IS-95

TECHNICAL PROPOSAL

BALTIMORE WASHINGTON PARKWAY TO US 1

KIEWIT - CORMAN
GREENBELT
A JOINT VENTURE

IS-95

BALTIMORE WASHINGTON PARKWAY TO US 1 (GREENBELT METRO ACCESS)

CONTRACT NO.
PG3335172

SHA
State Highway
Administration

KIEWIT - CORMAN
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A JOINT VENTURE

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SECTION B - PROJECT MANAGEMENT TEAM / CAPABILITY OF THE PROPOSER

B. Project Management Team/Capability of the Proposer

B.1. Project Management Team

B.1.a. Project Management Team

Provide a description of the composition of your project management team. If your team is a joint venture or association, indicate specific responsibilities of each member and firm of the team.

The joint venture of **Kiewit-Corman-Greenbelt (KC-G),** as the prime contractor, is the contracting entity that will work jointly with the designer and SHA**.** This joint venture combines the extensive resources and project experience of Kiewit Infrastructure Co. and Corman Construction, Inc. Both firms will work as one integrated entity to provide executive oversight, key personnel, equipment, materials and craft on all preconstruction and construction operations for this project. With this joint venture, we provide more innovative ideas, more lessons learned/best practices, fully vetted cost estimates already jointly reviewed/compared prior to reviewing with ICE, increased pool of subcontractors and more equipment/resources to get the job done.

We have the experience and qualifications to provide all services for this project. We are not strangers to each other or to SHA. Our joint experience includes projects such as the ICC-B for SHA, the widening of I-95/I-495 at Telegraph Road for VDOT, and we are currently working together as the JV designing and constructing a third track on CSX's main line in Northern Virginia. This combined experience gives you the assurance that we already know how to collaborate and work together as one team.

Kiewit Infrastructure Co. is the joint venture lead and provides overall management on the project. As a national contractor with a local presence, we have completed several high profile projects in the area including Telegraph Road and ICC-B. We are also working on the MD97 CMAR project with SHA and the Midtown Tunnel with VDOT.

Corman Construction calls Maryland our home and has been a leader in the Mid-Atlantic region for nearly a century. Corman has teamed with Kiewit on several past projects such as I-95/I-495 Telegraph Road and ICC-B. Also, we successfully delivered SHA's first CMAR project on MD24 as well as constructed the I-95/I-695 interchange on the Baltimore Beltway and the MD210 interchange a few miles south on the Capital Beltway.

Chesapeake Environmental Management is a local WBE environmental firm that has performed coordination with the same anticipated agencies as this project. Chesapeake has worked with us on past projects such as SHA's Hampstead Bypass, ICC-A and -B and I-70 Phase 2D. Their team members will assist with permitting, constructability and documentation reviews, and perform site assessments during preconstruction. During construction, they will monitor construction activities for compliance and make recommendations for continuous improvements.

Assedo Consulting, LLC, is a WBE firm based in Prince George's County that specializes in public outreach and communication. Assedo has a deep understanding of the specific issues involved with this stretch of roadway, as well as the local commercial and residential communities it serves. Assedo will assist SHA as needed to provide extensive public outreach to inform the public about the project and will provide effective communication regarding construction activities. We selected Assedo based on their successful performance on the ICC-A project.

Key Staff Composition and Responsibilities

Our experienced staff on this project is comprised of individuals with a history of identical projects in identical roles. All of these projects were completed under budget, without claims and ahead of schedule. Our three key positions will be held by Andy Douglas, Keith Kern and David Gates.

As Project Manager, Andy will maintain daily oversight of all project activities from value engineering and design coordination in preconstruction to scheduling compliance and field execution during construction. During preconstruction, he oversees the estimating, quantity take offs, utility and permit coordination, value engineering, stakeholder outreach, risk analysis, design coordination, schedule preparation and serves as your 24/7 primary point of contact. During construction, Andy continues to lead the team by assisting with overall partnering and team collaboration, and oversees the safety audits, quality management program, purchasing, construction activities, project schedule and budget.

Keith's main duty as Construction Manager is to manage the on-site construction team, including the engineering, project controls and field staff. He also provides constructability reviews and innovations to the design team during the

preconstruction phase to maximize budget and help mitigate potential risks. In preconstruction, Keith coordinates the design and construction teams with regards to design, access, material deliveries, equipment placement, utilities, ROW, and MOT. Once construction starts, he focuses on ensuring construction is performed safely, materials and work are per approved plans, our quality exceeds your expectations, and that all work is thoroughly planned and executed. Keith also coordinates with the designers during construction to issue and review RFIs and shop drawings, prepare the as-builts and plan revisions. Moreover, Keith manages the three week look-ahead schedule, which is distributed to all interested stakeholders. This schedule includes any MOT changes or potential road/lane closures.

David's primary responsibilities occur during preconstruction, where he manages the open-book cost estimating and risk register, tracks constructability review comments, coordinates with the ICE, assists with design coordination and performs conceptual estimates for value engineering and innovative concepts. Before cost estimating occurs, David and the independent cost estimator collaborate on the bid items that are used for pricing, the plugs used for subcontractors and materials, and equipment and labor rates. When each team performs its independent estimates, they are lined up seamlessly, which makes management reviews simple and efficient. David also manages the risk register and constructability review tracking sheets and performs value engineering analyses. This promotes transparency, efficiency, and allows the team to make timely decisions. During construction, David assists with additional subcontractor bid packaging and negotiations and additional cost estimating support.

Value-added Staff

Public Outreach Manager Odessa Phillip, P.E. coordinates with SHA's public outreach group. To the extent desired by SHA, she will develop our strategy to notify the 150,000+ commuters utilizing the roadway daily. Our strategy will include social media, handouts, development and maintenance of a project web site, plan and organize any public meetings scheduled, and other notification and outreach required.

Environmental Permitting & Compliance Manager Matt Wiherle leads the environmental compliance component. During preconstruction, he coordinates with the designers, SHA, and permit agencies to assess the impacts of their decisions and offers alternative environmentally-sound solutions to proceed construction with the least disruption to cost / schedule and the environment. During construction, Matt regularly visits the job site at key stages to ensure that environmental conditions in the specifications and permits are followed.

For **Value Engineering and Context-Sensitive Design, Lou Robbins, P.E., DBIA** leads the Value Engineering Workshops. He has completed the Federal Highway Administration (FHWA) 40-Hour Value Engineering workshop and uses lessons learned when preparing design-build proposals and project implementations. Additionally, Lou has completed the two-day FHWA Context-Sensitive Design training class. This specialized training is key during preconstruction. Lou's ability to facilitate the collaboration between design and construction consistently results in innovations and cost savings.

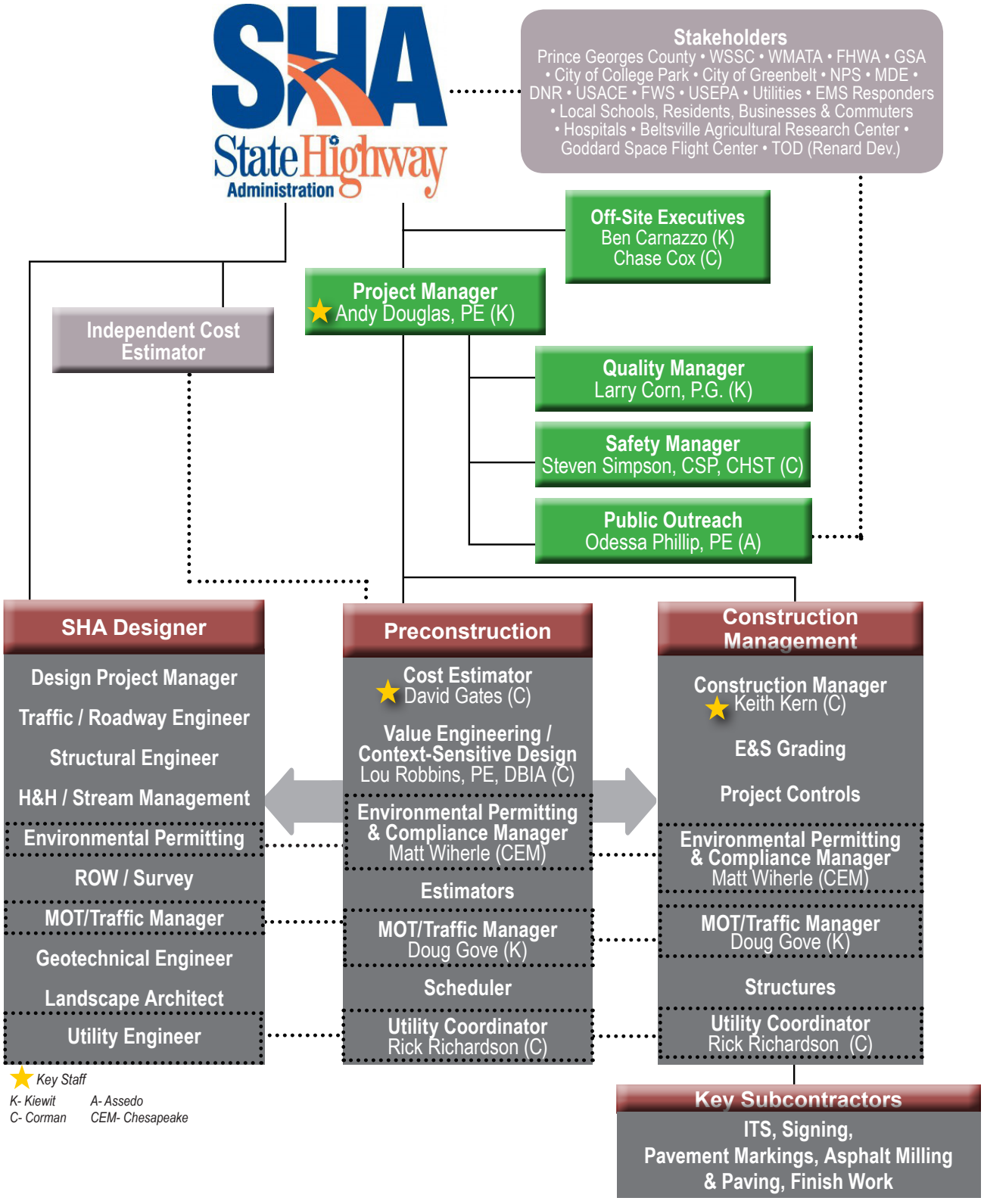
Safety Manager Steven Simpson, CSP, CHST oversees plans and field activities to provide a safe environment for construction workers and the traveling public. Steven spearheads the safety training and aids in developing a job-specific safety plan to address unique hazards that enhance our standard policies, including subcontractor protocols. Steven has the authority to stop work for any safety concern that does not meet our strict safety requirements.

MOT / Traffic Manager, Doug Gove was the Traffic Manager on the Telegraph Road Project implementing the three traffic phases and 10 sub-phases on the reconstruction of the Capital Beltway with an ADT of over 160,000. Doug will be full time on the project and on-site during all major traffic shifts. He will ensure MOT is in accordance with the approved plans, MUTCD, and functioning effectively.

As **Utility Coordinator, Rick Richardson**'s projects, include I-95/495 Telegraph Road Interchange and the design-build Rt 1 widening at Ft. Belvoir for Eastern Federal Lands and VDOT. His experience has evolved to leading the coordination of extensive utility relocation / protection for utilities, and buried and overhead electric, and communications facilities. For this project, he will assist SHA and their designer with utility engineering during the preconstruction phase and take the lead during the construction phase to either relocate or protect impacted utilities.

B.1.b. ORGANIZATIONAL STRUCTURE CHART

Include a separate graphic organizational structure chart, complete with working titles for the project management team in both the Design and Construction phases, and show lines of communication.



B.1.c. BUILDING A PROFESSIONAL AND COLLABORATIVE TEAM

Provide a narrative describing how the project management team will build a professional and collaborative project team and partner with the SHA, the Designer and other stakeholders in the project development.

From working with you on the MD24 and MD97 CMAR projects, we know the best way to build a professional and collaborative team is to partner with you, the designers and the stakeholders from day one. Our project kickoff meeting sets the stage for understanding the project status, constraints, stakeholder concerns, key project goals, schedule and proposed working relationships. The bi-weekly stakeholder partnering meeting gives the team ample opportunities to track preconstruction progress, set action items, discuss design progress and collaborate to find innovative ways to meet project goals. We invite stakeholders such as local utilities, NPS, WMATA, WSSC, FBI, TOD Developer, GSA and permit reviewers so that we can understand their concerns and ensure that they are addressed from the beginning. We also include stakeholders in our construction progress meetings and take them on monthly field tours to discuss the progress of the project and hear any concerns they may have.

The regular public outreach meetings are geared toward local officials, business owners, commuters and residents. We also invite school transportation departments and EMS responders to give us the opportunity to answer any questions about project status, schedules and construction phasing. Both Keith and Odessa are active in these meetings, and work together to ensure that we are hearing the community's concerns and finding solutions for them.

We also hold a monthly "How are We Doing" and four-square review meeting with all project team members. At this meeting, we have found that a very effective tool is the four-square performance issues matrix. The four-square matrix is a snapshot of performance on a monthly basis. This tool is most effective when formulated and reviewed during discussions with the owner and project team. Using the four-square matrix results in the increased communication of project trends, a better understanding of the issues by the project team and prompt issue resolution: Everyone can see at a glance what the hot issues are.

Four-Square Performance Matrix

One of the greatest strengths of our team is the fact that we have the same key team members through the preconstruction and construction phases. This allows the collaboration that began on day one to continue through the end of the project.

As the project manager, Andy is the champion for all partnering efforts to make sure that the collective attitude is "project first." His efforts include regular one-on-one meetings with the SHA project manager, informal lunch meetings with team members and team building events that promote collaboration.

During preconstruction, Lou facilitates a two-day value engineering/constructability review workshop during each major design submittal. Lou has the 40-hour FHWA certificate and has effectively facilitated identical meetings on other alternative delivery projects. This collaboration between the design team, SHA staff and our construction experts results in the innovative ideas and better concepts that maximize budget, reduce schedule and improve mobility throughout the entire project.

Matt collaborates with permitting agencies and assists in the permitting efforts while working closely with your design permit coordinator. Together, they ensure that utility and permitting tracking matrices are updated and any delays or conflicts are quickly resolved. All permits and utilities are added to the fully-integrated preconstruction schedule, and they ensure that milestones are met to keep the project on track.

Keith manages the constructability and value engineering activities during preconstruction and develops close relationships with the design team. This collaborative relationship results in constructability reviews and solutions that are developed together, which then results in a highly constructible design. Once the final design package is released for construction, there will be no field design changes, major RFIs or other issues that increase project cost and delay the schedule.

B.2 Key Staff

PROJECT MANAGER- ANDY DOUGLAS, P.E.

Andy Douglas has diverse project management and engineering experience. He has served as project manager on several high profile alternative delivery projects. Andy manages preconstruction, roadway/highway construction, bridge and utility construction, cost controls, schedule compliance, procurement, corporate resources, and completes projects on schedule and on budget. He is an advocate for partnering and has served in an identical role on identical projects. Andy has successfully partnered with Corman to deliver three successful alternate delivery projects.

Commitment & time availability on this project:
Preconstruction: 50% | Construction: 70%

✓ 17 years experience ✓ B.S., Civil Engineering, Clemson University

I-95/495 at Telegraph Road Interchange | VDOT | Alexandria, VA | $269 million
Andy served as **Kiewit's Project Manager** and supported all aspects of construction. He was responsible for providing management oversight and partnering, supervising project staffing, joint venture monthly and quarterly reviews, resources, and supporting schedule and budget adherence. This **Corman/ Kiewit JV project** was a fast-track 2.5 mile widening/reconstruction of I-95/I-495 and Telegraph Road connecting the Woodrow Wilson Bridge project with new HOT lane projects. Substantial completion was 112 days earlier than required completion date. This project was next to active WMATA facilities.

Relevancy
Telegraph Road included roadway widening and flyover bridges on the beltway.

Relevant items of work similar to the Greenbelt Metro Interchange project:
5 flyover ramps, 1 bridge widening, 9 new bridges, 1 bridge repair, 5 bridges demolished, 7 bridges constructed over traffic, 11 box culverts (new and extensions), 22 retaining/MSE walls, 4 sound barrier walls, 6 storm water management ponds, storm drainage , excavation, lighting, ITS, electrical, E&S controls, environmental mitigation project, mot plans, roadway paving, traffic management system upgrades, express & local lanes, auxiliary lanes, MOT, pedestrian & bicycle accessibility, interstate widening, striping, on/off ramps, landscaping, SWM & ESC, signing, traffic barrier, WMATA high security coordination, TOD coordination, CSX rail coordination, WMATA adjacent construction, utilities, natural resource mitigation, estimating

I-95 Widening and Rehabilitation (Cocoa) D-B | FDOT | Cocoa Beach, FL | $173 million
As **on-site Project Manager,** Andy integrated the job team, participated in plan and schedule development, managed day-to-day operations, owner relations and all aspects of project management. He managed the design-build process from the development of the technical proposal through closeout. This project widened 10 miles of the existing I-95 from four-lanes to six-lanes of interstate with bridges widened along the mainline and on the intersecting roadway. All work was constructed with adjacent live traffic and required extensive MOT efforts. This project finished 107 days early.

Relevancy
Andy managed this alternative delivery widening project from start to finish.

Relevant items of work similar to the Greenbelt Metro Interchange project:
4 bridge widenings, 585,000 CY of embankment, 390,000 SY of interstate widening, retaining walls, sound walls, pedestrian & bicycle accessibility, MOT, auxiliary lanes, on/off ramps, wet land protection, landscaping, box culverts extension, SWM & ESC, bridge demolition, signing, traffic barrier, striping, water line mitigation, utilities (gas, sewer, fiber and water), natural resource mitigation, design coordination, estimating, stakeholder coordination, endangered species

Midtown Tunnel D-B Phase 3, MLK | VDOT, District 7 | Norfolk, VA | $210 million
As **Project Manager** overseeing the MLK segment, Andy steered the project team during preconstruction and procurement. He provided management oversight and partnering, supervised project staffing, quality control program development and joint venture monthly reviews. This project ties I-264 to the MLK expressway through a network of complex roadway and bridge construction. There is approximately one mile of highly phased steel girder flyover bridge construction. In additional, the project includes approximately one mile of roadway improvements with complex MOT phasing, several retaining and sound walls and coordination with various stakeholders.

Relevancy
MLK interchange is a complex alternative delivery interchange and widening project.

Relevant items of work similar to the Greenbelt Metro Interchange project:
140,000 SF of MSE walls, 50,000 SF or noisewalls, 14,000 LF or barrier walls, 7,500 LF or drainage, 40,000 tons of asphalt, 32 steel spans, 5,800 LF or bridge drainage, 525,000 SF or decks, interstate widening, bridge widening, retaining walls, MOT, sound walls, on/off ramps, landscaping, SWM & ESC, pedestrian and bicycle accessibility, box culverts extension, natural resource mitigation bridge demolition, striping, utilities, design coordination, estimating, signing, traffic barrier, water line mitigation

CONSTRUCTION MANAGER- KEITH KERN

Keith has gained field and management experience in his career. He has a thorough understanding of grading, bridge construction, drainage, and utility work as well as dealing with maintenance of traffic. In addition, he has working knowledge of dealing with material availability, quality control procedures, and the capacities and capabilities of subcontractors and vendors.

Commitment & time availability on this project:
Preconstruction: 50% | Construction: 100%

- ✓ 33 years experience
- ✓ B.S., Civil Engineering, University of Wisconsin
- ✓ Yellow Card #10-487
- ✓ MDE Green Card
- ✓ WMATA Safety

I-95/495 at Telegraph Road Interchange | VDOT | Alexandria, VA | $269 million

As Structures **Construction Manager**, Keith supervised field operations for all the bridges and was in charge of the self-performed structural steel erection. He coordinated working around live railroad tracks with WMATA and CSX, removal/disposal of HAZMAT material from underground gas tanks, labor, equipment, subcontractors, schedules, and oversaw safety and quality control compliance. This **Corman/Kiewit JV project** was a fast-track 2.5 mile widening/reconstruction of I-95/I-495 and Telegraph Road connecting the Woodrow Wilson Bridge project with new HOT lane projects. Substantial completion was 112 days early.

Relevancy
Telegraph Road is nearly identical to the IS 95 project and Keith served in an identical role.

Relevant items of work similar to the Greenbelt Metro Interchange project:
5 flyover ramps, 1 bridge widening, 9 new bridges, 1 bridge repair, 5 bridges demolished, 7 bridges constructed over traffic, 11 box culverts (new and extensions), 22 retaining/MSE walls, 4 sound barrier walls, 6 storm water management ponds, storm drainage , excavation, lighting, ITS, electrical, E&S controls, environmental mitigation project, mot plans, roadway paving, traffic management system upgrades, express & local lanes, auxiliary lanes, MOT, pedestrian & bicycle accessibility, interstate widening, striping, on/off ramps, landscaping, SWM & ESC, signing, traffic barrier, WMATA high security coordination, TOD coordination, CSX rail coordination, WMATA adjacent construction, utilities, natural resource mitigation, estimating

I-95/I-495 US 1 Tie-in to Woodrow Wilson Bridge VA-4 | SHA | Alexandria, VA | $62.7 million

As **Construction Manager**, Keith supervised field operations, including bridge construction, H-piles and concrete piles for the bridge, retaining walls, support of excavation, coordinated labor, equipment, subcontractors, schedules, oversaw safety and quality control compliance and project close out. He conducted weekly safety meetings and produced Job Hazard Analysis Reports and work plans. This two-phased, multi-level bridge, and roadway demolition/reconstruction project widened ½ mile of I-495 from six lanes to the final 14-lane configuration. The project was constructed in four quadrants to maintain flow of traffic. There was constant coordination with adjacent projects, local residents, utility companies, and the City of Alexandria.

Relevancy
Keith supervised all field operations from start to finish on this SHA project.

Relevant items of work similar to the Greenbelt Metro Interchange project:
MOT with 160,000 ADT, sound walls, utility relocations: water mains, sewer lines, storm drains, CCTV, lighting and electrical facilities, a new deck bridge over I-495, constructed in 4 quadrants to maintain traffic flow, storm drainage, excavation, lighting, ITS, electrical, E&S controls, environmental mitigation project, mot plans, roadway paving, traffic management system upgrades, express & local lanes, auxiliary lanes, pedestrian & bicycle accessibility, interstate widening, striping, on/off ramps, landscaping, SWM & ESC, signing, traffic barrier

I-95/I-495 Woodrow Wilson Bridge MD 210, MB-3 Oxon Hill | MDOT | $44.6 million

Serving as **Construction Manager,** Keith was responsible for field operations including structural concrete work, driving sheet and H-piles for the bridge, foundations, retaining walls, determined means and methods, coordinated labor, equipment and subcontractors, schedules, oversaw safety and quality control compliance and project close out. He conducted weekly safety meetings, and produced Job Hazard Analysis Reports and work plans. Reconstruction of the MD 210 Interchange with I-95/I-495 included widening I-95 from six to 12 lanes. An MOT plan was devised to eliminate phases and detours that accommodated traffic flow on one of the most congested interchanges in the area.

Relevancy
Keith managed field operations on MD 210, only a few miles south on Capital Beltway.

Relevant items of work similar to the Greenbelt Metro Interchange project:
utility relocations, realignment/transformation of the Oxon Hill Road/MD 210 Intersection into a grade-separated interchange, 5 retaining walls (one cast-in-place concrete and four MSE), 2 SWM, bridge demolition/reconstruction, bridge construction, adjacent project coordination, storm drainage , excavation, lighting, ITS, electrical, E&S controls, environmental mitigation project, MOT plans, roadway paving, traffic management system upgrades, express & local lanes, auxiliary lanes, pedestrian & bicycle accessibility, interstate widening, striping, on/off ramps, landscaping, ESC, signing, traffic barrier,

COST ESTIMATOR- DAVID GATES

With 29 years' experience estimating transportation projects, David estimates on highways, bridges, design-build, CMAR and utility proposals and bids, including schedules and final pricing. With an emphasis on heavy civil/roadway and environmental, he analyzes drawings/specifications, itemizes construction components and formulates strategies. His expertise also leads to innovative value engineering, means and methods, and accelerated schedule concepts that result in cost savings for clients.

Commitment & time availability on this project:
Preconstruction: 100% | Construction: 25%

- ✓ 29 years experience
- ✓ B.S., Civil Engineering, University of Hartford
- ✓ MDE Green Card
- ✓ Environmental Compliance & Awareness Training

I-95/495 at Telegraph Road Interchange | VDOT | Alexandria, VA | $269 million

David's role as **Lead Cost Estimator** led the estimating team in quantifying components for all major disciplines on the project. He was an active participant in all design/constructability review meetings and assisted with all environmental and utility coordination. The JV team worked with WMATA adjacent construction to coordinate access and track shutdown for bridge construction over railroad and maintain WMATA security. This **Corman/Kiewit JV project** was a fast-track 2.5 mile widening/reconstruction of I-95/I-495 and Telegraph Road connecting the Woodrow Wilson Bridge project with new HOT lane projects. Substantial completion was 112 days early.

Relevancy
David led the cost estimating on this project with similar scope & traffic just miles down on the Capital Beltway.

Relevant items of work similar to the Greenbelt Metro Interchange project:

5 flyover ramps, 1 bridge widening, 9 new bridges, 1 bridge repair, 5 bridges demolished, 7 bridges constructed over traffic, 11 box culverts (new and extensions), 22 retaining/MSE walls, 4 sound barrier walls, 6 storm water management ponds, storm drainage , excavation, lighting, ITS, electrical, E&S controls, environmental mitigation project, mot plans, roadway paving, traffic management system upgrades, express & local lanes, auxiliary lanes, MOT, pedestrian & bicycle accessibility, interstate widening, striping, on/off ramps, landscaping, SWM & ESC, signing, traffic barrier, WMATA high security coordination, TOD coordination, CSX rail coordination, WMATA adjacent construction, utilities, natural resource mitigation, estimating

Inter-county Connector Contract A | SHA | Montgomery County, MD | $478.6 million

Cost Estimator, David estimated all major components of the project and led the transition from the estimates to the design coordination. He met with design team to coordinate designs and obtain MDE approval for roadway design segments. He also managed the preconstruction schedule to keep the project on track. He met with stakeholders to address concerns and updated them on progress. ICC-A was 7.2 miles of controlled-access tri-lane divided highway with steel/precast concrete girder bridge, roadway & bridge widenings on I-370. This project improved existing interstate access to Shady Grove Metro Station and it's associated transit oriented development.

Relevancy
David led the cost estimating and design coordination on a complex SHA project.

Relevant items of work similar to the Greenbelt Metro Interchange project:

box culverts & extensions, MOT, bridge demolition, pedestrian & bicycle accessibility, 2.5m CY of earthwork, striping, 400,000 SF of sound walls, SMW/drainage systems, 130,000 SF of retaining/MSE walls, lighting/signilization, restoring adjacent streams/wetlands, auxiliary lanes, utility relocations, interstate widening, WMATA coordination, bride widening, on/off ramps, overhead/cantilever signs

CMAR MD24- Secs. A&G | SHA | Harford County, MD | $5.4 million

As **Lead Cost Estimator**, David met with owner, designer, and independent cost estimator to develop a constructible, innovative, cost effective, and timely design. David developed the subcontracting plan to include DBEs for the construction phase and participated in risk assessment and mitigation workshops. Through an open-book cost model with SHA, an Opinions of Probable Construction Cost (OPCC) and a Guaranteed Maximum Price was prepared/approved. Deer Creek in Rocks State Park gradually eroded its embankment which supports the MD24 roadbed. This project improves road safety by re-mediating the slope supporting MD24, repairing pavement, and improving roadway drainage.

Relevancy
David played a major role in the successful delivery of SHA's first CMAR project.

Relevant items of work similar to the Greenbelt Metro Interchange project:

retaining walls, MOT, stream protection, stream relocation, landscaping, SWM & ESC, striping, natural resource mitigation, design coordination, estimating, paving, drainage, signing, striping, guard rail

B.3 Project Team Past Performance

Provide descriptions of three relevant projects for which the Contractor was the prime or joint venture Contractor that demonstrates the Contractor's ability to be successful on this project.

I-95/495 AT TELEGRAPH ROAD INTERCHANGE

Alexandria, Virginia

Owner/Client
Virginia Department of Transportation
Jalal Masumi, Deputy Project Mgr
703.259.2215

Delivery Method
Bid-Build

Initial Contract Value
$239,393,187

Final Contract Value
$269,100,744

Contract Value Difference
Contract incentives, owner approved changes and incentives

Initial Completion Date
June 30, 2013

Final Completion Date
June 27, 2013

Completion Date Difference
Substantial completion date was achieved 8/25/12, which was **112 days earlier than required completion date.**

This **Corman Construction/Kiewit Southern Co. JV project** entailed a complete interchange reconstruction, widening and reconstruction of approximately 2.5 miles on I-95/I-495, west of Route 1 to the Eisenhower Connector exit. Improvements along Telegraph Road included roadway/bridge reconstruction, intersection improvements and utility relocations from Duke Street on the north to Lenore Lane to the south. This was the final major undertaking of the Woodrow Wilson Bridge project and the largest design-bid-build in Virginia.

The new grade-separated interchange provided access to eastbound Huntington Avenue and North Kings Highway from the Beltway Outer Loop and southbound Telegraph Road, through elevated ramps over Telegraph Road and signalized intersections, and refined traffic flow and provided easier/safer pedestrian access. The project also included drainage improvements, five box-culvert extensions, new traffic systems, lighting, signage, utility relocations, landscaping along Telegraph Road and I-95/I-495 and an environmental mitigation project at nearby Cameron Run Wetlands.

Management of MOT was the most critical aspect of the project's success. The team revised MOT plans, greatly reducing the original design of six phases and 16 sub-phases to three phases with 10 sub-phases. This change helped the team meet all major interim milestones and their corresponding incentives, while improving traveling conditions for the public. Team partnering helped identify and resolve any priority issues early in the planning stages.

The team managed the third-party stakeholders effort, and also assisted in the overall Woodrow Wilson bridge community outreach program with VDOT's GEC. They also coordinated work with the City of Alexandria, adjacent properties, local residents, utility companies, hotels, retail stores, police, fire and other emergency responders.

Relevance to Greenbelt Baltimore Washington Parkway to US 1 Project

- **Bridges:** The project included 11 new bridges. Of the 11 bridges there were two curved steel girder bridges, one bridge widening, nine new bridges and one bridge repair. We also completely demolished five bridges, partially demolished two bridges, and reconstructed seven adjacent to or over traffic.

I-95/495 AT TELEGRAPH ROAD INTERCHANGE CONT.

Similarities to Greenbelt

- ✓ Interstate widening
- ✓ Bridge replacement
- ✓ Bridge widening
- ✓ Retaining walls
- ✓ MOT
- ✓ Pedestrian and bicycle accessibility
- ✓ Sound walls
- ✓ Auxiliary lanes
- ✓ On/off ramps
- ✓ Landscaping
- ✓ Box culvert extensions
- ✓ SWM and ESC
- ✓ Bridge demo
- ✓ Signing
- ✓ Traffic barrier
- ✓ Striping
- ✓ WMATA high security
- ✓ TOC coordination
- ✓ WMATA adjacent construction
- ✓ Overhead utilities and 36-inch waterline
- ✓ Natural resource mitigation
- ✓ Estimating

Key Staff includes:

- ✓ Andy Douglas as Kiewit's Project Manager
- ✓ Keith Kern as Structures Construction Manager
- ✓ David Gates as Lead Cost Estimator

- **Roadway/Walls**: The project included 5 flyover ramps constructed with MSE walls. In order to construct the roadway there was 500,000 CY of excavation, 22 retaining/MSE walls, 4 sound barrier walls and 11 box culverts (new and extensions).
- **Environmental:** Wet land mitigation, stream restoration, and channel improvements to Cameron Run and its tributaries

SUCCESSFUL METHODS/APPROACHES

Stakeholder/Third parties: We coordinated with WMATA, CSX, Norfolk Southern, and VDOT through regular meetings and detailed schedules to establish access and schedule track shutdowns for bridge construction over the railroad. Also, we collaborated with contractors working on the Route 1 roadway project, which is in proximity to Telegraph Road to coordinate traffic closures to avoid MOT conflicts and to ensure both projects were not impacted by each other. We managed third-party stakeholders and coordinated with adjacent properties, the City of Alexandria, local residents, utility companies, hotels, retail stores, police, fire, and other emergency responders.

Maintenance of Traffic (MOT): Maintaining 160,000 ADT traffic was the most critical aspect of the project's success. Traffic flow issues were mitigated before they became problematic. Six lanes; three lanes in each direction of I-95 was maintained at all times during construction. Due to excessive traffic congestion, the project team revised MOT plans, greatly reducing the original design of six phases to three phases and from 12 traffic shifts to six. This positioned the team to improve public traveling conditions and meet all major interim milestones. Team partnering identified and resolved issues early in the planning stages.

Utilities: Contract drawings showed no utility conflicts; however, as work began, it was clear many existed. Rather than wait to discover them, the project team identified and recorded existing utility locations for the entire project and recorded the conflicts. One of the critical utilities was a 36-inch water main that had to be protected and relocated in various locations. The team was able to mitigate these conflicts before they created construction impacts through detailed utility coordination, design and scheduling. As a result, the original schedule was maintained with extensive relocations coordinated with the schedule.

INNOVATIONS

- Used technologies, such as GPS and machine controls for the earthwork. Not only did it boost production, it also cut costs. We used GPS control systems on our equipment which increased the accuracy and productivity of the dirt work by reducing rework cycles and operating costs.
- Instituted Nextel safety alerts three times a day for heightened safety awareness. Our safety program required crews to stop for five minutes at 9:00 am, 11:00 am and 1:30 pm to inspect, discuss, and immediately correct issues. This program was extremely effective.
- Used Corman in-house custom gang overhang, deck edge and fall protection systems to increase productivity and safety on bridge superstructure work

AWARDS

2013 VTCA Transportation Engineering Overall Winner Award

I-95 / I-695 INTERCHANGE

Rosedale, Maryland

Owner/Client
Maryland Transportation Authority
Dave Labella
410.931.0808

Delivery Method
Design-Bid-Build

Initial Contract Value
$208,601,309

Final Contract Value
$220,216,413

Contract Value Difference
85 AWIs due to changes in scope, price adjustments, and incentive payments

Initial Completion Date
June 30, 2010

Final Completion Date
June 24, 2010

Completion Date Difference
Finished 6 days early

I-95 / I-695 Interchange is a four-mile roadway and bridge widening project along the I-95 corridor on the north side of Baltimore; the first of two contracts for the complete I-95/I-695 interchange and realignment for future HOV lanes. The new reconfigured three-level interchange realigns general purpose lanes and adds new managed lanes of I-95 and I-695. Reconstruction eliminated the existing "braided" portion of I-95 and removed the left exit and entrance for future expansion including Express Toll Lanes for I-95.

The project improved traffic flow through the interchange and adjacent roads with 11 new bridges, replaced two bridges, and five noise barriers. The "basketweave" design interchange presented the challenge of accommodating 178,000/149,000 (I-95/I-695) ADT and two live streams that flow through the project throughout reconstruction.

The design and construction phases focused on implementing temporary traffic patterns for construction and coordination with adjacent projects for traffic patterns/flow during construction.

Weekly onsite meetings coordinated traffic control plans. There was public outreach to motorists and surrounding neighborhoods to keep them informed and educated through signs, variable message boards, news bulletins, website, and email alerts. Construction, detour information, and traffic impacts were provided to local media and customers.

Relevance to Greenbelt Baltimore Washington Parkway to US 1 Project

- **Bridges:** Four multi-span flyover bridges, approximately 2,200-ft. long with steel erection, forming, pouring and curing of structurally reinforced substructure concrete and 510,000 SF of structurally-reinforced bridge deck over I-95 and I-695. There are an additional seven low-level bridges; four were constructed over I-95 and I-695 traffic. Also, replaced two bridges.
- **Stormwater Management:** Reconstructed the storm drain and stormwater management system, relocated the water and sewer system, restored and protected a major stream that ran through the middle of the project.
- **MOT:** Short-term traffic patterns used full mainline and ramp detours to remove traffic from construction areas. These detours used four existing interchanges just past the project's limit of work to handle high-traffic volumes and in combination with short-term traffic patterns implemented only at night, provided a safe and mobile flow for motorists and a secure and safe worksite.

I-95 / I-695 INTERCHANGE CONT.

Similarities to Greenbelt

- ✓ Interstate widening
- ✓ Bridge replacement (curved girder)
- ✓ Bridge widening
- ✓ Retaining walls
- ✓ MOT
- ✓ Sound walls
- ✓ Auxiliary lane
- ✓ On/off ramps
- ✓ Wet land area protection
- ✓ Landscaping
- ✓ SWM and ESC
- ✓ Bridge demo
- ✓ Signing
- ✓ Stream relocation
- ✓ Traffic barrier
- ✓ Striping
- ✓ Water line mitigation
- ✓ Overhead utilities
- ✓ Natural resource mitigation
- ✓ Estimating

- **Adjacent Project Coordination/Public Outreach:** Weekly on-site meetings coordinated traffic control plans. Many times project schedules were revised to provide lane closures and detours for multiple contractors simultaneously which prevented conflicting patterns. An outreach team provided information and services, including community group presentations, potential noise impact studies, and physical mitigating improvements to enhance project aesthetics.
- **Utilities:** We protected a 96"/108" water main that was parallel to the roadway.

SUCCESSFUL METHODS/APPROACHES

When laying out one of the bridges, the team discovered the path of a creek had moved nearly 20-ft. between design and procurement. Since it impacted an abutment to one bridge and our MDE LOD area, our project engineer placed it on the Issue Resolution Chart and informed all stakeholders including MDE, IEM, USACE and designer. A meeting was held to evaluate different options, and the final resolution was to initiate an E&S modification and added a support of excavation wall to prevent disturbance to the creek. This collaboration resulted in no project delays.

To minimize our environmental footprint and to comply with MDE requirements, we conducted weekly meetings with the project team and performed joint site inspections with MDTA's Independent E&S Monitors, the USACE's Environmental Inspector, and our own E&S manager. Our E&S manager walked the site daily to inspect and have special dedicated environmental crews make any changes. These steps were proactive in addressing issues and compliance. Environmental impacts were minimized with "A" or "B's" achieved on 93% of E&S ratings reports.

INNOVATIONS

- **Integral Pier Caps**- Due to tight geometric constraints, existing through-movements during construction had to be maintained posing many challenges in the crossing ramps and mainline roads. Introducing integral pier caps resolved vertical clearance requirements in some areas. By framing the continuous steel girders into a steel box acting as the pier cap, only two of the four girder sections for the ramps needed bearing support, allowing the roadways underneath to be moved closer to the pier columns.
- **Piles** - Original plans required installing foundation piles via augering, placing an H-pile, and then grouting the hole to embed into the rock subsurface without damaging it. The project team suggested eliminating the auger cast piles, changing to a heavier pile section and installing pile points. **Benefits:** The project team's approved changes resulted in a $1 million cost savings for the owner, accelerated the schedule, and reduced jobsite congestion.
- **Structural Steel** -Many steel girders spanned over 300 LF with the majority curved. Most of the girder erection spanned active roads and/or ramps. As a result, detours were established to redirect traffic. The team met weekly to formulate the steel erection plan, MOT, and staging the girders onsite. Many had to be set at night due to the high traffic volumes that would pass under the erection during the day. Two parallel girders needed be set with cross members for stability of the beams prior to final framing and deck installation. The redesigned traffic control increased safety for construction crews and motorists with organized and well-marked detours.

AWARDS

- 2011 MdQI Award of Excellence –Partnering Silver Award
- 2011 National Partnership for Highway Quality (NPHQ) Special Recognition Award for a Structure
- 2011 MdQI Award of Excellence –Structure New/Structure Rehabilitation
- 2010 American Concrete Institute (ACI) Maryland Chapter Award for Heavy Construction
- 2010 National Partnership for Highway Quality (NPHQ) Silver Award "Making a Difference for Public Communications"

I-95 WIDENING AND REHABILITATION

Cocoa Beach, Florida

Owner/Client
Florida Department of Transportation
Frank O'Dea
386.943.5476

Delivery Method
Design-Build

Initial Contract Value
$148,000,000

Final Contract Value
$172,706,569

Contract Value Difference
Commodities, including fuel and materials, were indexed in the contract and due to price escalations the contract value increased. There were also $1.6M in completion bonuses achieved.

Initial Completion Date
October 6, 2009

Final Completion Date
June 21, 2009

Completion Date Difference
Finished 107 days ahead of schedule

This project included the widening of 10 miles (seven miles of PCCP, three miles of asphalt) of the existing I-95 four-lane interstate highway to a six-lane interstate highway in Brevard County, FL. Taking advantage of the design/build delivery method, the team developed a concept to widen the roadway to the middle, limiting the impact on wetland areas outside of the roadway alignment.

There were four bridges included within the limits of this project which were widened while traffic was maintained both along the mainline and on the intersecting roadways. The project also included rehabilitation to the bridge spanning over the I-95 corridor at the I-95/Fiske interchange. This project was built in several concurrent headings and required a MOT plan handling 71,000 ADT and more than 1500 lane closures on the mainline. I-95 was never completely closed in either direction, and during daytime and rush hours, Kiewit maintained two open lanes in both directions. The initial phase at each mainline heading required widening to the center, and installation of barrier wall.

Once completed, traffic was redirected to the new center lanes while construction commenced on the outside shoulder lanes including nine box culvert extensions. MOT at mainline bridge locations was more complex and required merging two lanes to one in each direction. Traffic was maintained on the northbound bridge while the southbound lanes were under construction, after which traffic was switched to the new southbound lanes enabling construction to proceed on the northbound bridge. With careful planning and containment, traffic was also maintained on the roadways under I-95 during mainline bridge construction. These roads were never completely closed.

The project received a final FDOT Contractor Past Performance Rating (CPPR) of 104% on a scale of 100% (bonus points for early completion) with evaluation factors including environmental compliance, proper MOT and minimizing impacts to the traveling public. Also, the project was completed with ZERO NOV's.

Relevance to Greenbelt Baltimore Washington Parkway to US 1 Project

- **Bridges/walls:** Four bridge widenings which included support of excavation between the existing and new bridges to support the adjacent roadway. One of the bridges that was widened utilized hydroblasting and deck overlay to allow adequate cross slope for motorcyclists. There was 106,000 SF of sounds walls and retaining walls. All existing deck joints were replaced as well.
- **Roadway**: In order to construct the roadway, there was 585,000 CY of embankment, 435,000 SY of subgrade finishing, 375,000 SY of 13" PCCP, 52,000 LF or barrier, 50,000 LF of drainage pipe and 203,000 tons of asphalt.

I-95 WIDENING AND REHABILITATION CONT.

Similarities to IS-95

- ✓ Interstate widening
- ✓ Bridge widening
- ✓ Retaining walls
- ✓ MOT
- ✓ Pedestrian and bicycle accessibility
- ✓ Sound walls
- ✓ Auxiliary lanes
- ✓ On/off ramps
- ✓ Wet land area protection
- ✓ Landscaping
- ✓ Box culverts extensions
- ✓ SWM ponds and ESC
- ✓ Bridge demo
- ✓ Signing
- ✓ Traffic Barrier
- ✓ Striping
- ✓ 48” watermain mitigation
- ✓ Overhead utilities
- ✓ Natural resource mitigation
- ✓ Design coordination
- ✓ Estimating
- ✓ Storm drainage
- ✓ ITS system
- ✓ Endangered species

Key Staff includes:

- ✓ Andy Douglas as Project Manager

- **MOT:** Monthly meetings with the local emergency response teams along with towing companies, Florida Highway Patrol, Broward County Sheriff and FDOT. The team designed and installed emergency pulloffs during construction to handle any roadway incidents. Our approach allowed emergency responders quick access and opened the roadway faster after accidents.
- **Utilities:** The 520 bridge contained a critical 48" water line that had to be avoided. Our solution involved potholing the line before starting design and then designing the bridge widening to avoid the utility altogether.

SUCCESSFUL METHODS/APPROACHES

The project used Bentley™ InRoads, a civil engineering software program, to create 3D designs, and to help with conflict identification for elements such as utilities, which was managed by a full-time, on-site modeler. The benefits of these approaches included resolving issues during the design phase. It also allowed the team to take data and transfer it directly to survey equipment and machine controls used for grading and wireless concrete paving equipment.

All team members used collaborative online software for information sharing including design plans, submittals and constructability reviews to eliminate paperwork and streamline processes.

The team developed and maintained a linear schedule to schedule the work and maximize crew efficiency flow in work areas. This type of schedule helped the team make better decisions, allowing the job to be completed ahead of schedule.

Every week our project manager and the owner’s project manager would drive the entire job route and talk about the job’s status and issues, ranging from safety and quality to traffic control. These field tours increased collaboration and partnership between the PMs.

INNOVATIONS

A significant innovation developed during the proposal phase was to widen the roadway on the inside lanes versus outside lanes. This innovation resulted in dramatically decreasing the impacts to the wetland areas and provided a full-depth concrete shoulder on the outside roadway to accommodate future widening to the outside. The closed median concept also minimized impacts to the right-of-way and reduced project costs.

The initial phasing concept was to move traffic in a head to head traffic configuration (contra-flow) on the one side of the freeway, and construct the opposite side. Once complete, traffic would be switched in a head to head configuration on the newly constructed roadway, while the other side is completed. Kiewit and FDOT collaborated to develop a safer alternative allowing for construction on both northbound and southbound lanes at the same time. This simplification to the MOT design and phasing resulted in early completion.

Recycled asphalt from the existing interstate was pulvamixed into the existing subgrade to meet LBR 40 stabilization criteria. We also designed staged weep holes into permanent drainage structures to facilitate temporary drainage needs during construction.

The use of diamond grade sheeting on overhead signs in lieu of conventional lighting eliminated the need for 1.5 miles of conduit and 1,130 LF of directional bore, improved long term maintenance costs, and provided a much higher grade sign sheeting. Retrofit existing overhead sign structures and VMS boards to avoid full replacements.

Awards

- FTBA 2009 Best in Design-Build Construction Project

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KIEWIT - CORMAN
GREENBELT
A JOINT VENTURE

SECTION C - PROJECT APPROACH

C. Project Approach

C.1 PRECONSTRUCTION APPROACH

C.1.a. Design and Constructability Review

The contractor's involvement during the preconstruction phase of the project should help streamline the design process, reduce errors and omissions, improve constructability and quality, reduce the cost of construction to ensure it is within budget, and optimize the project delivery schedule. Describe the Proposer's approach to accomplishing these objectives on this project.

One of the greatest benefits of the Construction Management at Risk delivery approach is the early involvement of the Contractor in the design process. We have joint ventured as a team to draw from both of our company's experience which will result in better innovative ideas, more lessons learned/best practices and the resources to get the job done. We bring a collection of staff with extensive preconstruction and construction expertise as a CMAR, who we plan to utilize throughout the entire project. This seamless approach is a benefit to SHA because all team members will have intimate knowledge of the project history, goals, and details that will not need to be handed off to new team members as the project progresses.

Design Coordination and Schedule

Design Coordinator: David Gates will act as the construction team's Design Coordinator and will utilize his extensive D-B and CMAR experience to fill this role. With several agencies, design firms, and stakeholders involved in a project, it can be a challenge to continuously advance the design while accommodating the needs of all parties involved. By having one person champion the overall design coordination, we **ensure that the design stays on schedule, within budget, and priority is given to activities that provide the most benefit to the overall project.**

Preconstruction Schedule: David also creates and manages an integrated project schedule that includes all design, permit, utility, procurement, right-of-way and stakeholder activities. This schedule will give the team the ability to understand overall project progress and **ensure the project is completed on time**.

Weekly Meetings

Task force meetings are an effective project collaboration tool, and we hold them weekly for each discipline. Each task force will be comprised of the design discipline leads, Kiewit-Corman-Greenbelt (KC-G) staff, SHA representatives, and project stakeholders. The purpose of these meetings are to review overall design status, discuss technical issues, jointly review design comments and designs under development (over-the-shoulder review). These meetings offer SHA, stakeholders, and the contractor direct input into the design process. This forum is intended to be a collaborative environment that benefits the project by having the requirements 'designed in' rather than 'reviewed in'.

The weekly design status meeting allows the team to take a bigger picture look at the overall design status, and to ensure there is strong collaboration between all disciplines. In addition, the team will discuss any concerns with design progress while helping identify any changes to the established priorities. All discipline leads will report on upcoming submittals, relay schedules to the review teams and target any items that affect other disciplines. Both of these meetings **ensure a collaborative partnership, eliminate surprises, reduce review time, minimize comments, and eliminate design rework.**

Constructability/Value Engineering Reviews

During every phase of the design, our team will provide innovative constructability and value engineering ideas through a formal process. This process will be led by our certified facilitator. Each suggestion will be provided to the team and evaluated to decide whether to further advance the idea. Advancing a suggestion may result in the need for cost estimating, value analysis or exploring a design for feasibility. In order to accomplish this, we utilize the Decision Analysis and Resolution Team (DART) tracking. The DART matrix organizes and quantifies innovations developed during design to help the team evaluate the overall change. Each innovation is evaluated based on impacts to design, construction, schedule, the client and overall project goals and weighted scores are entered for each category. This allows the team to make informed decisions for every value engineered or innovative idea. For the Capital Beltway project, we envision not waiting for the formal standard SHA design packages for KC-G's review of the plans, instead we will provide ideas throughout the entire design process.

Other Key Design Coordination Activities

Civil/Structural Coordination: We check the location of wall footings, drilled shafts, and other new structure elements for constructability and conflicts with existing utilities and features, particularly at the interface between roadway approaches and bridge structures.

Utilities Coordination: Utilities coordination is of critical importance since they are often long lead items and not under direct control of the CMAR team. During preconstruction, we identify all utility agencies with facilities within the corridor, ensure utility owners attend regular project meetings, acquire as-built information and verify with physical pothole data as needed, work with the CMAR task forces and utility owners to identify potential conflicts, and assist with conflict resolution and coordination. Our number one goal is utility relocation avoidance and to minimize utility impacts and relocations.

Drainage Coordination: The design of pavement drainage is contingent upon the roadway grades, cross slopes, and barrier location. We also pay special attention to the location of sign and other pole foundations, bridge foundations, walls, the 96" water line, and other utilities during our constructability reviews. Through design coordination, we provide the designers with input regarding temporary drainage to match our construction and MOT sequencing. For example, we communicate our phasing plan to the design team to ensure SWM areas are designed and constructed in the proper sequence to handle construction storm water and keep the project in compliance. As the MSE wall design advances, there must be key coordination performed with the drainage design team to ensure both designs are integrated together and there are no conflicts between the pipe and wall straps.

Traffic Maintenance Coordination: We will work with MOT task managers to discuss construction access points and working room requirements to develop the design. Our planned construction sequence will be a key factor in developing the MOT design. During preconstruction, we will host a phasing workshop and develop the phasing plans with the design team.

Stakeholder Coordination: The FBI, WSSC, WMATA, and the local residents and businesses will require extensive coordination during preconstruction. Since the future FBI headquarters and TOD dictate major design scopes at the Greenbelt Metro Station, we must meet with them early and often to understand their schedule, planned locations, and overall design concepts. By lagging the design in this area and waiting for final decisions, we prevent costly design rework, and can maximize the project budget. The 96" waterline is a critical utility adjacent to the roadway, and by providing innovative solutions such as alternative bridge concepts and locations, we eliminate any potential conflicts.

Interstate Maintenance Coordination: It is critical to have maintenance staff participation during preconstruction. We recommend that all maintenance staff (SHA, Prince George's County, City of College Park, City of Greenbelt, WMATA, etc.) attend task force meetings and review the design submittal packages to ensure long term quality and low cost maintenance solutions are included in the design. With the help of maintenance teams, we will analyze life cycle costs to determine the best construction sections and materials that provide the greatest benefit to the project. By performing these key coordination activities, **we streamline the design process, reduce errors and omissions, improve constructability and quality, maximize project budget and reduce schedule.**

Reduce the Cost of Construction to Within Budget

By combining our team's resources into a joint venture, we are able to reduce the cost of construction and maximize value. First, our individual firms will perform independent estimates and jointly review, compare, and reconcile both estimates prior to review with SHA. The benefits to SHA include using the optimal productions from each firm's database of past costs, challenging each other's approach to find the lowest cost solution, and combining material and equipment resources that we already own.

Next, our team will have a larger pool of subcontractors and suppliers due to each firm's past experience in Maryland. We each have a long standing history with the local economy, and we will solicit quotes from more capable firms to get the best value in each package.

C.1.b. Design Sequencing

Discuss how you would support SHA in identifying specific elements and/or segments for early or independent construction packages

Upon award, we look forward to meeting with the entire project staff at kickoff and to discuss current project status to better understand the overall schedule required for the project. In order to support to support SHA in identifying elements or segments for early/independent design packages, it is important to ask the team the following questions:

- Will it save time?
- Will it increase/decrease impact to environment?
- Will it help/hurt utility relocations?
- Will it help/hurt quality of final product?
- Will it save money?
- Will it help/hurt relations with stakeholders?
- Will it help/hurt traveling public?
- Will it improve/impact local businesses and residents?

After answering all of these questions, if the pro's outweigh the cons, there are several benefits to proceeding with independent design packages. A few of the key elements that are important to consider for independent packages are listed on the next page:

Stakeholders: From our understanding, the FBI has not made their final determination on the location of their new headquarters. Their final decision will dictate the final design that is required for future access into and out of the Greenbelt Metro Station. In addition, on the outer loop, the new flyover bridge encroaches into the existing WMATA ROW. We suggest breaking out a design package near the Metro Station separately to allow the FBI time to make their final determination, and to work with WMATA on the critical ROW, which will reduce potential redesign cost, allow for innovations and ensure we maintain the overall project schedule.

Permits: In order to start construction in certain areas, there are long lead permits such as the permits to work in the waters of the US from MDE and USACE at Indian Creek. During preconstruction, we will identify upland areas that can be constructed early without permits, and recommend these areas be prioritized in the design schedule to facilitate early construction.

Environmental: During preconstruction, the team will identify any wetlands and RTE species (trailing stitchwort) found in the project corridor. We suggest breaking out these areas as separate design packages to allow more time for mitigation, and design and construct areas not located in wetlands early in the project. Also, the four box culvert extensions cannot be constructed from March 1 – June 15 because of time of year restrictions for Class 1 Waters. Since the NTP for construction occurs in this window, we suggest placing design priority on areas that do not fall in this restriction window, in order to begin roadway construction immediately upon NTP.

Priority Areas: In a City of College Park work session from June 2, 2015, SHA discussed three priority areas for the IS 95 project to the Mayor and City Council. These commitments to the local communities will shape the early design/ construction packages needed to meet our commitments to the local communities and stakeholders.

Drainage: On ICC-B and Cocoa, we utilized the permanent storm drainage system as a dual purpose system, in order to also manage storm water during construction. Analyzing the storm drainage system and storm water management as an early construction package could greatly reduce project cost and schedule, while exceeding all environmental requirements.

Metro Station and I-95/495 Access: The exit from the metro station onto the Inner Loop is not affected by the future FBI headquarters decision. This section could be designed as a separate package to facilitate early construction, and open up this critical access early in the project. Also, there is currently a bottleneck on the Inner Loop between Kenilworth Avenue and Baltimore Washington Parkway due to traffic weaving in and out of the interstate. By designing and constructing this segment early, we can turn over usable sections to the public well ahead of substantial completion.

Utilities: Due to the long lead nature of utility coordination and relocation, we suggest breaking out any areas that have critical utilities into separate packages. The majority of utility owners require semi-final design prior to performing the utility relocation design. By providing an early package to a utility owner, they can begin their design and construction early in the project, which can save several months on the overall schedule.

Long lead procurement: Items such as steel girders, MSE wall panels and noise wall panels can have long lead times. Advancing the designs on these key materials as a separate package early in the design phase enables the team to start procurement early during preconstruction, which can cut several months off of the overall project schedule.

Preconstruction Schedule: Our team assembles and manages a fully integrated preconstruction schedule with all of the activities listed above. Prior to linking all project activities together, we sit down with all key team members to brainstorm the overall list of critical tasks on the project, which will help the team further refine the priority areas of the project, and identify the overall critical path.

C.1.c. Stakeholder Involvement

Discuss how you would support the Administration in involvement with stakeholders, including the adjacent developers, during the Preconstruction phase.

From our experience on previous CMAR projects, we have identified the following best management practices that lead to successful stakeholder interaction:

- Contacting stakeholders to establish their preferred communication mechanism
- Involving major stakeholders in partnering, task force, or one-on-one meetings to discuss concerns and opportunities
- Evaluating potential solutions in a partnering environment with the appropriate decision-makers
- Communicating through outreach and other regular meetings to provide timely and accurate project phasing and scheduling updates throughout preconstruction and construction phases

More specifically, the chart on the following page details specific interactions between our team and each stakeholder.

Stakeholder	Preconstruction Involvement
City and County Governments	■ Minimize impacts to emergency services, local transit, street and school routes ■ Maintain clear consistent messaging and information on potential impacts
Washington Sanitary and Sewer Commission (WSSC)	■ Review protection required for 96-in. water main ■ Discuss early on relocations or impacts to water and sewer lines ■ Confirm any potential seasonal restrictions on shutdowns ■ Coordinate any proposed WSSC planned improvements to its infrastructure
Other Utilities (PEPCO, VERIZON, ATT, COMCAST, etc.…)	■ Discuss early on relocations or impacts to facilities ■ Confirm any potential seasonal restrictions on shutdowns ■ Coordinate any proposed planned improvements to its infrastructure ■ Regularly communicate to minimize impact to existing facilities
Washington Metropolitan Area Transit Authority (WMATA)	■ Review "ZONE OF INFLUENCE" (ZOI) to WMATA facilities ■ Coordinate with WMATA Office of Adjacent Construction for work within the ZOI ■ Coordinate with WMATA Operations to minimize other impacts to WMATA Facilities ■ Maintain 24/7 Access to WMATA Transit operations and facilities
Federal Highway Administration (FHWA)	■ Conform to applicable FHWA standards and requirements ■ Keep FHWA informed throughout the project through SHA
General Services Administration (GSA) & TOD Developer	■ Regularly communicate to minimize impact to GSA / TOD facilities ■ Coordinate with TOD Developer for early access for the Proposed developer ■ Coordinate MOT, access, material deliveries and right-of-way needs
National Park Service (NPS)	■ Regularly communicate to minimize impact to NPS' right-of-way ■ Coordinate MOT and Work phases with NPS Operations
Resource Agencies (Maryland Department of the Environment, Maryland Department of Natural Resources, US Fish and Wildlife Service, US Environmental Protection Agency & USACE)	■ Assist SHA in obtaining required permits ■ Meet all Permit requirements and procedures ■ Suggest alternative Designs and means and methods that minimize environmental impacts to wetlands, streams, floodplains and RTE species such as the Trailing Stichwort
Beltsville Agricultural Research Center (BARC) & Goddard Space Flight Center	■ During planning, ensure that no activities will negatively impact BARC's and Goddard facilities
EMS (Police, Fire, and Hospitals)	■ Coordinate changes in MOT and traffic patterns prior to implementation ■ Assist EMS responders, as appropriate, to incidents along the roadway
Schools (Prince Georges County School Board Transportation and Operations Divisions	■ Coordinate changes in MOT and traffic patterns prior to implementation ■ Assist School transporters, as appropriate, with incidents along the roadway
Local Commercial Establishments and Residents	■ Minimize traffic impacts to other roadways in the area ■ Minimize impacts to emergency services, local transit routes and school routes ■ Maintain clear consistent messaging and information on potential impacts

Adjacent Developers

One of the major driving forces behind the project is the proposed Transit Oriented Development (TOD) in the current WMATA facilities. As the Principal-In-Charge of the design firm that performed planning, re-zoning and engineering for the former Developer, Lou Robbins is intimately familiar with the project's origins and the specific permit and zoning requirements. Our team is already aware of the allowable environmental impacts, sites constrains and potential opportunities. We will work closely with the developer, **Renard Development Company** to maximize synergies in grading, drainage,

SWM, permitting, utility relocations, material delivers and workforce access. This is accomplished with regular monthly, or more frequent if necessary, meeting to discuss the above topics during both the preconstruction and construction phases. The touchdown points of our new ramps, continuation of drainage, effectiveness of E&SC facilities and grading must be coordinated for both phasing and function. One area where we can make the most difference is coordinating our construction phasing with both the TOD developer's phasing and WMATA's needs for around-the-clock access to their existing station facilities. Uninterrupted parking and vehicle access to the station must be maintained as we switch to the new fly over ramp and demolish the old ramp.

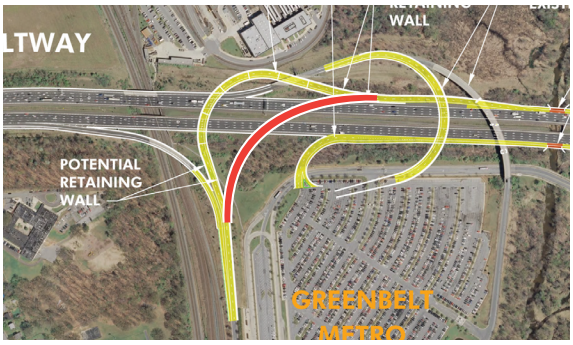
C.1.d Proposed Technical Concepts

Your team may have some innovative ideas or technical concepts that may or may not meet the requirements of this RFP and could increase the likelihood of success and help balance the project goals. Describe these innovative ideas or technical concepts and how they may further improve reaching project goals including impacts on time, cost, and quality. If your team is selected and awarded the contract, any innovation ideas or technical concepts proposed will be expected to be used in the Design phase unless the Administration determines they are not in the best interest of the project.

Outer Loop (OL) Ramp Shift

Description: For the OL ramp to Greenbelt Metro Station, this option shifts the alignment of the bridge to the east by approximately 500'.

Improving Project Goals: By realigning the OL ramp, there are no straddle bents over the 96-in. waterline. The new bridge alignment also eliminates the need for a WMATA right-of-way. This new alignment minimizes utility and property impacts and reduces project risk. Next, we eliminate the need for closures on the OL ramp from the station, because the new alignment is no longer over the existing ramp. This minimizes inconvenience to the traveling public. There is significant quantity reduction on the bridge due to the shortening it by about 300 feet, which maximizes the scope of improvements within the construction budget, and reduces the overall schedule to ensure the project is completed on time.



Outer Loop (OL) Ramp Cut and Cover

Description: For the OL ramp to Greenbelt Metro Station, this idea provides a cut and cover tunnel in lieu of a bridge.

Improving Project Goals: By utilizing a tunnel, there are no impacts to the 96-in. waterline and no need for a WMATA right-of-way. The tunnel minimizes utility and property impacts and reduces project risk. Next, we eliminate the need for closures on the OL ramp from the station, because the tunnel does not interface with the existing ramp. Also, The MOT phasing could be designed to maintain the existing number of travel lanes during construction. By not constructing a bridge over live traffic, we minimize inconvenience to the travelling public, and reduce the overall schedule to ensure the project is completed on time.

Utilize Existing Flyover Structure

Description: This option involves redesigning the intersection at Greenbelt Metro Drive and the existing OL ramp from the Greenbelt Metro Station to utilize the existing flyover structure.

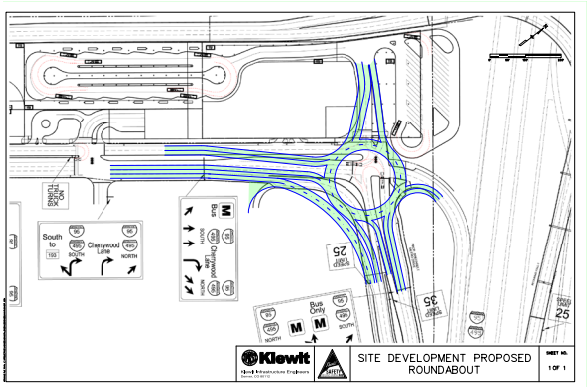
Improving Project Goals: By utilizing the existing flyover structure, we eliminate the need for a new bridge. This eliminates 22,400 SF of bridge deck, which significantly reduces construction costs and maximizes the scope within the budget and reduces overall construction time to ensure the project is completed ahead of schedule. By not constructing a new bridge over I-95/495 traffic, we eliminate traffic restrictions and minimize inconvenience to the traveling public. The new bridge also interfaces with the 96-in. waterline; and by reusing the existing bridge, we eliminate potential impacts to the waterline. We recognize that the purpose of demolishing this bridge is due to the potential location of the FBI headquarters and their need for a standoff distance from traffic. This option would only be explored if alternative locations were selected.

Rhode Island Substructure Reuse

Description: On the Rhode Island Bridge, our alternative is to reuse existing substructure on the current bridge, while replacing the superstructure and widening it to accommodate the project needs. This involves a full bridge inspection on

the substructure and a potential retrofit of the columns and pier caps to meet current LRFD standards.

Improving Project Goals: By reusing existing substructure, there is a significant quantity reduction on the bridge construction. In addition, we maintain the existing structure depth and profile, which reduces embankment, wall quantities and full-depth pavement replacement, however we do recognize that a primary reason for bridge reconstruction is due to clearance concerns. All these improvements maximize the scope of improvements within the construction budget, and reduce the overall schedule to ensure the project is completed on time. This innovation also reduces traffic impacts because the overall schedule is reduced, which results in less lane restrictions. We anticipate several utilities underneath the bridge, and by reusing the existing foundations and substructure, we minimize any disturbance to those existing utilities. Due to the reuse of the existing substructure, we minimize demolition material and hauling, which reduces environmental impacts.



Create Roundabout at Greenbelt Metro Station

Description: Develop a roundabout in the Northwest corner of the Greenbelt Metro Station, connecting the IL ramp from Greenbelt Metro Station, the OL ramp from Greenbelt Metro Station, Greenbelt Metro Drive, and Greenbelt Station Parkway.

Improving Project Goals: By constructing the roundabout, we eliminate a traffic signal, which maximizes scope within the construction budget. The roundabout enhances traffic circulation, which greatly enhances the future TOD and FBI development. The roundabout option also allows stakeholders to participate in the landscape architecture, which enhances the future development.

MOT Phasing at Rhode Island and Greenbelt Road Bridge Replacements

Description: This approach optimizes the MOT phasing and bridge construction to maintain five lanes of traffic in Stage 2. We would accomplish this by minimizing the demolition of the existing structure, maintaining three 11-ft. lanes on the existing structure, two 11' lanes on the new structure constructed in Stage 1, and reduce the amount of permanent structure constructed in Stage 2 between the existing and new structure.

Improving Project Goals: By maintaining three lanes of traffic on the existing bridge, and two lanes on the new bridge, we maintain I-95's existing capacity, and during nightly closures, maintain three lanes of traffic. This approach minimizes inconvenience and impacts to the traveling public.

Future Development Excavation for the Widening Construction Embankment

Description: This alternative identifies strategic areas of excavation in the TOD areas that can be used for the Greenbelt project widening due to the expectation of significant excavation for the future TOD and FBI construction. An ideal location is the area designated for the new parking garage. This garage is probably one of the first areas slated for construction to support the need for station parking, prior to the construction of the redevelopment.

Improving Project Goals: Utilizing onsite material for the widening construction reduces the amount of offsite borrow, which greatly reduces project costs. By reducing the amount of haul trucks on the roadways, we improve public safety, minimize inconvenience, and reduce environmental impacts.

Widening to the Inside Lanes

Description: Move the widening from the outside to the inside of the median between Station 360+00 and Station 447+00, a distance of 8700 LF, assuming the median is not being reserved for other future use. In this area the freeway would have a median barrier and drainage system to accommodate this additional paved area. This concept would require widening the Metro Rail Bridges and shift the EB MD-193 Bridge replacements to the median. Instead of widening the box culverts over Indian Creek and its tributary to the outside, they would be made continuous across the median.

Improving Project Goals: All of the widening would be within the footprint of the existing roadways which minimizes environmental impacts. This concept also reduces earthwork, wall and ramp quantities, which would reduce overall project cost and schedule. Lastly, this concept eliminates the impacts to the existing 96" waterline.

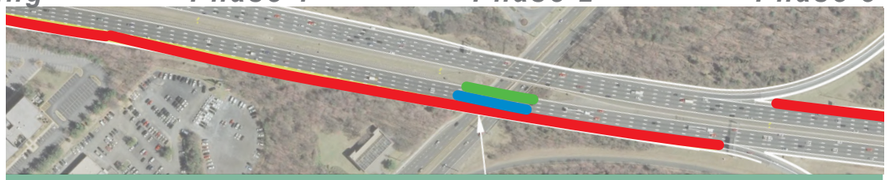
C.2 CONSTRUCTION APPROACH

C.2.a. Construction Sequencing and Phasing

Phase 1 Phase 2 Phase 3

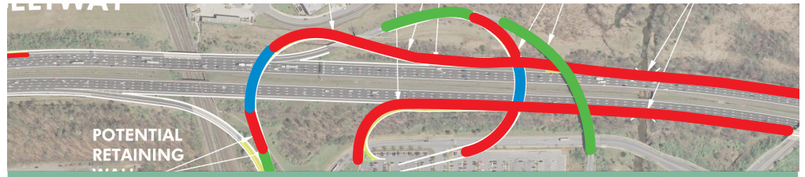
SEGMENT 1: US 1 - GREENBELT METRO STATION
(APRIL 2017 - NOVEMBER 2018)

ROADWAY	BRIDGE
Phase 1 - *(April 2017 - August 2017)*	
• Shift traffic to the inside lanes, install temp. concrete barrier & striping • Remove asphalt shoulder & barrier/guardrail • Install E&S, clear & grub, perform wetland/stream mitigation • Construct embankment, sound walls & retaining walls • Construct drainage & SWM areas • Construct new pavement & barrier • Stabilize embankment slopes	• Install MOT on Rhode Island • Install shoring on I-95 to support existing roadway • Demo existing superstructure, substructure, & abutment • Construct foundations & abutment, erect steel girders & construct new deck & bridge barrier
Phase 2 - *(October 2017 - May 2018)*	
• Remove temp. concrete barrier & install striping for new configuration • Split traffic at Rhode Island Bridge, two lanes on existing structure, two lanes on new structure • Develop work zone for Phase 2 bridge construction • Open new widened roadway section	• Install shoring on I-95 to support existing roadway. • Demo existing superstructure, substructure, & abutment • Construct foundations & abutment, erect steel girders & construct new deck & bridge barrier
Phase 3 - *(July 2018 - November 2018)*	
• Shift all traffic onto new structure	• Demo existing superstructure, substructure, & abutment • Construct foundations & abutment, erect steel girders, construct new deck & bridge barrier & remove temp. shoring



SEGMENT 2: CHERRYWOOD LN - BALTIMORE WASHINGTON PKWY
(JULY 2017 - APRIL 2019)

ROADWAY	BRIDGE
Phase 1 - *(July 2017 - April 2018)*	
• Shift traffic to inside lanes, install temp. concrete barrier & striping • Remove asphalt shoulder & barrier/guardrail • Install E&S, clear & grub, perform wetland/stream mitigation • Construct culvert extension at Station 398+50, at Indian Creek tributary • Construct embankment, sound walls & retaining walls • Construct drainage & SWM areas • Construct outside portion of the Kenilworth IL on ramp; must be constructed concurrently with the mainline widening • Construct inside portion of the Kenilworth OL on ramp. The inside portion must be constructed first because the ramp is constructed offline • Construct new pavement and barrier • Stabilize embankment slopes	• Install MOT on Greenbelt Road • Install shoring on I-95 to support existing roadway • Demo existing superstructure, substructure, & abutment • Construct foundations & abutment, erect steel girders & construct new deck & bridge barrier
Phase 2 - *(May 2018 - July 2018)*	
• Remove concrete barrier & install striping for new configuration • Split traffic at Greenbelt Road Bridge: two lanes on existing structure two lanes on new structure • Develop work zone for Phase 2 bridge construction • Open up new widened roadway section • Shift traffic on the Kenilworth IL ramp to the newly constructed outside portion. Construct inside portion of ramp along with the gore & the tie in points of the Kenilworth OL on ramp	• Install shoring on I-95 to support existing roadway • Demo existing superstructure, substructure, & abutment • Construct foundations & abutment, erect steel girders construct new deck & bridge barrier
Phase 3 - *(November 2018 - April 2019)*	
• Shift all traffic onto new structure • Open Kenilworth Ramps in final configuration	• Demo existing superstructure, substructure, & abutment • Construct foundations & abutment, erect steel girders, construct new deck & bridge barrier & remove temp. shoring



SEGMENT 3: GREENBELT METRO STATION - CHERRYWOOD LN ROADWAY *(AUGUST 2017 - APRIL 2019)*

ROADWAY	BRIDGE
Phase 1 - *(August 2017 - July 2018)*	
• Shift traffic to inside lanes, install concrete barrier & striping • Remove asphalt shoulder & barrier/guardrail • Install E&S, clear and grub • Perform wetland/stream mitigation • Construct culvert extension at Indian Creek, Station 376+75 • Construct embankment, sound walls and retaining walls. • Construct drainage and SWM areas. • Construct IL ramp from the Greenbelt Metro Station. • Construct OL ramp to Greenbelt Metro Station from ramp gore to the new bridge abutment. • Construct the OL ramp from the Greenbelt Metro Station up to the abutments. • Construct new pavement and barrier • Stabilize embankment slopes	• Construction flyover bridge foundations outside of the mainline • Construct bridge abutments on both flyover bridges • Construct substructure & superstructure outside of the mainline
Phase 2 - *(July 2018 - November 2018)*	
• Remove temporary concrete barrier & shift traffic to new outside lanes • Develop median work zone for flyover bridge foundation construction	• Construct median foundations for flyover bridges • Construct substructure & superstructure within the mainline • Set girders over mainline • Construct new deck & bridge barrier
Phase 3 - *(November 2018 - April 2019)*	
• Construct tie in from the new OL bridge from the Greenbelt Metro Station to the existing ramp	• Demo existing OL bridge from the Greenbelt Metro Station

Phase 4 *- (April 2019 - August 2019)* **All Segments**

- Mill & overlay entire roadway
- Install permanent striping
- Remove E&S controls

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Benefits of our Phasing, Sequencing and Scheduling Approach

Discuss your proposed construction sequencing and schedule including, but not limited to, maintenance of traffic, construction phasing, and independent work packages. Discuss factors that would affect schedule such as outside constraints, seasonal work, materials, equipment and labor availability, etc.

SEGMENT 1: By completing this congested section first, we will enable the team to turn over usable sections of the freeway to SHA and the traveling public as soon as possible. This section is not dependent on USACE permits and will be an ideal location to begin work. Since the project begins in the 2017 environmental window, there are no restrictions to construct this segment. Construction on this segment will begin in a favorable weather season, enabling high productivity through 2017. We have started this segment early due to the extensive phasing required at full bridge replacements; this allows enough construction time to complete this segment within the required project schedule.

SEGMENT 2: This section is dependent on USACE permits, which is why we have schedule this as the second segment for construction. This approach will allow for extra permitting time and not delay the project. There is construction required over the tributary to Indian Creek that would be restricted by the environmental windows. We have scheduled this segment to start the work after June 15 to prevent any environmental impacts. This segment contains standard steel girders that do not have a long lead-time. This is an ideal location to start the second segment of construction. This segment will start construction in favorable weather season that will enable highly productive through 2017. Due to the extensive phasing required at full bridge replacement, we have started this segment early to allow enough construction time to complete this segment within the required project schedule. By leveraging our two firm's resources into a joint venture partnership, we will have access to a large labor and equipment pool that will enable our team to start the project efficiently and meet key project milestones.

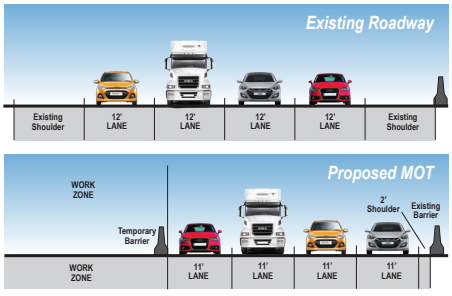
SEGMENT 3: This section is dependent on USACE permits, which is why we have scheduled this as the last segment for construction. This approach will allow for extra permitting time and not delay the project. There is construction required over Indian Creek that would be restricted by the environmental windows. We have scheduled this segment to start the work after June 15 to prevent any environmental impacts. This segment contains long lead steel plate girders. Due to the duration of procurement, we have scheduled this segment last to accommodate the procurement schedule. Currently, the FBI has not made a final determination for their future headquarters. By designing and constructing this segment last, we allow for additional time for decision-making, and design optimization. This approach will result in minimal redesign and allow for optimal innovations. There will be extensive coordination required with the TOD development and future FBI headquarters. By constructing this segment last, we will allow ample time to complete effective planning for future development. We scheduled this section last, with the potential reuse of the future developments excavations as fill for the widening and bridge construction. This approach will reduce construction costs and schedule. By leveraging our two firm's resources into a joint venture partnership, we will have access to a large labor and equipment pool that will enable our team to start the project efficiently and meet key project milestones.

Maintenance of Traffic

There are three major components to minimizing impacts to the traveling public through the Greenbelt corridor:

- Reduce the duration of construction
- Optimize the number of work areas under construction at any one given time
- Maintain existing number of lanes on the mainline, limiting restrictions and closures to nighttime hours

The impact on vehicular traffic traveling on the mainline is minimized by breaking the work into smaller segments along the corridor and maximizing the phasing of each segment/work area. Our sequence of construction coordinates all aspects of the project including design time, construction crew availability, materials supply, and impacts to traffic. An advantage to our plan is that we can set temporary barrier only in locations where we are working instead of from one end of the project to the other. Once the work in each segment is complete, we can immediately remove the barrier and open the road to traffic.



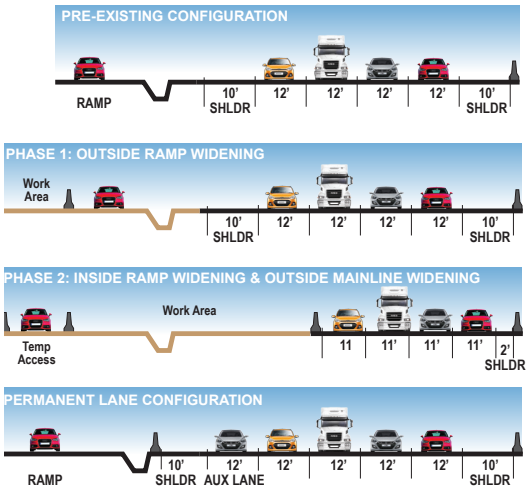
Mainline MOT: To create an adequate work area for the widening, traffic lanes will be reduced to 11' and shifted to the median during a weekend traffic restriction. To accomplish the shift, the inside two travel lanes will be closed and temporary

pavement markings will be installed. During the same weekend, traffic will be shifted to the new inside lanes, and a temporary concrete barrier and any remaining temporary markings on the outside two lanes will be installed. Similar closures will be necessary during Phase 4 to install the new asphalt and to shift traffic to its final configuration.

Bridge Widening MOT: There are several phases of MOT required for the full bridge replacements. For Phase 1 construction on the bridges, we will perform the initial traffic shift concurrently with the outside widening areas. Phase 2 construction cannot begin until the outside roadway has been constructed, which is why we have scheduled the segments that contain the bridge replacements early in the schedule. Once the outside roadway and bridge widening is complete, we will shift traffic to the Phase 2 configurations shown in the preliminary plans.

For Phase 2 bridge construction, the majority of construction operations will require lane closures on I-95 including the girder setting and concrete pours. We will perform all this work under two lane closures during nights and weekends to prevent impacts to peak traffic. Once Phase 2 bridge construction is complete, we will perform another traffic shift to the new bridge, and complete the final stage of bridge construction and shift traffic onto the permanent configuration of roadway.

Ramp MOT: For the on-ramps at Kenilworth Avenue in both directions, each ramp will be constructed in two phases. In Phase 1, we will construct the outside half of the on-ramps requiring realignment. Temporary concrete barrier adjacent to the work areas will be set, and temporary asphalt paving will be placed along the inside shoulder of the ramp to accommodate traffic. When Phase 1 is completed, the barrier will be moved to adjacent work areas for Phase 2.



Phase 2 consists of the inside ramp widenings, gore reconstructions and mainline widenings between the on-ramp gore and the Kenilworth Avenue bridge. When Phase 2 is complete, the barrier will be removed, providing additional shoulder areas for motorists.

Work Zone Truck Entrances: Work zone truck entry and exit points can frequently be confusing to drivers. We recognize the potential hazards to construction crews and the traveling public associated with entering and exiting the project areas. Our MOT plan includes median ingress/egress specifically for the project, with appropriate acceleration/deceleration lengths. The main consideration in the placement of these zones between the off- and on-ramps is to prevent construction vehicles from entering and exiting into mainline traffic where peak volume exists. Separating the exit and merge points for construction traffic and the motorists will result in safer traffic flows and fewer accidents.

Major Factors that Could Affect the Schedule

Prior to construction, we conduct a field investigation to identify the limits of aquatic (wetland/streams) and forest resources under the jurisdiction of the MDE, USACE, and MDNR. Upon establishing a limit of disturbance for project activities, potential resource impacts are quantified and impact permits and correspondence letters are submitted to the corresponding resource agency (MDNR, USFWS, MHT).

Resource agency permits typically include stormwater management best management practices (BMP), soil erosion and sediment control measures, construction monitoring, and timing restrictions to ensure protected resources are not impacted during construction activities. Stormwater management BMP's are installed prior to any ground disturbance activities and any work performed within Indian Creek or Indian Creek tributaries will have an in-stream time restriction between March 1 and June 15. Within the Indian Creek watershed, it is expected this project will require water quality monitoring to ensure all construction activities within the Indian Creek watershed are within COMAR specifications. Another permit condition may be to provide compensatory mitigation for impacts to jurisdictional wetlands, wetland buffers, or streams.

Materials: This project includes several specialty materials that will require close coordination through design, procurement and construction including steel bridge girders, sound wall panels, MSE wall panels, light poles and luminaires, ITS materials and overhead sign structures. The design for long lead-time materials will be advanced and developed in sufficient detail to allow shop drawings to be submitted and approved and the orders placed to ensure timely delivery.

Utilities: Currently, both flyover bridge foundations span this WSSC 96" waterline to prevent any conflicts. During

preconstruction, we will physically locate the waterline and perform a full inspection of existing conditions and install an engineered access system (crane mats, ground improvements) to ensure the waterline is fully protected during drilling and crane operations, and monitor vibration and settlement to ensure we are within the WSSC specifications. Once the engineered system is installed, we will proceed with the bridge foundations. In addition to the 96" waterline, we will supplement the available utility information with additional potholing efforts during preconstruction to identify any potential utility conflicts that might interfere with new design elements and our planned construction activities during the course of the project.

We anticipate that there are utilities on Rhode Island Avenue and Greenbelt Road that will need to be protected in place during bridge demo and construction. By identifying these utilities early in preconstruction, the design team and utility companies will have sufficient time to develop and perform relocation plans without delaying construction activities.

C.2.b. Contracting Plan

Provide a description of the Construction work the Project Management Team has the capability to self-perform, including qualifications to do such, and to subcontract. Provide a discussion on the process you will utilize to solicit subcontractors during the OPCC and GMP process including compliance with COMAR 21.05.10.05

We have the staff, craft and equipment resources necessary to self-perform the critical scopes of the work on our projects. On Telegraph Road, I-695 and Cocoa, we self-performed over 60% of the work on scopes identical to the project. Our key staff worked in identical roles on at least two of these projects, and have the self-performed experience to build this work.

Below is a list of all major scopes of work on the project, along with our past project experience demonstrating our qualifications to construct this project. In addition, we have detailed the scopes of work that we intend to self-perform providing the most value to SHA. By self-performing the majority of the work, we can provide the following benefits to SHA:

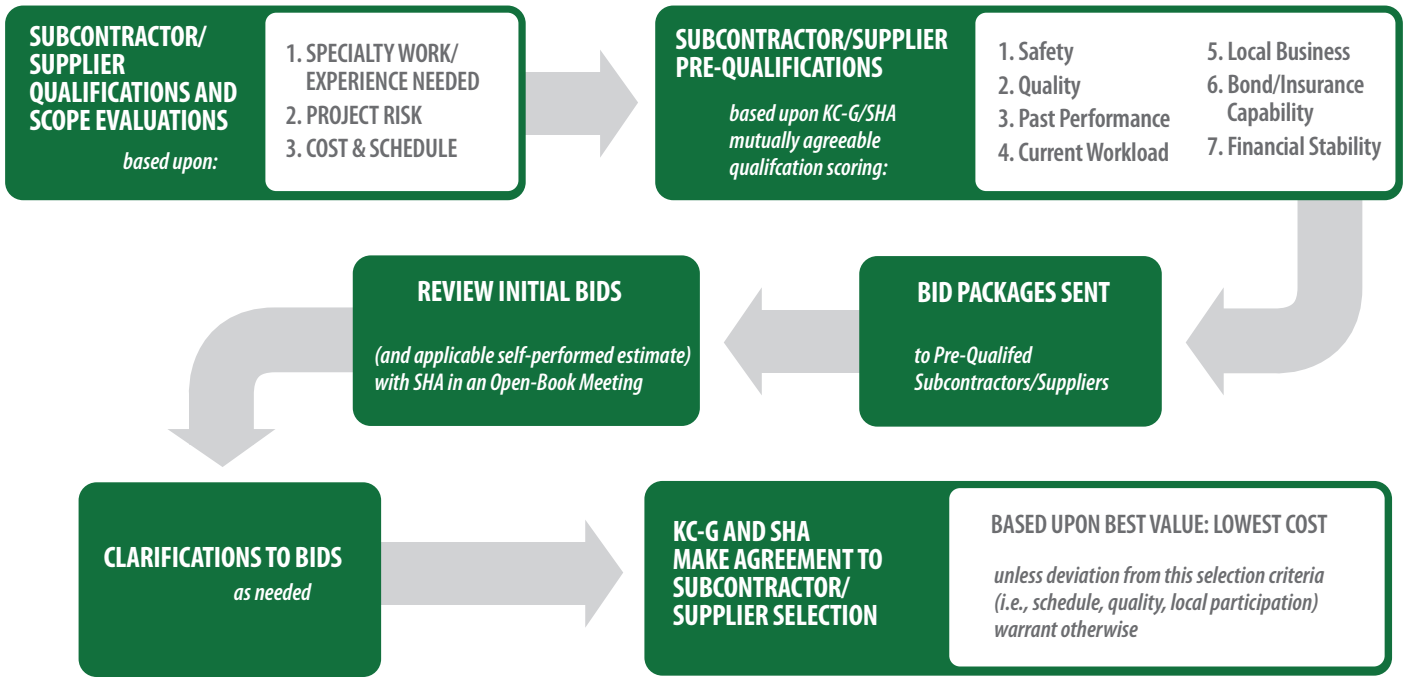
- Improved control of safety, quality, schedule, and budget
- By constructing the critical path of the project, we have full control of maintaining the schedule
- Having our own crews of workers on-site gives us the ability to react to issues quickly
- The project is not paying subcontractor markups on scopes that we can self-perform ourselves
- The risk of scope gaps between contracts is drastically reduced because we own the scope

DESCRIPTION	PREVIOUS PROJECT EXPERIENCE				SELF-PERFORM CAPABILITY	SUBCONTRACT OPPORTUNITY
	Telegraph	*I-695*	*Cocoa*	*Qualification*		
Permitting	✓	✓	✓	*Chesapeake Environmental's experience working with permitting agencies*	●	●
Survey	✓	✓	✓	*We employ our own surveyors and own our own survey equipment.*	●	●
Erosion and Sediment Controls	✓	✓	✓	*We self-performed E&S on jobsites within miles of the project.*	●	●
Stream Diversion/ Relocation	✓	✓		*Relevant, local experience with stream mitigation*	●	●
Maintenance of Traffic	✓	✓	✓	*We employ our own personnel and own our own MOT equipment.*	●	●
Clearing, Excavation and Embankments	✓	✓	✓	*We own grading equipment and employ local operators.*	●	●
Permanent Roadway Barrier	✓	✓	✓	*We own slip paving equipment and formwork and employ carpenters.*	●	●
Bridge Demolition	✓	✓	✓	*We performed bridge widening demo on identical projects.*		●
Drilled Shafts/Piling	✓	✓	✓	*We own drilling and pile driving equipment and craft.*	●	●
Bridge Construction (Flyover and Widenings)	✓	✓		*We own cranes and employ operators and carpenters.*	●	

DESCRIPTION	PREVIOUS PROJECT EXPERIENCE				SELF-PERFORM CAPABILITY	SUBCONTRACT OPPORTUNITY
	Telegraph	*I-695*	*Cocoa*	*Qualification*		
Drainage Pipe and Box Culverts	✓	✓	✓	We own excavation equipment, cranes and formwork, and we employ laborers, operators and carpenters.	●	
Retaining and Sound Walls	✓	✓	✓	*We own cranes and formwork and employ operators and carpenters.*	●	
Roadway Subgrade and Base	✓	✓	✓	*We own grading equipment and employ operators.*	●	
Asphalt Milling and Paving	✓	✓	✓	*Relevant, local experience with milling and paving subs*		●
Guardrail, Landscaping and Planting	✓	✓	✓	*Relevant, local experience with subcontractors*		●
Signing, ITS and Pavement Markings	✓	✓	✓	*Relevant, local experience with subcontractors.*		●

The subcontractor procurement process starts during the early stages of preconstruction with the creation of bid packages, prequalification of subcontractors and the identification of long-lead items. We believe it is critical to establish a detailed procurement plan with SHA at the onset of the project, and our plan is in full compliance with COMAR 21.05.10.05. Our subcontractor procurement plan is designed to ensure that capable, reputable and local subcontractors who are selected on a combination of qualifications and price are performing on the project. With input from SHA, we will evaluate and score each subcontractor's proposal based on the evaluation criteria that is established by our collective team.

Our subcontractor selection criteria, as illustrated below, is based on both qualifications and competitive bid criteria. If several alternatives for qualified subcontractors or suppliers are available, **we will implement our selection plan to pre-qualify and evaluate bids that will provide the best value to the Capital Beltway project.** SHA staff will be involved throughout the subcontractor selection process, including the prequalification stage, to ensure that all subcontractors meet SHA's qualification requirements. Subcontractor selection will be based on a combination of qualifications and price, and will be subject to agreement between SHA and KC-G based on project specific.



C.2.c. Stakeholder Coordination

Discuss how you will communicate with the various stakeholders throughout the construction of the project. Discuss how your approach will help the stakeholders, including the adjacent developers, to achieve their goals.

During construction, our team continually monitors the effectiveness of our outreach plan and each of its elements.

The program performance is based on feedback from stakeholders. We establish a monthly formal evaluation process that measures the performance of our stakeholder interaction, and use the feedback from those evaluations to modify and improve upon the initial programs.

We are committed to establishing and maintaining excellent relationships with our key stakeholders. Our team understands that communication builds trust and sharing information in a timely fashion is the best way to maintain successful working relationships.

During construction, our team has weekly operations meetings to generate a three-week look-ahead work schedule, which includes any MOT changes or potential road/lane closures affecting residents and commuters. This schedule is distributed to interested third parties. Stakeholders are notified two weeks in advance of the initial MOT installation or any major MOT traffic switches. In addition, we notify the traveling public of major traffic changes or lane closures through message boards. In the event of a traffic emergency, local emergency responders are notified immediately in accordance with our Emergency Response Plan submitted after NTP.

More specifically, the chart below details specific interactions between our team and each stakeholder.

Stakeholder	Construction Involvement Activities	Goals Achieved
City and County Governments; Local commercial establishments, residents, commuters; Beltsville Agricultural Research Center (BARC); Goddard Space Flight Center (NASA)	▪ Maintain clear, consistent messaging and information on potential impacts ▪ Hold “Pardon our Dust” and other public informational meetings ▪ Minimize traffic impacts to local streets, local transit and school routes ▪ Minimize impacts to local Emergency Services ▪ Minimize impacts to local community events ▪ Maintain an active website to share information that is updated frequently ▪ Maintain a manned phone system to receive text messages and calls from the community ▪ Prepare informational flyers for distribution at public buildings (libraries, etc.), and large local commercial establishments ▪ Maintain communication channels with local public officials ▪ Utilize social media to publicize upcoming changes in traffic patterns or planned short-term closures for beam erection	▪ Clear, correct and current information on expected impacts to their daily travels
Washington Sanitary and Sewer Commission (WSSC)	▪ Perform protection for 96-in. water main in accordance with WSSC requirements – i.e., maintain required distance from heavy equipment to water main ▪ Coordinate any WSSC planned improvements to its infrastructure with our work to avoid conflicts	▪ No impacts to the 96-in. water main ▪ No unintentional impacts to services ▪ Ability to accurately plan the required relocations
Other Utilities (Pepco, Verizon, ATT, etc….)	▪ Coordinate any planned improvements to their infrastructure ▪ Regularly communicate to minimize impact to existing facilities ▪ Assist the utilities by clearing or providing access for them to perform their work	▪ No unintentional impacts to services ▪ Ability to accurately plan the required relocations
Washington Metropolitan Area Transit Authority	▪ Coordinate with WMATA’s Office of Adjacent Construction and agency operations for work in the ZOI ▪ Maintain 24/7 access to WMATA transit operations and facilities ▪ Minimize traffic impacts to local streets and transit routes	▪ No disruptions to their operations or facilities (bus or rail)

C.3 RISK MANAGEMENT

C.3.a. Risk Management Process

The CMAR process benefits from the Contractor's engagement in risk management. Explain the approach the Proposer will use to help the project team identify, price, and mitigate risks. (Note: this should focus on the Risk Management process as opposed to identifying project specific risks.)

Reducing risk and applying innovation is critical to the success of any project. Risk management begins by defining the risks associated with the project and by understanding a risk's potential impact which is essential to managing and mitigating it.

We will work in partnership with the SHA and the designer to identify, analyze, innovate, and manage any potential risks that may occur on the project. Working closely together, we will develop a plan and strategy that:

- Identifies all potential risks that may arise on the project
- Determines the correct contingency amounts for those risks that cannot be eliminated
- Determines which party "owns" each risk item
- Separates any risk out of the cost models
- Regardless of ownership, develops approaches that either eliminate or minimize those risks

Development of Risk Registers

As part of this proposal, our team has already taken an in-depth look at the potential risks that are associated with the project. The biggest piece missing is the critical input from the SHA, engineer of record and potential stakeholders. In order to develop the potential risks associated with this project, we utilized a collaborative approach, which would be the same approach we use during the preconstruction phase of the project. First, we brainstorm potential risks by performing an initial plan flip with all team members involved in the project including the client, designer of record, estimators, superintendents, internal professional engineers and managers. During this plan flip, we are familiarizing everyone with the project, but also diving into the details of each plan sheet. Every potential risk is added to the initial risk register. Next, each team member spends individual time getting deeper into the details of the project plans. Many times, our engineers, estimators and superintendents are able to find additional risks by performing takeoffs, running calculations, and developing the project schedule. In order to capture each team member's thoughts, we ask individuals to maintain their own individual risk registers and then hold a formal meeting to discuss every idea, and put it on the master list. For this project, we paid special attention to items such as:

- **Utility locations**: There are several key utilities including the 96" waterline that the bridge columns either avoid or straddle.
- **Geotechnical conditions:** Differing site conditions can have impacts on roadway sections and bridge foundation design
- **Schedule:** There are several long lead items along with detailed MOT phasing. Each phase is highly dependent on follow on work.
- **Surrounding homes, apartments and businesses:** Many of the sound and retaining walls and associated embankment take place very close to side streets and local residents.
- **Environmental:** Many of the widened areas are located near streams, ditches, and other environmentally sensitive areas.
- **MOT:** There are several traffic switches and access requirements that are critical to the success of this project. We will pay special attention to conflicts between mainline traffic and construction.

All of these items and many others were added to the initial risk matrix. After identification of the risk on the matrix, our team will go through a process of analyzing risk that leads to appropriate innovations and developing mitigation and innovative strategies, along with efficient allocation of risks. As a team, we will compare costs, schedule, and risk between different design alternatives and construction practices to develop the best overall approach that eliminates or reduce risk.

For example, on the 96" waterline, one of the flyover bridges is constructed by spacing out the foundations, while the other flyover bridge uses a straddle bent to avoid the waterline. In order to further mitigate potential damage to the waterline and reduce cost, the team could evaluate alternative bridge alignments to eliminate the additional costs associated with the straddle bent, and design engineered access to prevent damage.

For the schedule, our team can run several "what if" scenarios during preconstruction to identify potential issues if a long lead material gets delayed or if we experience a differing site condition during bridge or roadway construction. This project is highly phased, and it is important to play out several different scenarios. By ensuring that there are several "Plan B" options,

we can develop the optimal phasing plan that maintains the completion date if an issue were to arise. Since the risks can change as the team decides which concepts and approaches will be adopted, we will utilize the risk register as a living document to prioritize and track progress during design and construction to mitigate risk.

A final example for mitigating risk would include the design schedule. For example, we could begin foundation construction on the bridges prior to final design of the superstructure. If an issue were to arise in the field such as unanticipated driving conditions and/or additional pile depth, then we would incorporate the field conditions into the following plans with no loss of quality or delay to the project. This would allow the team to keep the bridge schedule on track by minimizing design rework and incorporating lessons learned into follow on operations.

During design development on the IS-95 project, we propose to discuss the risk register at our formal weekly meetings. Along with constructability reviews, our team would discuss the risk register along with innovative suggestions to mitigate the risk. These ideas will be provided by all team members, including Kiewit Infrastructure Engineers, a group of highly qualified roadway and bridge engineers. They have already been highly invested in this project, and will continue throughout the remainder of the project. Advancing an innovation can result in cost estimating, value analysis or exploring a design for feasibility. To maintain efficient decision making, the team would maintain an action item list with detailed assignment and due dates. Separate face-to-face or conference calls can be established with key personnel to ensure we have the right people to discuss specific potential suggestions. An advocate would be assigned to champion each suggestion to ensure full evaluation is performed with the proper personal involved and resolution obtained.

KC-G Cost Estimator, David Gates, will lead the development and management of the risk register, along with support from Andy Douglas and Keith Kern. David successfully implemented this process on recently completed MD 24 CMAR project, Telegraph Road, I-695, ICC-A, ICC-B and SHA projects. David brings tremendous value because he understands SHA requirements and the processes in alternative delivery procurement.

C.3.b. Risk Management Performance

Discuss the Proposer's past performance in mitigating risks on previous construction projects of similar size and complexity. Discuss how this past performance will benefit this project, particularly in regards to scope, schedule, budget, and quality

I-95 / I-695 INTERCHANGE - $220 million

96-in. Water Pipe: Protection of a 108-in./96-in. Baltimore City Water Transmission Main that ran perpendicular to the road alignment of I-95 was a major risk on the project. We used a protective sleeper slab and avoided potential damaging overloading.

Benefits to this project: We can apply the same strategy to protect the large diameter water main that is running perpendicular to this project and originally installed by Corman.

Maintenance of Traffic (MOT): With volumes higher than the Greenbelt Metro Interchange project, heavy commuter and seasonal traffic was the biggest risk to project success and schedule adherence. The design and construction phases focused on implementing temporary traffic patterns for construction with monumental coordination with adjacent projects for traffic patterns/flow during construction. The project was conceived to use contra-flow and double contra-flow traffic patterns to secure I-95 and I-695 when construction was over an active travel lane instead of a lane closure. Contra-flows takes traffic from construction-impacted lanes and places them on the adjacent roadway flowing counter to the traffic typically on that road

The project team stressed that in addition to inherent safety issues associated with contra-flows, there was not enough shutdown time to set up and take down the required MOT and still have time for construction. We demonstrated that with planning and notification, detours could be set up and lane closures used to continue construction. Where a short-term closure was required (30 minutes or less), traffic drags would be used.

Benefits to this project: With MOT as a major component, we can take this alternative approach and devise methods that increase motorist mobility and safety and keep our construction team safe.

I-95/495 TELEGRAPH ROAD INTERCHANGE IMPROVEMENTS - $269 million

MOT: Maintaining traffic involving an ADT of 160,000 was the biggest risk of the project. Traffic flow issues were mitigated

before they became problematic. Six lanes—three lanes in each direction of I-95—were maintained at all times during construction. The Corman/Kiewit Joint Venture team constructed a section of roadway, switched traffic to the new lanes and began improvements to the old roadway. Traffic control and safety were huge concerns, with much of the construction completed at night and during off-peak traveling. Due to heavy traffic congestion, we revised MOT plans, which reduced the original design of six phases to three and from 12 traffic shifts to six. This improved traffic flow and positioned the team to meet all major interim milestones and incentives, while improving public traveling conditions.

Benefits to this project: Since we have partnered in a joint venture on similar projects, we can easily collaborate to identify and resolve MOT issues early and maintain time and cost considerations. Based on these MOT modifications the project was completed nine months early. The same innovative thinking will be used on this project to find ways to minimize impacts and accelerate the construction schedule.

WMATA Procedures: Correctly following WMATA adjacent construction, it is critical to satisfy WMATA's approval in a timely manner and to keep the project on schedule. There was one bridge widening that carried Telegraph Road over four WMATA electrified tracks, two Norfolk Southern tracks, and three CSX tracks (with WMATA traffic). This required working with WMATA to coordinate access and track shutdown for the bridge construction over the railroad and maintain WMATA security.

Benefits to this project: Since we have worked with WMATA on this and other projects, we have an advantage in knowing WMATA's Adjacent Construction Project Manual, their guidelines, and their expectations. We especially understand the importance of strict compliance with these requirements, keeping the project on schedule and on budget.

C.3.c. Project Risks

Identify the most relevant risks related to the design and/or construction and describe their potential impacts on time, cost, and quality. Discuss your risk mitigation plan for each risk including potential schedule or cost complications

Unknown Utility Conflicts *(Potential for Impact: HIGH):* Currently there is a 96" WSSC waterline, fiber optic cables beneath the Rhode Island Avenue bridge, utilities underneath the existing Metro flyover bridge and potential utilities on Greenbelt Road and Rhode Island Avenue. While these utilities will be planned for in the project schedule, any unknown utilities that conflict with construction activities can add as much as 12-18 months to the schedule and result in significant additional costs.

MITIGATION PLAN TO AVOID COST / SCHEDULE IMPACTS	
Preconstruction	***Construction***
• Conduct thorough utility investigations to identify all known and unknown utilities. • Develop a fully-integrated preconstruction schedule to manage the utility schedule. • Create 3D models of all utility locations to perform clash detection. • Hold value engineering workshops with the design team and utility companies to find innovative ways to avoid clashes. • Begin working through design/permitting with utility companies early in preconstruction and assist with utility redesign. • Realign flyover bridge to avoid waterline and salvage substructure on Rhode Island Ave. *(See innovations #1, #2, and #3)*	• Have utility relocations performed by utility companies prior to the start of construction. • Implement a phased approach to the project to allow ample time for utility relocations.

Contaminated Soils and Hazardous Materials *(Potential for Impact: MEDIUM):* There is a potential for lead paint and asbestos on the existing bridges, and potential contaminated soils at the WMATA station. Removing contaminants could cause schedule delays and result in additional costs.

MITIGATION PLAN TO AVOID COST / SCHEDULE IMPACTS	
Preconstruction	***Construction***
• Perform testing and additional borings to identify any contaminants early and avoid delays to the permanent work.	• Perform onsite monitoring of all excavations.

Decisions on FBI Building *(Potential for Impact: MEDIUM):* If the project were to be constructed based on the current design and prior to the FBI decision, the project would forego significant cost savings by having to redesign the access to Greenbelt Metro Station.

MITIGATION PLAN TO AVOID COST IMPACTS DURING PRECONSTRUCTION	
• Get the stakeholders involved during preconstruction to clearly understand the direction of the redevelopment. • If necessary, hold the design at 60% until the final FBI determination is made.	• Implement our three-segment design and construction approach to perform the design in this area later in the project.

Impacts to WMATA and Metro Parking Areas *(Potential for Impact: MEDIUM):* The current design impacts the WMATA ROW and may need additional time for land procurement. The project team will also need to negotiate with Metro for the use of their property which will result in the reduction of parking spaces.

MITIGATION PLAN TO AVOID COST / SCHEDULE IMPACTS DURING PRECONSTRUCTION	
• Implement innovation #1 or #2 to avoid the WMATA facility. • Comply with WMATA Adjacent Construction Procedures	• Perform early negotiations with WMATA to obtain ROW and clearance to perform the work.

Impacts to Local Residents and Businesses *(Potential for Impact: MEDIUM):* Prior to construction, there could be opposition to the project from local businesses and residents that could impact the start of the project.

MITIGATION PLAN TO AVOID SCHEDULE IMPACTS	
Preconstruction	***Construction***
• Implement an extensive preconstruction public information campaign to manage requests for project features that add to the scope.	• Install additional business access signs. • Keep detour and haul routes off of local streets by developing innovative MOT strategies. • Perform sound and vibration monitoring during demo and pile driving operations.

Pile Foundation Obstructions *(Potential for Impact: MEDIUM):* If a foundation obstruction occurs, the team will need additional time to redesign foundation locations which will delay the project and result in additional design and construction costs.

MITIGATION PLAN TO AVOID COST / SCHEDULE IMPACTS DURING PRECONSTRUCTION	
• Implement innovations #1, #2 and #3 to reduce the amount of foundations needed on the project. • Perform extensive as-built evaluations to understand existing pile locations.	• Create 3D models of existing pile locations to perform clash detection.

Protected Animal or Plant Species Located Within LOD *(Potential for Impact: LOW):* If protected species are found in the limits of disturbance during construction, the project will experience delays and increased cost to relocate the species.

MITIGATION PLAN TO AVOID COST / SCHEDULE IMPACTS	
Preconstruction	***Construction***
• Have the environmental compliance team perform additional site investigations. • Implement design solutions to avoid protected species.	• If found, implement plan for relocation or protected species if possible.

Scope Growth After GMP *(Potential for Impact: LOW):* Scope growth that occurs after the final GMP will increase construction costs and potential time delays.

MITIGATION PLAN TO AVOID COST / SCHEDULE IMPACTS DURING PRECONSTRUCTION	
• Get stakeholders involved during preconstruction to clearly understand the project scope and prevent future scope growth based on their needs.	• Implement an extensive preconstruction public information campaign to ensure local residents and businesses do not request additional project features that add to scope.

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