



# TECHNICAL PROPOSAL

Contract No. HO1415170

**MD 32 – MD 108 to North  
of Linden Church Road**

**Howard County**



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# A. LEAD DESIGN FIRM EXPERIENCE/QUALIFICATIONS FOR PAST PERFORMANCE

- i. Key Staff
- ii. Past Performance



**EDUCATION:** BS/1994/Civil Engineering

**EXPERIENCE:** 12 Years with RK&K, 21 Years in Industry

**LICENSES:** Maryland Registered Professional Engineer/2000/#24923

## QUALIFICATIONS & EXPERIENCE

As a Transportation Project Manager, Mitch has more than 21 years of highway design experience including significant design-build projects. He has served as Project Design Manager for numerous projects including freeways, interchanges, arterials, intersections, pavement widening and rehabilitation work. He takes a hands-on approach to successfully managing the design, QA/QC, stakeholder coordination, discipline leads, and schedule management. He has managed and prepared design-build construction plans, utility coordination,

drainage, stormwater management, right-of-way plats, complex MOT, E&SC, environmental documentation/permitting, and environmental mitigation/restoration. As the Project Design Manager for the recently completed MD 32/Linden Church Road Interchange Design-Build, he has a solid understanding of how to successfully complete the dualization of MD32 in this corridor. Mitch has been instrumental in preparing plans for SHA-PRD approval on PRD's first design-build projects (US 13 and MD404).

## PROJECT EXPERIENCE

### **MD 32/LINDEN CHURCH ROAD INTERCHANGE DESIGN-BUILD, \$11M (HOWARD COUNTY, MD)**

As Project Design Manager, Mitch managed preparation of construction documents for the full diamond interchange, including compatibility with the future dualization of MD 32. He managed the design, staffing, and schedule progress including tracking the 25 separate design packages for SHA review and approval. He attended community and partnering meetings with contractor, SHA, MDE, ACOE, Howard County; oversaw preparation of full design plans including highway, SWM, ESC, MOT, drainage and pavement; coordinated landscaping, tree preservation, and reforestation; attended monthly utility meetings; and tracked permits.

### **REHAB OF 11 BRIDGES ON US 13 DESIGN-BUILD, \$24M (WICOMICO COUNTY, MD)**

As Project Design Manager, Mitch oversaw preparation of final MOT and highway plans to replace 11 bridges on US 13 and was responsible for Design QA/QC. His work included oversight of three major crossovers in the median and temporary ramp ties to US 50 interchange ramps. He oversaw the complete design efforts, including roadway geometrics, MOT, TMP, lighting, geotechnical, cross sections, and SHA-PRD approval coordination.

### **MD 404-US 50 TO EAST OF HOLLY ROAD DESIGN-BUILD, \$104M (CAROLINE, QUEEN ANNE'S AND TALBOT COUNTIES, MD)**

As Project Design Manager for Segment C, Mitch leads the preparation of final design for 4 miles of 4-lane divided highway with a 34-foot wide median.

Constrained by ROW and environmental resources, the design included geometric layout, superelevation, at-grade intersections ("J" turns), safety improvements, auxiliary lanes, MOT, and stream flow maintenance. He coordinates the SWM/ESD site design facilities, culvert replacements, and drainage to meet an aggressive schedule. He is critical to the QA/QC, IDQA, SHA, and SHA-PRD processes for design approvals.

### **I-95/SECTION 100 (I-95/MD 43) WHITE MARSH INTERCHANGE, \$170M (BALTIMORE COUNTY, MD)**

As Project Design Manager, Mitch coordinated all elements of design to prepare contract plans and specifications for reconstruction of the MD 43 interchange to a "folded diamond" configuration. He met with property owners to discuss impacts; evaluated SWM sites; assessed environmental impacts required by the ACOE; oversaw design from preliminary to Advertisement; and provided construction phase engineering services.

### **WEST VIRGINIA ROUTE 2, CRESAP TO MCKEFREY DESIGN-BUILD, \$23M (MARSHALL COUNTY, WV)**

As Project Design Manager, Mitch provided design services for a 1.8-mile widening of WV Route 2 from 2-lane to 4-lane divided highway. Design included field surveys, assisting WVDOH with property takes, geometric design, E&SC, MOT, and coordination with hydraulic analysis, scour analysis and substructure and superstructure design. To make the project a success, Mitch provided continuous coordination among disciplines and all pertinent agencies and stakeholders.

**EDUCATION:** BS/2004/Civil Engineering

**EXPERIENCE:** 12 Years with RK&K, 12 Years in Industry

**LICENSES:** Maryland Registered Professional Engineer/2012/#39204

**QUALIFICATIONS & EXPERIENCE**

Chris has lead and assisted in the highway design efforts for a variety of design-build and design-bid-build roadway/interchange/highway projects. He has designed horizontal/vertical alignments, MOT plans, typical sections, cross sections, details, right-of-way, utility relocations, ADA pedestrian/bicycle facilities, and coordinated landscaping, pavement, geotechnical, structural, noise walls, lighting, signing, signals, pavement marking, drainage, ES&C, SWM, environmental, permitting and utility designs. As highway engineer for

the MD32/Linden Church Road Interchange Design-Build, Chris was instrumental in delivering quality design plans meeting the performance requirements and designing compatibility with the dualization of MD32 that will be constructed as part of this contract.

**PROJECT EXPERIENCE**

**MD 32/LINDEN CHURCH ROAD INTERCHANGE DESIGN-BUILD, \$11M (HOWARD COUNTY, MD)**

Highway Engineer for the MD 32 at Linden Church Interchange Design-Build project, Chris was responsible for the horizontal and vertical geometric alignment, roundabout design, typical sections, pavement details, elevation details, MOT, and cross sections. He coordinated with ES&C, SWM, pavement design, geotechnical, landscape, permitting, and environmental design. He participated in coordination efforts with BGE, Verizon, Williams Gas, other utilities, SHA, District 7, Howard County, and the community.

**WEST VIRGINIA ROUTE 2, CRESAP TO MCKEFREY DESIGN-BUILD, \$23M (MARSHALL COUNTY, WV)**

Highway Engineer for this 1.8 mile highway dualization, Chris led the production of plans, cross sections, and specifications including geometric design, profiles, typical sections, elevations details, pavement details, survey control, and MOT. He was also responsible for coordination of survey requirements, structural design incorporation, drainage, SWM, E&SC, hydraulic & scour analysis in the overall project design.

**MD 404-US 50 TO EAST OF HOLLY ROAD DESIGN-BUILD, \$104M (CAROLINE, QUEEN ANNE’S AND TALBOT COUNTIES, MD)**

Highway Engineer for Segment C of this project, Chris’ work includes development of horizontal and vertical geometric alignments, superelevation, typical sections, intersection design and cross sections for the dualization of MD 404, driveways, access roads and temporary crossovers. He led the development of a 6-phased MOT plan including temporary

crossovers, integrated culvert construction, traffic shifts, temporary pavement/signing, and utility construction coordination. His responsibilities include coordination with drainage, E&SC, SWM, pavement design, utility relocations, pavement marking, signing, and traffic analyses. He participated in QA/QC, IDQA and SHA reviews as well as E&SC/SWM permitting through SHA-PRD.

**REHAB OF 11 BRIDGES ON US 13 DESIGN-BUILD, \$24M (WICOMICO COUNTY, MD)**

As Highway Engineer, Chris developed horizontal and vertical geometric alignments, super elevations, typical sections, and cross sections for temporary crossovers and ramps for maintenance of traffic designed to minimize ramp closures. He led the development of a 4-phased MOT plan requiring coordination with supplemental field surveys, structural design, drainage, pavement design, utility designation, temporary lighting design, temporary & permanent pavement markings, temporary and permanent signing, constructability reviews, QA/QC and SHA reviews. He also coordinated the developed of E&SC and SWM packages for SHA-PRD approval.

**I-95/SECTION 100 (I-95/MD 43) WHITE MARSH INTERCHANGE, \$170M (BALTIMORE COUNTY, MD)**

As the Highway Engineer, Chris assisted with preparation of contract plans and specifications for the reconstruction of the I-95 / MD 43 interchange. His work included design of horizontal and vertical geometry for highways, arterials and ramps to meet AASHTO criteria. His work also required coordination and compatibility with adjacent active and future construction projects.

**EDUCATION:** BS/1978/Civil Engineering; MS/1981/Civil & Structural Engineering

**EXPERIENCE:** 13 Years with RK&K, 33 Years in Industry

**CERTIFICATION & LICENSES:**  
Maryland Registered Professional Engineer/1988/#16493  
Certified Floodplain Manager  
MDSHA ESC Plan Reviewer

## QUALIFICATIONS & EXPERIENCE

Seyed has more than 33 years of experience with highway design projects requiring water resources and hydrology/hydraulics applications. He has managed, designed, and reviewed plans and prepared reports for Design-Build, Design-Bid-Build, and P3 projects including highway and bridge drainage systems, new and retrofit SWM facilities, outfall and BMP inspection, evaluation, rating, remediation design, as-built documentation and certification, multi-phased E&SC measures, TMDL/NPDES Phase I & II, MS4 permitting, watershed restoration, stream crossings, and scour countermeasures. He brings an in-depth understanding of MDE's SWM Manual, NRCS MD Pond Code 378, and the 2011 Standards and Specification for Soil Erosion and Sediment Control. As the Water Resources Engineer on

the MD 32/Linden Church Design Build project, he understands the existing conditions for this Project and recent experience obtaining approvals from SHA-PRD on the MD404 and US 13 Design Build Projects.

## PROJECT EXPERIENCE

### **MD 32/LINDEN CHURCH ROAD INTERCHANGE DESIGN-BUILD, \$11M (HOWARD COUNTY, MD)**

Water Resources Engineer responsible for design of the innovative SWM ESD measures, hydrology/hydraulic analysis of cross culverts; stream channel realignment and stabilization; storm drain systems; E&SC, and respective MDE approvals. He applied various SWM BMP solutions including surface sand filters, bioretention, infiltration trench, grass swales, and flood attenuation storage areas. He was responsible for QA/QC of all water resources design plans, computations and reports.

### **WEST VIRGINIA ROUTE 2, CRESAP TO MCKEFREY DESIGN-BUILD, \$23M (MARSHALL COUNTY, WV)**

Water Resources Engineer responsible for preparation of H/H studies and detailed drainage design for the dualization of 1.8-miles of Route 2 from 2-lanes to a 4-lane divided highway. Seyed was responsible for design of numerous cross culverts, SWM for quality and quantity eliminating any increase in the peak discharges, and control of water surface elevations per stringent CSX Railroad criteria. He performed QA/QC of the H/H report and obtained approvals from WVDOH, USACE, and CSX to meet an aggressive schedule.

### **MD 404-US 50 TO EAST OF HOLLY ROAD DESIGN-BUILD, \$104M (CAROLINE, QUEEN ANNE'S AND TALBOT COUNTIES, MD)**

Water Resources Engineer responsible for oversight of the SWM, Drainage and E&SC design for 4-miles of this highway dualization for SHA. His responsibility

includes design guidance, oversight, and QA/QC of over 110 SWM BMPs including bioswales, wet swales, grass swales, and attenuation basins. He assisted in preparation of SWM & ESC reports, responded to SHA-PRD comments, and played a significant role in obtaining SHA-PRD approvals.

### **MD 216 DESIGN-BUILD, \$24M, (HOWARD COUNTY, MD)**

Water Resources Engineer responsible for QA/QC, H/H analysis, compliance reviews, and design of existing pond retrofits, numerous SWM facility types, stream relocation/restoration, resource impact avoidance/minimization, and phased E&SC. His SWM design included modifying the IFB concept to decentralize the water quality treatment systems, maintaining five smaller filtering systems while adding six open channel and four grass channel treatment sites.

### **INTERCOUNTY CONNECTOR (ICC) DESIGN-BUILD, \$2.6B (MONTGOMERY AND PRINCE GEORGE'S COUNTIES, MD)**

Water Resources Engineer responsible for the detailed planning stage, drainage analysis and innovative approaches to SWM for surface and underground BMPs and culvert crossings for 6.5-miles of the ICC, including 2 interchanges. His designs met MDE/SHA and Special Protection Area requirements, while avoiding/minimizing impacts to natural resources. He also performed QA/QC reviews, including several SWM BMP retrofits, and coordinated with multiple agencies and stakeholders.

**OWNER CONTACT**

Maryland State Highway Administration (SHA)  
Jeff Folden, 410.545.8814

**CONTRACT/PROJECT NO.**

Contract No. HO3915170

**DELIVERY METHOD**

Design-Build (D-B)

**CONSTRUCTION COST**

Initial Contract Value: \$11M  
Final Contract Value: \$11M

**SCHEDULE PERFORMANCE**

**Initial Completion Date:**  
November, 2013  
**Final Completion Date:**  
April, 2014

**PROJECT DESCRIPTION**

RK&K served as the Lead Designer on the Design-Build Team for this project which included the replacement of an at-grade intersection between MD 32 and Linden Church Road with a new grade separated diamond interchange. The project included design and construction provisions for the future dualization of MD 32 to a four-lane roadway with grass median.

RK&K was responsible for all design, including geometrics, plans, profiles, typical sections, superelevation, geotechnical, pavement, maintenance of vehicular and bicycle traffic (coordinated with Howard County), bridge, signalization (permanent and temporary), landscaping, interchange lighting, pavement markings, drainage, environmental permitting, and utility coordination. RK&K was responsible for preparing for and participating in public and stakeholder outreach and meetings. RK&K partnered, coordinated with, and obtained approvals from with SHA, Howard County, MDE, USCE, MDNR, and the utility companies.

Design and construction of the improvements, including stormwater management, erosions and sediment control, culvert extensions, and maintenance of traffic, had to be carefully considered to stay within the constrained right of way and minimize/avoid impacts to natural resources.

RK&K prepared a Transportation Management Plan (TMP) for the project, addressing work zone impacts; evaluating MOT alternatives including detours; and providing public information and outreach. Based on the TMP, RK&K developed a multiple phase maintenance of traffic plan that provided ample room for construction and maximized mobility for the traveling public during construction. While detours were unavoidable due to grade changes and constrained right of way, the duration of the detours were minimized, access to driveways was maintained, and emergency vehicles access was carefully coordinated.

**SUCCESSFUL METHODS, APPROACHES, AND INNOVATIONS**

**Schedule** – In order to meet the contract completion date, RK&K developed multiple design packages and a schedule that included early release of grading packages and coordinated with utility companies to avoid impacts wherever possible. The schedule carefully considered the time needed QA/QC, SHA reviews, stakeholder reviews, and permitting. The project was completed on-time considering SHA granted extensions.

**Mobility** – RK&K’s development of the Traffic Management Plan and attention to detail during implementation allowed for maximum mobility (both vehicular and bicycle) during construction. The duration of detours, and the impact on residents and the traveling public, was minimized through careful design, coordination and notification of local residents, SHA, Howard County, and emergency services.

**ROW and Environmental Resources** – RK&K’s attention to detail and collaboration with the contractor allowed all improvements to be contained in the dedicated right-of-way. The LOD was significantly reduced, with avoidance and minimization of impacts to resources achieved by optimizing geometry, careful consideration of grading, application of traffic barrier, and optimization of the SWM and cross culvert design. Permitting needs were carefully tracked, and environmental documents were prepared in form of Mods to illustrate all that LOD’s were either reduced or eliminated at environmental areas including WUS, wetlands, floodplains, buffers, streams, forests, etc.

**Design Excellence** – Design of MD 32 and safety grading, bike lanes and secondary roads exceeded the minimum RFP, AASHTO and SHA criteria. Solid QA/QC processes, regular meetings, partnering, and an emphasis on coordinating with stakeholders ensured that the design meet not just the RFP requirements but also client and stakeholder expectations. RK&K and the contractor collaborated on a regular basis to ensure the design plans were constructible, thereby reducing delays once construction commenced.

**RELEVANCE OF WORK TO THE PROJECT**

The MD32/Linden Church Road Interchange Design-Build is within the limits of the Project. By using the same staff for both projects, RK&K’s familiarity with the design and construction of the existing roadway and site specific issues is unmatched. We understand how the existing interchange was designed to accommodate the future dualization of MD32. We already have relationships with the stakeholders, including utility companies that will be critical to the Project. In addition, the scope of work for the projects contains many of the same elements, including geotechnical conditions, pavement design, existing pavement rehabilitation, drainage, SWM, E&SC, natural resources, landscaping, lighting, culverts, utility coordination, and permit acquisition.

**Project Similarities**

- ✓ SHA Design-Build Project
- ✓ Adjacent Interchange
- ✓ Safety/Mobility Improvements
- ✓ Utility Coordination
- ✓ Drainage/SWM
- ✓ Environmental Permitting
- ✓ Stakeholder Coordination

**Proposed Staff Involvement**

- Project Design Manager: Mitchell Scott, PE\*
- Highway Engineer: Chris Bauernfeind, PE\*
- Water Resources Engineer: Seyed Sadaat, PE, CFM\*

\* Proposed Key Staff



## OWNER CONTACT

North Carolina Department of Transportation  
Teresa Bruton, PE  
917.707.6610

## CONTRACT/PROJECT NO.

R-2507A

## DELIVERY METHOD

Design-Build (D-B)

## CONSTRUCTION COST

Initial Contract Value: \$54.5M  
Final Contract Value: \$58.5M\*

## SCHEDULE PERFORMANCE

**Initial Completion Date:**  
December, 2014

**Final Completion Date:**  
December, 2015\*

\* Extension of Project Limits was requested by NCDOT

## PROJECT DESCRIPTION

RK&K served as the Lead Designer on the Design-Build Team for this design-build project which included dualization of approximately 7.1-miles of US 13/US 158 from US 158/NC 45 near Winton in Hertford County, NC to the US 158 Bypass in Tarheel in Gates County, NC.

The project included the design and construction of a partially access controlled, 60 mph design speed, 4-lane divided facility with a 30-foot to 46-foot median width. An interchange was provided at the US 158/NC 45 intersection while directional crossovers with median U-Turns were provided elsewhere to improve the safety and traffic flow along the US 13/US 158 corridor. New bridges were provided over the Chowan River, Buckhorn Creek, and on US 13 over US 158.

As Lead Designer, RK&K was responsible for all design services required for the project including roadway design; hydraulic design; maintenance of traffic; cross culverts; storm water management; erosion and sediment control; structures design; traffic control and pavement markings; signing and traffic signal design; permit preparation and application; utility coordination and relocation design; public involvement; subsurface investigations and foundation design; supplemental surveys; subsurface utility exploration; temporary pavement design; and right-of-way acquisition.

Maintenance of traffic was a primary element of this project, as traffic on the existing two lane roadway had to be maintained in a safe manner with minimal impacts while constructing the new lanes. This was further complicated by the need to maintain existing cross road traffic while constructing the extensive concrete channelization islands and turn-outs that were part of the ultimate design to address traffic operations and safety. RK&K collaborated with the contractor to identify means, methods and phasing that would allow the work to proceed in a timely fashion while meeting NCDOT's expectations for mobility and safety.

As part of a larger program of improvements to US13/US 158, the work completed under this project was required to be compatible with a future extension of the dualization. The interim transition from the new 4 lane roadway to the existing 2 lane roadway was carefully considered from a design safety and future compatibility standpoint.

## SUCCESSFUL METHODS, APPROACHES, AND INNOVATIONS

**Schedule** – Due to the fact that numerous utilities were present, our team engaged a full-time utility coordinator to ensure timely coordination, protection and/or relocation of all distribution and transmission lines. This allowed the utility relocations to occur in a timely and seamless manner for construction to stay ahead of schedule.

**Mobility** – The contractor, owner and stakeholders were engaged interactively in the preparation of the maintenance of traffic plans. This ensured that all parties understand the impacts to traffic and that the contractor supports the maintenance of traffic plan and will execute it appropriately during construction. The existing two lanes of traffic was maintained at all times, and detours/delays associated with connections to intersecting roadways were minimized.

**ROW and Environmental Resources** – The RK&K Team was responsible for right-of-way acquisition of 76 parcels including 28 relocations on this project. Our team used the opportunity to minimize the amount of right of way necessary, thereby accruing savings to NCDOT while also accelerating schedule by reducing the number of right of way acquisitions. We also scheduled and phased work packages to allow construction work to proceed before all property was available.

**Design Excellence** – Through the use of a rigorous design QA/QC plan, careful selection of designs staff, as well as partnering with NCDOT and stakeholders to ensure expectations are well understood, the vast majority of our submittals on this project resulted in minor comments. This allowed work to proceed without resubmittals, which was critical to obtaining the necessary environmental permits in a timely manner. In addition, thorough verification of NCDOT provided surveys resulted in discovery of inaccuracies that were easily corrected during design, but would have created delays and rework during construction.

## RELEVANCE OF WORK TO THE PROJECT

This project includes the dualization widening of an existing roadway similar in nature to the MD32 – MD108 to Linden Church Project, including the need to coordinate with adjacent communities, maintain mobility during construction, and obtain environmental permits and utility clearances in a timely manner to allow for an accelerated construction schedule. This project also required that RK&K work as an integrated team with the contractor to sequence design and construction work packages in coordination with the right of way acquisition, utility work, maintenance of traffic requirements, and permitting timeframes in order to meet the aggressive project schedule. Also similar to MD32 – MD108 to Linden Church Project, this contract required compatibility with future extension of the upgraded roadway.

## Project Similarities

- ✓ Design-Build Project
- ✓ 2-Lane to 4-Lane Divided Road
- ✓ Interchange Improvements
- ✓ Drainage/SWM
- ✓ Environmental Permitting
- ✓ Utilities
- ✓ Stakeholder Coordination
- ✓ Maintenance of Traffic
- ✓ Culvert Construction





**OWNER CONTACT**

West Virginia Department of Transportation  
Darrell Allen, 304.558.0444

**CONTRACT/PROJECT NO.**

Project No. U326-2-12.25

**DELIVERY METHOD**

Design-Build

**CONSTRUCTION COST**

Initial Contract Value: \$23M  
Final Contract Value: \$23M

**SCHEDULE PERFORMANCE**

**Initial Completion Date:**  
August, 2012  
**Final Completion Date:**  
August, 2012

**PROJECT DESCRIPTION**

RK&K served as the Lead Designer on the Design-Build Team for this project which improved a 1.8-mile segment of West Virginia Route 2 from the town of Cresape to the town of McKefrey. The project included dualization of the existing 2-lane to a new 4-lane divided highway. The completed roadway consisted of two 12 foot lanes and an eight foot shoulder in each direction and median. As part of the project, a replacement bridge was constructed over Hog Run at the south end. Design work performed and managed by RK&K included field surveys, highway design, drainage design, geotechnical design, pavement design, hydraulic analysis, scour analysis, stormwater management, erosion and sediment control, substructure and superstructure design, seismic analysis, permitting, quality assurance and quality control.

All existing drainage inlets and culverts were replaced and sized based on the functional classification of the roadway. Drainage areas ranged from one acre to over 20 acres. Open drainage systems were used wherever possible and doubled as storage volume required to attenuate flows to meet CSX requirements just downstream of the project. Vegetative buffers were incorporated to serve as water quality treatment.

In accordance with the NPDES requirements, RK&K developed a Storm Water Pollution Prevention Plan and Groundwater Protection Plan for each phase of the project. Erosion and sediment control design was multi-phased in accordance with the maintenance of traffic needs. Due to space limitations, sediment basins were eliminated in favor of other innovative practices approved by WVDOH.

The project included fixed right of way, which was highly constrained due to the CSX railroad line and the Ohio River to the South side of the road and steep terrain to the North. Because the CSX line could not be impacted, all widening was designed and constructed toward the steep terrain, requiring a challenging and substantial rock cut.

Utility coordination on the project included Verizon, Appalachian Electric Power, Consul Energy, and CSX. A collaborative process that included the utility companies was used to ensure that RK&K's design minimized impacts to the Utilities. Unavoidable utility relocations were performed by the utility companies during the design build period in close coordination with the highway

construction, which was ongoing simultaneously.

**Project Similarities**

- ✓ Design-Build Project
- ✓ 2-Lane to 4-Lane Divided Road
- ✓ Safety/Mobility Improvements
- ✓ Maintenance of Traffic
- ✓ Drainage/SWM
- ✓ Utility Coordination
- ✓ Stakeholder Coordination
- ✓ Culvert Construction

**Proposed Staff Involvement**

- Project Design Manager: Mitchell Scott, PE\*
- Highway Engineer: Chris Bauernfeind, PE\*
- Water Resources Engineer: Seyed Sadaat, PE, CFM\*

\*Proposed Key Staff

**SUCCESSFUL METHODS, APPROACHES, AND INNOVATIONS**

**Schedule** – The schedule was accelerated through careful coordination with stakeholders including CSX and the utility companies. By including these stakeholders during the early design stages, RK&K was able to set expectations for the project, eliminate potential conflicts through smart design, and coordinate the work required to be completed by the utilities companies with the E&SC and MOT plans. This allowed work to occur simultaneously rather than sequentially, reducing the overall duration of the project.

**Mobility** – With few convenient alternate routes, maintenance of traffic was a primary concern on this project. The team used careful coordination of highway, utility, and bridge construction sequences to ensure that traffic flow was maintained in an efficient and safe manner. This coordination effort continued throughout construction as various work was either accelerated or delayed based on field conditions.

**ROW and Environmental Resources** – RK&K used innovative approaches to culvert, SWM, E&SC, and geotechnical design to ensure that the required improvements could be constructed within the available right of way and without impacts to existing environmental resources. One example was allowing an enlarged ditch/vegetated buffer to provide downstream flow attenuation, water quality, and rock fall protection area.

**Design Excellence** – RK&K engaged in regular meetings with the contractor, CSX, the utilities companies, and WVDOH to discuss schedule and ensure that expectations of all parties were aligned. When issues occurred, RK&K worked quickly to resolve the issues to the satisfaction of all parties. These actions greatly reduced the amount of time and effort required for design reviews and minimized the number of field revisions that were required.

*This project received the Excellence in Construction Award Infrastructure Heavy Category and the Award of Excellence from the Associated Builders & Contractors.*

**RELEVANCE OF WORK TO THE PROJECT**

This project is similar to the MD32 – MD108 to Linden Church lane project in several respects. First, both projects are roadway dualization projects requiring the many of the same design elements. Second, both projects have a constrained right of way and the need to avoid or minimize impacts to natural resources within the right of way and avoid impacts to existing utilities. Finally, both projects place a high value on maintaining mobility during construction, which will require a significant effort to reduce traffic impacts, sequence work effectively, and accelerate the overall schedule to reduce the duration of traffic impacts. To help accomplish these goals, RK&K will utilize many of the same staff members that successfully completed the WV Route 2 Project, including all of the designated Design Key Staff.



# B. LEAD CONSTRUCTION FIRM EXPERIENCE/QUALIFICATIONS FOR PAST PERFORMANCE

- i. Key Staff
- ii. Past Performance



**EDUCATION:** M.S./1995/Civil Engineering; B.S./1986/ Civil Engineering

**EXPERIENCE:** 3 Years with Company, 29 Years in Industry

**CERTIFICATION & TRAINING:** Maryland Registered Professional Engineer #19597

## QUALIFICATIONS & EXPERIENCE

Tom has more than 29 years of progressive pre-construction/ construction experience, including more than 12 years with DB and PPTA projects. He works closely with the designer of record, construction personnel, and estimators to accelerate project delivery, reduce community and environmental impacts, and minimize delays. In Tom's 22 years of design management experience, he held the role of Design Manager for more than 60 projects which ensures consistency in his work. His experience as Design-Build Project Manager on

dualization projects of similar scope and complexity will support early completion, phased construction to accommodate ROW and utilities, maintained mobility throughout construction, and design excellence.

## PROJECT EXPERIENCE

**WALNEY ROAD WIDENING AND BRIDGE REPLACEMENT DESIGN-BUILD, \$12M (FAIRFAX COUNTY, VA)** – As Design-Build Project Manager, Tom led the VDOT and utilities partnership and overcame delays from long leads for special cable, splicing crew availability, and weather by phasing utility construction and supporting utility work with clearing and grubbing, ESC, and MOT support to bring the project back to schedule. The project widened Walney Road from two to four-lanes and replaced an existing bridge utilizing a four-month road closure and detour through a highly commercial area with daily commuter traffic of 21,000 vehicles per day. The detour received less than 10 public comments and the duration was minimized by one month.

**MD 404 DUALIZATION DESIGN-BUILD \$104M (TALBOT COUNTY, MD)** – As Design-Build Coordinator, Tom is part of the JV Team for the roadway dualization and widening of MD 404. Tom met biweekly during the design process to ensure the timely approval of permits within one week of their scheduled dates to adhere to the strict construction schedule. The roadway includes 12-foot lanes, 4-foot paved inside shoulders, 10-foot paved outside shoulders, and a 34-foot median with traffic barrier protection. Partial acceleration/ deceleration lanes were provided and unprotected left turns will be eliminated with "J" Turns and Maryland "T" intersections.

**ROLLING ROAD/ FRANCONIA SPRINGFIELD PKWY INTERCHANGE DESIGN-BUILD, \$9M (FAIRFAX COUNTY, VA)** – As Design-Build Project Manager, Tom worked closely with the Designer to develop a phased MOT construction approach that balanced the interaction between vehicles and pedestrians and prioritized through movements. This project upgraded the loop ramp from Fairfax County Parkway onto Fairfax County Parkway/Franconia-Springfield Parkway by adding a free single right turn lane creating a dual lane loop ramp. Scope of work included median improvements, soils remediation, retaining wall construction, utility coordination, and permit acquisition.

**TEMPLE AVE REALIGNMENT AND I-95 INTERCHANGE IMPROVEMENTS DESIGN-BUILD, \$13M (CHESTERFIELD COUNTY, VA)** – As Pre-construction Manager, Tom worked closely with the Design Manager, VDOT, and the City. He was able to mitigate a significant project risk by developing a design and construction approach that accommodated the construction of a Kroger Superstore adjacent to and concurrent with the VDOT design-build Project. He directed the incorporation of a single faced temporary wire wall into the MOT design to expedite construction, minimize congestion, and fast-track project completion. The scope of work included roadway realignment, road widening, and interchange ramp modifications, and roundabout implementation.

**EDUCATION:** B.S./1982/ Civil Engineering

**EXPERIENCE:** 8 Years with Myers, 34 Years in Industry

**CERTIFICATION & TRAINING:**  
OSHA 30 Hour  
MD SHA E&SC “Green Card”  
MD SHA E&SC “Yellow Card”  
MD SHA Traffic Manager  
“Orange Card”

### QUALIFICATIONS & EXPERIENCE

Bob has 34 years of construction and project management experience including, roadway and interstate widening projects, accelerated construction schedules, interchange and ramp modifications, culvert/structure construction, utility coordination, and permit acquisition. As a Senior Construction Manager, Bob ensures that mobility is maintained during construction operations and schedule commitments are achieved through detailed operation planning and proactive schedule management and coordination. Bob’s projects have included large, complex, and fast-tracked projects.

### PROJECT EXPERIENCE

#### **I-95 EXPRESS TOLL LANES NORTH OF MD 43 TO JOPPA ROAD, \$42M (BALTIMORE COUNTY, MD)**

Bob was the Construction Manager for the reconstruction and widening of I-95 to eight general purpose lanes and four express toll lanes separated by concrete barrier. Bob worked with the owner and designer to maintain an accelerated project schedule despite an unanticipated roadway settlement which was mitigated through a new MSE wall. This project included interchange modifications, significant MOT work, culvert construction, and coordination with an adjacent interchange project.

**I-95/I-695 INTERCHANGE, \$57M (BALTIMORE COUNTY, MD)** – As Construction Manager, Bob worked with the owner to modify the E&S and stream construction plan when unforeseen conditions made the sequence of construction unfeasible while maintaining the existing stream. The reconstruction of I-695 (Baltimore Beltway) at I-95 involved the widening, reconstruction, and re-alignment of a 6-lane divided highway. MOT required widening one side then shifting traffic to the completed side to finish. The scope included significant water resource management, stream restoration, and major culvert work as well as pavement reconstruction, milling and resurfacing, storm drain improvements, seven new stormwater basins, noise and retaining wall structures, a new bridge, stream re-alignment and related E&S management.

#### **PENNSYLVANIA TURNPIKE WIDENING MP 326-331, \$173M (MONTGOMERY COUNTY, PA)**

As Construction Manager, Bob led a project team of 16 area construction managers, engineers, and superintendents. The project reconstructed and widened 5.3 miles of the PA Turnpike from four to six-lanes and modifications to the Valley Forge Interchange. The project required maintenance of traffic in a heavily travelled region. Traffic impacts were reduced by accelerating reconstruction at the interchange to minimize traffic impacts and concurrently widened both sides of the roadway to accelerate to complete the work in 30 months. The scope included significant earthwork; box culvert extensions; bridge structures; MSE, retaining, and noise walls; asphalt paving; and SWM.

#### **SR 476 RECONSTRUCTION DESIGN-BUILD PROJECT, \$85M (MONTGOMERY COUNTY, PA)**

As Construction Manager, Bob oversaw the MOT design which focused on expediting construction by utilizing an eight-phased traffic control plan that allowed construction to begin as design plans for the remaining work were reviewed and approved by the state. The reconstruction and widening of four miles of six-lane divided highway from the PA Turnpike (SR 276) to the Schuylkill Expressway (I-76) included roadway widening, pavement rehabilitation, reconstruction of six ramps and construction of three additional ramp termini, drainage/SWM, lighting, landscaping, and environmental permit modifications.

**OWNER CONTACT**

Maryland State Highway Administration (SHA)  
David Phillips, PM  
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 Anticipated

**PROJECT DESCRIPTION**

Allan Myers is serving as the Design-Builder and Lead Contractor on this SHA project which includes partial realignment and upgrade 4 miles of US 113. The project is located south of Berlin, which begins North of Massey Branch and continues to Five Mile Branch Road. 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 and pavement rehabilitation of existing roadways and shoulders, closed/open drainage systems, stormwater management (SWM) facilities, roadway intersection lighting, signing & pavement markings, and culvert extensions and/or replacement. The Myers 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, including 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 which includes similar work to Phase 1 on the southern half of the project as well as the 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. The project was staged the project in the minimum number of stages (five) and divided into two halves (northern and southern) to progress staged construction in sequence with utility clearance and the progression of right-of-way (ROW) acquisition. Myers included rough and final grade phases as well as created separate plans for key work areas such as large storm drains. Strong coordination with project stakeholders has shortened the Railroad to 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 will not impede the roadway work.

**Mobility** –Through the use of a Maryland ‘T’ intersection, as a presented and approved ATC, Myers were able to enhance both safety of the intersection of Basket Switch Road and improve the multi-modal operations. The Myers 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 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.

**ROW and Environmental Resources** – 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 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 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.

**Design Excellence** – The design team 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 THE PROJECT**

US 113 Phase 3 is a similar project to MD 32 in scope due to length of the project, earthwork, pavement construction, existing pavement rehabilitation, drainage, stormwater management, erosion & sediment control, landscaping, signing and marking, intersection/interchange lighting, construction of small structures such as culverts, and utility coordination. The majority of this construction was to produce an additional two lanes to create a four lane divided highway, also similar to what is required for MD 32.

*"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 Team." - Mr. Bruce Poole, SHA D1 Utility Engineer*

**Project Similarities**

- ✓ SHA Design-Build Project
- ✓ 2-Lane to 4-Lane Divided Road
- ✓ Phased ROW Acquisition
- ✓ Concurrent Utility Relocations
- ✓ New Pavement Construction
- ✓ Pavement Rehabilitation
- ✓ Drainage/SWM
- ✓ Culvert Construction

**Proposed Staff Involvement**

- Richard Dungan
- Jonathon Mountenay
- Neph Eyassu
- Mark Keller

\* Proposed Key Staff



## OWNER CONTACT

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

## CONTRACT/PROJECT NO.

PG4195172

## DELIVERY METHOD

Design-Build (D-B)

## 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.

## PROJECT DESCRIPTION

Allan Myers served as the Design-Builder and Lead Contractor on this SHA project which included 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 replace the existing Van Dusen Road and its crossing over I-95. The 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 Myers 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. 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.

## 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 allowed for the completion of the ICC's CD Roadways with I-95 was vital to the success of Project. Myers accelerate construction to provide completion of the new bridge 4 weeks ahead of schedule.

**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 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.

**ROW and Environmental Resources** –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. 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.

**Design Excellence** – 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. Our design improved access for maintenance forces in the immediate I-95 corridor (and County Road system). 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. The flexible pavement design was based on the results of a deterministic Life Cycle Cost Analysis (LCCA) that took into account initial costs to the Administration, an evaluation of the

potential available rehabilitation techniques, timing applications, and their anticipated costs, future design costs, and estimated user costs.

## RELEVANCE OF WORK TO THE PROJECT

This project was provided through SHA Design-Build delivery method and was extremely time-sensitive, due to the tie-in with the ICC D/E project which had very specific milestones. Due to accelerated construction Allan Myers developed an ATC to shorten the bridge over I-95 by 82 feet resulting in completion four weeks ahead of schedule. Similar to MD 32 this was a high traffic asphalt roadway with comparable soil conditions to the new area of construction. Forest Impact Reduction goals were met by reducing project impact on this project resulting in 19.65 acres of actual forest impact and replacement of 24.43 acres impacts.

*For this project, Allan Myers/Wallace Montgomery received the 2016 MDQI Award of Excellence Partnership Construction Gold Award for exemplifying a high level of achievement through their practice of the Partnering principles and processes related to the transportation industry. RKK was the SHA Engineering Consultant on this project.*

## Project Similarities

- ✓ SHA Design-Build Project
- ✓ Accelerated Schedule
- ✓ Minimized Traffic Impact
- ✓ Utilized ATC's to reduce schedule and cost
- ✓ Reduced environmental impacts
- ✓ Two-lane to four-lane divided highway / Roadway widening

## Proposed Staff Involvement

- Richard Dungan
- Neph Eyassu
- Mark Keller



**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

**PROJECT DESCRIPTION**

Allan Myers served as the Lead Contractor on this SHA project which widened I-95 north from the I-695 interchange between Rossville Boulevard and Campbell Boulevard for a total distance of 1.80 miles and included 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; full depth pavement construction, new non-public turn around ramps; 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; carbide grinding and resurfacing; signing and marking; landscaping; and major sediment & erosion control measures due to proximity to the Chesapeake Bay. 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.

**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 provides 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. The arch culvert which passed under all lanes of I-95 NB/SB was reconstructed in phases while maintain traffic safely despite failure of the existing structural steel plate arch culvert. 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.

**ROW and Environmental Resources** – 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 stream which flowed under I-95 was subject to drastic flow fluctuations during storm events and had to be flumed directly through the work area. The construction team implemented an innovative stream diversion/support of excavation approach to expedite replacement of the existing culvert under I-95 and minimize the duration of exposure.

**Design Excellence** – For this project, safety was a top priority. With this in mind, the design team planned to eliminating left exits, improve interchanges and reduce conflict points overall to accomplish this goal.

**Project Similarities**

- ✓ Road widening
- ✓ New pavement construction
- ✓ Existing pavement rehabilitation
- ✓ Drainage/SWM
- ✓ Culvert Construction

**Proposed Staff Involvement**

- Robert Rube\*
- Richard Dungan
- Bruce Walther
- Mark Keller

*Proposed Key Staff \**

**RELEVANCE OF WORK TO THE PROJECT**

Myers provided schedule certainty for the project despite flooding conditions encountered during construction. An elaborate MOT plan was implemented while maintaining traffic on existing roadway during widening and pavement reconstruction. Comparable work elements include signing, lighting, striping, seeding, landscaping, utility relocations, storm drain & structures, earthwork, erosion and sediment control, permanent storm water management facilities, concrete barrier, and concrete medians. Partnering with MTA was the key to success for Myers and MTA on this project.



# C. PROJECT UNDERSTANDING AND DESIGN-BUILD APPROACH

- i. Understanding of the Project Goals and Scope
- ii. Three Unique Risks for this Project
- iii. Approach to Design Excellence
- iv. Organizational Chart





## PROJECT UNDERSTANDING

The Myers/RK&K Team will provide all of the design and construction services for the MD 32 improvements to provide a four-lane divided highway from MD 108 to north of Linden Church Road, a distance of approximately 3 miles. Our Team will also perform all necessary design and construction of roadways; culverts; walls; structures; H&H; temporary and permanent signing, lighting, signalization and pavement markings; ITS; landscape; utility coordination; pavement and geotechnical engineering; SWM including as-built certifications; E&SC; data collection; reporting and permitting; maintenance of traffic; site maintenance; community relations; permits modifications; and mitigation as required by the Contract.

As a Team, we bring considerable of knowledge, expertise, and lessons learned from MD design-build contracts such as MD32/Linden Church, MD 404, and US 113 toward meeting the contract goals of schedule, mobility, right-of-way and environmental resources, and design excellence.

## UNDERSTANDING OF THE PROJECT SCOPE

The proposed MD 32 improvements consists of dualizing MD 32 from MD 108 to north of Linden Church Rd to provide a four 12-foot lane divided highway with 4-foot inside and 10-foot paved outside shoulders. A 26-foot wide grass median with continuous traffic barrier is proposed. All existing pavement within the contract limits will be rehabilitated, and the new roadway may be concrete or asphalt pavement. The existing MD 32 ramps at Linden Church Road will require modifications to tie into the new roadway and will include full acceleration and deceleration lanes. The southern end of the Project will begin near the MD108 Bridge over MD 32. The northern limit of the Project will be north of the MD32 / Linden Church Road interchange. The design will also accommodate the future widening of MD 32 from the northern limit of this contract to I-70.



**SWM / ESC:** We understand that SHA has developed a concept design for SWM which is under review by SHA-PRD. The Myers/RK&K Team will be responsible for completing the three step process (concept, site development and final approvals) and obtaining approvals directly from SHA-PRD. We expect to construct pond facilities, primarily on the west side of MD 32, and that facilities such as bioswales, wet swales, and grass swales will likely be required on both sides of the roadway and in the median. Along MD 32, 6-feet of the existing pavement will be removed along the future median for the entire length of the Project, helping to offset the new impervious area. Our Team will prepare and permit E&SC plans through PRD.

**Environmental Permitting:** SHA anticipates approval of the NPDES NOI, Nontidal Wetlands & Water Permit, Section 404 Individual Permit, Reforestation Law Approval, and FEMA CLOMR prior to Award of the Contract. Our Team understands that we are responsible for any modifications to these permits, and that all agency coordination/permitting is to be conducted through the Administration. We will perform field visits to confirm resource limits, update wetland plates as required, and track avoidance and minimize measures and project commitments.

**Geotechnical:** Construction of the new MD 32 roadway will require fill embankment over saturated soils,

WUS and wetlands. These areas will likely require undercutting and subgrade treatment. Our experience on the MD32/ Linden Church interchange was that typical CBR values ranged from 1.0 to 2.5, which is less than the 3.0 required by SHA, which required significant undercut of soils.

**ROW Acquisition:** SHA has previously acquired approximately 300' of right of way along MD32. An additional 13 parcels are scheduled to be acquired by SHA by July 31, 2017. These parcels will be used primarily for SWM facilities and to provide temporary/permanent easements at the upstream and downstream ends of the culverts. We will schedule our work based on the anticipated ROW availability. We will also seek to reduce the size and/or number of right of way acquisitions through design if possible.

**Utilities:** We understand that SHA will provide utility designations and single point test holes, with our Team being responsible for obtaining all additional information necessary for completion of design and construction. Our Team will identify any necessary utility relocations and coordinate with the utility companies, who will be responsible for completing the relocation work.

**Maintenance of Traffic:** The Myers/RK&K Team will be responsible for developing a TMP, including conformance with the allowable lane, shoulder and ramp closures. Ramp closure periods will be minimized or eliminated.

**QA/QC:** Our Team will provide an Independent Design Quality Management firm, contracted directly to Myers, to sign and certify all submittals including those to SHA-PRD. Normal SHA procedures for Construction Inspection will be used.

#### UNDERSTANDING OF THE PROJECT GOALS

The Myers/RK&K Team has a long history and considerable amount of design-build experience as well as experience working on the MD 32 corridor. Our Team fully understands the project goals as outlined in the Step 1: RFP under this contract and will combine our knowledge, lessons learned and past project experiences in achieving the following four project goals as described below:

*RK&K's design of the MD 32 Phase II Improvements and Linden Church Rd Interchange design-build project provides our Team with a unique understanding of the most practical design solutions to meet the project goals.*

**GOAL 1-SCHEDULE:** The Myers/RK&K Team will open four lanes to traffic and substantially complete construction as soon as possible. We understand that there is an \$18,300 per day incentive/disincentive designed to minimize the inconvenience to and improve safety for the traveling public and to reduce the time of construction. This incentive/disincentive will be based on the date Contract Time established by our Team as part of the Price Proposal. We intend to earn the maximum incentive by implementing the following proven techniques:

- **Accelerated Design Approach:** We will implement a "rolling" design process that allows the design to run concurrently with construction. Once selected, and before NTP, we will develop a Line and Grade package to finalize roadway alignments, using cross sections to establish the LOD. This will allow MOT, drainage, SWM, and E&SC packages to proceed quickly. A Rough Grading package will be developed and permitted through SHA-PRD, allowing clearing, grubbing, and rough grading to begin before all design details are complete. This early package will also allow any utility work to proceed, and will verify that sufficient ROW is being acquired. Submission of smaller design packages will promote quicker review times and approvals.
- **Quality and Team Integration:** We will utilize stringent internal QA/QC procedures and the IDQM process to ensure that design and construction meets all the RFP requirements. Our integrated team

approach will ensure that all stakeholders are involved in the process from start to finish, and that expectations are understood by all parties.

- **SHA-PRD Approvals:** We will use our lessons learned from the US 13 and MD 404 design-build projects to include SHA-PRD as a partner toward achieving the project goals. We will schedule bi-weekly meetings with PRD early in the design process to ensure our that our design sequence is understood and that our SWM/E&SC plans will be easily permittable.

**GOAL 2-MOBILITY:** Our Team will minimize delays during construction, and will specifically avoid and minimize the duration of any detours. We will perform our design and construction sequencing specifically to reduce impacts to the traveling public. Two examples of such measures are:

- **Options to Eliminate Ramp Detours:** Based on our work on the MD32/Linden Church Rd project, we recognize that MD 32 is bifurcated under Linden Church Rd for bridge clearance purposes, resulting in the proposed southbound MD 32 lanes being approximately 4 feet below the existing mainline. To eliminate or minimize the need for ramp detours, we will investigate box widening of the ramp and shifting the gore south to a location where the profiles will be more comparable. We will also refine the proposed MD32 profile to be slightly above the ramp tie-in areas.
- **Construction Phasing Approach:** We will complete the majority of the grading operations and pavement construction for the proposed southbound MD 32 lanes without impacting traffic. Cross culverts will be installed using flagging operations at night when volumes are substantially less (hourly counts are less than 400 in each direction from 11pm to 5am). Traffic will then be shifted to the new roadway, with ramp tie-ins made using night-time or weekend operations. Final paving will then be completed. Impacts to overall corridor mobility will be minimized by utilizing Myers asphalt plant (the closest plant to the Project), which expedites paving operations and reduces trucks on the road.

**GOAL 3-RIGHT-OF-WAY AND ENVIRONMENTAL RESOURCES:** We will minimize impacts to private property and environmental resources by applying practical design. Our Team will make adjustments to the horizontal\vertical alignments, safety grading, and traffic barrier placement to minimize impacts while fitting within the context of MD 32. We will continually investigate and document avoidance measure to reduce/eliminate impacts to floodplains, wetlands, forests, streams, buffers, historic properties and endangered species. These measures will include steepening slopes at sensitive areas, shifting or reshaping SWM ponds, adding w-beam and reducing the hinge width behind where allowed per standards, and extending headwall structures at the culverts. We will ensure that the footprint of SWM facilities are minimized and located such that the minimum number of property owners are impacted.

**GOAL 4-DESIGN EXCELLENCE:** Our Team will practice good judgment through execution, as well as sound decision-making within project constraints. RK&K has a history of design excellence, as evidenced by MDQI awards for the Charles St. Interchange and MD216. Our Team, including IDQM firm Wallace Montgomery, understands that the key to design excellence is a collaborative, integrated effort between all parties, including SHA and the stakeholders. We have a history of working together on major projects such as MD 404 design-build, and we understand the level of effort that is required to produce quality plans. We will foster a professional environment that promotes solid engineering judgment, places a high value on quality, and ensures SHA and stakeholder expectations are exceeded. All released for construction documents will undergo design QA/QC review, IDQM review, and SHA audit/review as appropriate.

**SIGNIFICANT ISSUES AND RISKS**

The Myers/RK&K Team has reviewed the RFP and identified the following significant issues/risks facing our Team and the Administration as well as the proposed mitigation plans:

Significant Issues\Risks	Mitigation Measure
<p><b>Schedule.</b> The Project must be opened to traffic as soon as possible. Permitting, ROW availability, design and review durations, and weather have potential to impacts the schedule.</p>	<ul style="list-style-type: none"> <li>• Leverage past experience with schedule-driven projects to accurately schedule design, IDQM, and SHA/PRD review timeframes.</li> <li>• Coordinate schedule with ROW availability; perform construction on ROW acquisitions areas late in the schedule.</li> <li>• Allow for sufficient weather recovery days and consideration for maintenance of storm flow during culvert construction.</li> <li>• Proactively and aggressively manage the schedule throughout the Project and implement necessary schedule recovery plans early.</li> </ul>
<p><b>Mobility.</b> While the desire is to eliminate ramp detours, elevation differences between the existing ramps and new mainline pose a challenge.</p>	<ul style="list-style-type: none"> <li>• Adjust ramp and mainline designs (vertical and horizontal) to reduce constructability issues.</li> <li>• Obtain early input from construction staff to verify construction means and methods.</li> <li>• Fully consider safety and mobility of pedestrians and bicyclists.</li> </ul>
<p><b>Right of Way Availability.</b> The time for SHA to acquire right of way can be variable based on property owner negotiations and proceedings.</p>	<ul style="list-style-type: none"> <li>• Allow schedule float related to right of way acquisitions.</li> <li>• Refine the design to reduce right of way needs and/or consolidate needs onto a limited number of properties.</li> <li>• Ensure that all right of way acquisitions remains partial takes to avoid the time consuming relocation process.</li> <li>• SHA can utilize quick-take condemnations for strip takes.</li> </ul>
<p><b>Environmental Resources.</b> Significant environmental resources are present within the site. Impacts must be avoided or minimized.</p>	<ul style="list-style-type: none"> <li>• Our Team understands the resources because we performed the MD 32 corridor planning &amp; re-evaluation.</li> <li>• Implement avoidance and minimization measures, seeking to maximize achievement of the incentive provided by SHA.</li> <li>• Submit and coordinate an avoidance and minimization report with SHA for every plan package.</li> </ul>
<p><b>Design Excellence.</b> Ensure that that design team is professional, collaborative, and integrated in delivering the project in conformance with the contract requirements.</p>	<ul style="list-style-type: none"> <li>• RK&amp;K and the proposed design key staff have extensive design-build experience, on MD32, and with Myers.</li> <li>• Wallace Montgomery is familiar with the IDQM role, and has a proven relationship with both RK&amp;K and Myers.</li> <li>• Reduce project risk during design to streamline the construction process and reduce field changes through over the shoulder, constructability, and environmental reviews.</li> </ul>
<p><b>SWM and E&amp;SC permits.</b> The timeframe for obtaining SWM and E&amp;SC approvals from SHA-PRD must be minimized.</p>	<ul style="list-style-type: none"> <li>• Establish early regular meetings with PRD.</li> <li>• Utilize early release mass grading packages to start work before final SWM approvals.</li> <li>• Leverage past team experience obtaining PRD approvals (MD404).</li> <li>• Integrate IDQM into the review process before submittal to PRD.</li> </ul>
<p><b>Utility Coordination.</b> Any impacts to utilities, whether expected or unexpected, can impact project schedule and cost.</p>	<ul style="list-style-type: none"> <li>• Ensure that SHA provided utility designations and test pits are adequate. Minimize utility impacts through careful design (ex. SWM pond near gas transmission lines.)</li> <li>• Coordinate with utilities early and hold bi-weekly utility meetings.</li> <li>• Review any utility relocation plans to ensure compatibility.</li> <li>• Sequence work to provide time and space for utility relocations.</li> </ul>
<p><b>Work Zone Safety.</b> Safety of the traveling public and construction workers must always be a priority.</p>	<ul style="list-style-type: none"> <li>• Enforce SHA and Myers/RK&amp;K Team safety policies.</li> <li>• Ensure project roadways and MOT devices are well maintained.</li> <li>• Verify that the project design facilities safe construction practices consistent with means and methods.</li> </ul>

### THREE UNIQUE PROJECT RISKS

We have identified three unique risks associated with the improvements: Environmental Permitting and Approval, Geotechnical Concerns, and Stakeholder Coordination. Each of these risks can have a significant impact toward meeting or exceeding the project schedule if not addressed early in design through partnering with SHA and the stakeholders and monitored regularly throughout the Project.

#### UNIQUE RISK 1: ENVIRONMENTAL PERMITTING AND APPROVALS

The Project is located in an area of considerable natural resources, with preliminary permanent impacts expected to include 33.2 acres of forest; 1.43 acres of wetlands; 3.57 acres of wetland buffer; 2,122 linear feet of Waters of the US; and 7.86 acres of FEMA 100 year floodplain disturbance. Associated with these impacts, and as part of the normal project permitting process, we anticipate that the following permits will be required for the Project:

- Stormwater Management Permit (by Myers/RK&K Team from SHA-PRD)
- Erosion and Sediment Control Approval (by Myers/RK&K Team from SHA-PRD)
- Federal/State Wetland and Waterways Permit and Water Quality Cert. (by SHA from MDE & ACOE)
- Maryland Department of Natural Resources Reforestation Permit (by SHA from DNR)
- Condition Letter of Map Revision (CLOMR) (by SHA from FEMA)
- Letter of Map Revision (LOMR) (by Myers/RK&K Team from FEMA)

Obtaining each of these permits and approvals in a time sensitive manner and completing construction in accordance with the associated conditions and commitments is a considerable risk to the Project.

**Why the Risk is Critical:** Traditionally, the time required to complete the permitting and approvals process has varied and can be significant. Since permits and approvals must be obtained before construction can begin, the length of time required to obtain them is on the schedule critical path.

SWM and E&SC design has the potential to affect the LOD, ROW, and increase impacts to resources. Since an approved SWM Concept has not been provided, the Myers/RK&K Team will need to perform a significant amount of upfront work to receive initial approvals from SHA-PRD. This work could potentially require impacts to wetlands/waters exceeding that already authorized are required and introduce additional mitigation that may not be feasible within the current project limits.

Cross culverts must be sized to convey the design storm peak flow without roadway overtopping or increasing the headwater elevations outside of existing right of way. Recent review comments from SHA-PRD on other DB projects suggested that flood attenuation for flow from “off-site” areas and for other storms (e.g., mandatory 10-yr quantity control in Howard County) may be required, particularly if downstream conditions are hydraulically inadequate and/or degraded. Furthermore, development of flood storage areas upstream of culverts that are extended, but not upsized may also be required.

In addition, the relatively steep grades (4% to 5%) of several existing culverts grades combined with SHA-HHD’s limitation of grade changes within culverts will restrict the ability to store headwater within the existing right of way, potentially requiring mitigation through additional flood storage, acquisition of additional right of way, or a combination of the two.

SWM for temporary conditions during construction, triggered by phased ESC and temporary detours, must also be considered. While temporary debits to the water quality bank can be used, it is not yet known what debit will be required or if sufficient credit will be available at the time the Project is permitted.

**Impact to the Schedule:** Any revisions to the permits to be obtained by SHA from MDE, DNR, and the USACOE could have substantial impacts to the schedule. While it is not possible to predict the exact durations, they could range from 2 months for minor revisions to well over 6 months for a major revision.

Based on our experience on the US 13 and MD404 design-build projects, authorizations required from SHA-PRD to begin construction are expected to take from 4 to 6 months, with final permitting of all improvements taking up to 9 months.

**Myers/RK&K Team Mitigation Strategies:** A thorough review of all environmental documentation including the most recent permit authorizations and the FEIS reevaluation will be conducted. Staff assigned to the Project has recent experience with the MD32 planning study and environmental documentation, the MD32 / Linden Church Interchange, and experience obtaining permits and approvals from SHA-PRD on the US 13 and MD 404 design-build projects.

Our Team will focus on further avoidance and minimization of authorized resource impacts. We will study all design and construction options before proposing a revision to the authorized impacts. For any such revisions deemed unavoidable, we will strive to provide an offsetting reduction to authorized impacts.

We will verify the conceptual SWM approach provided by SHA and understand that the Myers/RK&K Team is ultimately responsible for obtaining all SHA-PRD approvals. As Lead Designer for the recently constructed MD 32-Linden Church Interchange design-build project, RK&K is uniquely qualified to assess impacts to the existing SWM facilities, and to verify which ESD measures are suitable given the soil and groundwater conditions within the project limits.

Through SHA, we will request regular meetings with SHA-PRD, MDE, DNR and USACOE to create a collaborative team, resolve critical issues, update avoidance and minimization efforts, provide advance notice of reviews, and provide over-the-shoulder reviews. We will utilize our QA/QC process, including IDQM review, to ensure that submittals meet all requirements.

Wherever possible, we will sequence work so that it can proceed under initial approvals (ex: rough grade and drainage package) before final approvals. If permit revisions are required, we will sequence the work to proceed in non-jurisdictional areas of the Project while permits are revised.

**Experience Mitigating Similar Risks:** RK&K recently served as the lead designer for the MD32/Linden Church Interchange design-build project and managed these same risks at the same project location. Allan Myers, RK&K, and IDQM firm Wallace Montgomery are currently obtaining permits and approvals, including from SHA-PRD, on the MD 404 design-build project. Finally, RK&K recently obtained approvals for a SWM waiver and E&SC plans on the US 13 design-build project from SHA-PRD in just 63 days (only 3 days after NTP for the contract.)

Our team has been providing expedited wetland/waters permit review services for MDE/SHA for the last 8 years. We also provide expedited SWM/ESC reviews for MDE and SHA-PRD.

**Role of the Administration and Other Agencies:** SHA has already contributed to reducing this risk through obtaining several permits and development of a concept for SWM. SHA-OED will be the coordinator for all wetland/waters regulatory interaction and will submit all permit documentation developed by our Team, including permit modifications. SHA-PRD, under delegation of authority from MDE, will provide review and approval of the SWM and ESC plans for the Project. SHA's Regional Environmental Coordinator will coordinate SHA staff to perform sediment control compliance and enforcement inspections, also under a delegation of authority from MDE.

**UNIQUE RISK 2: GEOTECHNICAL CONDITIONS**

This Project is mapped in the Eastern Piedmont region where most soils have derived in place from the underlying bedrock resulting in a subsurface profile that transitions from residual soil to decomposed rock to rock with depth. There are some minor alluvial soils in the waterways crossing the roadway, as well as areas mapped as hydric soils. These wet areas with poor drainage are about one-fourth to one third of the project area. Soils in the area exhibit low rates of infiltration, and potentially high ground water elevations. **Why the Risk is Critical:** During the design of the MD32/Linden Church Road interchange, the onsite materials had CBR values ranging from 1.0 to 2.5. When these values are less than the SHA design value of 3.0, undercutting or soil improvement techniques will be necessary. Our Team is pro-actively planning for to address poor soils in order to minimize impacts to the schedule and cost of the Project.

Depending on the time of year when earthwork operations takes place, the insitu soils on the Project containing high moisture content and subject to high water table may be very difficult to manipulate and dry to optimum moisture content for proper compaction. This work must be properly considered in advance and thoroughly investigated to avoid schedule and cost implications.

The requirement for undercut must also be considered with respect to existing utilities. It is possible that the undercut could expose underground utilities that would not otherwise have been impacted. If not planned for in advance, the need to relocate and/or protect utilities could delay the schedule.

**Impact to the Schedule:** If not properly considered, we expect that delays to the schedule based on the geotechnical conditions would be considerable. However, based on the soils information that is available, and our first-hand knowledge of the soil conditions in the project corridor, we believe that implementation of the mitigation strategies discussed below will greatly reduce or eliminate project schedule impacts.

**Myers/RK&K Team Mitigation Strategies:** Our Team will consider all available information during the proposal phase and ensure that proper consideration is given to the need to undercut existing soils. Myers intends to employ the most economical means of stabilizing and using on-site materials to optimize costs and avoid schedule impacts. Moisture sensitive soils may require moisture conditioning for use as fill.

Soil stabilization methods may include lime stabilization, soil cementing, extensive drying efforts, and possibly mixing existing soils with dryer, more suitable imported granular soils should the project require substantial amounts of imported embankment materials. Construction traffic on the exposed subgrade will be controlled to avoid negative impacts. Pavement drainage and the use of extensive underdrain systems will be carefully considered to ensure long-term performance.

Any secondary impacts to utilities will be coordinated such that relocation or protection work can proceed efficiently. Careful selection of SWM/ESD techniques in partnership with SHA-PRD will be required in consideration of the seasonally high groundwater and weather rock elevations.

**Experience Mitigating Similar Risks:** As the Lead Designer for the MD32/Linden Church Road interchange, lead designer RK&K has experience with the local geology to the project area with the design and construction of the MD32/Linden Church Road interchange.

**Role of the Administration and Other Agencies:** SHA will provide borings and geotechnical information pertinent to the Project for consideration during the bid phase. We anticipate that SHA will also be included in review and approval of undercut or soil improvement strategies. SHA will also participate in the traditional manner with reviews and approvals of imported materials.

**UNIQUE RISK 3: THIRD-PARTY COORDINATION**

Timely coordination and resolution of issues with third-party stakeholders will be critical to meeting the project schedule. For this project, we expect coordination with adjacent property owners, utility companies, and property acquisitions will be critical to the project schedule.

**Why the Risk is Critical:**

**Adjacent Communities:** Timely coordination and distribution of information to adjacent communities is critical in order to maintain the relationships and cooperation that SHA has already established. The adjacent communities will be impacted directly by construction ‘in their backyards’ as well as indirectly by the mobility restrictions inherent in highway construction. Our experience has shown that, on design-build projects, many of the questions typically asked by nearby residents have been deferred until the final design is completed. The Myers/RK&K Team will be responsive to the needs of the community, answer their questions promptly, and respond to their concerns.

**Utilities:** Coordination with utilities which have facilities within or adjacent to the Project, and identification of any unknown facilities, is critical to the progress of the job. Each utility will be evaluated for impacts, protections, and relocations. Since all utility relocations are to be performed by the utility company, early identification and scheduling of any required utility work is a necessity. It may also be necessary for the Myers/RK&K Team to proceed with some work (such as clearing) before the utility work can commence.

**Property Acquisition:** There are 13 properties from which property must be acquired to support the Project. The right of way acquisition process is a complex combination of legally required activities and reviews completed by several specialized individuals within SHA. These tasks include the unpredictable environment of negotiations with property owners who may or may not want to engage in a timely and respectable manner of negotiating. In addition, if other project issues result in the need to acquire additional property rights, work may be delayed while the property rights are acquired.

**Impact to the Schedule:** Delays to the project schedule can occur if redesign must be performed to accommodate community concerns. This is particularly true if MOT measures, such as detours or closures, are unacceptable to the community, in which case the means and methods of construction may need to be reconsidered. Utility relocations commonly delay highway construction projects, and require collaborative integration for design-build projects to avoid schedule impacts. Natural disasters, whether local or regional, can also impact utility company availability. The draft RFP provided by SHA shows that all property will be available to the Myers/RK&K Team by July 31, 2017. However if this date changes due to delays in the process or unpredictable property owner negotiations, construction could be delayed. Similarly, given that the acquisition process typically takes in excess of 6 months, any new acquisitions identified could considerably delay the project schedule.

**Impacted Communities**

- Clarksville Manor
- Westside
- Adams reach
- Broadwater Estates
- Twelve Hills
- Linden Chapen Woods
- Eagle Point Landing
- Rutherford

**Utility Companies**

- BGE Electric & Gas
- Level 3 Communications
- Columbia Gas
- Williams Gas
- Verizon & Comcast
- Zayo Group
- SHA
- Lightower Fiber Networks
- Howard County DPW



**Mitigation Strategies:** The Myers/RK&K Team’s approach to stakeholder coordination includes early, frequent, and transparent communication throughout the duration of the Project. Proactive outreach and open communication of design and construction progress will identify issues that require attention early.

**Adjacent Communities:** Impact to the schedule can be minimized by meeting with the adjacent communities early in the design process, before final plans are complete. Because design-build progresses to construction very quickly, we must understand the communities concerns very early in order to integrate resolutions into the plans and avoid the schedule delays inherent in doing so after construction has commenced. We will provide monthly information to the communications regarding upcoming activities. Our construction staff will be empowered to take action to alleviate immediate concerns and develop solutions to long term concerns.

**Utilities:** Our Team will utilize established relationships with the utility companies to facilitate early discussion and coordination. We will review all SHA provided utility information and obtain additional information necessary to identify any potential conflicts. We will maintain a map of all utilities within the proposed right of way and provide to SHA and the Utility Owners. Where coordination is needed to evaluate potential impacts, we will provide plans, cross sections, and suggested locations for utility relocations. We will sequence our work to reduce or eliminate schedule delays whenever feasible.

**Property Acquisition:** Our Team will sequence the work to avoid accessing acquired property until as late as possible. This will provide additional float in the schedule beyond the schedule July 17, 2017 date. In addition, we will review the required right of way early in the design process to determine if any reductions are possible and identify any additional acquisitions. Our Team includes individuals experienced in right of way acquisition, and we stand ready to assist SHA in any way possible.

**Experience Mitigating Similar Risks:** Our key staff are trained and adept at communicating with local citizens regarding the details of the Project and the design-build process. Our Team is familiar with the adjacent communities from our work on the MD32 Planning Study, MD 32 Environmental Documents, and the MD32/Linden Church Road design-build projects. The local community in the project area was primarily concerned about construction durations and any detours for the MD 32 interchange project, and responded positively to photo renderings that showed traffic flow.

Members of our Team performed the utility coordination for the MD32/Linden Church Interchange design-build project. We already have the contacts and resources necessary initiate coordination. In addition, we have understand the concerns previously expressed by companies such as Williams Gas regarding the soil conditions and cover over their existing facilities.

Our Team has participated and managed right of way acquisition risk on a number of projects including the MD 404 design-build, InterCounty Connector, Purple Line LRT, and Charles St Interchange.

Reviewing relocation plans during design ensured there were no conflicts with the final design before the relocation plans became finalized on the MD 32 Interchange DB project.

**Role of the Administration and Other Agencies:** SHA will be the lead on Public Outreach activities, with active support provided by the Myers/RK&K Team. The Administration is providing utility designation and test pits to mitigate the risk of unknown utility conflicts and to aid in the identification of facilities to be relocated as part of this project. The Utility companies have provided criteria for determining impacts, which is included in the RFP. SHA is responsible for all property acquisition on the Project and has the primary ability to manage the impact on schedule.

## APPROACH TO DESIGN EXCELLENCE

Our approach to design excellence is based on reviewing best practices from our local and regional experience and applying those best practices to the project goals and key issues. Specific to the Project, we have identified the following key elements of our approach to design excellence:

- Selecting the Right Team
- Tracking and Managing Risks
- Partnering with SHA and Project Stakeholders
- Constructability and Environmental Reviews
- Integrating IDQM into the DQCP
- Design Coordination
- Design Document Management

**Selecting the Right Team:** The firms and key staff for the Myers/RK&K Team have worked together; done design-build together; worked on MD 32 within the project limits and similar project corridors; and understand and have a history of achieving SHA's expectations for design excellence.

Founded in 1923, RK&K has been providing design services to SHA for over 67 years, and has a strong regional presence with over \$1.8B of design-build projects delivered, including SHA's recent MD 32 at Linden Church Road, MD 404 and US 13 design-build projects. Bringing a strong understanding of SHA's expectations for design excellence is IDQM firm Wallace Montgomery (WM). RK&K, WM, and Myers are currently working together on the MD404 design-build project. In addition, RK&K is assisting SHA with the design of the MD32 – Linden Church to I-70 project, making coordination with this future project seamless.

Our Design Key Staff have recent SHA design-build experience, including active roles on the MD 32/Linden Church Interchange design-build project. Especially critical to this project, our design and IDQM staff have extensive experience obtaining permits through MDE and SHA-PRD, including SHA-PRD's first two design-build projects (MD404 and US 13.) We are also experienced with current SHA initiatives to improve industry practices, such as practical design, and will incorporate them into our design work plan.

Our subconsultants will be active members of our Team; will be fully engaged in our approach to design excellence; and will be carefully managed to reach participation goals for professional services.

**Tracking and Managing Risks:** We understand that many projects risks can be significantly managed through the design process. Our Design Team will identify, track, manage, and mitigate project risks throughout the design process. By reducing project risks through design, we are able to streamline the construction process and reduce field changes and red line revisions.

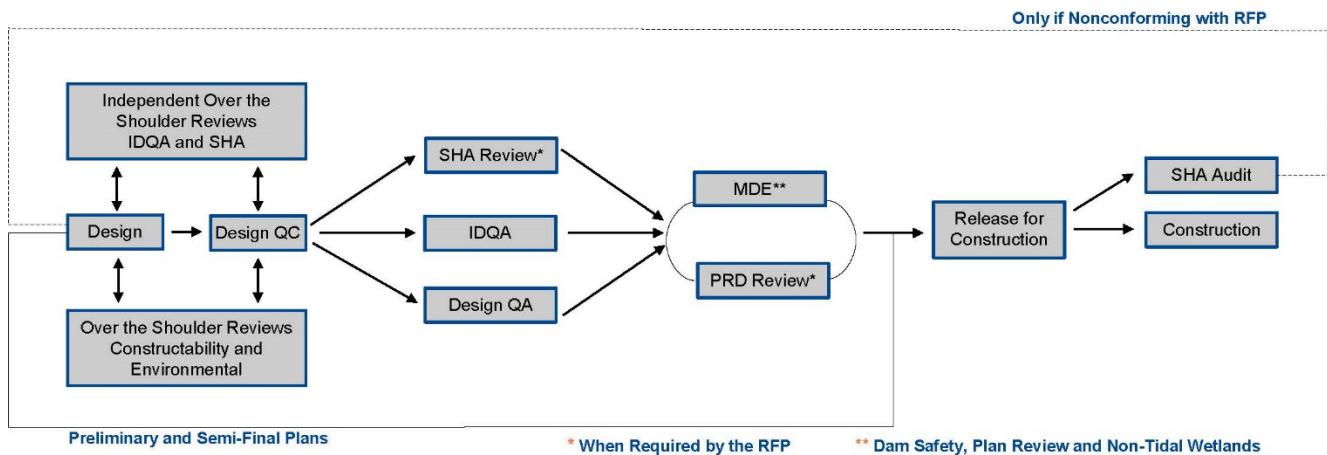
**Partnering with SHA and Project Stakeholders:** Design excellence will be achieved through full collaboration with SHA and project stakeholders, including utilities, resource agencies, local jurisdictions, communities, property owners and elected officials. We will keep the stakeholders informed through regular updates and face-to-face meetings to ensure their concerns are addressed. By setting expectations for all parties early in the design process and resolving issues quickly, our design plans will reflect the needs of the stakeholders.

**Constructability and Environmental Reviews:** As a design-build project, we recognize that a major component of design excellence includes providing plans that are easily constructed with minimal impacts to mobility, the environmental, and local residents. Design, environmental and construction staff will exercise good judgment and sound decision-making to ensure that the design supports the construction means and methods, phasing/work sequencing, and environmental restrictions. During construction, our design staff will remain engaged to confirm design assumptions and oversee field changes.

**Integrating IDQM into the DQCP:** Our team has a design-build quality control plan (DQCP) that has been proven on past SHA projects. This plan includes the following key elements:

- Design Quality Control
- Design Quality Assurance
- Independent Design Quality Management
- Constructability Reviews
- Environmental Reviews
- SHA Audits and Reviews
- SHA-PRD Review
- DQCP Certifications
- Materials/Working Drawings
- Design Document Management

For this Project, the DQCP will be customized to identify the role of IDQM and SHA in the design quality process. We understand that responsibility for design quality remains with lead designer RK&K. All reviews by IDQM firm Wallace Montgomery and SHA are only to confirm compliance with the contract. The IDQM firm will also be responsible for reviewing all submissions before they are sent to PRD, effectively providing the reviews and checks that SHA-HHD has traditionally performed.



**Design Coordination:** Our Team will carefully track and actively manage the design schedule to ensure that it supports the overall construction schedule. Good judgment will be exercised by including realistic design, QA/QC, IDQM, SHA, PRD, and other review and permitting durations. For the benefit of all stakeholders, we will provide a six-week look ahead schedule showing all design packages. Advance notification of design submissions will be provided to IDQM, SHA, SHA-PRD and others as required.

Regular meetings will be a key element of our approach to design excellence. Disciplines will meet on a weekly basis to discuss the details of the design and coordinate with other disciplines to advance the design. Weekly progress meetings will include all key staff, critical discipline leaders, construction leadership, SHA, stakeholders and third parties as necessary to complete the work. All meetings will include agendas and meeting minutes including issue tracking/resolution, risk tracking/mitigation, stakeholder concerns/resolutions, permit log/tracking, and six-week look ahead schedules. These meetings will also be used as an opportunity to conduct over-the-shoulder reviews.

**Design Document Management:** During design we will use file sharing and collaboration tools (such as Projectwise) to ensure that our Team, SHA, SHA-PRD, and stakeholders always have access to the latest design information. Our approach to design excellence will continue into the construction phase by ensuring that the latest plans are easily identifiable and that any revisions are clearly logged. We will have both electronic and hard copy systems set up to ensure that all design and construction staff always have the latest plans readily available.

**LEGEND**

- Reporting
- - - - Communication
- Key Staff
- Key Staff Hours during Design (D) and Construction (C)\*

**FIRMS**

- Allan Myers (M)
- Rummel, Klepper & Kahl (RKK)
- Daniel Consultants (DC)
- Floura Teeter (FT)
- CV Inc. (CV)

\* Key Staff hours during design and construction were estimated based on the project size, scope, and complexity. To minimize risk, more effort will be dedicated during critical elements of work.

**SHA** Maryland State Highway Administration

**Principal In Charge**  
Rich Dungan, PE (M)

**24 D Design-Build**  
**24 C Project Manager**  
Thomas Heil, PE (M)

**Schedule Manager**  
Jon Moutenay (M)

**Health and Safety Manager**  
Chris Shertzer, CSP (M)

**Public Relations**  
Shannon Moody (M)

**40 D Design Manager**  
**12 C**  
Mitchell Scott, PE (RKK)

**Independent Design Quality Manager**  
Edward Smith, PE (WM)

**40 C Construction Manager**  
**16 D**  
Robert Rube (M)

**Construction Quality Manager**  
Mike Cavanaugh (M)

**QC Inspection Staff**

**Project Stakeholders**  
Individual Adjacent Property Owners, Howard County Police, Maryland State Police (Waterloo Barrack), Schools (Howard County Public Schools, St. Louis Elementary School (parochial), Howard County Gateway School), Fire and Emergency Services (Clarksville, West Friendship), Churches (Linden Church, St. Louis Catholic Church, Linden Linthicum Methodist), Communities (Clarksville Manor, Westside, Adams Reach, Broadwater Estates, Twelve Hills, Linden Chapel Woods, Eagle Point Landing, Rutherford), Elected Officials

<b>40 D Water Resources Engineer</b> <b>12 C</b> Seyed Saadat, PE, CFM (RKK)	<b>40 D Highway Engineer</b> <b>8 C</b> Christopher Bauernfeind, PE (RKK)
<b>MOT</b> Matt Snare, PE, PTOE (RKK) Larry Green, PE (DCI)	<b>Traffic Engineer</b> Brian Grandizio, PE, PTOE (RK&K)
<b>Structural Engineer</b> Chris Szympruch, PE (RKK)	<b>Landscape Architect</b> Joan Floura, PLA, ASLA, LEED AP (FT)
<b>Geotechnical Engineer</b> Jennifer Trimble, PE (RK&K)	<b>Utility Coordination/Design</b> John Ney (RK&K)
<b>Survey</b> Keith Bailey, Prof. LS (RK&K) Richard Sobott, PE, RLS (DC)	<b>SWM/As-Builts</b> Chinmay Vyas, PE (CV)
<b>Environmental Compliance</b> Rick Maddox (RK&K)	

**Design QA/QC**  
Pat Martino, PE, Assoc. DBIA (RKK)

**Utility Stakeholders:** BGE Electric & Gas Distribution/Transmission, Level 3 Communications, Columbia Gas Transmission, Verizon, Comcast, Zayo Group, Williams Gas, SHA, Lightower Fiber Networks, Howard County DPW

**Environmental Stakeholders**  
MDE, SHA –OED, SHA-PRD, USFWS, DNR – WMA, DNR – PRD, DNR – WHS, MHT, USACOE, FEMA

**SHA Independent Environmental Monitor**

<b>Construction Traffic Manager</b> Bruce Walther (M)	<b>Superintendent</b> Paul Pollutra (M)
<b>Construction Utilities Coordinator</b> Samantha Cowan (M)	<b>Construction Project Engineer</b> Nick Cappelli (M)
<b>Survey Manager</b> Mark Keller (M)	<b>DBE/EEO Coordinator</b> Brad Buchler (M)
<b>Environmental Control Manager</b> Neph Eyassu (M)	



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