

# Bridge Replacement Steel Girder Bridge No. 0317400 On Putty Hill Avenue over I-695

Baltimore County

## Technical Proposal

Contract No. BA1455180

Construction Management at Risk

Date: April 3, 2018



## TABLE OF CONTENTS

<b>A. Cover Letter</b>	
<b>B. Capability of the Proposer</b>	<b>Pages 1-10</b>
i. Key Staff	Pages 1-3
1. <i>Project Manager – Eric Eastin</i>	
2. <i>Construction Manager – Rich Slamon</i>	
3. <i>Cost Estimator – Steve Heise</i>	
ii. Team Past Performance	Pages 4-9
1. <i>Frederick Road Bridge over I-695</i>	
2. <i>I-695 Bridge over Milford Mill Road</i>	
3. <i>I-95 at Contee Road Interchange</i>	
iii. Organizational Chart	Page 10
<b>C. Project Approach</b>	<b>Pages 11-26</b>
i. Preconstruction Approach	Pages 11-20
ii. Construction Approach	Pages 21-26
<b>D. Approach to Cost Estimating</b>	<b>Pages 27-35</b>
i. Estimating Environment	Pages 27-28
ii. Sample Estimate	Pages 29-32
iii. Contracting Plan	Pages 33-35
<b>E. Legal &amp; Financial Information</b>	<b>Page 36</b>
i. Team Organization	
ii. Liability	
iii. Bonding Capability	
iv. Contract Termination	
<b>F. Appendix</b>	

B.

# CAPABILITY OF THE PROPOSER



Elm Avenue Bridge over I-581, Roanoke, VA



Contee Road (Konterra Road) Bridge over I-95, Laurel, MD



Route 715 Bridge over MD 40, Aberdeen, MD



I-695 Bridge over Milford Mill, Catonsville, MD

**YEARS' OF EXPERIENCE:**

25 years

**CERTIFICATION & TRAINING:**

- OSHA 30-hour
- Incident and Injury-Free Commitment Workshop
- The Collaborative Way
- Safe Crane Management

**QUALIFICATIONS & EXPERIENCE**

As a Senior Project Manager, Eric manages, directs, and coordinates the activities of complex, fast-tracked projects. He is involved in both the preconstruction and construction phases of design-build and design-assist projects to ensure that project goals and objectives are accomplished within scheduled timeframes and established budgets. He has recently overseen construction of MDOT SHA projects along the Baltimore Beltway, I-95 corridor, and Eastern Shore. Eric's design-build experience

includes the US 113 Phase 3, US 113 Phase 4, and the MD 404 Dualization projects. Eric's focus includes safe construction means and methods, both for the public and the construction craft workforce. He has led the development and implementation of the "Don't Know, Don't Care" project-specific safety program.

**PROJECT EXPERIENCE**

**I-95/I-695 Interchange, Baltimore, MD (\$64,996,415)** As Project Manager, Eric was responsible for managing daily construction activities, owner and stakeholder coordination, and adhering to all project requirements. The project reconstructed and realigned the existing 6-lane divided highway and a major stream alignment. Major project elements included construction of a new bridge, maintenance of traffic, full depth pavement reconstruction, milling and resurfacing, storm drainage, SWM basins, noise wall and retaining wall structures, and two new culverts.

**US 113 Dualization Phase 4 Design-Build Worcester (\$51,356,777)** As Senior Construction Manager, Eric is responsible for coordinating with the design engineer on phase drawings to create the most cost-effective solutions and comply with construction requirements. The project includes the design and constructed of two additional lanes to dualize US 113 North of MD 365 to North of Five Mile Branch. Roadway improvements include construction of a new bridge over Five Mile Branch, existing pavement rehabilitation, new pavement construction, maintenance of traffic, earthwork, drainage, stormwater management, erosion and sediment control, and utility coordination/ relocations, and culvert extensions.

**I-95 Express Toll Lanes, Baltimore County, MD (\$42,652,960)** As Project Manager, Eric managed all aspects of construction, including maintaining the project schedule, planning operations within budget, coordinating with adjacent projects, and overseeing quality control. The project reconstructed 1.5 miles of I-95 to eight general purpose lanes and four express toll lanes from MD 43 to Joppa Road. The work included maintenance of traffic, full depth pavement construction, resurfacing, new SWM facilities, and new retaining walls.

**US 113 Dualization Phase 3 Design-Build Worcester, MD (\$31,642,563)** As Senior Construction Manager, Eric worked closely with MDOT SHA to recover the schedule from a major utility delays. An agreeable schedule was reached with MDOT SHA by accelerating the schedule to complete the project in a timely manner. The project includes the design and constructed of two additional lanes to dualize US 113 North of Massey Branch to Five Mile Branch Road.

**The Big I, \$160M (New Mexico DOT–Albuquerque, NM)** As Superintendent, Eric was responsible for supervision of all company and subcontractor night shift operations. Bid at 60%, this stack structure interchange at I-25/I-40 included 55 bridges, eight of which were precast concrete all completed in 18 months.

**YEARS' of EXPERIENCE:**

19 years

**CERTIFICATION & TRAINING:**

- OSHA 30-hour
- Incident and Injury-Free Commitment Workshop
- The Collaborative Way
- Safe Crane Management
- ATSSA Traffic Control Supervisor
- Rigging Qualification
- NCCO Signal Person

**QUALIFICATIONS & EXPERIENCE**

Rich has 19 years of experience with highway projects of various sizes and scopes that make him a well-qualified Construction Manager for this project. His bridge experience includes replacements and new bridges over interstates including I-695 and I-95, as well as other heavily traveled areas. On his projects, Rich is responsible for the management and oversight of all construction activities; coordination with owners, subcontractors, and stakeholders; and resource and schedule management. He ensures that work is completed in accordance with the project requirements by planning quality control measures into work operations and coordinating inspection requirements. His projects achieve timely completion in the most efficient manner through detailed planning and scheduling of construction phases.

**PROJECT EXPERIENCE**

**I-695 Ramp C Over NE Creek, Baltimore County, MD (\$4,784,000)** As Superintendent for this project, Rich managed schedule and construction activities to ensure timely completion of the work. This project was a new superstructure and partial substructure replacement, shoulder widening, and mill and overlay asphalt pavement. Rich was responsible for demolition and reconstruction of the bridge with traffic, MOT phasing throughout the project to build one lane at a time, as well as environmental compliance so that so powered equipment was used under the bridge near the creek.

**I-95/I-695 Interchange, Baltimore, MD (\$64,996,415)** As Superintendent, Rich was responsible for construction, schedule, and timely delivery of a new bridge on I-695. This was a three-lane bridge with shoulders on each side. Construction include 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 improvements, seven new SWM basins, noise wall and retaining wall structures, two new culverts and one new bridge, stream re-alignment and related erosion and sediment control measures.

**I-95/Contee Road Interchange Design Build, Laurel, MD (\$33,728,116)** As Superintendent, Rich was responsible for all activities involved in construction of the bridge over I-95. This included schedule, construction, and coordination with other aspects of the project. The new bridge was opened to traffic four weeks ahead of the required schedule for adjacent project construction. Construction included the new bridge and interchange on I-95. The project required close coordination with several adjacent state, county, and private contracts. Bridge construction included three piers, and four lanes with shoulders and bike path on each side.

**Central Avenue Design Build, Baltimore, MD (\$47,300,844)**

As Superintendent, Rich is responsible for all construction activities for the 260 ft long bridge including two lanes, two turn lanes, and bike paths partially over the Baltimore Harbor. The scope of the project includes full depth roadway reconstruction, sidewalk reconstruction, a new bridge on Fleet Street, as well as structural repairs to an existing Bridge on Central Avenue over Harford Run. Both concrete piers and abutments were constructed in cofferdams.

# Steve Heise

Estimator

## YEARS' OF EXPERIENCE:

22 years

## CERTIFICATION & TRAINING:

- OSHA 30-hour
- State of Maryland Green Card
- The Collaborative Way

## QUALIFICATIONS & EXPERIENCE

Steve has 22 years of construction, estimating, and value engineering experience. As a senior estimator, Steve reviews proposal specifications and drawings, prepares lists of bid items and quantities. He attends pre-bid meetings and meets with owners to determine scope of work. He coordinates with designers and subcontractors to provide engineering and cost data regarding project feasibility. Steve has participated in several large design-builds and has been involved with the design, planning, pricing, and risk identification/mitigation

process. He serves as the lead estimator on projects that range in size from \$100K to \$100M and, since 2008, Steve has focused specifically on estimating bridge projects in the state of Maryland.

## PROJECT EXPERIENCE

**Frederick Rd Bridge Replacement over I-695, Catonsville, MD (\$15,389,006):** As Lead Cost Estimator, Steve was responsible for determining quantities, productions, and man power required to construct this project. He attended pre-bid meetings and coordinated with subcontractors & suppliers. This bridge replacement project included lighting, storm drain, milling, and asphalt paving.

**Crosby Road Bridge Replacement over I-695, Catonsville, MD (\$6,506,291):** As Lead Cost Estimator, Steve was responsible for determining the scope of work and soliciting quotes. He attended pre-bid meetings and coordinated with subcontractors for the bridge estimate. The project included removal of the existing four-span 315 FT long steel girder bridge, construction of a new two-span bridge, and realignment of Crosby Road to the north.

**I-695 Ramp C Bridge, Essex, MD (\$4,784,000):** As Lead Cost Estimator, Steve was responsible for developing the scope of work and Myers overall construction approach. Tight conditions due to the phasing and maintenance of traffic created several obstacles that Steve aided in overcoming safely and successfully. The project provided new superstructure and partial substructure replacement, shoulder widening, and milling and overlay of asphalt pavement.

**I-695 Bridge Replacement over Milford Mill, Pikesville, MD (\$27,027,118):** As Senior Cost Estimator, Steve participated in subcontractor selection and developing the overall cost approach for the project. The project replaced the I-695 Bridge over Milford Mill Road including bearing piles, new structural steel, and bridge decks. The scope included ESC controls, caissons, and water main relocation.

**I-95/I-695 Interchange, Baltimore, MD (\$64,996,415):** As Lead Structures and Earthwork Cost Estimator, Steve determined quantities of earthwork and the most effective movement approach. He quantified and priced all structures and piling within the project limits. The project reconstructed I-695 at I-95 for 1.5 miles. Major items of work include new bridge construction, full depth pavement reconstruction, storm drain, SWM basins, noise wall, retaining walls, and two new culverts.

**US 40 Interchange at MD 715 Design-Build, Aberdeen, MD (\$18,205,613):** As Senior Cost Estimator on this design-build project, Steve met with the designer, subcontractors, suppliers pre-bid and preconstruction to develop a constructible, cost effective, and efficient design. The project widened Route 715 from MD 40 to Aberdeen Proving Grounds and included widening the MD Route 715 bridge over Route 40 and new retaining walls.

# Fredrick Road Bridge Replacement Over I-695

Catonsville, MD

## OWNER CONTACT

Maryland State Highway  
Administration  
David Peake  
dpropper1@sha.state.md.us  
410-677-4032

## CONTRACT NO.

BA7275380

## DELIVERY METHOD

Design-Bid-Build

## CONSTRUCTION COST

### Initial Contract Value:

\$13,737,777

### Final Contract Value:

\$15,389,006

### Reason for Difference:

Additional median work  
added to the project.

## SCHEDULE

### PERFORMANCE

### Initial Completion Date:

October 2013

### Final Completion Date:

March 2014

### Reason for Difference:

A time extension was  
awarded for additional work  
and extreme weather delays.

## PROJECT DESCRIPTION

Interchange reconstruction widening of I-695 consisting of bridge reconstruction, and extensive storm drain work within the median. This four-phased project required strict MOT and regular updates on the TMP with the client, stakeholders, and residents of the area. Phases two and three included the bridge reconstruction where Myers conducted bridge reconstruction while maintaining traffic on half the bridge. Construction also included two new on ramps, a new underground stormwater management retention center with related systems, as well as streetscaping on Frederick road. The streetscaping work included roadway widening, curb and gutter installation, sidewalks, asphalt paving, landscaping, and lighting.

## SUCCESSFUL METHODS, APPROACHES, AND INNOVATIONS

**Minimize Project Delivery Time** – During this project, Myers encountered many unforeseen events including weather delays, additional work within the median of I-695, and rock impeding construction. The project was completed within the updated project schedule, which was extended due to these conditions.

**Minimize Inconvenience to the Traveling Public** – Throughout the project, Myers maintained the MOT plan designed by MDOT SHA's designer. Upon reviewing this plan the team was able to add and implement an active detour for the inner loop portion of the bridge. This detour moved traffic away from the new on and off ramps and allowed construction crews to complete demolition and set new bridge beams much more quickly than originally planned.

**Minimize Impacts to Physical Environment** – This project required an extensive reconstruction of the stormwater management system for the area. This included construction of the redesigned underground SWM system which included an underground precast box culvert system in lieu of a more typical pond systems. Myers limited environmental impacts through stringent internal erosion and sediment control maintenance that exceed the state requirements for maintenance and repairs.

**Minimize Construction Costs** – Allan Myers was proactive in minimizing cost to MDOT SHA by identifying alternate ideas and sequencing options to avoid increases in cost and further schedule delays after additional work was added to the project.

**Collaborative Partnership** – While working on this project, Myers fostered a positive working relationship with residents and business. During construction, the driveways and yards of two residential homes and a funeral home were affected. Once construction was complete in areas near homes and businesses, Myers made it a priority to refinish driveways and avoid conflicts with business events. Specifically, Myers worked with the funeral home to ensure that services and viewings were not affected during the construction and phased work around the businesses schedule.

## RELEVANCE TO THE PUTTY HILL BRIDGE REPLACEMENT PROJECT

The Frederick Road Bridge Replacement is similar in scope and complexity to the Putty Hill Bridge Replacement project. The project replaced the existing steel girder bridge over I-695 using a phased construction approach that maintained traffic across the bridge throughout construction. Cost Estimator, Steve Heise was the Lead Cost Estimator for this project

## SIMILAR SCOPE & COMPLEXITY

- Bridge Replacement over I-695
- Phased construction
- Maintenance of traffic
- Stormwater management

## KEY PERSONNEL INVOLVED

- Steve Heise



# I-695 Bridge Replacement over Milford Mill

Catonsville, MD

## OWNER CONTACT

MDOT State Highway Administration  
Jesse Free  
jfree@sha.state.md.us  
443-829-1876

## CONTRACT NO.

BA4625280

## DELIVERY METHOD

Design-Bid-Build

## CONSTRUCTION COST

**Initial Contract Value:**

\$22,377,000

**Final Contract Value:**

\$27,027,118

## Reason for Difference:

Owner requested change orders including; barrier anchors, adjustments to caissons and soundwalls, rock obstructions, and HMA 12.5 asphalt

## SCHEDULE PERFORMANCE

**Initial Completion Date:**

January 2017

**Final Completion Date:**

January 2017

scope and complexities, experience and knowledge working in the Baltimore area, replacing bridges along the I-695 corridor, and completing work in a timely manner while minimizing construction impacts. Myers utilized staged construction to minimize traffic impacts, minimized procurement for bio-retention soils, and partnered with SHA to meet the project goals. Cost Estimator, Steve Heise, and Construction Manager, Rich Slamon, were involved with the estimating and construction of this project.

## GENERAL SCOPE

The I-695 Bridge Replacement over Milford Mill was a \$24 million project for the replacement and widening of a bridge on the Baltimore Beltway along with the associated roadwork on both sides of the bridge. The bridge was 8-lanes wide, 4 lanes on the outer loop and 4 lanes on the inner loop of I-695. Myers construction team used staged construction to minimize lane closures and build sections of the new structure while allowing traffic to continue moving. The width of the bridge was 200 feet; the span of the bridge was 125 feet long.

Elements of work on this project included; structural and roadway excavation, support of excavation, bridge bearing piles, new structural steel and erection, cast-in-place bridge decks, 30" and 60" drilled shaft caissons, cast-in-place retaining walls, MSE walls, and conventional post-and-plank sound barriers. Significant quantities of work included: 15,000 CY of excavation; 25,000 SF of noise wall panels; 2,025 LF of 30"-60" caissons; 6,250 SF of retaining wall panels; 50,000 tons of asphalt paving; 2,500 LF of 42' bifurcated barrier; 800 LF of water main relocation; 6,400 LF of storm drainage pipe; 40 LF of 90" steel pipe extension; and 212 LF of 24" jack and bore under I-695. The scope of work included new storm sewer installation, slip formed barrier, electrical, overhead sign structures, guardrail, bio-retention ponds, and extensive landscaping.

## SUCCESSFUL METHODS, APPROACHES, AND INNOVATIONS

**Minimize Inconvenience to the Traveling Public** – All traffic and stage shifts throughout the project were performed during off-hours to minimize impacts to the traveling public. Emergency Pull Off (EPO) locations were configured to have the least impact for construction vehicles entering and existing the work zones. Temporary Concrete Barrier placement was analyzed to allow shorter runs thereby permitting roadways to return to full width lanes once clear of the construction zone.

**Minimize Impacts to Physical Environment** – The project included bio retention ponds along with 65 individual concrete weir structures to filter and contain stormwater runoff from I-695. The decision to precast these large weir structures off site rather than forming/pouring in-place minimized the installation time and placement of filtering media. This resulted in less impact to the environment by ensuring storm water was properly contained and filtered before discharging into waters of the United States in accordance with MDE Permit.

**Minimize Construction Costs** – Minimizing construct costs was a primary focus from the estimate phase through completion of construction. Costs were minimized by slip-forming 2000 LF of concrete barrier in lieu of traditional cast-in-place construction methods. Bio-retention soils were formulated and mixed by Myers at our Mountain Materials facility to minimized procurement costs. Select borrow material was obtained from another Myers project nearby and tested and approved for use by SHA's Material Lab.

**Collaborative Partnership** – Myers construction team participated in Project Partnering and bi-weekly meetings with SHA's Assistant District 4 Engineer to discuss and resolve project challenges and issues as they arose. These meetings were instrumental in developing good working relationships and shared goals for the project.

## RELEVANCE TO THE PUTTY HILL BRIDGE REPLACEMENT PROJECT

The relevance of this project includes similar



## SIMILAR SCOPE & COMPLEXITY

- Interstate bridge replacement
- I-695 corridor construction
- Phased construction
- Maintenance of traffic
- Stormwater management

## KEY PERSONNEL INVOLVED

- Rich Slamon
- Steve Heise

# I-95 at Contee Road Interchange

Prince George's County, MD

## OWNER CONTACT

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

## CONTRACT NO.

PG4195172

## DELIVERY METHOD

Design-Build

## CONSTRUCTION COST

**Initial Contract Value:**

\$30,700,000

**Final Contract Value:**

\$33,744,188

**Reason for Difference:**

Changes to bike lane, 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 approved schedule extension.

## GENERAL SCOPE

The I-95 Contee Road Interchange project included the design and construction of an urban arterial roadway and its grade separated connection with I-95 using a partial cloverleaf interchange configuration. Contee Road (Konterra Drive) was constructed parallel to the north and replaced the existing Van Dusen Road crossing over I-95. The interchange connects within the I-95 collector-distributor (CD) roadway system between MD 198 and the Intercountry Connector (ICC) - MD 200. 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. The project required close coordination with several adjacent state, county, and private contracts.

The Myers Team applied innovative and cost-effective solutions that resulted in over \$2 million in cost savings. 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 impacts to environmental features.

## SUCCESSFUL METHODS, APPROACHES, AND INNOVATIONS

**Minimize Project Delivery Time** –The completion of the new Konterra Road Bridge and the demolition of the existing Van Dusen Bridge over I-95 allowed for the completion of the ICC's CD Roadways with I-95 was vital to the success of Project. Myers accelerated construction to provide completion of the new bridge 4 weeks ahead of schedule.

**Minimize Inconvenience to the Traveling Public** – 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 to minimize safety risks to the traveling public. To further enhance access, safety and multi-modal features, the Myers Team updated the RFP conceptual design to comply with MDOT SHA's revised Bicycle Policy & Design Guidelines along the Konterra Drive and 6' pocket lanes between the travel through lane and right turn lanes at the relocated at-grade intersections.

**Minimize Impacts to Physical Environment** –The final project achieved 19.65 acres in actual forest impacts; a reduction of 4.78 acres. Because of decreasing the Project footprint, more 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 MDOT SHA for a 1:1 replacement of the 24.43 acre impacts. The completed project achieved 27.57 acres of on-site reforestation. In addition, Waters of the US (WUS) impacts were decreased by 123 LF.

**Minimize Construction Costs** – ATCs were implemented which provided a shorter bridge with reduced number of girders, which accelerated the schedule and provided long-term maintenance benefits. 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. Practical design decisions included adjusting the roadway profiles to reduce the vertical differential between existing and proposed roadways, allow for widening and overlay in lieu of full-depth reconstruction, and reduce traffic impacts for ramp construction.

**Collaborative Partnership** – Coordination of design and relocation of several private utilities was required during site rough grading operations and prior to final roadway grading. This was a key component to meeting the early interim milestone for Bridge Construction proposed by Allan Myers. The project also occurred in conjunction with adjacent construction and development projects with different stakeholders at each interface of the project. The Inter-County Connector interfaces with Contee Road at the four ramps and a Prince George's County project to extend Contee Road at both the East and West interfaces. Utilities were designed and relocated to accommodate future town center site development project by Konterra adjacent to the roadway.

## SIMILAR SCOPE & COMPLEXITY

- Bridge construction over interstate
- Phased construction
- Maintenance of traffic
- Utility coordination/relocation
- Minimized construction costs
- Public outreach

## KEY PERSONNEL INVOLVED

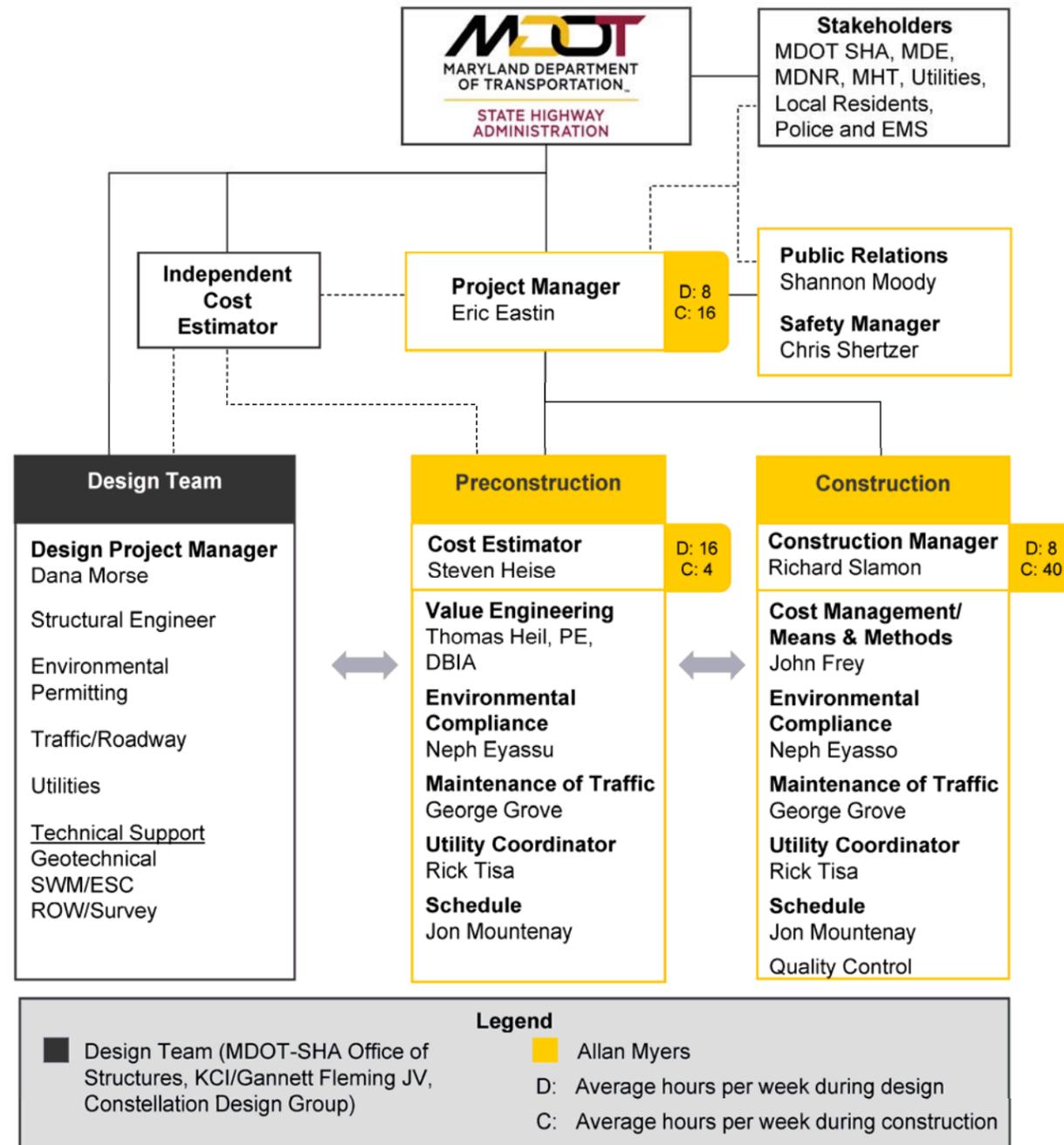
- Rich Slamon

## RELEVANCE TO THE PUTTY HILL BRIDGE REPLACEMENT PROJECT

The Contee Road Interchange project had both similar goals and scope elements as the Putty Hill Bridge project including; value engineering the bridge over I-95 saving both schedule time and cost for materials, conducting a safe project for the traveling public with no accidents and additional MOT, minimizing project forest impacts and exceeding reforestation goals, and partnering with MDOT SHA to ensure the bridge milestones were met and that further development could be more efficient. Construction Manager, Rich Slamon was responsible for managing all aspects of construction for the new bridge over I-95.



### ORGANIZATION CHART



### AN INTEGRATED TEAM APPROACH

Myer's integrated organizational structure for the Project conveys our approach to partnering with MDOT SHA, the design team, and the Independent Cost Estimator (ICE) throughout the design and construction of the Project. Our Key Staff will work closely with MDOT SHA, the design team, and project stakeholders in the preconstruction phase and we transition to the construction phase. Our commitment to partnering is evidenced by our success on previous MDOT SHA design-build projects, including the I-95/Contee Road Interchange and MD 404 Dualization projects.

### ROLES OF KEY STAFF AND VALUE ADDED PERSONNEL

**Project Manager, Eric Eastin** will be responsible for all aspects of Project throughout the Preconstruction and Construction Phases. His focus will include cost minimization through design approach and construction means/methods, expediting the project schedule, incorporating safety into the project approach, and compliance with all applicable requirements and regulations. He will work closely with MDOT SHA, the design team, the Independent Cost Estimator (ICE), and project stakeholders to deliver a successful project that accomplishes the project goals. Throughout the preconstruction and construction phases, Eric will be supported by four key individuals – Cost Estimator, Steve Heise; Construction Manager, Rich Slamon; Public Relations Manager, Shannon Moody; and Safety Manager, Chris Shertzer.

**Cost Estimator, Steve Heise** will be an integral member of the project team throughout the preconstruction phase and will continue to provide estimating support during construction. He will participate in project partnering meetings and design progress meetings to develop a thorough understanding of the project constraints, challenges, and risks. Steve will work closely with the ICE to create an accurate cost model for the Project, verify the probably construction cost during the design phase, and validate the GMP cost estimate. His combination of experience with local construction pricing from similar bridge replacement projects on I-695 and risk mitigation experience on design-build projects will produce a fair and reasonable price for the work.

**Construction Manager, Rich Slamon** will support the team during preconstruction with constructability reviews and means/methods expertise. During construction, he will oversee all construction activities, coordinate construction and traffic impacts with project stakeholders, and oversee utility relocations and coordination efforts. He will ensure that the project is progressing on schedule and within budget. His responsibilities will also include detailed planning and scheduling of work operations, operation-specific safety planning, and quality control oversight.

**Value Engineering Lead, Tom Heil, PE, DBIA** will support the preconstruction and design team in value engineering and design optimization efforts that drive cost savings to the project. His expertise includes 32 years of progressive design/construction management and 12 years of experience involvement in the procurement, design, and construction of design-build projects. Tom's role on design-build projects has included serving as the Design Manager, Design-Build Project Manager, Responsible Charge Engineer, and Design-Build Integrator.

**Public Relations, Shannon Moody** will provide Public Outreach support for MDOT SHA throughout the preconstruction and construction phases of the Project. Her focus on project success from a PR perspective will help maintain positive relationships with project stakeholders and local residents. Shannon oversees public outreach efforts for Myers on alternative delivery projects throughout the mid-Atlantic, and has included the MD 404 Dualization and I-95/Temple Avenue design-build projects.

### Partnering Excellence

*On the I-95 Contee Road Interchange project, Myers received the 2016 MDQI Award of Excellence Partnership Construction Gold Award for exemplifying a high level of achievement through the practice of the Partnering principles/processes related to the transportation industry.*

C.

# PROJECT APPROACH



Elm Avenue Bridge over I-581, Roanoke, VA



Contee Road (Konterra Road) Bridge over I-95, Laurel, MD



Route 715 Bridge over MD 40, Aberdeen, MD



I-695 Bridge over Milford Mill, Catonsville, MD

## PRECONSTRUCTION APPROACH

### COLLABORATION

**Approach to Collaboration** – Since completing our first design-build project more than 15 years ago, Myers has collaborated with numerous public and private clients to deliver design-build projects with expedited schedules, within budget, while minimizing public impacts and impacts to the environment. Our approach to collaboration remains focused on achieving the project goals and partnering with all project stakeholders to place project objectives ahead of individual goals.

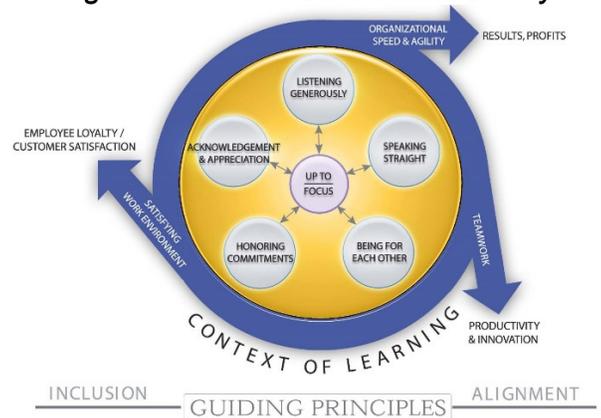
Myers maintains a culture that embraces partnering and working collaboratively with MDOT SHA, design partners, and project stakeholders. Our approach to collaboration is highlighted by company-wide training for all employees in *The Collaborative Way* – a strategic way to work together to achieve defined goals which includes five core areas:

- **Listening generously** sets aside preconceived conclusions to understand other perspectives.
- **Speaking straight** brings up and addresses issues in a forwarding manner.
- **Being for each other** provides mutual support and cleans up misunderstandings proactively.
- **Honoring commitments** communicates if issues arise that jeopardize meeting a commitment.
- **Acknowledgement and appreciation** empowers people take a higher level of responsibility.

Implementing this deliberate approach to collaboration on our design-build projects has created integrated teams of owners, designers, builders, stakeholders, and inspectors. Some examples of the successes of our collaborative project teams to reach their project goals include:

- As part of a joint-venture, Myers worked collaboratively with MDOT SHA, two joint-venture partners, and a three-firm design joint venture to accelerate the MD 404 dualization project and open to traffic a year and half earlier than originally planned;
- Myers partnered with MDOT SHA, our designer, and project stakeholders for the I-95/Contee Road Interchange design-build project to save \$600K in bridge construction costs; open the new bridge to traffic six weeks ahead of schedule; and reduce forest impacts by 25%.
- Myers reached substantial completed on schedule for the I-581/Elm Avenue interchange and bridge widening design-build project and delivered the project within budget. Myers designed and scheduled work around planned events for the City of Roanoke and coordinated lane closures weekly with the City, VDOT, project stakeholders, and adjacent project.
- On the Walney Road Bridge Replacement design-build project, Myers expedited the MOT/TMP design to implement a temporary road closure. The new bridge was opened ahead of schedule and constructed with zero recordable safety incidents. We implemented an extensive public outreach campaign that included seven message boards, media coordination, web updates, and direct communications with key stakeholders – resulting in minimal comments from the traveling public during construction.
- I-95/Temple Avenue Interchange was completed on schedule, under budget, and with positive roadway user feedback through extensive public outreach efforts.

Figure C1 – The Collaborative Way



### **Supporting Stakeholder Involvement during Preconstruction**

Timely and accurate public outreach to stakeholders during all phases of the Project is central to the Project’s success. Open communication and partnering with key stakeholders such as Baltimore County, the Town of Carney, residents, utilities, emergency services agencies, adjacent property owners, and environmental agencies during preconstruction regarding design development is key to establishing a network of trust and reliability from project start. Myers has several goals for our support of stakeholder involvement during the preconstruction phase:

- Facilitating a collaborative partnership with all members of the project team through formal and informal partnering, including the Project Kickoff Meeting and progress meetings.
- Building and maintaining a successful partnership with key stakeholders and the community to promote information sharing and transparent access to project information.
- Providing timely and accurate information to limit surprises to stakeholders and maintaining a transparent, trusting and open environment for information sharing.

During preconstruction, our Project Manager, Eric Eastin, and Public Relations Manager, Shannon Moody will partner with MDOT SHA for stakeholder involvement and public outreach efforts. We will participate in meetings with Baltimore County and the Town of Carney to seek input on the design and construction approach. Myers’ staff will attend public meetings and any one-on-one stakeholder meetings to introduce our project team and address concerns. We will support MDOT SHA with environmental agency coordination if requested. In addition, we will meet with utility owners to discuss early relocations and/or impacts, confirm seasonal shutdown restrictions, coordinate any proposed infrastructure improvements, and regularly communicate to minimize impact to existing facilities.

#### **Community Outreach is Key to Project’s Success**

*“Solid project management, quality construction and close coordination with the local community have been key to this project’s success...the entire project team has been committed to completing this project with the next few decades in mind” – Bart Thrasher, P.E., VDOT, I-95/Temple Avenue Interchange Design-Build Project*

## **DESIGN AND CONSTRUCTABILITY REVIEWS**

### **STREAMLINING THE DESIGN PROCESS**

Key to streamlining any design or construction process is to develop a reasonable plan and planning the work to achieve that plan. Therefore, developing and reaching resolution on a composite CPM (for both the design and construction phases) akin with the level of design available at the time is needed. However, maintaining flexibility in carrying out that plan through issue resolution, incorporating stakeholder comments and concerns, and attentiveness to market forces is paramount. As with any MDOT SHA design-build (DB) or design-bid-build (DBB) construction project, Myers achieves this streamlining process through closely monitor monthly progress, or more frequently as needed, documenting the status of the design development and providing schedule mitigation strategies to recover schedule slip and/or needed acceleration. With the Putty Hill Bridge

#### **Streamlining the Design Approval Process**

*As part of the CJV on the MD 404 project, Myers developed a design schedule to include PRD, MDE, MDOT SHA, and constructability reviews to approve phased clearing & grubbing and grading/drainage plans to adhere to the Governor’s mandated project schedule.*

Replacement Project, Myers believes that stakeholder input related to traffic management and phased construction could affect the streamlining effort; therefore, these processes will need to be closely monitored.

Partnering with SHA, the Design Team, and stakeholders will identify and resolve critical path design and construction items. Lack of timely decision making on critical and/or foreseeable Project related design or construction issues is the primary cause for schedule slip and potential delays. Myers will partner with MDOT SHA with a commitment to proactive active issue resolution, done in a cooperative, transparent, and respectful Partnering atmosphere. Myers and MDOT SHA implemented this exact process on our award-winning I-95/Contee Road DB Project and the recent MD 404 DB Project that achieved beneficial occupancy on time and within budget.

During design, streamlining is most effectively reached through collaboration and joint decision making. Ideally, this happens at the lowest levels of design, like building a strong foundation of a bridge. Start the collaborative process early and carry through the entire Project. For this reason, Myers encourages the use of informal Over the Shoulder (OTS) reviews as the design is progressed as waiting until a milestone submittal may be too late to realize effective streamlining. We recommend weekly or bi-weekly conversations with the SHA and the Design Team to discuss design issues that will affect construction. If cost or schedule analysis and back up is required, Myers will commit to providing timely data to not adversely affect design progress. To ensure timely resolution of issues, Myers will participate in the development and implementation of a decision-making process and issue resolution hierarchy for the project team.

Myers will serve as a true Project Partner with involvement throughout the design process. The level of involvement will ebb and flow with peak input provided at milestone submittals. However, with diligent and constant involvement, issues can be identified and resolved prior to the actual milestone submittal, thus making the resulting reviews more effective and accurate. All of which focuses on constructability, cost, and schedule data to support critical decision making.

### **REDUCING ERRORS AND OMISSIONS**

The significance of this issue cannot be understated as concerns with design plan errors and omissions are captured within the risk matrix and carried within the Project estimate through increased contingencies. To ensure full and complete optimization of the Project, Myers will work with the design team to reduce cost contingency throughout the design development. Taking this proactive approach to avoid plan oversights, errors, and/or missing information will prevent discrepancies between the contractors estimate and the ICE.

During the first month of the this CMAR project, MDOT SHA, the design team, Myers, and potentially the ICE must reach agreement on the Project's Design Quality Manual, including documented design quality control procedures and practices and quality assurance verification. One method to ensure quality deliverable used by Myers on DB Projects is that all milestone submittals include Release of Deliverables (RoD) form, signed by independent quality control and quality control representatives, attesting that the DQM was followed in preparation of the submittal. If the forms are not submitted with the plans, then the plan are not

#### ***Design Constructability Review Team***

*On the US 113 Phase 4 project, Myers implemented a design oversight and constructability review team to complete plan milestone reviews to ensure constructability and to capture potential design errors and omissions before they occurred.*

reviewed and estimates completed. This may seem drastic; however, a GMP Project cannot afford error or omission surprises during construction.

With a complete milestone submittal (plans, RoD, and special provisions, as needed), Project Manager, Eric Eastin; Cost Estimator, Steve Heise, and Construction Manager, Rich Slamon will review the plans and document inconsistencies and/or oversights that affect the construction cost, schedule, and potential stakeholder impacts. It is not enough for Myers to just provide comments as annotations on plans sets or verbal comments during review meetings; all salient comments must be tracked through a continuous quality system log that captures the comments, documents comment resolution, and identifies a path forward to close the loop on all plan and special provisions comments. Resolution of all comments, no matter how small, will minimize contingency surprises within the estimate and ultimately reduce potential delays in construction.

### **IMPROVING CONSTRUCTABILITY AND QUALITY**

Myers' focus through the CMAR effort is to ensure that the resulting GMP is reasonable, appropriate, and fair for the work to be performed. Replacement of an existing bridge over I-695 requires proper attention by experienced personnel to maintain schedule and cost compliance. Constructability and quality will be improved during preconstruction by focusing on producing plans that are compliant, constructible, and available to meet the project construction schedule. Myers' approach to quality management is to plan quality into all construction work operations and prevent deficiencies and non-confirming work through control of activities affecting the quality.

Our key staff will review the design during every stage of development, making constructability reviews and integral part of the design quality process. Constructability reviews and quantity verification for critical items will be completed by Project Manager, Eric Eastin, and Construction Manager, Rich Slamon. The lessons they have learned through their experience on similar bridge replacement and design-build projects will help to refine the design of this Project. In conjunction with Cost Estimator, Steve Heise, Eric and Rich will conduct thorough constructability reviews and prepare estimates by experienced personal who will be performing the actual work in the field.

***Minimizing Construction Impacts and Schedule***  
*On US 113 Phase 4, the Myers DB Team proposed reuse of an existing 6x6 box culvert that the RFP plans called for removal. By partnering with MDOT SHA and the designer, the construction team was able to use the existing structure and eliminate environmental impacts associated with the replacement, saving six weeks in construction time.*

### **REDUCING CONSTRUCTION COST AND OPTIMIZING THE PROJECT SCHEDULE**

Tight controls on cost, quality, and schedule have been the cornerstone of Myers' success for more than 75 years. We maintain tight controls through our planning and management systems, but also the fact that we have the ability to build the work with our own crews – giving us an advantage over productivity, cost, and quality. Myers construction staff are trained to focus on two primary performance goals – minimize construction costs and expedite the project schedule. On traditional design-bid-build projects, our construction teams focus on optimizing the efficiency of work operations and evaluate alternative construction approaches that provide value. On design-assist and alternative delivery projects, our staff brings this value into the project earlier by identifying design alternatives and providing constructability analysis that can reduce costs and expedite the schedule.

### **Reducing Cost**

Replacement of an existing bridge over I-695 requires proper attention by experienced personnel to maintain schedule and cost compliance. Costs are controlled through management of the schedule, quality, environmental, and community impacts. Partnering and regular coordination with the design team and MDOT SHA provides the opportunity for discussion of design issues and early detection of potential unexpected cost concerns. Constructability input during the design process has often proven to be a valuable approach for reducing construction cost. Our key personnel will work closely with the design team to sound, efficient decisions on design issues with regards to schedule, cost, and the project goals. During construction, Rich Slamon will manage costs on a daily, weekly, and monthly basis to ensure the project budget goals are met.

### **Optimizing the Schedule**

Key to our success to delivering Projects on-time and within budget, is understanding the type of work to be performed, allocating experienced construction teams to complete the work, understanding the risks inherent with the type of work planned, and executing the work in a manner to identify potential issues before they arise. Myers has completed several similar scope and scale bridge projects over I-695 within the last 3 years, we are confident we understand the scope and potential complexities associated with the Putty Hill project. Further, by self-performing non-DBE allocated work, including delivery and laydown of asphalt, Myers has the right pieces of the puzzle to reliably optimize and deliver this Project.

To effectively optimize the project delivery schedule, Myers is committing key personnel with the right experience, dedication, and commitment to collaboration to optimize the project design and construction approach. Only professionals with the proper experience can reliably optimize a delivery schedule, planning and executing the work in an efficient, predictable, and streamlined process. The involvement of our key staff during the preconstruction phase will identify potential design and construction approaches that can reduce the schedule. Myers is committing Eric, Steve, Rich and their supporting team, all of which have significant experience with integrated design-build projects for MDOT SHA and Baltimore City and fixed fee construction Projects with Baltimore City, surrounding jurisdictions, and private owners.

Included in the Appendix is a preliminary CPM schedule. This schedule can be updated and utilized following NTP for preconstruction to closely monitor progress during design and into construction. Design work and other preconstruction activities can be closely monitored and the impacts to the project assessed proactively.

### **Cost Savings through Design**

*On the MD 404 Dualization Project, Myers' proposed Value Engineering Lead Tom Heil served as the Design Manager for the construction joint-venture. He worked closely with design and construction staff to implement seven innovative and cost-effective ATCs which resulted in over \$11M in savings.*

### **Designing for Schedule**

*On the I-64 Segment II Project, with approval of DEQ and VDOT, Myers modified the approach to stormwater management to accelerate plan approvals and reduce stormwater management scope and schedule. In working with the owner through a value-engineering process, we were able to reduce the schedule by 4 months and collectively save \$1.5M.*

## RISK MANAGEMENT

### ***Approach to Managing Risks***

Myers is committed to delivering the project at the lowest practical cost, while meeting the project goals and quality standards. In the past 10 years, Myers has been awarded more than \$1.3B of design-build projects, including six recent design-build projects for MDOT SHA Innovative Contracting Division. Our successful completion of on-time and within budget design-build project delivery includes the expedited MD 404 widening and I-95/Contee Road design-build projects. This record of success has not come without challenges or risk; however, it is through risk identification, risk allocation, and risk management and the lessons learned from these experiences that we have been able to achieve our collective success.

Our approach to risk management begins with the Project procurement phase, extends through the design / pre-construction phase, and follows construction from start to finish. Ensuring that risk is integrated in each phase of the project development requires patience, perseverance, diligence, and discipline. Because like MDOT SHA, Myers success as a business is measured by our ability to deliver projects within our committed budgets. Risk and risk management is so ingrained in our corporate culture that we maintain a dedicated risk management team that meets weekly and reports directly to our Executive Team. Our risk management system begins with ensuring that (1) we are pursuing and/or bidding the right Projects in the right geographic area, (2) we have the right internal Project Team available to focus on the Project once secured and throughout execution, and (3) we can address potential risks, along with the ICE, within the Project GMP pricing phase and follow those risks (physical and financial) throughout Project implementation. This structure and approach has been implemented to ensure sound business decisions are analyzed and made for all Projects within our geographic footprint.

We have implemented our risk management approach to this Project and have identified potential risks included in the Figure C2 below. We have encountered similar risks on the Frederick Road Bridge Replacement over I-695 and I-695 Bridge Replacement over Milford Mill projects. Further, the Project Team (Key and support staff) is dedicated and committed by Myers Executive Team to see this Project through from start to finish. Speaking of the right team, Project Manager Eric Eastin, Cost Estimator Steve Heise, and Construction Manager Rich Slamon have the experience, knowledge, and know how to identify, manage, and mitigate these risks. As a firm, this is right project for Myers because the identified risks can be controlled most effectively through self-performance (bridge construction, utility relocations, and Stakeholder coordination) and vertical integration (our materials division can supply aggregate and asphalt).

Regardless of our internal processes and procedures, Myers staff will actively participate in Project Team risk assessments and mitigation workshops. The intent of this cooperative effort will be to ensure that all risks are adequately identified, understood and assign those risks to the entity that can best manage the risk. Myers has participated in many risk management forums, working closely with our clients to assess, allocate, and manager risks on a wide range of fixed price, GMP, and unit price contracts. We are looking forward to providing similar input on this Project.

Identifying and managing physical risks are just part of the equation, managing financial risks are a different animal entirely. For this reason, Myers uses HCSS heavy bid, coupled with historic production and yield trends, that allow for a thoroughly analyze of potential financial risks. As HCSS heavy bid is readily available and accepted as an industry standard, we believe that the ICE will easily be able to review and critique the estimates in an open and transparent manner.

When developing the initial Project cost model, including the milestone OPCC's, Steve's local experience and familiarity with similar scope and scale Projects provides him with the proper tools fairly estimate this Project. Further, his ability and commitment to lead the development of the initial cost model, OPCC's, and the GMP estimate will assist when working with the ICE. Exchanging information in an open environment and work cooperatively with the ICE will ensure that SHA receives a fair price for the work to be performed.

As the pre-construction effort continues and following establishment of the base cost model, refinement of the cost model based on Project specific alternative or permutations is likely. This is because risks are usually multifaceted and understanding the capital and maintenance costs associated with a recommendation or design element is critical to capturing the "real" cost of a design element. Accordingly, Steve will work to develop a reliable cost and work cooperative with the ICE to refine that cost as appropriate. This consistent approach to cost development will help reduce the effort when developing the GMP estimate. Based on our understanding of this job and the scope described, Myers

believes that we can develop a full and complete estimate within two weeks. Based on this fact and our certainty that we can work collaborative with the ICE it appears that execution of the GMP contract would occur before the final design is complete. It is for this reason that we discussed accelerated work packaging and procurement processes within this SOQ's schedule section.

**Developing and Evaluating Potential Innovations**

The Myers Team will support MDOT SHA and the project design team in the development and evaluation of potential innovations through the design of the Project. We will work closely with the design team to evaluate all component of the design for constructability, consistency with similar recent projects, cost, and schedule analysis. The Technical Concepts discussion which begins on the following page highlights some of the potential innovations our key staff have identified for consideration for the Project. Post-award, we will work closely with the designer and MDOT SHA to evaluate the cost implications of these approaches in further detail and progress the concepts that contribute to the Project's success by balancing the project goals.

Figure C2 – Initial Risk Matrix

Risk Description	Potential Cost Impact (\$)	Probability of Occurrence (%)	Potential Schedule Impact (days or months)	Mitigation Plan during Pre-Con	Mitigation during Construction
Pier Shoring	\$40 K	100	10	N/A	Install shoring per approved plans using planned means and methods.
Abutment Shoring	\$30 K	100	6	N/A	Install shoring per approved plans using planned means and methods.
Foundations (Rock)	\$70 K	50	20	Request geotechnical information, Possible further exploration	Confirm piling requirements and utilize reliable driller for foundation work.
Utility Relocations Pre-Construction	\$200 K – 24" Water \$0 – Rest by others	100	20 – Water Unknown Others	Proactively coordinate with utility companies to expedite work, especially Verizon as their utilities are in the existing sidewalk in the Phase1.	Coordinate waterline relocation with Baltimore County. Potential coordination of overhead wires in the phase 2 work area should pre-construction relocations be delayed.
Gas Relocation Tie-ins	\$40 K	100	10	Identify any seasonal tie-in restrictions for work. Confirm requirements for valves, feeds, etc.	Coordinate with BGE for relocation work when Phase 1 is complete.
Maintenance of Traffic – Putty Hill and I-695	\$100 K – Putty Hill \$220 K – I-695	100	10	Consider potential improvements to the Putty Hill MOT design. Evaluate the use of solar trailer vs. hard wired traffic signals.	Utilize night operations for necessary impacts on I-695 including demolition, barrier wall, structural steel, piling, excavation, super structure, and painting.
SWM Facility	\$50 K	100	15	Assuming bioretention facility in the area designated on plan.	Construct permanent SWM facility near the end of the project.
Stakeholder Coordination	\$ 15K	100	None	Partner with project stakeholders to discuss construction impacts and identify opportunities to reduce impacts. Establish positive working relationships with stakeholders.	Conduct ongoing partnering meetings with project stakeholders. Possibly utilize website through MDOT SHA to provide regular construction updates.

**PROPOSED TECHNICAL CONCEPTS**

The following innovative ideas and technical concepts have been identified that could increase the likelihood of project success, help balance the project goals, and improve reaching goals including impacts, time, cost, and quality. In identifying these ideas, our key personnel focused on potential project benefits and risk mitigation from their experience on recent bridge replacement and I-695 corridor projects. The following icons have been included in the narratives below to design specific potential benefits relating to the project goals as described below:

**Benefits to Project Goals**

-  Minimize project construction costs within the current budget.
-  Minimize inconvenience and impacts to the traveling public.
-  Minimize project delivery time.
-  Facilitate a collaborative partnership with all team members of the project team and stakeholders.
-  Minimize impacts to the physical environment.

**SHORING EXISTING PIER**

Stage one pier 2 demolition requires temporary support for a portion of pier 2, in order to construct part of the new pier, while piers 1 and 3 can remain in place until stage 2 demolition. Temporary pier support provides an opportunity to increase design and construction efficiency of temporary work. The conceptual plans show pouring a concrete encasement around the existing column that is to remain in phase 1, which supports part of pier 2 cap beam. An alternative technical approach is to utilize a temporary pier support system, such as a shoring tower or structural steel support scaffolding. This temporary support system would be installed under the pier cap at girders 1 and 3 at pier 2. This approach would provide potential cost savings of roughly \$20,000, reduce the construction schedule, and improve safety. Myers used a similar approach on the \$7.5M Fort Ave Bridge Replacement project.

*Figure C3 – EFCO Temporary Pier Support*



**Benefits to Project Goals**

- 
- 
- 
- 

**GIRDERS DESIGN OPTIMIZATION**

The conceptual plans depict a width of eight girders at 6'-6" spacing. Optimizing the girder design could eliminate one or more girder lines, reduce construction cost, compress schedule, and reduce future maintenance costs. Myers is currently constructing the Crosby Road Bridge Replacement over I-695, which is a structure with similar widths and only 6 girders spaced at 8'-2" center to center. Elimination of a girder line, thereby reducing the overall width to seven girders would provide approximately \$125,000 in cost savings to the project."

In addition, the use of AASHTO pre-stressed concrete girder (bulb tee or type IV) in lieu of structural steel girders would reduce construction cost by approximately \$590,000 and reduce

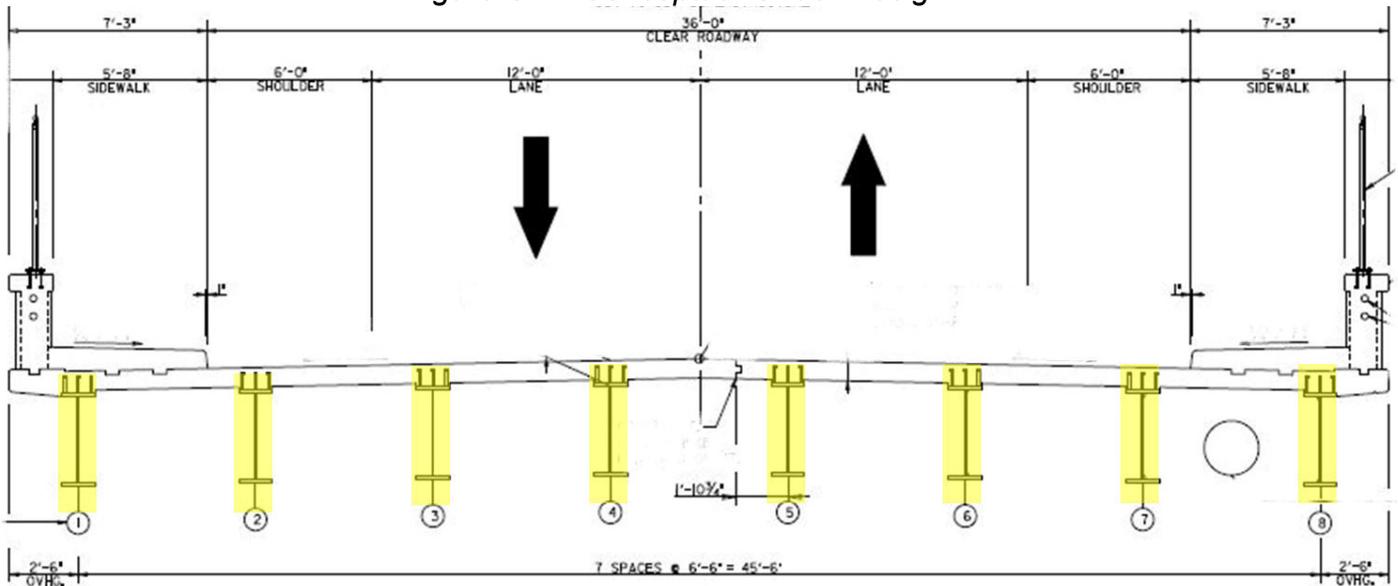
future structural maintenance costs. Given the uncertainty for structural steel pricing and steel increases we are experiencing on other current projects, the use of concrete in lieu of steel girders can mitigate the cost increase for this project.

Concrete girders are being utilized on the \$17M Broening Highway Bridge Replacement project Myers is scheduled to construct for the City of Baltimore.

**Benefits to Project Goals**



Figure C4 – Conceptual Girder Design



**GEOTECHNICAL CONDITIONS**

Given the geotechnical conditions in the project area, we anticipate encountering rock close to the ground surface. Myers personnel have previous foundation experience in this area at the EB I-695 to EB Rte 43 Flyover Bridge and the I-695 over Avondale Rd Bridge constructed when MD Rte 43 was constructed from Harford Rd to Honeygo Blvd, both bridges lie just west of the Putty Hill location. Given this variable, the ability to pour a spread footing is unlikely. Footing design options that would prevent potential schedule delays and reduce construction costs include H-piles or pipe-piles which would likely need to be drilled/rock-socketed. Geotechnical investigation during the design phase would help optimize the foundation design and confirm the existing conditions.

**Benefits to Project Goals**



**RIGHT OF WAY**

The current design requires 0.57 acre of fee simple ROW and 0.0531 acre of temporary construction easement. We understand this includes two full property takes and additional strip takes/easements. Right-of-way acquisition is not delineated on the conceptual plans, but is clearly anticipated adjacent to the bridge on the SW and SE corners. On our design-build projects, Myers has successfully reduced necessary right-of-way acquisitions to prevent potential delays and reduce overall project costs. While the potential to reduce right-of-way impacts is limited, we will work closely with the designer following notice of award to evaluate any opportunities to reduce impacts.

**Benefits to Project Goals**



### MAINTENANCE OF TRAFFIC

We understand that the preferred maintenance of traffic approach maintains one lane of traffic in each direction on Putty Hill Avenue over I-695 throughout the duration of construction. However, given the potential cost and schedule impacts, Myers suggests conducting a cost-benefit impact analysis of the potential bridge closure for replacement. This option would provide significant cost, schedule, and quality improvements for the Project.

Our initial review of the impacts of a potential detour identify the two detour routes shown in Figure C5. The shortest detour route (shown in yellow) would require traversing approximately 3.8 miles to get from one side of I-695 to the other from the bridge location. An alternative longer route is shown in purple on Figure C5 and is approximately twice as far.

Should the closure be evaluated further as a feasible option, Myers believes the total construction time would be reduced by approximately 40% - from a 16 month schedule to a 9 month schedule. Potential cost savings for this approach are estimated at \$200,000 - \$250,000 for direct and indirect costs. While the implementation of a detour for the bridge would increase the impact of construction, the duration of that impact would be significantly reduced for the traveling public. Analysis, coordination, and implementation of this detour would require a partnership between MDOT SHA, the design team, Myers, and project stakeholders to successfully expedite the bridge replacement. There are five schools within a one mile radius of the bridge which would require coordination of bus routes for a potential detour, should their present bus routes traverse the Putty Hill bridge.

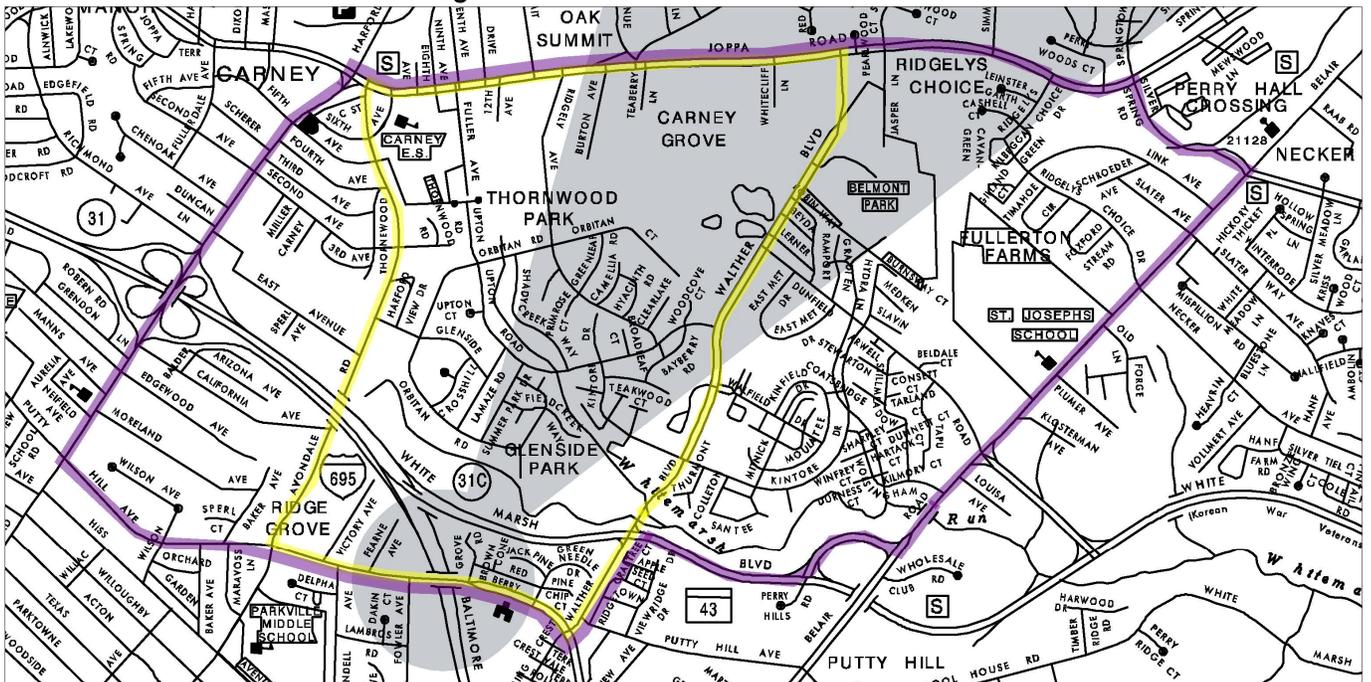
#### Benefits to Project Goals



#### Benefits to Project Goals



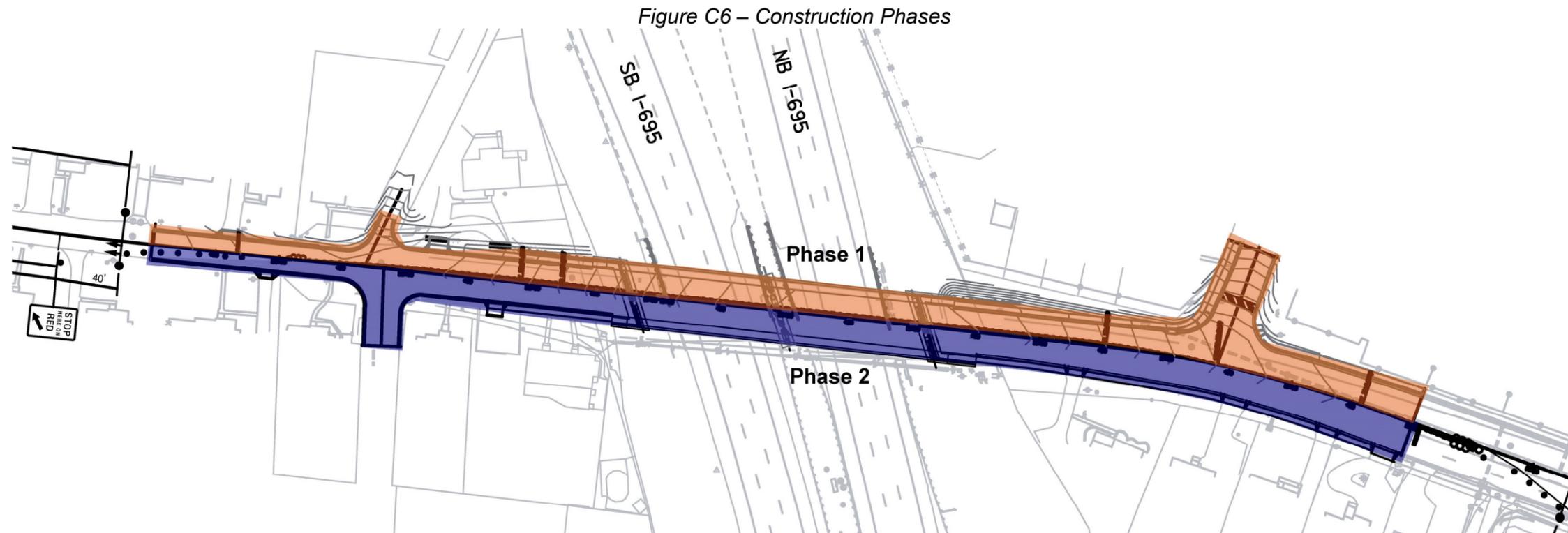
Figure C5 – Potential Detour Routes



## CONSTRUCTION APPROACH

### CONSTRUCTION SEQUENCING

**CONSTRUCTION PHASING** – Given the requirement to maintain a single lane of traffic in each direction throughout construction, the proposed sequence of construction generally follows the sequence identified in the conceptual plans. As the design and construction approaches are developed post award, the sequence may be modified to incorporate risk mitigation strategies developed by the integrated project team.



#### Phase 1

- Install E&S controls
- Install temporary signals, pavement markings, and advanced warning signs
- Place temporary barrier on bridge and approaches
- Install solid temporary protection shield along the bridge above the existing deck
- Install debris shield in existing girders above I-695
- Construct/install existing pier temporary support at pier 2
- Remove portions of the existing superstructure as required to construct phase 1
- Install temporary support of excavation for phase 1 abutment/pier 2 demolition
- Remove portions of the existing substructure/footers as required to construct phase 1
- Construct footers and substructure for new abutments and pier
- Install beams 5 through 8
- Relocate water and gas main to new superstructure
- Construct superstructure including deck, sidewalk, and parapets
- Install new safety fence on parapets
- Install single face barrier/protection shield on new deck
- Shift traffic to newly constructed bridge for phase 2 construction

#### Phase 2

- Install E&S controls
- Install/maintain traffic control devices as required for phase 2 construction
- Install debris shield in existing girders above I-695
- Remove portions of the existing superstructure to construct phase 2
- Modify temporary support of excavation for phase 2 abutment/pier demolition
- Remove portions of the existing substructure/footers to construct phase 2
- Construct footers and substructure for new abutments and pier
- Install beams 1 through 4
- Construct superstructure including deck, sidewalk, and parapets
- Install new safety fence on new parapets
- Construct bioretention facility
- Remove temporary single face barrier
- Remove temporary signals, pavement markings, and signage
- Install final permanent pavement marking/groove deck
- Restore traffic to final configuration
- Remove E&S controls/final seeding/punchlist

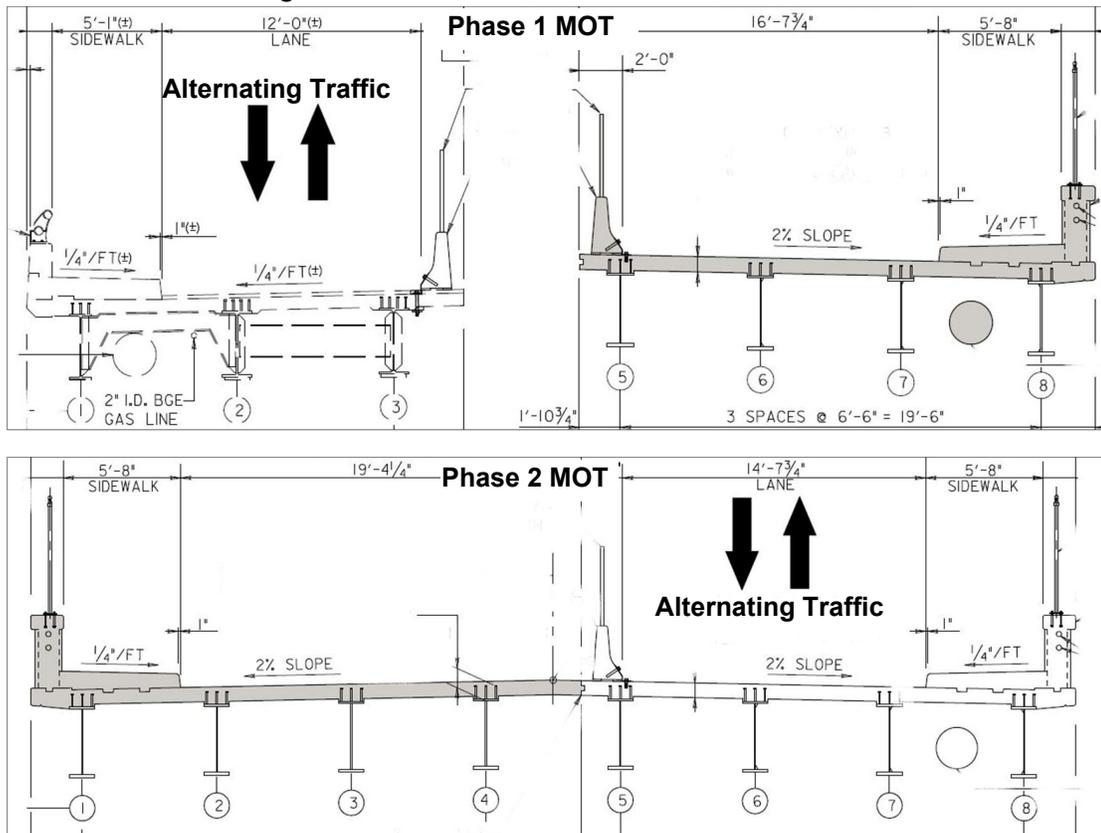
**Maintenance of Traffic**

Maintenance of traffic will be coordinated with MDOT SHA, Baltimore County, and emergency responders. Construction impacts will be coordinated by developing and aligning to specific construction milestones prior to commencement of work, developing detailed construction look-ahead schedules, and sharing weekly construction progress updates. On I-695, traffic impacts will be limited to night-time lane closures to install shielding for demolition work, mobilizing a crane to drive piles, and to set girders, deck pans, and overhangs.

As we understand the current MDOT SHA proposal, during construction one alternating lane of traffic will be maintained across the bridge at all times. Temporary signals will be installed at each end of the bridge to maintain traffic flow throughout construction. To minimize construction impacts, Myers will evaluate the use of solar paneled traffic signals in lieu of traditional signals for temporary use. In Phase 1, traffic will be maintained on the south side of the bridge while work occurs on the north side. During Phase 2, traffic will be maintained on the newly constructed roadway. Pedestrian and bike access will be maintained during construction as required. A similar, although not identical, phased approach to construction was used to maintain traffic on the Frederick Road bridge Replacement project over I-695 during construction.

Should the potential detour options prove feasible, Myers would support MDOT SHA in coordination with Baltimore County and with public stakeholders to share potential schedule savings, address concerns, and obtain approvals.

**Figure C7 – Phased Maintenance of Traffic**

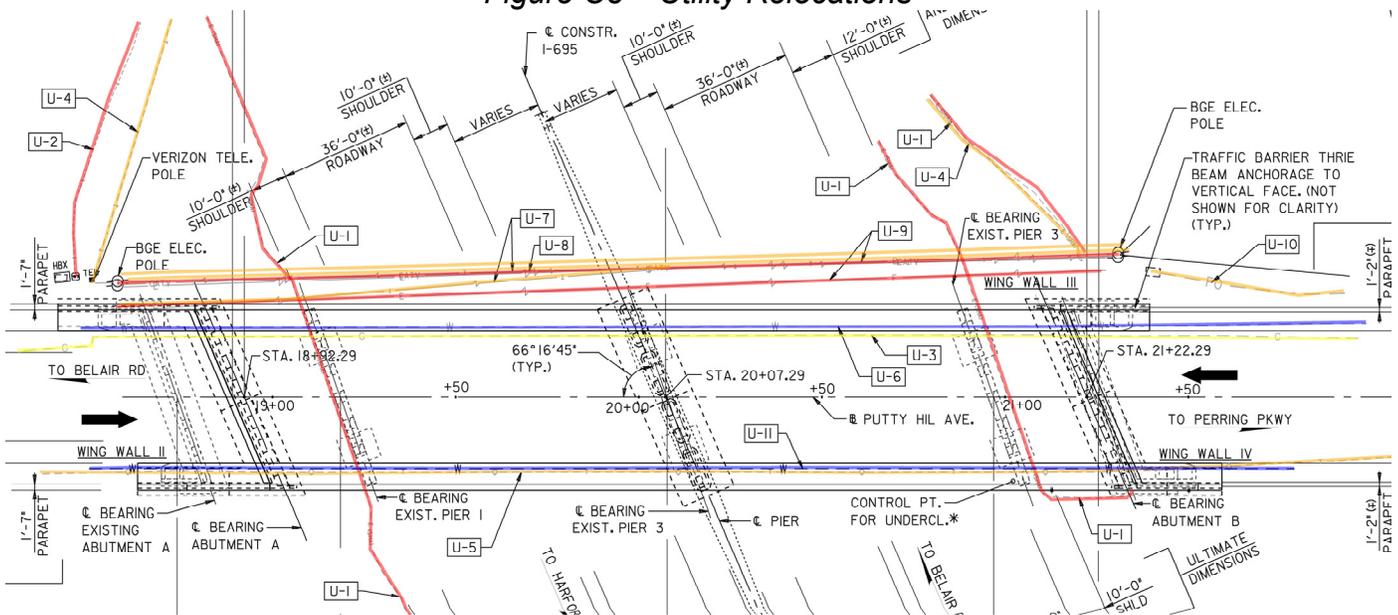


### Utility Relocation and Staging

The majority of utilities designated on the conceptual plans are anticipated to be relocations prior to the commencement of construction. The existing 24" Baltimore County water main will be relocated in Phase 1 from the N side to the S side of the bridge. The existing 2" BGE gas line will also be relocated during Phase 1. An approved BGE subcontractor will be utilized for the gas main relocation and tie-ins. If delays are encountered in relocated the existing overhead utilities, there may be opportunities to complete those relocations during the phased construction.

- U-1 EXISTING SHA ELECTRIC BRIDGE MOUNTED AND UNDERGROUND LINE TO BE RELOCATED PRIOR TO CONSTRUCTION.
- U-2 EXISTING UNDERGROUND BGE ELECTRIC TO REMAIN
- U-3 EXISTING BRIDGE-MOUNTED BGE 2" GAS LINE TO BE RELOCATED BY CONTRACTOR
- U-4 EXISTING UNDERGROUND VERIZON TELEPHONE LINE TO REMAIN.
- U-5 EXISTING VERIZON LINE INSIDE BRIDGE SIDEWALK TO BE RELOCATED PRIOR TO CONSTRUCTION.
- U-6 EXISTING BRIDGE-MOUNTED BALTIMORE COUNTY 24" WATER MAIN TO BE RELOCATED BY CONTRACTOR.
- U-7 EXISTING OVERHEAD TELEPHONE LINE BE RELOCATED PRIOR TO CONSTRUCTION.
- U-8 EXISTING OVERHEAD CATV LINE TO BE RELOCATED PRIOR TO CONSTRUCTION.
- U-9 EXISTING OVERHEAD BGE ELECTRIC LINE TO BE RELOCATED PRIOR TO CONSTRUCTION.
- U-10 EXISTING UNDERGROUND FIBER OPTIC LINE TO BE RELOCATED PRIOR TO CONSTRUCTION.
- U-11 RELOCATED 24" BALTIMORE COUNTY WATER MAIN.

Figure C8 – Utility Relocations



### Independent Work Packages

Independent work packages for certain elements will help progress the work based on the level of design that is appropriate at that time. Myers has identified clearing and grubbing, utility relocations, and bridge foundations for potential independent work packages. For the clearing and grubbing package, conceptual SWM approval and the NPDES permit are necessary to obtain approval. Utility relocations can be expedited with independent work packages, specifically for overhead and underground utilities to be relocated in advance of phased construction. Also included with the utilities work package would be temporary service for traffic signals (if solar panel signals are not used) as well as independent limited-scope MOT packages. Bridge foundations along I-695 are also suited for an independent work package to expedite construction. Myers would not request an advanced demo package, with the goal of limiting the duration of traffic impacts on Putty Hill during construction. A phased mobilization approach would be utilized for advanced work packages.



### **Schedule Constraints**

Myers is a self-performing heavy civil contractor and asphalt provider with substantial labor and equipment reserves to self-perform over to 90% of the work. Myers maintains solid working relationships with DBE, SWaM, and specialty subcontractors to meet SHA participation requirements and any specialties associated with the Project. Further, our stable of DBE / SWaM and specialty subcontractors is such that their involvement will not affect our initial CPM schedule.

Some specific constraints included within our initial CPM include:

- Construction NTP follows agreement on the GMP and occurs on June 21, 2019,
- To avoid a February 2020 deck pout, Myers has assumed that submittals, shop drawings, and material procurement begins with execution of the GMP contract.
- Stakeholder acceptance of the phased, single-lane MOT scheme is confirmed and implemented in Summer 2019,
- SHA review of submittals and/or shop drawing reviews will occur within 10 working days to be fast tracked
- As we have experienced bridge beam procurement to take up to 6 months, AM assumes that the beam procurement begins with final SHA plan acceptance.
- Myers routinely performs work through all seasons. As temperatures can affect bridge deck cures, heaters and blankets will be used, as needed.
- Paving will only occur allowed by SHA because of winter temperatures.
- There are no labor availability or equipment constraints as this is a one crew Project.

### **Schedule Management**

As noted previously in the Project Approach section of this SOQ, Myers approach to schedule management is to “plans the work and work the plan”, but also be nimble enough to modify the plan when changes in conditions, constraints, or other forces beyond your control are encountered. Accordingly, “the plan” is represented by the schedule, specifically, the initial CPM schedule included herein. In order to work the plan, or manage the schedule Myers will implement the following once selected:

- With selection as the MDOT SHA CMAR contractor, Myers will coordinate with the design team and MDOT SHA to more fully develop the pre-construction schedule portion of the initial CPM schedule presented herein.
- Once the design component is refined, Myers will submit to MDOT SHA for approval thus establishing the Projects CPM.
- Through Partnering with MDOT SHA, the design team, and stakeholders as the design progresses, schedule assumptions can be confirmed or modified, as appropriate, to develop a real and achievable schedule.
- At each design schedule milestone and during monthly progress meeting in both design and construction, schedule updates will be prepared and corrective actions taken to ensure schedule compliance.
- Monthly invoices will include schedule updates and narratives, as required for all MDOT SHA projects, to ensure the entire MDOT SHA’s Team (design and construction) track progress.
- Should the design schedule slip, the Team will jointly develop and implement a schedule recovery approach and re-baseline the CPM schedule.

## STAKEHOLDER COORDINATION

### STAKEHOLDER COMMUNICATION

Myers will actively support MDOT SHA by participating in meetings with key stakeholders, coordinating closely on proper follow up, and providing timely construction progress information to be distributed to the public. Myers has a proven track record of successfully partnering with Owners and Designers on complex transportation projects to promote successful stakeholder communication.

Shannon Moody, Public Relations Manager, is a dedicated internal resource for Myers, focused on stakeholder outreach and communication. Shannon will work with Cost Estimator, Steve Heise, and Construction Manager, Rich Slamon, to partner directly with the MDOT SHA communications team and the integrated project team and facilitate open and transparent communication with key stakeholders. Having an internal resource focused on this effort ensures that stakeholder concerns are anticipated and addressed in a timely manner.

Through her experience in design-build project delivery over the past 5 years, Shannon has developed a comprehensive plan for notifying and coordinating with stakeholders of heavily traveled project areas. Multiple tools will be used to communicate including email blasts, social media, website updates, Pardon Our Dust meetings, direct stakeholder and property owner meetings, and first responder briefings. We will also support the MDOT SHA by continually monitoring the effectiveness of our outreach efforts. Feedback and input from stakeholders will provide the baseline for this monitoring. Any feedback will be used to improve our interactions with key stakeholders.

### MINIMIZING IMPACTS TO STAKEHOLDERS

During construction, the construction team will develop look-ahead schedules, including MOT and traffic impacts. This information will be shared with interested third parties. Following are the stakeholders that have been identified for this Project with a plan for minimizing impacts to each:

- **Baltimore County and the Town of Carney:** County and Town staff are often the first to receive questions from residents. Information on construction impacts will be shared with staff in a timely manner to limit surprises with constituents.
- **Residents:** Information on construction impacts will be shared with residents in a timely fashion so to limit surprises for residents and travelers. This provides an opportunity to alter travel arrangements as necessary to avoid construction delays.
- **Emergency Services:** Emergency service providers will be included in the development of the TMP prior to construction and kept informed about construction progress and traffic impacts.
- **Local Schools:** With several school within a one-mile radius of the Project, outreach efforts will target school's employees, students, and parents. They will be kept up to date on traffic switches and other impacts to travel.

### **Community Outreach Partnership**

*On the I-95/Temple Avenue Interchange design-build project, PR Manager Shannon Moody conducted education sessions for residents and stakeholder groups, including the high school. The sessions provided driving tips and allowed individuals to walk their travel routes on a 30-foot by 24-foot floor mat.*

