our Team expects the Administration will request an adjustment to the design and construction packages if a particular segment is not clear for construction as anticipated.

The **Myers/WM** Team will initiate coordination with the utility companies as soon as NTP is given to set common goals that will expedite the approval of the design packages. Particularly the need to

identify impacts to the Maryland Broadband Cooperative (MDBC) underground fiber optic cable and design/relocate early in the design phase. We will develop a roll plot of the entire corridor along with cross sections showing the SWM facilities, utilities and drainage network to be used in the pre-design coordination meeting with MDBC representatives to develop an efficient design that will benefit all aspects of the Project. We have engaged a Maryland Broadband Cooperative (MDBC) approved designer and relocater to assist with fiber optic design and relocations as required on TC 3.15.03.02.

**Experience Mitigating Similar Risks:** On US 113 Phase 3, where the **Myers/WM** Team successfully partnered with the Administration in dealing with property owners and ROW negotiations, a quick redesign to the southernmost J-Turn to a partial Maryland “T” was needed to allow tractor trailer and agricultural equipment access to the Powell Family Farm. The phasing of the project allowed the change without directly impacting the schedule.

Another unique experience which occurred during the US 113 Phase 3 preliminary utility coordination phase was the interaction between the utilities companies. During the utility meeting, Verizon and Delmarva decided to share the duct bank along Langmaid Road, thus minimizing construction time and delays to the construction schedule.

**Role of the Administration and Other Agencies:** The Administration will work closely with the **Myers/WM** Team to ensure expeditious review and approval of design packages as well as facilitating the exchange of information between the Design-Build team and utility designers.

### Unique Risk #3: Design, Permits and Construction at the Bald Cypress Swamp

**Why is it a Critical Risk?** According to the RFP, the anticipated NTP is to be given in late February and mandated stream closure period for Use 1 Stream (March 1 through June 15) shall apply to all waters in the study area. This provides only 4 months to get the bridge and wall plans approved granted our geotechnical team agrees with the existing boring information. Also, there is a complex construction program with the new bridge and retaining walls that must occur in and adjacent to these sensitive environmental resources.

**Impact to Schedule:** The need to perform additional borings in order to complement the existing ones and changes to the approved permits and additional environmental impacts to existing Bald Cypress Swamp and FIDS could delay construction of bridge and retaining walls along US 113 SB.

**Myers/WM Team Mitigation Strategies:** The **Myers/WM** Team is committed to continuing the Administration’s environmentally sensitive approach and philosophy during the preparation of final design plans and throughout Project implementation. We will evaluate the environmental resource permits and identify temporary and permanent impacts, time of year restrictions, and special conditions to allow limited work within or a reduction of the LOD to maintain compliance with environmental permits including the WUS/wetland permit, SWM/E&SC approvals, and reforestation site review permit. The Team will also ensure that all design package submissions, and specifically SWM/E&SC, contain and address the latest guidelines as defined by SHA and MDE. We will also evaluate maintaining forest canopy closures and maximize on-site reforestation and restrict impacts to forest edges where possible. Forest habitat disturbance will be avoided during April to August, the breeding season for most FIDS. As described above we will adhere to time of year restrictions for the stream crossings and phase work to maximize construction duration in those areas. Stakeout of the approved E&SC Plans’ LOD will be in accordance with the Contract Provision and we will install orange construction fence to protect resources outside of the LOD.

**Role of the Administration and Other Agencies:** We anticipate that SHA will retain a qualified, independent, contracted environmental monitor, independent from the design-build team, to participate in the development of the final design and to oversee construction and ensure permit conditions are met. The Administration will also apply a Quality Assurance Program for compliance with the approved E&SC plans, utilizing a checklist and rating system.

**Experience Mitigating Similar Risks:** Per the US 113 Phase 3 & 4 Environmental Reevaluation, DNR stated riparian vegetation shall be preserved and stream/riparian impacts avoided as much as possible during construction, and any disturbed areas re-vegetated. Additionally, the use of concrete

or grouting will be managed to assure curing processes do not impact the stream or modify stream pH. **WM** successfully completed projects having very similar challenges, including widening and superstructure replacement of Magothy Bridge Road over the Magothy River in Anne Arundel County. This project required construction within tidal wetlands and critical area that were mitigated as part of the project. The mitigation included tree planting in other critical areas on the project site and within the watershed. **WM** has also encountered rare plant species, including Noble Road over Marshyhope Creek in Caroline County, where specific controls and requirements were set to protect the rough hedged nettle plant.

Maintenance of stream flow is also a major consideration. On numerous projects, **WM** has developed details to incorporate sheeting for maintaining the stream and also used to support excavation for installation of riprap scour protection. Timber, vinyl, and steel sheeting systems have been designed to meet various site constraints. On other projects, systems such as porta-dam or sandbag diversions can also be effective depending on the depth of water.

### APPROACH TO DESIGN-BUILD CONTRACTING

**Myers** and **WM** present SHA with a professional, collaborative, and integrated project team for the US 113 Phase 4 Project. Our firms have worked together on eight Design-Build projects and pursuits including the US 113 Phase 3, MD 404 Dualization, and I-95 Interchange at Contee Road projects. Through this shared experience, we have developed a joint approach to Design-Build project delivery, established strong working relationships, and developed standard procedures that ensure integration of design and construction personnel as well as transparent collaboration with the Administration. Our Team’s structured approach to Design-Build project delivery includes:

- Selecting teaming partners we have worked with successfully with on other similar projects.
- Committing experienced key personnel capable of assessing and managing the project risks.
- Analyzing and mitigating risks during the proposal, design, and construction phases.
- Utilizing innovative designs to minimize environmental, utilities, and right-of-way impacts.
- Incorporating construction means and methods into the design development.
- Engaging design staff during construction to validate design assumptions and field changes.
- Partnering with SHA and project stakeholders to achieve project objectives.

Early integration of the Myers/WM Team led to development of four approved ATCs for the US 113 Phase 3 Project, and provided a difference of \$2.4M in cost savings to SHA from the next lowest bidder.

**Myers** DBPM and CM will provide constructability reviews during every stage of design development. A formal program is utilized for construction staff and key subcontractors/suppliers to provide written reviews with comments and recommendations. Design-Build Team meetings will address project phasing/sequencing earthwork/hauling MOT and E&S early in the design phase and as construction progresses. During construction, **WM** design staff will attend progress meetings, answer questions, and resolve field issues as they arise. **Myers** and **WM**’s relationship and the use of web-based software will expedite the RFI process and advance designs.

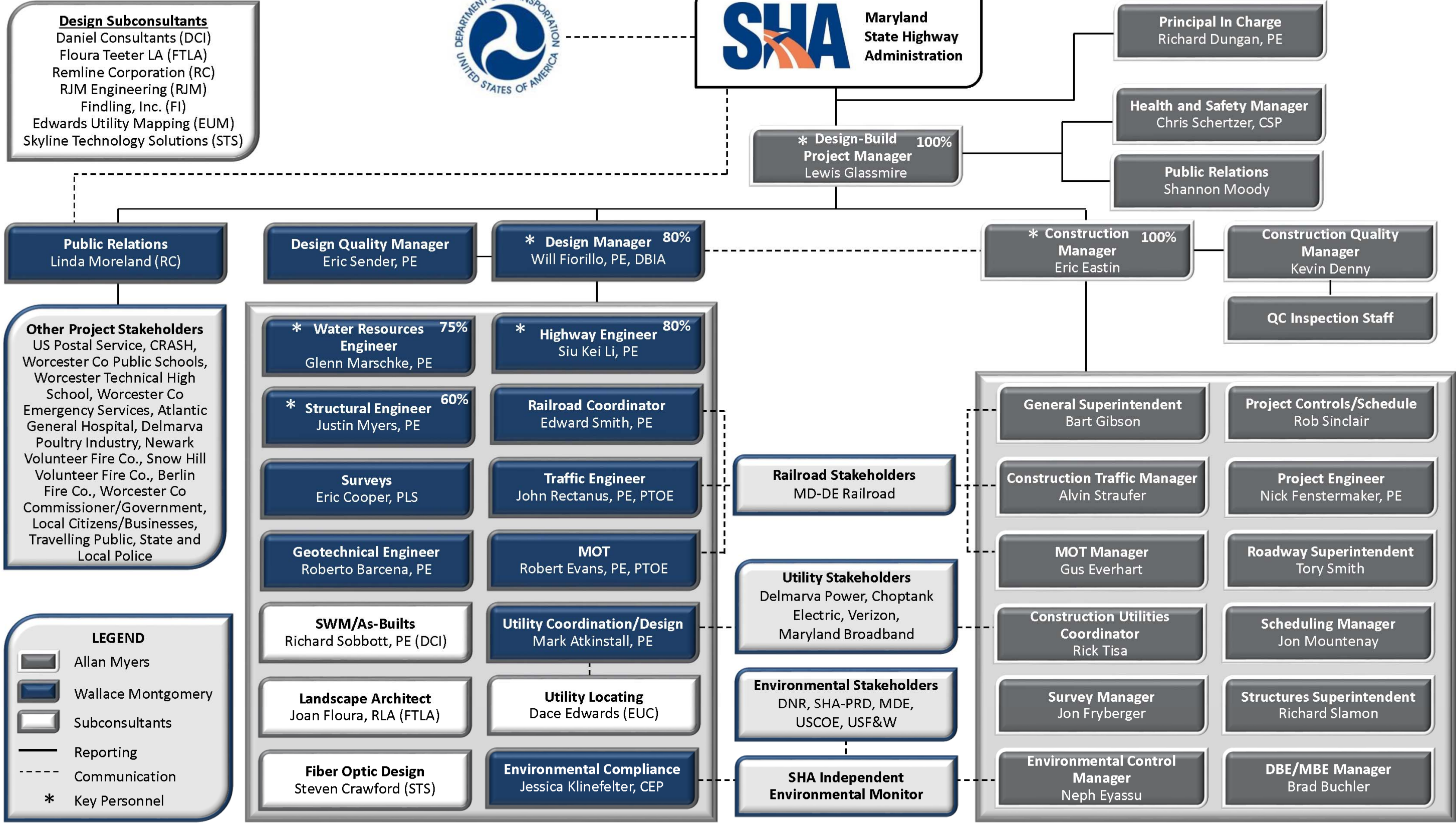
#### Constructability Reviews

- Verify design compatibility with construction means and methods
- Integrate MOT and E&SC with the overall sequence and schedule
- Verify conformance with SHA standards and specs
- Confirm construction can be contained with the LOD/easements
- Comply with environmental commitments and minimize impacts

To support our Team in meeting the 30% Professional Services DBE participation goal, we will utilize MDOT certified minority firms to provide design support services. Each of the firms identified on our organizational chart on page 28 have worked with **WM** on numerous transportation “On-Call” and site specific contracts and most of these firms provided the same services for the **Myers/WM** Team on the I-95 Interchange at Contee Road and US 113 Phase 3 Design-Build projects.



**Design Subconsultants**  
Daniel Consultants (DCI)  
Floura Teeter LA (FTLA)  
Remline Corporation (RC)  
RJM Engineering (RJM)  
Findling, Inc. (FI)  
Edwards Utility Mapping (EUM)  
Skyline Technology Solutions (STS)



**Other Project Stakeholders**  
US Postal Service, CRASH, Worcester Co Public Schools, Worcester Technical High School, Worcester Co Emergency Services, Atlantic General Hospital, Delmarva Poultry Industry, Newark Volunteer Fire Co., Snow Hill Volunteer Fire Co., Berlin Fire Co., Worcester Co Commissioner/Government, Local Citizens/Businesses, Travelling Public, State and Local Police

**LEGEND**

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- Wallace Montgomery
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