

# TECHNICAL PROPOSAL

CONTRACT NO. GA6465270  
FAP NO. AC-ADHS-203-1(3)N

US 219 from I-68 to  
Old Salisbury Road  
Design-Build  
Garrett County



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Attachments:

Wagman/WM Teaming Agreement

Lead Design Firm Professional Liability Insurance

Surety Company Letter – Capability to Secure Performance and Payment Bond

## XVII. A.

# DESIGN-BUILDER CAPABILITY

- i. Key Staff Experience
- ii. Past Performance
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## XVII. A.

### i. Key Staff Experience

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## EDUCATION

BS, Bucknell University, 1987

## EXPERIENCE

18 with Firm, 30 in Industry

## PROFESSIONAL REGISTRATION

DBIA Certified Professional  
ARTBA Project Management  
Academy, ASCE

## QUALIFICATIONS & EXPERIENCE

As Vice President of Design-Build/Major Pursuits, Anthony is responsible for design-build projects from pursuit to final completion. He is assigned to major pursuits and organizes project pursuit teams; manages the design development process; establishes a collaborative environment; and coordinates with the construction team, designer, owner, and stakeholders. Anthony is responsible for cost, schedule, safety, customer satisfaction, and stakeholder coordination. Over the past 18 years with **Wagman**, Anthony has worked as a Design-Build Project Manager, Project Manager, Design-Build Coordinator, and Estimator on many transportation projects, including expressways; arterial re-alignments; major interchanges; new alignment; interchange creation and reconstruction;

intersections; capacity and safety improvement; and major structures. **He has unique experience with multiple major design build projects and understands the need for collaboration, coordination, and communication with all team members. Anthony will bring his expertise from large Design-Build fast track projects to US 219. He had the pleasure of working on and learning from ICC A and ICC B, and he used the "lessons learned" from ICC A to streamline the processes for ICC B. He has carried these insights to his work on all design-build projects. He has successfully completed over \$1 billion in design-build projects in MD.**

## PROJECT EXPERIENCE

**MD 404 – US 50 to East of Holly Road Design-Build, AW8965170, Caroline, Queen Anne's and Talbot Counties, MD (\$105M) – Design-Build Project Manager.** Responsible for the design and construction for the first large design-build project to use the PRD review process and QA toolkit modifications. The project dualizes MD 404 to add capacity and improve safety. Westbound 404 is the greenfield portion that runs through multiple watersheds and environmentally-sensitive areas; so it impacts various stakeholders. The project includes design; right-of-way coordination; utility coordination; bridge construction; culvert construction; E&S permit acquisition; permit modifications; safety improvements; traffic control; increased mobility; TOYR restrictions; stakeholder communication; design-build; and a fast-paced schedule.

**ICC Contract A Design-Build, AT3765960, Montgomery County, MD (\$484M) – Assistant Design-Build Project Manager.** Involved in development of ATCs, preliminary and final design, and continued throughout construction and the final completion phases. Responsible for design coordination; project mobilization; and technical assistance to all disciplines, including acquisition of MDE permits, earthmoving, utilities, and structures. He was tasked with designing and constructing these work elements in three years. Anthony was instrumental in creating a collaborative environment that fully integrated the construction joint venture team of three separate contractors, along with the design team and SHA. This 8½ mile long, 6-lane divided highway design-build project included 18 structures, earthwork, box culverts, ITS and major sign structures, reforestation, environmental compliance/mitigation, and utility coordination. Seven miles of ICC A was a greenfield project that intersected

multiple cross roads and property owners. This project won numerous awards for safety and design excellence, including the DBIA National Design-Build Award; ENR Best Transportation Project; FHWA Exemplary Ecosystem Initiatives Award; ACG Alliant Build America Award; AASHTO President's Award; and EFCO Intercounty Safety Award.

**ICC Contract B Design-Build, AT3765B60, Montgomery & Prince George's Counties, MD (\$560M) – Assistant Design Coordination Manager.** Anthony assisted in creating a fully-integrated construction joint venture with three separate contractors; he was instrumental in the successful pursuit and execution of Contract B. Anthony used his experience from Contract A to streamline processes on ICC B. He devoted his primary attention to environmental compliance and MDE permits, so he worked with designers and field personnel to ensure that the design met all environmental commitments, design requirements, and constructability constraints. He provided innovative assistance to design development and construction activities. His comprehensive understanding of the MDE review process kept the project on-schedule. This 7 mile long design-build greenfield project included major structures and earthwork to construct a 6-lane divided highway and it was designed and constructed on a fast-track schedule of three years. The highway alignment required multiple bridges over cross roads and creation of three interchanges. This project won numerous awards for safety and design excellence, including the DBIA National Design-Build Award; ENR Best Transportation Project; FHWA Exemplary Ecosystem Initiatives Award; MDQI Award of Excellence; NVT Alliance Award; and ARTBA Globe Award for Environmental Excellence.

**EDUCATION**

BS in Civil Engineering, University of Pittsburgh, 1990

**EXPERIENCE**

24 with Firm, 27 in Industry

**PROFESSIONAL REGISTRATION**

MD Registered PE #25414

**QUALIFICATIONS & EXPERIENCE**

Eric is a MD registered PE offering over 27 years of experience in designing and managing design-build and design-bid-build Maryland transportation projects including new roadways and interchanges, expressway-arterial roadway and existing interchange realignments-capacity improvements, and roundabout intersections. Eric is skilled at developing studies, designs and construction documents. He is vastly familiar with SHA specs, standards and policies along with AASHTO and MUTCD criteria. Eric's areas of expertise include road geometrics and drainage design, construction staging/MOT

development, and traffic engineering. He has an extensive working knowledge of structural, stormwater management (SWM), erosion & sediment control (ESC) designs; hydrology & hydraulics (H&H) analysis; and environmental permitting. For the US 219 Design-Build Project, Eric will use his capacity to manage multi-disciplined design-build transportation projects to anticipate potential design pitfalls and to develop a rolling submittals approach to maintain the project objectives, the critical paths and a continual, substantial flow of construction.

**PROJECT EXPERIENCE**

**I-95 Interchange at Contee Road Design-Build, PG4195172, Prince George's County, MD (\$34M) – Design Manager.** Oversaw the complete design efforts for the construction of Contee Road, a new divided 4-lane arterial road, and its grade separated partial cloverleaf interchange connection with I-95. Design efforts included: highway, structural, H&H-SWM, ESC, MOT, geotech, traffic (lighting-signals-ITS-signing-marking), utilities, and landscaping designs; construction plans development, securing permits; and ensuring environmental compliance. Developed 2 ATCs that provided \$2M in cost savings and a design/construction approach that facilitated the opening of a new I-95 overpass bridge and demolition of the old bridge 1½ months ahead of the interim milestone date.

**MD 404 – US 50 to East of Holly Road Design-Build, AW8965170, Caroline, Queen Anne's and Talbot Counties, MD (\$105M) – Design Manager.** Oversaw the complete design efforts for this safety and operations project to construct 2 new lanes along 9 miles of the existing MD 404 alignment to create a 4-lane divided highway. Design includes highway, H&H/SWM, ESC, structural, TMP/MOT, pavement/geotech, traffic (lighting-ITS-signing & marking), landscaping, construction plans development, utility relocation coordination, securing permits, and ensuring environmental compliance. Implemented 4 ATCs that are providing \$11M in savings.

**US 113 Dualization (Phase 3) Design-Build, WO6365170, Worcester County, MD (\$32M) – Design Manager.** Oversaw the complete design efforts for this safety and traffic operations project to convert 4 miles of US 113 from a 2-lane to a 4-lane divided median highway. Design includes: highway; H&H-SWM; ESC; TMP/MOT; structural; pavement/geotech; traffic (lighting-signing-marking); landscaping; construction plans development;

and securing permits. Developed 5 ATCs that are providing over \$1M in cost savings and in safety and mobility enhancements. Coordinated roadway designs with utilities companies for concurrent facility relocations.

**MD 2 at Friendship/Sansbury Road Design-Build, AA3645176, Anne Arundel County, MD (\$2M) - Design Manager.** Led the complete design efforts on this safety and traffic operations improvements roundabout intersection contract. Design efforts included: roadway; MOT; H&H; SWM; ESC; traffic (lighting-signing & marking); construction plans development; and securing permits. Coordinated road/drainage designs with utilities for avoiding aerial and underground impacts. Coordinated the as-built road/SWM plans to secure final acceptance.

**MD 5 and I-95/I-495 Interchange Reconstruction, PG4135172, Prince George's County, MD (\$32M) – Project Design Manager.** Oversaw the multi-discipline engineering (highways, structures, water resources, traffic, geotech, traffic, landscaping) efforts of this Capital Beltway interchange modification and the adjoining I95/I495 safety & resurfacing improvements. Led the design efforts of the interchange geometrics, drainage collection and MOT. The primary interchange modification features were a new semi-direct flyover ramp from the Inner Loop to MD 5 SB and new cloverleaf ramp from MD 5 NB to the Inner Loop.

**Survey and Engineering Services, SHA District 6 BCS 2000-22I and 2004-07A, Allegany, Garrett and Washington Counties, MD – Senior Highway Engineer/Primary Liaison** responsible for these On-Call Contracts involving 18 individual project assignments for the design of infrastructure improvements including: MD 66/Mount Aetna Road Roundabout and MD 77 Geometric Improvements. He provided preliminary and final designs and, he prepared contract documents (plans and specs).

## EDUCATION

Catonsville Community College, Advanced Construction Management, 1988  
Operating Engineers Apprenticeship Program Local 37, 1983

## EXPERIENCE

<1 with Firm, 32 in Industry

## CERTIFICATIONS/TRAINING

OSHA 10-Hour; Yellow Card – Environmental; Confined Space; Defensive Driving; Crane Rigging; Crane Awareness; ARTBA Backing and Rollover; Trenching & Excavation; First Aid & CPR

## QUALIFICATIONS & EXPERIENCE

As a Construction Manager, Carl is responsible for the overall construction process including coordination of field personnel, equipment, materials and subcontractors. Carl will work closely the general superintendent and multiple assistant superintendents to monitor day-to-day construction activities and the project's progress with the 3-week look ahead and overall CPM schedules. He works closely with our engineering group to ensure constructibility of all project elements such as grading; MOT; erosion and sediment control (ESC) construction sequencing; drainage; stormwater management; and environmental mitigation.

As the Construction Manager assigned to US 219, Carl is responsible for project safety, schedule, constructability reviews, environmental compliance, and cost. Carl will work closely with the

design team and coordinate and review their efforts; in particular, Carl will use his vast knowledge of SHA and MDE field QC inspections to review ESC plans for proper construction sequencing and minimize field changes. He is familiar with the QA toolkit and field modification process.

## PROJECT EXPERIENCE

### ***I-95 Express Toll Lanes – MD 43 Interchange, Baltimore County, MD (\$142M) – Construction Manager.***

This Maryland Transportation Authority (MDTA) project reconstructed over 1½ miles of the existing eight lane divided highway to eight general purpose lanes and four express toll lanes (managed roadway) that were separated by concrete traffic barriers; the project included the realignment and widening of MD 43 from four lanes to six lanes for a distance of over 1 mile through the interchange. The project also included the realignment of the interchange ramps with traffic signals at MD 43; relocation of a 30-MGD sanitary sewer trunk line and high voltage duct bank; coordination of gas main and electrical relocations; and maintenance of MDTA facilities. The project used five significant MOT phases to maintain ADTs of 173,000 and 60,000 on I-95 and MD 43 roadways, respectively. As construction manager, Carl was responsible for meeting the project goals, schedule, safety, production, environmental compliance, and coordination with adjacent construction for this high-profile project.

### ***ICC Contract A Design-Build, AT3765960, Montgomery County, MD (\$484M) – Assistant Construction Manager.***

Coordinating all subcontractors (electric, fiber, sign, concrete, and asphalt) to close out the project. Upgraded signs and lighting along I-370 and I-270, which is similar to the work on I-68 associated with US 219 project. Carl

collaborated with the team working on the design resolutions, changes, and modifications.

### ***ICC Contract B Design-Build, AT3765B60, Montgomery & Prince George's Counties, MD (\$560M)***

– Assistant Construction Manager. The project includes over two million cubic yards of earthwork, storm drain, sewer and water relocations, noise walls, and bridge work. Carl was responsible for maintaining the stream flow and earthmoving operations. Carl completed constructability reviews for the sequence of construction and E&S permit plans. He worked with MDE-QA inspectors to execute field modifications ensuring environmental compliance and project progress. His key challenge was balancing the project's construction that went through pristine parkland with the extensive environmental commitments.

### ***MD 30 Relocated, Hampstead Bypass Design-Build, CL4165370, Carroll County, MD (\$43M) – General Superintendent.***

This project was one of the first, most significant MDOT SHA design-build projects. The project consisted of one million cubic yards of earthwork, four bridges, three traffic roundabouts, and seven miles of new highway. This greenfield project that successfully crossed a significant wetland/RTE habitat and earned environmental recognition and awards. Carl continually applies the skills he honed on this project, specifically in terms of environmental stewardship.

**EDUCATION**

BS in Civil Engineering, University of Delaware, 1999

**EXPERIENCE**

3 with Firm, 18 in Industry

**PROFESSIONAL REGISTRATION**

MD Registered PE #29912

**QUALIFICATIONS & EXPERIENCE**

Mark Ledebur has over 18 years of experience in the planning and design of both design-build and design-bid-build highway projects; new roadways; expressway-arterial roadway and existing interchange realignments and capacity improvements; roundabout intersections; and safety and resurfacing projects. Mark is skilled in generating concept and final designs, as well as construction contract documents; coordinating between agencies; securing approvals and permits; preparing reports; and preparing public presentation displays, and construction specifications. **Mark possesses a deep knowledge**

and expertise in designing highway projects with a similar scope, nature, and complexity, as required for US 219 design-build project; he has extensive experience in the selection and application of the relevant design criteria, specifications, and standard details, AASHTO design guidelines and coordinating multi-disciplinary teams.

**PROJECT EXPERIENCE**

**MD 30 Relocated, Hampstead Bypass Design-Build, CL4165370, Carroll County, MD (\$43M) – Highway Engineer.** Project included relocating MD 30 from south of Wolf Hill Drive to north of the Town of Hampstead. Mark provided engineering design services for the project. He developed highway plans that incorporated 4 bridges and 3 roundabouts into the design of 4½ miles of roadway. Design plans were produced in a rolling sequence of 22 design submittals to allow construction to mobilize early and proceed while other project design work continued.

**ICC Contract C Design-Build, AT3765C60, Prince George's & Montgomery Counties, MD (\$517M) – Highway Engineer.** Mark served on the Design/Build Team responsible for this ICC Contract. Contract C extends 3¾ miles from just west of US 29 (Columbia Pike) to just east of I-95 and includes 1.9 miles of collector-distributor lanes on I-95 to MD 212 (Powder Mill Road) with interchanges at US 29, I-95, and Briggs Chaney Road. Mark provided engineering design services for the development and refinement of the US 29 interchange lay-out and associated roadway geometry, developing highway plans as a part of a series of plan submittal packages during the design-build process.

**MD 210 at Kerby Hill Road Interchange Design-Build, PG7005170, Prince George's County, MD (\$82.6M) – Highway Engineer.** Responsible for designing a grade-separated interchange with Kerby Hill Road and Livingston Road over MD 210 with a single point signalized intersection that provided access to MD 210 using median ramps. Responsible for innovative interchange design along a high volume, constrained suburban corridor. This work included evaluating a concept alternatives in a VE study to submitting Preliminary Plans. Responsible for

developing horizontal-vertical alignments and geometrics for roadway, structures, and ramps; typical sections and details; and construction cost estimates. Designed minimized impacts to R/W, an adjacent stream and maintained access to existing properties. Coordinated development of plans; traffic signals-lighting-signing and marking; storm drainage-SWM; ESC; MOT; and structural elements.

**I-95 / Temple Avenue Design-Build, VDOT-0095-106-122, Colonial Heights, VA (\$13.4M) – Highway Engineer.** Mark served on a multi-disciplinary design-build team to reconstruct the I-95 interchange with Temple Avenue. The project includes realigning the I-95 access ramps, and constructing a new multi-lane roundabout where the ramps intersect Temple Avenue. Responsible for geometric design and review of the proposed multi-lane roundabout and associated roadway plans. Roadway work is coordinated with MOT design and structural evaluations of existing bridges.

**MD 20 at MD 291 Roundabout, KE2965130, Kent County, MD (\$1.2M) – Project Manager.** Design-bid-build project included designing of a single-lane roundabout at the existing at-grade 3-legged intersection of MD 20 and MD 291. Responsible for coordinating multi-disciplined services to complete final construction documents, SHA specifications and an engineering cost estimate for this project. Project design improvements included roadway widening, milling and overlay of existing pavement, concrete apron and median island construction, curb and entrance improvements, ADA-compatible pedestrian facilities, storm drainage, maintenance of traffic, signing, pavement markings, landscaping, roadway intersection lighting, ESC and SWM permitting.

**EDUCATION**

BS in Civil Engineering, Cornell University, 1992

**EXPERIENCE**

18 with Firm, 25 in Industry

**PROFESSIONAL REGISTRATION**

MD Registered PE #24591

**QUALIFICATIONS & EXPERIENCE**

Diane specializes in H&H analyses and design including SWM, ESC, drainage, bridge and culvert design, bridge scour, TR-55 and TR-20 modeling, HEC-RAS and HY-8 modeling, and stream restoration. She has inspected existing SWM facilities, and has MD Pond 378 criteria dam safety design experience. In addition, Diane has H&H experience in scour evaluations, floodplain analyses, flood investigations, roadway drainage, environmental permitting, fish passage structures, and channel stabilization. **For the US 219 Design-Build Project,**

Diane provides a vast understanding of MDE SWM and ESC criteria and guidelines and SHA Plan Review Division (PRD) procedures and policies; she is an approved MDE sediment and stormwater plans reviewer and has also performed reviews on behalf of SHA PRD. She is currently leading the SWM and ESC design efforts for a significant Project through the PRD review process.

**PROJECT EXPERIENCE**

**US 113 (Phase 3) Design-Build, WO6365170, Worcester County, MD (\$32M) – H&H Design Engineer.** Project work is broken into several design packages for concurrent construction of 4 miles of US 113. Design packages included concept SWM; rough grading; small structure design; and final roadway design, including SWM, ESC, and cross culvert design; each requiring approval from MDE. SWM design proposes 74 facilities including multiple wet swales, grass swales, bio-swales, submerged gravel wetlands, and micro-bioretenion. Coordinated SWM/drainage designs with the utilities concurrent facility relocations while minimizing impacts.

**MD 404 - US 50 to East of Holly Road Design Build, AW8965170, Caroline, Queen Anne's and Talbot Counties, MD (\$105M) - H&H Design Engineer.** Responsible for H&H and ESC/maintenance of stream flow design for 15 proposed cross culverts under MD 404. Coordinated permitting with MDE non-tidal and SHA PRD. Hydraulically designed weir wall structures to manage 2-year peak discharge increases that resulted from the increased hydraulic capacity of the proposed cross culverts. Coordinated with the contractors to revise the approved sequence of construction or ESC devices through redline and toolkit revisions as necessary since construction issues necessitated changes to keep the project on schedule.

**I-95 Interchange at Contee Road Design-Build, PG4195172, Prince George's County, MD (\$34M) – H&H Design Engineer.** Responsible for designing SWM; ESC for multiple construction stages; cross culverts; coordinating storm drain design based on SWM needs; and environmental permitting for each construction stage

(NPDES, Wetlands, SWM, ESC) of Contee Road and the grade-separated connection with I-95. Work included securing design and as-built approvals of eight ponds and 53 ESD micro-scale practices, primarily bio-swales.

**US 301 at MD 304, QA2655170, Queen Anne's County, MD (\$36M) – H&H Design Engineer.** Developed H&H design for this interchange project, which required subconsultant coordination and QA/QC. SWM design includes 56 ESD facilities, primarily wet swales. ESC design includes 7 construction phases. H&H analysis of proposed impacts to 5 existing and 2 new cross culverts. The project entailed designing plunge pool systems and riprap protection for cross culvert outfall stabilization; as well as QA/QC of stream relocation/restoration design, including HEC-RAS for existing and proposed channels.

**I-95 Greenbelt Metro Interchange, PG3335172, Prince George's County, MD (\$95M) – H&H Design Engineer.** Securing SWM/ESC approval through SHA PRD for the modification of the I-95/I-495 and Greenbelt Metro Station interchange. The SWM design includes 40 facilities including multiple micro-bioretenion, rain gardens, bio-swales, grass swales, and ponds. Coordinating and assisting PRD with establishing computational criteria through the course of the Project's SWM design efforts.

**MD 2 at Friendship/Sansbury Road Design-Build, AA3645176, Anne Arundel County, MD (\$2M) - H&H Design Engineer.** Responsible for designing SWM wet swales for this project converting a 4-way, 2-way stop intersection into a roundabout. In addition, provided H&H analysis and design of two new cross culverts and designed ESC in coordination with three MOT stages.

**EDUCATION**

BS in Agricultural, Soil and Water Engineering, University of Maryland, 1986

**EXPERIENCE**

17 with Firm, 31 in Industry

**PROFESSIONAL REGISTRATION**

MD Registered PE #18917

**TRAINING/CERTIFICATIONS**

Application of Fluvial Geomorphology to SHA Structures/Bridges, 2002  
Rosgen Level I, 1997  
Rosgen Levels II and III, 1998  
Rosgen Level IV, 1999

**QUALIFICATIONS & EXPERIENCE**

Ward is a Professional Engineer with expertise in applied stream morphology; hydrology and hydraulics (H&H); fluvial geomorphology; river mechanics and sediment transport investigations. He provides competent supervision and technical engineering support for all aspects of H&H engineering and modeling; all levels of sediment transport, stream stability and flood investigations; erosion and sediment control (ESC); as well as field assessment and surveys. He is equipped to deal with all levels of FEMA issues. Within the last 19 years, he has worked for, or closely with, SHA's Office of Structures and the Bridge Hydraulics Unit on geomorphic assessment and stream stabilization projects within all MD physiographic regions. He is familiar with mitigation/permitting processes and procedures of SHA and MDE. Ward has spent the last 18 years concentrating on reviewing and designing stream restoration and wetland creation practices including sustainability and hydrologic function restoration. He has completed and reviewed stream stability designs from the planning phase through final design, and provided construction management and post-construction monitoring studies. **For the US 219 Design-Build Project, Ward will utilize his extensive experience as project engineer responsible for the design; assessment; permitting; construction management; and monitoring of over 20 stream and wetland mitigation projects that total over seven miles of restoration.**

**PROJECT EXPERIENCE**

**Broad Creek Stream Restoration and Wetland Enhancement, Anne Arundel County, MD (\$1.6M) – Project Manager/Lead Restoration Designer.** This joint cooperative SHA/South River Federation project involves the ecological enhancement of approximately 2,000 LF of eroded channel and the creation of a wetland/meadow complex within the Broad Creek Watershed to reduce nutrient and sediment input to the Bay. Project included natural resources investigations; wetland/stream design; permitting; TMDL comps; and stakeholder coordination. Duties included technical oversight of design approach; contract documents; permitting; and construction support.

**Hollywood Branch Wetland Mitigation and Stream Restoration, SHA BCS 2007-25B, Montgomery County, MD (\$1.3M) – Project Manager/Lead Restoration Designer.** Responsible for the design, contract documents preparation and permitting of over 3,000 LF of stream and floodplain restoration of Hollywood Branch within MNCPPC property as part of the mitigation and enhancement program for the ICC. The project reduced the high sediment input of this highly unstable stream flowing into Paint Branch, and improved fish passage through the Laurie Drive culvert crossing. This restoration/stabilization also improved the habitat for aquatic organisms and created new wetlands creation are also features of the restoration/ stabilization.

**Remediation of Magness Farms, SHA BCS 2007-25B, Harford County, MD (LSI Fee \$100K) – Project**

**Manager/Lead Restoration Designer.** Responsible for analyzing and performing the remediation design for over 1,200 LF of an SHA tributary/wetland enhancement project that had been previously constructed. The tasks included developing the remediation design, contract document preparation through PSE, and construction oversight.

**SHA On-Call Environmental Design & Permitting Services, SHA BCS 2012-03G, Statewide, MD (\$2M) – Project Manager/Lead Restoration Designer.** Responsible for this on-call contract which included multiple tasks including (1) 3,000 feet of Reddy Branch restoration as wetland and stream mitigation for impacts associated with the MD 97 Brookeville Bypass project in Montgomery County. Items included developing contract documents from concept to PSE, Phase 1 and Phase II mitigation plans, and permitting. (2) MD 25 over Georges Run as-built verification and wetland/stream monitoring as a result of stream stabilization/relocation and wetland impacts from the replacement of the bridge over Georges Run.

**MD 223 over Piscataway Creek, Multiple SHA Design Contracts (Design Fee \$150K) – Project Manager/Lead Restoration Designer.** Responsible for geomorphology assessments; sediment analysis; wetland creation for mitigation acreage; Phase 1 mitigation reports; wetland impact plates; tributary restoration; and the Piscataway Creek stream stabilization design. This work was a result of the bridge replacing culverts and roadway/intersection improvements.

**EDUCATION**

BLA in Landscape Architecture,  
 North Dakota State University, 1990

**EXPERIENCE**

16 with Firm, 26 in Industry

**PROFESSIONAL REGISTRATION**

MD Registered PLA #1093

**QUALIFICATIONS & EXPERIENCE**

During her 26 year professional career, Joan has become known as an expert in highway corridor landscape design and construction in addition to other environmental landscape design projects. Her project experience includes working on multiple MDOT SHA design-build projects, as well as projects for Baltimore City and a variety of private clients. **For the US 219 Design-Build Project, Joan will bring her expertise as a Lead Landscape Architect on multiple design-build projects, including the Intercounty Connector (ICC) Contracts A and B -- for which she designed microbio retention facilities, native landscape for forest edge and reforestation plantings, historic mitigation, and residential and commercial streetscapes using context-sensitive design solutions.**

**PROJECT EXPERIENCE**

**US 113 Dualization (Phase 3) Design-Build, WO6365170, Worcester County, MD (\$32M) – Lead Landscape Architect.** Responsible for arboriculture; preliminary and final designs; plans; density quantities for roadside landscape planting; stormwater management landscape planting; reforestation design; and landscape inspection services. In addition, coordinated with SHA's OED Division and DNR to ensure Maryland Reforestation Law commitments have been met. Project consists of converting 4 miles of US 113 from a 2-lane to a 4-lane divided median highway.

**MD 404 – US 50 to East of Holly Road Design-Build, AW8965170, Caroline, Queen Anne's and Talbot Counties, MD (\$105M) – Lead Landscape Architect.** Responsibilities include overseeing and supervising arboriculture; preliminary and final designs; plans; density quantities for roadside landscape planting; stormwater management landscape planting; forest edge design; and landscape inspection services. Coordinated with SHA's OED Division and DNR to ensure that forest impacts and Reforestation Law commitments have been met. Joan oversaw the context sensitive design approach to the restoration of an adjacent property's historical view shed impacted by the project's roadside tree removals. Project consists of constructing two new lanes along 9 miles of existing MD 404 alignment to create a 4-lane divided rural 55 mph highway.

**I-95 Interchange at Contee Road Design-Build, PG4195172, Prince George's County, MD (\$34M) – Lead Landscape Architect.** Responsible for definitive design, final design, and construction administration services for this design-build project. Coordinated with roadway, water resources – drainage and SWM, structural, traffic and environmental engineers for a successful design invested in reducing forest impacts by 20% and nearly doubling on-site reforestation than

required. Coordinated closely with the landscape subcontractors in plant selection and availability to eliminate the possibility of unnecessary substitutions or changes during installation. Construction support services included turf establishment and the landscape plantings' two-year warranty inspections.

**ICC Contracts A & B Design-Build, AT3765960 & AT3765B60, Montgomery County, MD (\$1.05B) – Lead Landscape Architect.** Responsibilities included landscape planting design; wetland plantings; bike trail; stormwater facilities; development of the overall landscape theme; community presentation support; graphic renderings; and CAD production of the landscape and urban design package. Using the context-sensitive design approach and studying existing landscape conditions adjacent to the site, Joan facilitated coordination meetings with stakeholders, and throughout the design and construction process, she coordinated with the public and the other design disciplines for their input and feedback. Other tasks included reviewing drawings; reforestation; attending task force meetings; community presentations; coordination with environmental compliance; QA/QC, tracking of overall plant quantities; and performing construction support services including turf establishment and the plantings' two-year warranty inspections.

**I-70 Phase 2D Design-Build, FR4275172, Frederick County, MD (\$35M) – Lead Landscape Architect.** Oversaw landscape planting design using native plant material, SWM/microbio retention facility design and landscaping, bridge abutment plantings, and CAD production of the landscape package. The interdisciplinary project team followed the context-sensitive design approach and the landscape team studied the existing landscape conditions adjacent to the site. Responsible for QA/QC, and coordinating with environmental compliance (Roadside Tree Permit).

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## XVII. A.

### ii. Past Performance

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**OWNER CONTACT**

MDOT State Highway Admin  
 Mr. Mark Coblentz  
 T 443-844.9886  
 mcoblentz@sha.state.md.us

**CONTRACT/PROJECT NO.**  
 AT3765960

**DELIVERY METHOD**  
 Design-Build

**CONSTRUCTION COST**

*Initial Contract Value:*

\$463,885,499

*Final Contract Value:*

\$484,104,216 (Environmental incentives to reduce impacts during design, environmental incentives to maintain compliance during construction and owner scope modifications)

**SCHEDULE PERFORMANCE**

*Initial Completion Date:*

August 2010

*Final Completion Date:*

December 2010 (Owner granted change orders)

**PROJECT DESCRIPTION**

Contract A of the Intercounty Connector was a large Design-Build project in Montgomery County, Maryland. **Wagman Heavy Civil, Inc. (Wagman)** was an equity member of a fully integrated construction joint venture and financially responsible for the project. Contract A was the first contract for this politically and environmentally sensitive project and began with strong public opposition. **Wagman** performed extensive public outreach in support of MDOT SHA's efforts to enhance community understanding and awareness.

The project was 8½ miles long, 7 miles greenway construction, with 18 structures; 350,000 SF of noise walls; utility relocations; right-of-way acquisition; environmental permitting and monitoring; drainage; over three million cubic yards of excavation; and construction of four interchanges. On the western end of the project, **Wagman** widened and rehabilitated 1½ miles of existing I-370. After the bridges were widened, I-370 was widened and rehabilitated with an asphalt overlay. The project included reforestation, landscaping, context sensitive design, maintenance of stream flow, and erosion & sediment control (ESC). Major traffic control and traffic switches were required on the western end to minimize impacts to the traveling public, maintaining mobility and increasing safety. Several cross roads were traversed by the new limited access by-pass. The project included extensive ITS, signalization, signage and markings within and beyond the project limits to inform the motorists and maintain traffic flow. The ATC process was used extensively to save money and utilize innovation; risk allocation and risk sharing discussions were utilized to reduce costs and improve Design-Build processes.

**Relevance to GA6465270**

- ✓ *Fast-Track Schedule*
- ✓ *Design-Build Delivery*
- ✓ *Completed on-Time*
- ✓ *TMP Minimized Impacts to Traveling Public*
- ✓ *Reduced Environmental Impacts from Original EIS Document*
- ✓ *Design excellence*

**Proposed Staff Involvement**

- *Anthony Bednarik, DBIA\**
- *Carl Benton\**
- *Joan Floura, PLA\**

\* Proposed Key Staff

**SUCCESSFUL METHODS, APPROACHES AND INNOVATIONS**

**Schedule** – The schedule was very aggressive, this \$484M project was designed and built in 40 months. The Design-Build Team utilized accelerated techniques such as early design packages and starting design during limited Notice-to-Proceed to advance the project schedule. A phase approach to design and construction allowed construction to begin while design was finalized.

**Environmental Compliance** – The project utilized 3D modeling to assist with survey and earth moving operations. The vertical and horizontal alignments were adjusted to eliminate excess excavated material and reduce environmental impacts; saving forest, Champion Trees, and minimizing impacts to wetlands and floodplains. Through innovation and coordination with MDOT SHA, the designer, and environmental agencies, **Wagman** reduced impacts to wetlands, streams, floodplains and forests by utilizing open bottom culverts to allow natural stream bottom, underground SWM basins to reduce thermal impact and bio-swales for long-term water quality. Environmental impacts were reduced from the project EIS by over 10%. The Project maintained a commitment tracking sheet that was used during design and construction; the document was expanded and updated during the life of the project. During design development and construction we established an "environmental" task force that reviewed design submittals and construction work plans.

**Safety**

*The Design-Build Team worked over 2 Million man-hours without lost time and achieved incident rates well below that national averages. After completion, the ICC performs at an enhanced level of safety to motorists.*



# Intercounty Connector Contract A Design-Build Montgomery County, MD



**Design Excellence** – The construction and design teams co-located with MDOT SHA to expedite solutions and design innovation, provide over-the-shoulder reviews/input and facilitate partnering with open communication and coordination. A signature arch bridge was designed and constructed crossing Rock Creek. Within Rock Creek Park. Roadway Geometry was adjusted to reduce excavation, environmental impact and project schedule. The design files were converted to a 3D Model programmed into the earth moving equipment. Though the ATC Process, a three-level interchange was redesigned into a two-level trumpet interchange reducing bid cost and long-term maintenance costs, and improving safety and mobility. Other ATCs such as Jointless Bridge technology, steel diaphragms and underground SWM basins reduced cost, time and environmental impacts. A Complete TMP was developed that included all phases of construction and improved safety and mobility during and after construction; existing cross roads were accommodated by creating temporary run arounds and employing advanced warning signs. Access and mobility were maintained for the many neighborhoods and communities that were bisected during construction of this project.

### Awards

- ✓ National Design-Build Award, DBIA
- ✓ Exemplary Ecosystem Initiatives Award, FHWA
- ✓ Alliant Build America Award, ACG
- ✓ Northeast Region's Best Overall Project, ENR
- ✓ President's Award for Highways, AASHTO
- ✓ Intercounty Safety Award, EFCO

## RELEVANCE OF WORK TO GA6465270



Similar to the elements of the US 219 project, ICC A was a new alignment highway with work on an existing Interstate. The greenfield section required earthmoving operations, crossing of existing side roads and interfaces with existing roads. Interstate work included widening, overlay, signage, MOT, ITS and interchange reconstruction. The project was comprised of extensive ITS, signalization and open road tolling. During the design and construction phase, the Design-Builder was responsible for quality control and environmental compliance and coordination. **Wagman's** design coordinators minimized utility impacts through active coordination with the designers and utility companies; relocating noise walls and redesigning alignment to avoid utilities. Through innovation and

coordination with MDOT SHA, the designer and environmental agencies, **Wagman** reduced environmental impacts; the ICC as a whole, reduced environmental impact by more than 10% anticipated in the Environmental Impact Statement. Context Sensitive Design for elements such as bridges, noisewalls, retaining walls and culverts ensured compliance with aesthetic requirements and the project's commitment check list. Existing streams and stream flow was maintained and time of year restrictions were worked around for Class III and IV streams. Third Party Stakeholder coordination required a comprehensive Public outreach plan, including newsletters, social media and "open House" meetings.



Local companies and neighbors were invited to provide input and to learn about the progress of the project. The Design-Build Team proactively communicated with the stakeholders and addressed concerns to improve customer satisfaction; reducing negative press. A proactive partnering process created a collaborative environment and improved communications between the Design-Build Team and the Owner and improving Owner satisfaction.



*"The whole project was eco-sensitive. The project also went above and beyond the industry's safety standards and demonstrated innovation and a creative way of addressing its challenges." – Esther D'Amico, Editor, Engineering News Record, Northeast Region Best Project of 2011 Award.*



**OWNER CONTACT**

MDOT State Highway Admin  
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 T 443-844-0906  
 mcoblentz@sha.state.md.us

**CONTRACT/PROJECT NO.**

AT 3765B60

**DELIVERY METHOD**

Design-Build

**CONSTRUCTION COST**

*Initial Contract Value:*

\$545,092,000

*Final Contract Value:*

\$560,754,000 (Environmental Incentive (Design & construction) Owner added scope)

**SCHEDULE PERFORMANCE**

*Initial Completion Date:*

November 2011

*Final Completion Date:*

November 2011

**PROJECT DESCRIPTION**

ICC B was a \$561M highway design-build, best value project extending from MD 97 to MD 29. **Wagman Heavy Civil, Inc. (Wagman)** was an equity member of a fully integrated construction joint venture, and financially responsible for the project. Contract B involved 7½ miles of new controlled access within a greenfield, dual three-lane, tolled roadway with two interchanges; MD 650 New Hampshire Ave and MD 182 Layhill Rd. and three cross road bridges, including roundabouts to access the highway. The work included 2½ million yards of excavation, drainage, temporary detours for cross roads, utility relocations, 13 bridges, 300,000 SF of noise walls and retaining walls. SWM facilities were created, and reconstructed to handle the new stormwater run-off and updated regulations. The project included ITS to inform the public and open road tolling to collect tolls that included hardwired and cellular connections. The ITS and ETC system had to be integrated with the existing system maintained by the State. Quality Control was the responsibility of the Design-Builder. **Wagman** managed the Design-Build Team QC Program. The ICC project was an

**Relevance to GA6465270**

- ✓ *Fast-Track Schedule*
- ✓ *Design-Build Delivery*
- ✓ *Completed on-Time*
- ✓ *TMP Minimized Impacts to Traveling Public*
- ✓ *Reduced Environmental Impacts from Original EIS Document*
- ✓ *Design excellence*

**Proposed Staff Involvement**

- *Anthony Bednarik, DBIA\**
- *Carl Benton\**
- *Joan Floura, PLA\**
- *Steve Wood*

\* Proposed Key Staff

extremely environmentally/community sensitive project and extensive measures were planned by the DBT to minimize the environmental impact of this project. Many **Wagman** personnel excelled and were placed in position of authority, such as Structure CM, General Bridge Superintendent, Piling Manager, Beam Erection Manager, field engineers, carpenters, operators, laborers, ESC workers and MOT personnel.

**SUCCESSFUL METHODS, APPROACHES AND INNOVATIONS**

**Schedule** – The project maintained a CPM schedule that consisted of over 2,000 design, submittal and construction activities. The ICC B Project Delivered multiple project segments concurrently on a fast-track schedule: The ICC B Project was split into three segments that were designed and constructed concurrently. Each segment was completed on time and within budget. The work breakdown structure was detailed in a manner to assign and group each activity based in types of work, project location, responsible party, and unique activity codes to assist with any schedule reporting and analysis. Weekly meetings were held with the project leads to properly update/communicate the status of the schedule. These meetings focused on design progress, utility relocations, ROW acquisitions, critical submittal status, QC involvement, upcoming critical items and overall project completion. Three-week look-ahead schedules (that included design elements) were developed and updated each week following the schedule meeting and distributed to the entire project team. Formal detailed CPM updates were provided each month throughout the term of the project. Additionally, the schedule was presented and discussed during each JV Board meeting. The overall process promoted early identification of potential schedule impacts related to any Owner driven scope enhancement changes. The DBT frequently relocated resources in an effective/timely manner to mitigate any potential schedule issues. Additionally, the project was completed on schedule to open the overall ICC roadway to the traveling public.

**Environmental Compliance** – Use of innovative design solutions and construction techniques: The ICC B Project utilized numerous innovative techniques such as redundant SWM treatment through grass ditches, sand filters, infiltration trenches, and underground SWM basins that treated quantity, quality, and temperature. A major portion of ICC B traversed through Maryland National Park & Planning Parks that required redundant E&S facilities. The project reduced environmental impacts by over 10% (as listed in the EIS). We achieved multiple E&S incentives for excellent project compliance during construction. Environmental Incentives were also achieved during design by minimizing impacts. Dedicated environmental compliance crews worked constantly to maintain and in some instances exceed compliance. Resources were avoided by design solutions that modified the roadway alignment or construction elements such as

# Intercounty Connector (MD 200) Contract B Design-Build Montgomery and Prince George's Counties, MD



retaining walls. The alignment threaded through developed neighborhoods with community sensitivities. Extra precautions and mitigation measures were utilized to address these challenges, including additional community meetings, restrictions for construction vehicles on neighboring streets and other measures to reduce noise and impacts to these communities, such as temporary roads and bridges.

**Design Excellence** – The ICC B project was fast-tracked by splitting the project into three segments that were designed and constructed concurrently. Each segment was completed on time and within budget. Use of innovative design solutions and construction techniques: The ICC B project utilized numerous innovative techniques such as redundant SWM treatment through grass ditches, sand filters, infiltration trenches, and underground SWM basins that treated quantity, quality, and temperature. Innovative Interchange: ICC B featured a Single Point Urban Interchange (SPUI). A complex TMP was developed to construct this green field project that bi-sects many neighborhoods and major arteries; involving phased construction to minimize impact to the travelling public. The Construction and Design Team co-located with SHA streamlining the design and approval process. The Design-Build Team employed an MDE reviewer to review design prior to submission to MDE, which minimized the review cycle with MDE. Massive underground SWM basins, constructed within limited ROW, were designed to reduce thermal impact to sensitive streams and waterways. Pier locations were modified to reduce major utility impacts. Many ATCs and other innovations to reduce cost, improve schedule or improve environmental performance, such as underground SWM facilities to minimize the thermal impact to fresh water streams after a rain event, caissons in lieu of spread footings to minimize permanent impacts to wetlands and flood plains, and alternate pier locations to minimize impacts to wetlands, streams and underground utilities. Our survey team utilized three-dimensional modeling adjusting the vertical and horizontal alignment and matched existing elements to eliminate excess material while increasing production.

## Awards

- ✓ Award of Excellence, MdQI
- ✓ National Design-Build Award, DBIA
- ✓ Exemplary Ecosystem Initiatives Award, FHWA
- ✓ Alliance Award, VTA
- ✓ Globe Award for Environmental Excellence, ARTBA
- ✓ Best Transportation Project Award. ENR

## RELEVANCE OF WORK TO GA6465270

Similar to the US 219 project, ICC B included an aggressive schedule, environmental challenges and MDOT SHA's goals of design excellence. ICC B was a design-build, greenfield project that intersected and connected to existing major cross roads. For one of the cross roads, we constructed a roundabout adjacent to an overpass structure. Major earthmoving activities drainage and rock excavation were part of ICC B; ITS, signalization, lighting and signing. **Wagman** incorporated multiple ATCs to improve the project design, environmental compliance and schedule. During the design and construction phase, we were responsible for environmental compliance and coordination with the various agencies. **Wagman's** design coordinators minimized environmental impacts through active coordination with the designers, SHA and Agencies. Through innovation and coordination, **Wagman** reduced environmental impacts and met the commitments of all permits including NEPA; the ICC as a whole, reduced environmental impact by more than 10% anticipated in the Environmental Impact Statement. Context sensitive design for elements such as bridges, noise walls, retaining walls, interchanges and culverts ensured compliance with aesthetic requirements and the project's commitment check list. Existing streams and stream flow was maintained in compliance with time of year restrictions. To be a good neighbor we developed a robust public outreach plan to coordinate with Third Party Stakeholder; this was accomplished through meetings, newsletters, e-mail, social media and traditional media. **Wagman** believes in a proactive partnering process to quickly resolve issues while keeping the project on track.



# MD 4 Bridge Replacement over MD 223

## Prince George's County, MD



### OWNER CONTACT

MDOT State Highway Admin  
Mr. Jason Pollock  
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**CONTRACT/PROJECT NO.**  
PG6645180

**DELIVERY METHOD**  
Design-Bid-Build

**CONSTRUCTION COST**  
*Initial Contract Value:*  
\$18,464,375

*Final Contract Value:*  
\$20,592,748 (Owner issued change orders for additional asphalt and embankment.)

**SCHEDULE PERFORMANCE**  
*Initial Completion Date:*  
September 2015  
*Final Completion Date:*  
February 2015

### PROJECT DESCRIPTION

This \$20 million MDOT SHA project included the complete reconstruction of dual two-span bridges carrying MD 4 over MD 223 and modifications to the existing interchange. The project included significant excavation, drainage, base, and asphalt paving to construct new roadway approaches to the bridges. Four miles of patching, grinding, and asphalt overlay along MD 4 improved the heavily deteriorated driving surface. The project also included new street lighting, upgraded signalized interchanges, guardrail installation, stormwater management (SWM), facility construction, signage, and landscaping.

The project required careful planning, scheduling and phasing, including overnight traffic switches. There were restricted work areas in the early phases of the project. The project was built in five phases which reduced impacts to the traveling public through the use of five overnight traffic switches. The night-time transitions

#### Relevance to GA6465270

- ✓ *Fast-Track Schedule*
- ✓ *Completed on-Time*
- ✓ *TMP Minimized Impacts to Traveling Public*
- ✓ *Reduced Environmental Impacts During Construction*

#### Proposed Staff Involvement

- *Anthony Bednarik, DBIA\* - project pursuit, schedule and cost estimating*
- *Steve Wood*
- *Ron Ansell*
- *Eric Mock*

\* Proposed Key Staff

between phases minimized disruption to a major DC East/West corridor. The coordination between the MDOT SHA public outreach team, the project inspection staff and the **Wagman** project team was essential to ensure the pattern changes were carried out quickly and safely. Phase 1 consisted of shoulder improvements needed to upgrade existing shoulders to accommodate the project's future traffic phasing. The existing asphalt and subbase was removed and graded aggregate base and an improved asphalt package was placed. Traffic was shifted onto this newly modified shoulder in order to construct Phase 2. Phase 2 began with the demolition of the median portion of the existing bridge. The inside portions of eastbound and westbound MD 4 over MD 223 Bridge were then reconstructed. A temporary roadway was placed to allow traffic to be moved from the outside to the median lanes. Another traffic switch moved the project into Phase 3. Phase 3 entailed demolition and construction of the outside portions of eastbound and westbound Route 4. Phases 4 and 5 consisted of restoration of the permanent open median, stormwater management construction, and improvement of four miles of the Route 4 driving surface. This MOT exhibits **Wagman's** ability to construct multiple phases required for roundabout construction, widening along a major thoroughfare and interchange reconstruction while maintaining open traffic for the duration. The project phasing resulted in limited work areas. In order to maximize the restricted work zones, a support of excavation system was engineered by **Wagman** engineers along the phase line. The shoring system enabled the construction team to build the substructure including piling, footers, abutment stems, wing walls and pier columns and caps. For the duration of the project, **Wagman** was responsible for maintaining five miles of MD 4 roadway. This created numerous challenges because the road was deteriorated prior to the start of the project and the harsh winter caused further weakening of the riding surface. Constant pothole repair crews were dispatched to maintain the road surface through the winter months. As soon as the temperatures allowed, the road was milled, patched and resurfaced.



### SUCCESSFUL METHODS, APPROACHES AND INNOVATIONS

**Schedule** – **Wagman** completed this project 7 months ahead of schedule even though a significant change order was issued for additional grinding, asphalt paving and embankment. MOT was vital to the success of the project completion and **Wagman** worked within lane restriction times and multiple traffic phases. Traffic was



## MD 4 Bridge Replacement over MD 223

Prince George's County, MD



maintained without major disruptions to the public commuter and local businesses. Overall impact was reduced, because the project was completed ahead of schedule.

**Environmental Compliance** – The project maintained an “A” rating for erosion and sedimentation control during construction. An extensive network of bio-swales were constructed along the reconstructed highway and within existing roadway medians to treat stormwater runoff for quantity and quality.

**Design Excellence** – This was a Bid-Build project, but **Wagman** worked with the designer of record during the project execution and our in-house engineers developed, demolition plans, erection plans, support of excavation plans, and temporary support of the existing bridge during phased construction. All design was completed by **Wagman** engineers and coordinated with the designer of record. Our in-house geotechnical engineers assisted with the foundation construction adjacent to existing bridge and highway facilities minimizing impacts to the existing structure and travelling public. **Wagman** coordinated with MDOT SHA and MDE QA Inspection to modify the MOT phasing and E&S control construction sequencing to expedite building the bioswales that accelerated project completion.

### RELEVANCE OF WORK TO GA6465270

Similar to the US 219 project, MD 4 necessitated maintaining existing roadway operations, maximizing the work area and available travel lanes; **Wagman** also designed and installed numerous support of excavation systems. The project faced a variety of challenges that threatened the flow of traffic through the interchange area. However, these restricted areas facilitated the flow of traffic through the interchange area. Additionally the project team faced the complication of a rapidly deteriorating existing road surface that required extensive unforeseen repairs that were performed in a manner outside the normal sequencing. These repairs were completed without impacting the overall project schedule. **Wagman** replaced a dual steel bridge with cast-in-place abutments over existing roadway similar to the US 219 bridge over US 40 Alt.



This project had exemplary work performance for quality, production and safety. One of the largest successes of the project was finishing seven months ahead of schedule—which is a US 219 project goal. This accomplishment relieved this heavily traveled corridor of anticipated traffic restrictions, which would have continued through an additional winter season.

The hard work and dedication of the construction team along with the strong partnership with the MDOT SHA field staff created a work atmosphere that was conducive to safe production. Open lines of communication between the State and the contractor allowed on-site decisions to be made without interruption to the forward momentum of the project. One such example was the approval to resurface the road ahead of the original contract conditions. This, in conjunction with favorable weather during the summer construction season, was maximized to catapult the project forward to gain ground toward an early finish.

*The supervisory personnel from MD 4 were recognized at the 2014 Maryland Transportation Builders & Materials Association (MTBMA) Safety Awards Banquet for their leadership in maintaining an accident-free worksite.*

Notice to proceed for this project was given on April 8, 2013 and the job was worked with no recordable or lost time incidents throughout its duration. This was a challenging project from a safety standpoint due to the limited work space and limited access, particularly during Stage 1. A major component of stellar safety performance on this project can be attributed to the project leadership, seasoned work crews, extreme housekeeping, careful planning, and organization. In particular with the limited work space and access during several phases of the project, the attention to housekeeping and maintaining hazard free work zones kept everyone safe for the duration of this project.

Overall, the success of the project was due to the solid team who implemented the partnering process, had fluid and open communication from the start of the project and promoted issue resolution to easily overcome challenges. Attention to safety was maintained from the first day to the last. Additional work improved the overall aesthetics, resulted in a smoother ride and still allowed the project to finish seven months early, relieving the inconvenience to the traveling public much earlier than anticipated. The Team exemplified the MDOT SHA partnering process and the project was completed ahead of schedule and under budget without any major issues that could not be overcome through partnering.

*A 2015 MdQI Awards of Excellence Finalist for the SHA Project of the Year over \$5 Million Category.*



**OWNER CONTACT**

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**CONTRACT/PROJECT NO.**

SHA Contract No. QA2655170

**DELIVERY METHOD**

Design-Bid-Build

**CONSTRUCTION COST**

*Initial Contract Value:*

\$30,316,828

*Final Contract Value:*

\$30,316,828

**SCHEDULE PERFORMANCE**

*Initial Completion Date:*

October 2018

*Final Completion Date:*

December 2017 – On Schedule

**PROJECT DESCRIPTION**

Wallace Montgomery (WM) prepared the design and construction documents for safety-related improvements to three intersections along US 301 near Centerville in Queen Anne's County, MD. The primary focus of the project was replacing the existing at-grade MD 304 intersection with a new interchange. Improvements were also made at US 301 and MD 305, where J-Turns were constructed, and at US 301 and Rolling Bridge Road, where an existing median crossover was removed. The project was delivered on a fast-track basis and had significant elected official support, community involvement and context sensitive features.

**Relevance to GA6465270**

- ✓ Expedited Design Schedule
- ✓ Interchange Ramps w/ Roundabout Junctions Design
- ✓ Environmental Resources Impacts Minimization
- ✓ Stream Relocation/Restoration
- ✓ JPA Preparation/Coordination
- ✓ Practical Design Concepts

**Proposed Staff Involvement**

- Eric Sender, PE\*
- Diane Durscher, PE\*
- John Rectanus, PE, PTOE
- Robert Evans, PE, PTOE
- Jessica Klinefelter, CEP
- Eric Cooper, PLS

\* Proposed Key Staff

The project purpose and need was safety-driven, given that the crash history (with fatalities) exceeded the statewide average, with significant crashes involving high school students crossing this major route that carries a high percentage of trucks. The project features a grade-separated interchange at the intersection of

US 301 (Blue Star Memorial Highway) and MD 304 (Ruthsburg Road), including a bridge constructed by **Wagman Heavy Civil, Inc. (Wagman)** carrying MD 304 over US 301, diamond/loop interchange ramps meeting at roundabout junctions, multi-modal (pedestrian & bicycle) facilities, and roadway cross culvert replacements/extensions. Engineering services provided by WM include surveying; highway, drainage & H&H design; MOT; Transportation Management Plan development; traffic (signal removal, lighting, signing & marking) engineering; stream relocation/restoration design; construction documents & wetlands/WUS JPA preparation; and securing SWM-ESC approvals.



**SUCCESSFUL METHODS, APPROACHES AND INNOVATIONS**

**Schedule** – Due to the community and political involvement (the County's highest transportation priority), the advertisement schedule for the project was set to June 2014. The NTP for Preliminary Design given in September 2012, and the PS&E package was submitted in March 2014 to meet the Advertisement date, a design duration of only 20 months. As this became a priority project following the passage of the Transportation Act increasing transportation funding, WM mobilized the staff needed to ensure that the Advertisement date was met, and construction could begin as promised to the County residents and Officials. Also, WM is an active member of the Project construction partnering team. With collaborative efforts between designers and construction forces (Contractors & District 2), a plan was developed and approvals secured to combine construction phases with temporarily relocating a commercial property's access point from MD 304 to US 301; resulting in an 8 month construction schedule reduction. Finally, WM with construction forces and MDE adjusted MOT/ESC sequencing to allow for overlapping phasing resulting in another 2 months of schedule reduction.

**Environmental Compliance** – Major environmental requirements included meeting the required stormwater management (SWM) for water quality and quantity per the SWM Act of 2007 due to the additional impervious area; and wetlands/WUS impacts avoidance-minimization and then compensatory mitigation of impacts as part of the JPA process.

Our SWM design included 56 ESD micro-scale facilities, primarily wet swales designed to store 75% of the ESDv on the surface behind check dams. High groundwater, flat terrain, appropriate soils and available linear space adjacent to the roadway made wet swales feasible for this project. The ESD facilities also contributed toward meeting the 2-year peak discharge management requirement such that additional SWM facilities were not required for quantity control.

Our approach with the Project's wetlands/WUS impacts included facilitating a Pre-Application Meeting with MDE/USACE; evaluating opportunities for avoidance and minimization working directly with the designers to reduce impacts (stream/floodplain impacts were minimized with a proposed retaining wall); and preparing a JPA which included stream restoration and wetland creation compensatory mitigation along with 20 impact plates and a Avoidance and Minimization Report. Stream relocation was needed for the MD 304 to southbound US 301 ramp construction that impacted an unnamed tributary to Mill Stream Branch. A detailed geomorphic assessment of the existing stream (3,200 LF) was performed measuring the channel geometry and channel substrate (pebble counts). A longitudinal stream profile was established with field collected data along the thalweg. Field indicators of bankfull were documented. All stream data was organized in Mecklenburg spreadsheets. Stream adjustments were required in three locations. Downstream of MD 304, the stream was relocated for the revised culvert location under MD 304 and to avoid additional wetland impacts. Remediation measures included benched floodplains and toe boulder wall reinforcements.



**Design Excellence** – WM reviewed the planning level concept prepared by the SHA and began to investigate Context Sensitive Solutions that were in harmony with the surrounding Centerville communities and enhanced environmental resources. We agreed with the proposed approach of raising the side road over and the mainline staying at-grade was most appropriate. While the conceptual footprint remained the best solution in order to minimize impacts on property and environmental resources, WM proposed an innovative interchange dual roundabout design. We viewed this as a practical design solution and a safety improvement for young drivers at the adjacent high school and heavy truck traffic. The two roundabouts featured a single-lane design with a 150 ft. inscribed diameter, 22 ft. travel lane, and 15 ft. concrete truck apron – engineered to accommodate a WB-67 design vehicle, as well as farm equipment.

Furthermore, WM looked at the US 301 corridor more broadly and recognized that an innovative intersection J-Turn approach had merit to eliminate certain left-turn movements and improve safety just north of the new interchange. This intersection improvement provided a safer alternate access to the Town of Centerville, particularly during construction increased traffic utilizing the intersection. The J-Turn design reduced critical issues related to the MD 305 skewed alignment and high truck/farm vehicle use. The presence of Electric Transmission Line (towers) and underground FO prevented the skewed alignment from being realigned. To accommodate the large vehicles utilizing the intersection, turning movements in the “acute angle” quadrants were designed with truck aprons to reduce the travel way pavement.

#### **RELEVANCE OF WORK TO GA6465270**

This project has relevance because of its interchange construction with dual roundabouts and diamond/loop ramps serving commuters and commercial trucking as is similar with the proposed I-68/US 219 interchange. In addition, all though a Design-Bid-Build procurement, the design schedule was “fast tracked” in order to meet an aggressive Advertisement schedule, and satisfy the community and political desires to have the interchange constructed as quickly as possible. Also, similarly the US 301/MD 304 Project had significant environmental features requiring avoidance and minimization evaluations and ultimately mitigation stream restoration and wetland creation designs for impacts. Finally, the Project focused on supporting safety & mobility along with efficient highway operations for the adjacent surrounding properties and communities. The WM Design Team delivered the design to expedite the Project's aggressive construction scheduling while minimizing, mitigating and securing approvals of environmental resources impacts, and maintaining accessibility to existing properties and facilities.



**OWNER CONTACT**

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**CONTRACT/PROJECT NO.**

PG4195172

**DELIVERY METHOD**

Design-Build

**CONSTRUCTION COST**

**Initial Contract Value:**

\$30,700,000

**Final Contract Value:**

\$33,744,188 (Updated requirement for bike lanes and upgrade of WSSC watermain)

**SCHEDULE PERFORMANCE**

**Initial Completion Date:**

May 2014

**Final Completion Date:**

November 2014 (Owner directed/ approved scope changes and schedule extension to match the opening of I-95 CD Roads)

**PROJECT DESCRIPTION**

Wallace Montgomery (WM) served as Lead Designer on the MDOT SHA's I-95 Contee Road Interchange Design-Build Project. The project located in Prince George's County involved the construction of an urban arterial roadway, Contee Road, (now known as Konterra Drive), and its grade separated connection with I-95 using a partial cloverleaf interchange configuration. Contee Road was constructed parallel to the north and replace the existing Van Dusen Road and its crossing over I-95. The Contee Road (Konterra Drive) Interchange connects within the I-95 collector-distributor (CD) roadway system between MD 198 and the Intercounty Connector (ICC) - MD 200. The project limits along Konterra Drive are from east of the Van Dusen Road/Virginia Manor Road intersection to approximately 1/2 mile west of Sweitzer Lane for a distance of approximately 1 1/4 miles. The work included constructing a 4-span bridge over I-95, two interchange direct outer connection ramps and two cloverleaf inner loop ramps, and the relocated at-grade connections of Sweitzer Lane and Van Dusen Road to Konterra Drive. The project purpose was to deliver

**Relevance to GA6465270**

- ✓ Design-Build Delivery for SHA
- ✓ Expedited Schedule Delivery
- ✓ New Divided 4-Lane Roadway
- ✓ Interchange Ramps Design
- ✓ Innovative Solutions (ATCs)
- ✓ Practical Design Concepts
- ✓ Environmental Resources Impacts Minimization

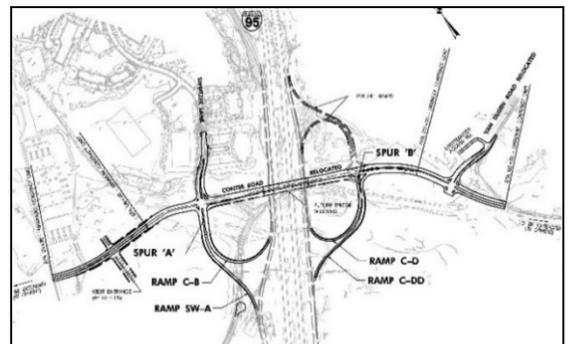
**Proposed Staff Involvement**

- Eric Sender, PE\*
- Diane Durscher, PE\*
- Megan Peal, PE
- John Rectanus, PE, PTOE
- Robert Evans, PE, PTOE
- Roberto Barcena, PE
- Joan Floura, PLA\*
- Eric Cooper, PLS

\* Proposed Key Staff

a new access point from I-95, driven by anticipated traffic demands generated by the proposed Konterra Town Center, a 2000-acre mixed-use development, bordering both sides of I-95. Engineering services provided by WM include surveying; highway, structural, pavement, drainage & H&H design; MOT; geotechnical, traffic (signals, lighting, ITS, signing & marking), and utility (water main & FO conduit relocations) engineering; landscape architecture; construction documents preparation; Transportation Management Plan analysis/development; public relations; and securing SWM-ESC approvals along with ensuring compliance with NEPA and environmental commitments for wetlands/WUS and forest impacts and reforestation.

Our Team was awarded the Project based on a total bid price of \$30.7 million for the design and construction – **almost \$3M under the project budget of \$33.5M - as a result of our approved ATCs and additional innovative solutions.** Additionally, the \$30.7 million bid price was for the maximum contract limits which included approximately an additional 1/2 mile of new Contee Road and the new at-grade intersection with Van Dusen Road than the base minimum contract limits.



**SUCCESSFUL METHODS, APPROACHES AND INNOVATIONS**

**Schedule** – The construction of the Project was divided into areas/segments and implemented a comprehensive “rolling” design and construction plan process to efficiently order materials, mobilize work forces and provide continuous work efforts of clearing/rough grading, structures & storm drain systems, and fine grading/paving. Also, completing the design and construction of the proposed Contee Road Bridge was vital to project success; as this work needed to be completed in order to remove the existing Van Dusen Bridge and allow for the completion of I-95 CD roadways. WM developed a schedule and approach that ensured all necessary design activities were completed on time and all elements were constructed without delay; resulting in completion the new bridge and demolition of the old 1 1/2 months ahead of the interim milestone date. Finally, clearing utilities was critical in order to meet the Schedule's Critical Path construction activities, therefore utility coordination was a priority. Monthly Utility Coordination Meetings were held and facilitated by the Team.



**Environmental Compliance** – Our SWM approach provided for all water quality treatment in Environmental Site Design (ESD) micro-scale practices along the proposed roadways as much as possible instead of concentrating the treatment in end-of-line pond facilities. In maximizing use of ESD micro-scale facilities such as bio-swales and minimizing pond facilities, the Project footprint was reduced; resulting in reduced environmental features (waterways, forest) impacts and increased area available within right-of-way for on-site mitigation (reforestation) along with easier/lower cost maintenance and more visually pleasing SWM facilities. MD DNR permitted forest impacts at 24.43 acres—we achieved 19.65

acres in actual forest impacts; a reduction of 4.78 acres. For the MD DNR permitted 24.43 acres of impacts, 14.52 acres of on-site reforestation was required with 9.91 acres off-site by SHA for achieving a 1:1 replacement. The WM Design Team achieved 27.57 acres of on-site reforestation, therefore we replaced the final 19.65 acres of impacts plus an additional 7.92 acres. Waters of the US (WUS) impacts were also decreased by 123 LF. The JPA permitted WUS impacts at 1,366 LF—we achieved 1,243 LF in actual WUS impacts. In addition, with our elimination of SWM pond facilities east of the Van Dusen Road intersection and we were able to re-establish a primarily open-channel waterway through the Project's eastern limits. Finally, with our modifications to the Contee roadway profile and SWM facilities; we coordinated the changes with MDOT SHA and prepared necessary documentation/environmental summaries as part of NEPA Reevaluation.

**Design Excellence** – Our Team applied innovative and cost-effective solutions, fully consistent with the Project's Performance Specifications that resulted in over \$2 million in cost savings. ATCs to reduce the Contee Road bridge costs included the realignment of the I-95 Northbound CD Roadway and adjoining interchange ramps and incorporation of Concrete F-Shape barriers at the abutments to shorten the bridge by 82 ft. and provide symmetrical spans. The final product was an aesthetically pleasing 519 ft. 4-span steel haunched girder bridge structure. Also, given the high visibility of the project, the local commercial interests and the nearby County Regional Hospital, WM sequenced the project in conjunction with roadway profile refinements reducing vertical differential and meeting grade between existing and proposed roadways to maintain traffic at all times; completing the work in the minimum number of stages; facilitating smooth transitions between existing and new; minimizing traffic disruption, and maximizing accessibility to/from adjacent properties. In addition, we sequenced the Project's earthwork to minimize on-road hauls, which also minimized impacts to the traveling public and surrounding communities. Finally, to further enhance access, safety and multi-modal features, WM incorporated full bicycle compliance in accordance with post-award issued revised MDOT SHA policy with providing 6 ft. marked bike lanes and pocket lanes between the travel lane and right turn lanes at the relocated at-grade intersections.



### RELEVANCE OF WORK TO GA6465270

This project has relevance because of the Design-Build method of innovative project delivery involving the construction of a new alignment four-lane divided major corridor highway serving commuters and commercial trucking; a new vehicular bridge structure over an existing roadway; and grade-separated interchange ramps (including direct outer and inner loop ramps). Also, with the US 219 Project it is desired to expedite its construction and meet or exceed its completion date as was similarly with the I-95 Contee Interchange Project of meeting or exceeding the prescribed interim milestone to construct the new Contee Road Bridge and demolish the existing Van Dusen Road Bridge over I-95. Additionally, the I-95 at Contee Road Interchange Project focused on supporting local and regional economic growth, efficient highway operations for development and community access. WM delivered the design of the interchange for the proposed future development and infrastructure while minimizing impacts and maintaining, if not enhancing mobility and access to existing properties and facilities within the region considered as positive by all. This resulted in a project that was welcomed by stakeholders and exemplified a partnership between the design-build delivery and meeting the Owner's budgetary and scheduling needs and the future needs of the region and users.



*MdQI Partnering in Construction Gold and SHA Project of the Year >\$5 Million Awards of Excellence for 2015*

**OWNER CONTACT**

MDOT State Highway Admin  
 Mr. Rob Marchetti, PE  
 T 410-662-7400  
 rrmarchetti@sha.state.md.us

**CONTRACT/PROJECT NO.**

AW8965170

**DELIVERY METHOD**

Design-Build

**CONSTRUCTION COST**

**Initial Contract Value:**

\$104,997,777

**Final Contract Value:**

\$104,977,777

**SCHEDULE PERFORMANCE**

**Initial Completion Date:**

Substantial November 2017

Fully May 2017

**Final Completion Date:**

Substantial November 2017

Fully May 2017 - On Schedule

**PROJECT DESCRIPTION**

Wallace Montgomery (WM) is teamed with Wagman Heavy Civil, Inc. (Wagman) under the MD 404 CSC Team to construct two additional lanes along 9 miles of the existing MD 404 alignment to create a dual four-lane divided highway from US 50 to east of Holly Road. The project also includes construction of "J" Turns and Maryland "T" intersections to eliminate unprotected left turns from side streets, and new service roads to consolidate access points with residential and commercial properties to MD 404. Additional improvements include roadway tie-ins to and from the existing dual highway, a 115 ft. single span bridge over Norwich Creek, 18 small structure classified roadway cross culvert extensions/replacements including box and multi-cell pipes, new/rehabilitated roadway pavement,

**Relevance to GA6465270**

- ✓ Design-Build Delivery for SHA
- ✓ 4-Lane Rural Divided Roadway
- ✓ Expedited Schedule Delivery
- ✓ Innovative Solutions (ATCs)
- ✓ Practical Design Concepts
- ✓ Environmental Resources Impacts Minimization

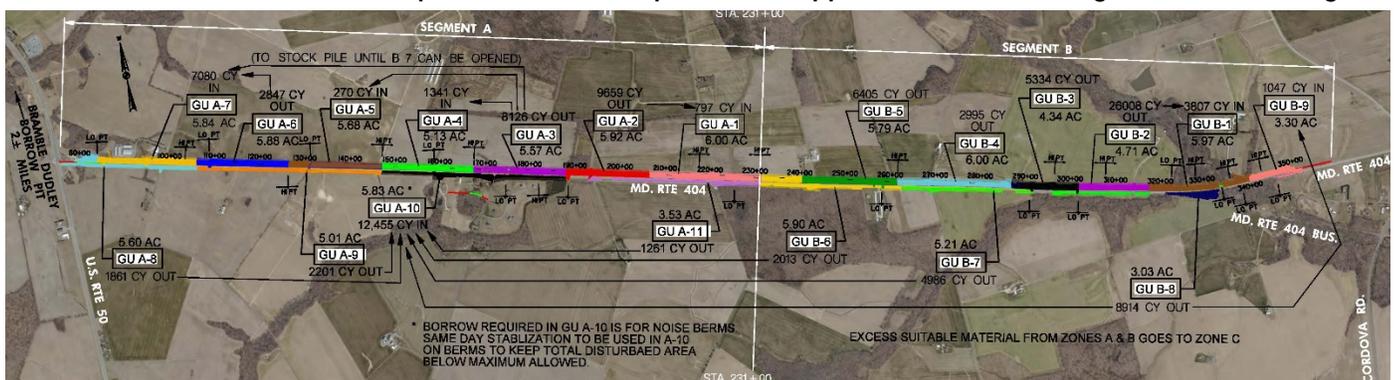
**Proposed Staff Involvement**

- Anthony Bednarik, DBIA\*
- Eric Sender, PE\*
- Diane Durscher, PE\*
- Megan Peal, PE
- John Rectanus, PE, PTOE
- Roberto Barcena, PE
- Joan Floura, PLA\*
- Eric Cooper, PLS
- Steve Wood
- Eric Mock
- Mark Crist
- Jerry Whitlock, PE
- Bryan Smith, PE
- Thomas Medeiros

\* Proposed Key Staff

closed/open drainage systems, stormwater quality ESDv and quantity facilities, intersection lighting, signing, pavement marking, traffic signal modification at US 50, ITS devices, noise abatement earth berms, concrete screen fencing, and landscaping. Scope of engineering services provided by WM include surveying; highway, structural, pavement, drainage & H&H design; MOT; geotechnical and traffic (signal, lighting, ITS, signing & marking) engineering; landscape architecture; construction documents preparation; Transportation Management Plan analysis/development; public relations; utility coordination for the relocations and clearing of aerial and underground facilities; and securing SWM and E&S Control approvals along with ensuring compliance with environmental commitments for wetlands/WUS and forest impacts. The Project was divided into three segments by the MD 404 CSC Team with Wagman fully responsible (earthwork, structures, drainage, paving, traffic features, etc.) for the 2½ miles Segment B.

The MD 404 CSC Team was awarded the project based on a "best value selection" process and a total bid price of \$105M. Reflected in the total bid price was the incorporation of approved ATCs resulting in an \$11M savings.



**SUCCESSFUL METHODS, APPROACHES AND INNOVATIONS**

**Schedule** – The construction of the project was divided into three (3) areas/segments and implemented a comprehensive "rolling" design and construction plan process to efficiently order materials, mobilize work forces and provide continuous work efforts/concurrent construction activities (within the 20 acre grading unit requirement) of clearing/rough grading,

# MD 404 Dualization Design-Build Project

## Talbot, Queen Anne's and Caroline Counties, MD



structures & storm drain culverts/systems, and fine grading/paving. In addition, H&H studies for and construction of cross culverts in delineated Waters of US (WUS) required review by MDE. Therefore, the as part of the "rolling" design submissions, the culvert crossings submittals were independent from the road construction submittals in order to expedite and secure Agencies approvals of all the WUS culverts by December 2016 and allow for installation prior to the in-stream restriction period starting February 2017. Also, WM revised the pavement section through an approved ATC – providing cost savings while exceeding the structural requirements, reducing construction impacts, and compressing the schedule with requiring the minimum graded aggregate base and allowing material sources to maintain adequate supplies during concurrent pavement constructions. Finally, clearing impacted utilities was critical in order to meet the Schedule's Critical Path construction activities, therefore utility coordination was a priority. Bi-Monthly Utility Coordination Meetings were facilitated by the Team along with extensive coordination of utility relocations and roadway-grading-drainage designs.



**Environmental Compliance** – Although wetlands/WUS and forested areas were permitted for impacts, we recognized the Project's goal to further reduce impacts. Reductions were achieved by adjusting the westbound MD 404 road profile; reducing the roadside hinge slope width from 6 ft. to 4 while maintaining safety grading for clear zone requirements or installing traffic barrier; minimizing culvert lengths/maximizing headwall heights (i.e. at Culvert S10 with impacts to Wetland WZ051 reduced by 767 SF) and using innovative construction techniques for maintenance of stream flow at culvert crossings. Furthermore, we eliminated an SHA concept roadway cross culvert with re-routing the runoff along the WB road similar to existing flow patterns and therefore eliminated wetlands impacts, and potentially creating wetlands with the re-routed runoff. Finally, our Team's designers reduced the Access Road 2 typical section and revised its geometrics to further reduce impacts to Wetland WL01W as required by the Nontidal Wetlands & Waterways Permit.

In addition in accordance with the Nontidal Wetlands & Waterways Permit, WM developed and secure MDE approval of a Tier II Watershed Corridor Management Plan for the Norwich Creek watershed and therefore released schedule critical grading and structures plans within the corridor for construction. The main focus of the management plan was the development of a work plan in addressing pre and post soil compaction monitoring and mitigation within the corridor.

**Design Excellence** – Our Team applied innovative and cost-effective solutions, fully consistent with the project's RFP that resulted in over \$16 million in savings. We received approval of seven ATCs for inclusion within the Project. These focus on: 1) Pavement section enhancements that maximize soil cement & capping borrow; 2) Use of Ultrathin paving to improve rideability and life-cycle costs; 3) Minimizing full depth reconstruction and wedge/leveling of the existing mainline road to accelerate construction and improve safety by minimizing MOT; and 4) Clarifying SWM swale requirements to ensure traffic barrier protection is placed in an effective manner with not compromising safety.



In addition, our designers focused on safety and mobility related to the roadway geometrics-layout design in accordance with AASHTO and MDOT SHA requirements including: 1) Auxiliary lanes and queueing assessments; 2) Providing adequate accel/decel lengths for safer merging movements at intersections; 3) Intersection geometry accommodating WB-67s and farm equipment with 17-ft. wheel bases; and 4) Access/Service Drives with compliant accel/decel lanes & sight distance.

### RELEVANCE OF WORK TO GA6465270

This project has relevance because of the Design-Build method of innovative project delivery involving the construction of a four-lane divided major corridor highway serving commuters and commercial trucking; a new vehicular bridge structure; and roadway cross culverts. Also, with the US 219 project it is desired to expedite its construction and meet or exceed its completion date as was similarly with the MD 404 Project of meeting or exceeding the prescribed substantial completion interim milestone date and then the overall final completion date. Additionally, the MD 404 Project focused on supporting safety & mobility along with efficient highway operations for the adjacent surrounding properties and communities. The WM Design Team delivered the design to expedite the project's aggressive construction scheduling while minimizing social and environmental resources impacts and maintaining accessibility to existing properties.

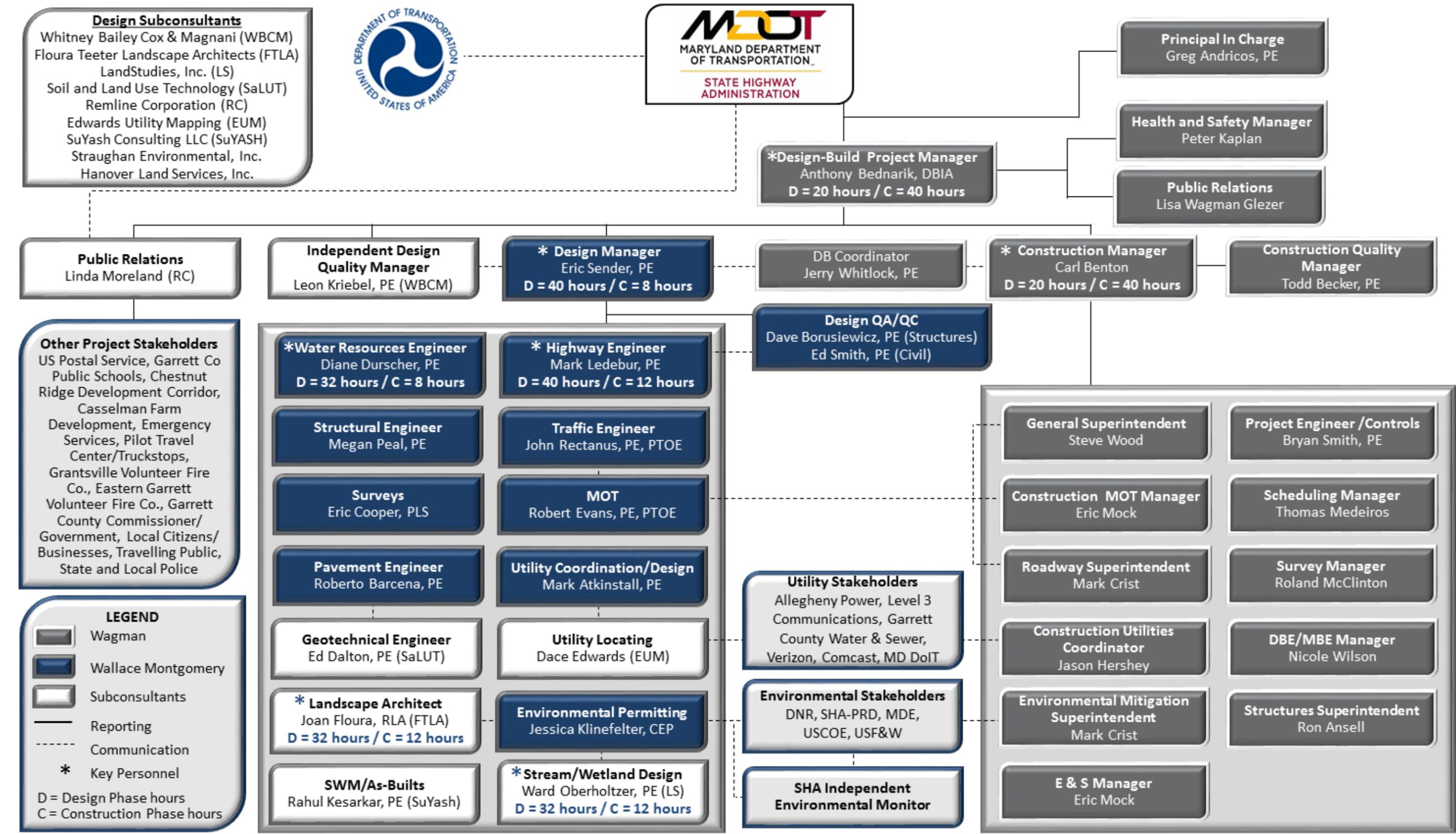


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## XVII. A.

### iii. Organizational Chart

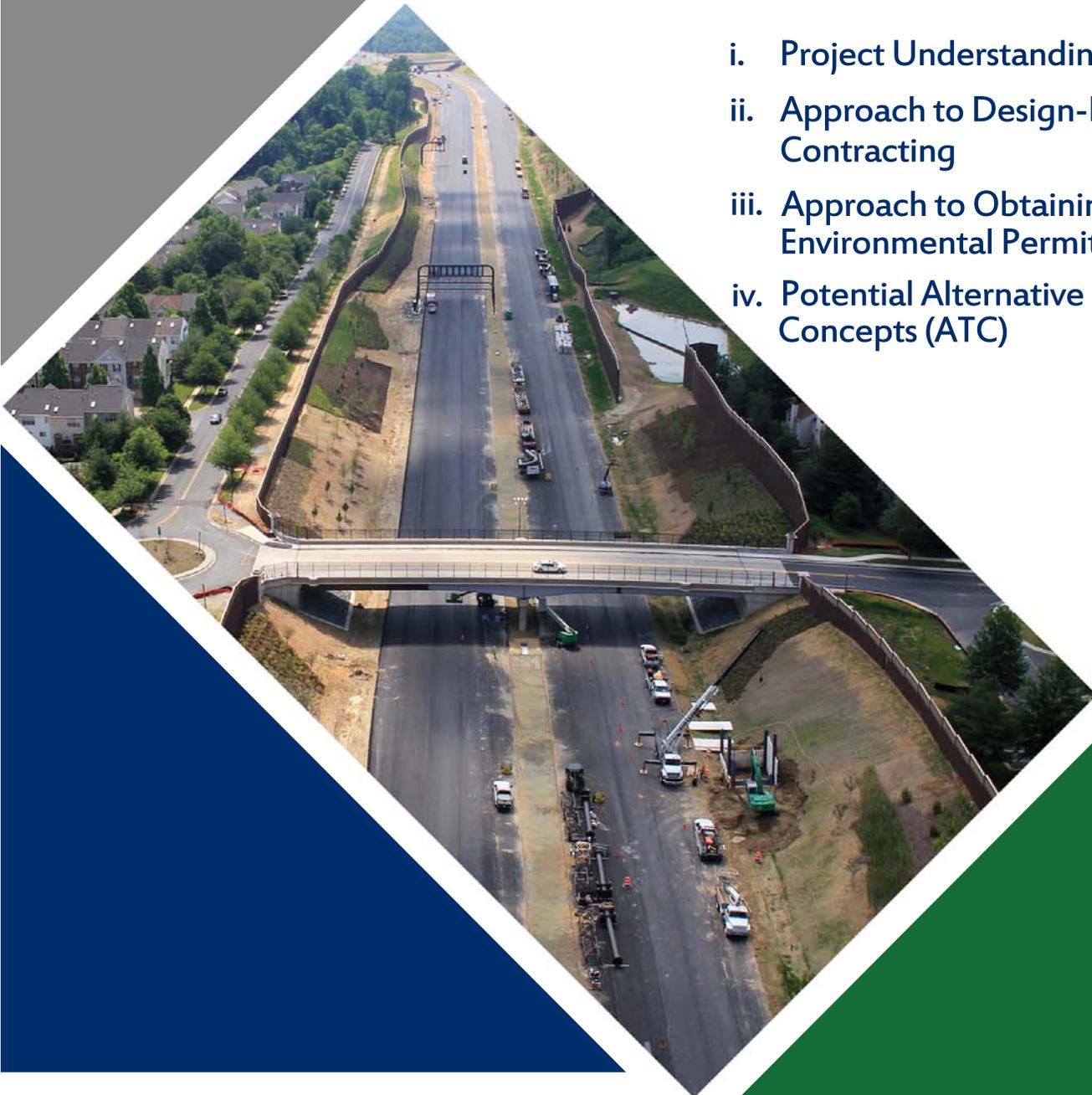
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## XVII. B.

# PROJECT UNDERSTANDING AND DESIGN-BUILD APPROACH

- i. Project Understanding
- ii. Approach to Design-Build Contracting
- iii. Approach to Obtaining Required Environmental Permits
- iv. Potential Alternative Technical Concepts (ATC)



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## XVII. B.

### i. Project Understanding

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## UNDERSTANDING THE PROJECT SCOPE

The Project (SHA Contract No. GA6465270) located in Garrett County consists of the design and construction of US 219 to a four lane divided highway from I-68 to Old Salisbury Road, for a length of approximately 1½ miles; and its connection to the US 219 Business (formerly US 219) and I-68 interchange using a dual roundabout configuration. The new US 219 is classified as a rural freeway. The purpose of the project is to provide transportation improvements that are responsive to planned economic development. The project is needed to support regional and local economic growth; efficient highway operations for development (safety and mobility); and a sustainable community (accessibility and maintenance). Although Corridor US 219 projects have been planned for some time, in Summer 2016, NEPA efforts began on this standalone project, with Purpose and Need being accepted by the agencies and FHWA. In March 2017, the SHA selected Alternative 4 Modified as its Preferred Alignment. NEPA clearance/FHWA approval is expected in Summer 2017.

## UNDERSTANDING THE PROJECT GOALS

The MDOT State Highway Administration (MDOT SHA) major project goals are schedule, environmental compliance and design excellence. The **Wagman/WM** Team's general plan to meet these goals is to provide comprehensive design and construction planning, with ongoing coordination and communication between MDOT SHA and project stakeholders; provide and maintain adequate materials, equipment, and work forces; and to design and construct the Project in accordance with the RFP with context sensitive solutions and in the spirit of environmental stewardship and partnering. Project goals have been defined within the RFP. **Wagman/WM** have a strong appreciation offer specific strategies that will help achieve each goal.

### 1. **Schedule** – Begin construction in Spring 2018 and meet or exceed the completion date.

We understand the MDOT SHA directive to deliver projects in a more expedited manner. Both **Wagman** and **WM** have a strong history for fast-tracking important MDOT infrastructure projects, including the I-95 (Fort McHenry Tunnel South) Deck Rehabilitation, the US 301 / MD 304 Interchange and the MD 404 Dualization Project. We have identified the following strategies that will help expedite the design and construction process:

- Hold additional design coordination meetings with the technical stakeholders, such as PRD, Office of Structures, environmental permit agencies and utility companies, to coordinate design packages and discuss expectations so that an expedited process moves forward.
- Early engagement of key local and business stakeholders as identified within our organizational chart, such as Garrett County DPW, local businesses and trucking advocacy groups to assure that user concerns are promptly met.
- Implement overlapping design activities and focus on the critical path. Overlapping activities will include SWM/ESC design for PRD Approval, Environmental Reassessments, TS&L Structure Design and Roadway Line & Grade packages.
- Implement overlapping construction activities by providing adequate resources to work multiple areas simultaneously as governed by the CPM.
- Develop ATCs and select design, materials and construction methods that promote efficiency and accelerate delivery schedules. Early focus on achieving design optimization through the development of ATCs and innovative/practical designs will reduce rework.
- Create realistic and expeditious submittal and review/approval processes that are in sync with the overall schedule, the right-of-way clearance process, environmental time-of-year restrictions and other Project goals.
- Create a direct line of communication between design and construction for efficient design development and feedback that will streamline review times.
- Avoid changes that impact LOD or commitments found within the NEPA document.

### 2. **Environment Compliance** – Ensure full compliance with the NEPA document and all permit requirements.

We share the value that MDOT SHA places upon environmental stewardship and will achieve compliance in the most direct manner. We understand that the impacts related to wetlands, stream and forest lands have been reduced, however there remain significant mitigation design requirements for each of these resources within the contract. On the US 301/MD 304 Interchange project (designed by **WM** and constructed by **Wagman**), we delivered a new dual roundabout interchange project while solving complex environmental challenges. We have identified the following strategies that will aid with environmental compliance.

- Understand the commitments made within the NEPA document with regard to environmental resources and impacts. Understand time of year restrictions for in-stream work. Review LOD in the context of constructability, access, adjacency of resources, etc., so that permit problems are avoided.
- Evaluate wetland and stream impacts early and often throughout the design process for continued avoidance and minimization opportunities.

- Conduct a pre-application meeting with MDE and the USACE to review impacts, proposed stream and wetland mitigation and discuss what Special Provisions are likely to be required.
  - Ensure that all forested areas are delineated and shown on the plans; evaluate impacts and look for opportunities to minimize forest impacts; coordinate closely with FTLA to ensure 1:1 reforestation needs are met on-site and approved by DNR.
  - Focus on proactive design, evaluation, review and submission efforts for the SHA PRD issued SWM/ESC approvals.
  - Meet with reviewers as formal design efforts commence and coordinate thereafter to confirm design/calculations criteria and to fully understand special conditions.
  - Implement ATCs that contribute to minimizing impacts and achieving environmental commitments.
3. **Design Excellence** – Provide a project that reflects the practice of good judgment through execution, as well as sound decision making within the project constraints.

As a Designer of Record, WM has an impressive resume and work history with MDOT. Given our relationship with Wagman, we will approach design in a collaborative manner so that construction influence and ideas are integrated within design. The Wagman/WM Team will approach design in a collaborative manner with open communication because it provides the best possible environment for design excellence to occur. We have identified the following strategies for design excellence.

- Apply lessons learned from the US 301 / MD 304 Dual Roundabout Interchange. The similarities between US 301 / MD 304 and the US 219 projects are significant relative to the interchange footprint and environmental design.
- Apply lessons learned from the MD 404 Dualization. The typical section on US 219 and MD 404 are very similar and the US 219 project represents another project where delivery for PRD is critical.
- Provide quality roundabout design and offering the MDOT SHA our unique expertise with oversized and overweight (OSOW) vehicles. WM Roundabout Expert Andy Duerr has performed studies and developed low cost accommodations specifically for OSOW vehicles at 6 proposed roundabouts in Pennsylvania and Georgia in the last three years.
- Provide excellence in structure design relative to the US 40 dual bridges. Structure design will focus on utilizing the latest MDOT SHA Standard Details, and designing in accordance with the OOS Policy and Procedure Manual and Plan Preparation Checklists to expedite the review and approval process. We will utilize our previous bridge design experience to overcome the challenges of rock near the surface and constructing new bridges over traffic.
- Develop and implement ATCs through the optimization of the current design to ensure quality engineering. The five potential ATC's provided herein can benefit project safety, reduce costs, improve quality and simplify construction.
- Implement Practical Design solutions. We will maximize the use of performance-based requirements (performance spec) to meet or exceed MDOT SHA's expectations through creative and practical design solutions. We will look to improve the proposed horizontal and vertical geometry and modifications to roadway features such as traffic barrier, roadway lighting and SWM facilities.
- The creation of a "resolution ladder" to ensure successful resolution of design challenges and problems. This approach will reflect the practice of good judgement and sound decision making ensuring design excellence.

### UNDERSTANDING THE MOST RELEVANT AND CRITICAL RISKS

In consideration of the critical issues and risks facing our Team and the Administration, we have analyzed the existing conditions through the project area and reviewed the conceptual design and requirements of the RFP. With this review and in the context of the project goals, we have identified the following issues and risks.

- **Safety and Mobility During Construction**
- **Geotechnical Evaluation and Design**
- **Environmental Permits, Approvals and Design**

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

### Safety and Mobility During Construction

**Why is it a Critical Risk?** Safety and mobility are a challenge for this Project because of multiple reasons. There is a big differential in user running speeds from the interstate highway to local roads. There is a differential in controls from limited access highway to roundabouts and signalized intersections. There is a big differential in the size of vehicles from double trailers to passenger cars. These issues are exacerbated during construction where new movements are being created and phasing is changing routinely as the project progresses. Ultimately, safety is paramount on transportation projects and together, these conditions pose a significant risk. It is clear that a well-conceived and logical construction sequence and effective MOT design is necessary to ensure safety and mobility.

# US 219 from I-68 to Old Salisbury Road

## Garrett County, MD

**Impact to Schedule, Design Excellence & Environmental Compliance:** In order to minimize construction duration, generally a sequence with minimum number of phases is best. Furthermore, the phasing must integrate multiple concepts that overlap – best staging for construction (considering earthwork, ESC, access, subsurface considerations, etc.), best staging to comply with environmental time of year restrictions, best staging that is consistent with right-of-way clearance and best staging for safety and mobility. **Wagman/WM** will plan on the sequence that serves these independent challenges while minimizing duration and achieving MDOT SHA goals.

**Wagman/WM Team Mitigation Strategies:** We have developed a global staging plan for the project that mitigates this risk and minimizes construction duration. Work Area 1 includes the northern roundabout. Dual bridges over US 40 Alt and new dual highway from the roundabout to the bridges. Work Area 2 includes the southern roundabout and ramp modifications. Work Area 3 includes westbound I-68 and Ramps A & B construction. Work Area 4 includes the remainder of US 219 construction north of the US 40 Alt.



In addition, we have sequenced the roundabout construction to occur under traffic, while maintaining existing traffic flow until the latter stages. We have sequenced the tie-in construction along existing US 219. We have modeled the interim phases of roundabout construction for OSOW vehicles in order to maximize safety and mobility. We have developed long-term signing needs along I-68 to prepare motorists (especially heavy trucks) for the staging.

Our Team will develop a Maintenance of Traffic Alternatives Analysis (MOTAA) to analyze work zone traffic impacts of various temporary control options along the corridor and determine the best management strategies to reduce delays and queues. Part of this effort is to integrate an access and mobility plan to depict haul routes and construction access points within the work area of the project, a contingency plan that specifies actions that will be taken to minimize traffic impacts should unexpected events occur in the work zone, and an incident management plan to help reduce the duration and impacts of incidents and improve safety of motorists, crash victims, and emergency responders.

The Public Outreach (PO) Plan for this project will include strategies to improve public awareness of the project and communicate with a broad range of highway customers and interested stakeholders. The public will receive project information in several ways including a toll-free telephone number, emergency response telephone tree, signage, public forums and various types of available media coverage.

**Experience Mitigating Similar Risks:** The **Wagman/WM** Team is executing interchange construction, roundabout staging and environmental improvements all within the US 301 / MD 304 Interchange under an aggressive schedule. Based on this and other project experiences, we have a proven track record of accommodating high volumes of traffic safely and efficiently through work zones.

On the I-95 at Contee Road Design-Build project we took advantage of ITS technologies, better work zone setups and close cooperation with the public to ensure proper implementation of the Traffic Management Plan. To further enhance safety and mobility, we updated the MDOT SHA RFP concept design and relocated the Collector-Distributor (CD) roads closer to I-95 and away from the connection with Contee Road which provided better grade separation. We also reconfigured the ramps to minimize vehicle delays caused by heavy truck traffic that do not have the accelerating ability that passenger cars have. This whole reconfiguration resulted in the mitigation for potential queue spillback on the CD roads, stop-and-go on the ramps, heavy weaving volumes and poor traffic signal progression.

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

### Geotechnical Evaluation and Design

**Geotechnical Overview:** The project site lies in Western Maryland in the Appalachian Plateau Physiographic Region. The project site along US 219 from I-68 to the Pennsylvania line lies in the eastern side of the Synclinal Basin between Negro Mountain and Meadow Mountain. The underlying rock in the area is of the Pennsylvanian Period and are primarily of the Conemaugh Group. More specifically the bedrock consists of interbedded sandstone, shale, mudstone and limestone. While the Conemaugh Group is not known for its coal the site lies close to the interface of the Conemaugh Group and Allegheny Formation to the east which contains mineable coal beds. The depth to rock is expected to vary over the proposed road alignment from rock near the surface to over 30-ft in the low areas. Construction will require fairly substantial cuts and fills and

a new bridge over US 40 Alt. Site specific geotechnical data is not available at this time however, excavation for the road alignment will likely include both soil and rock.

**Identification:** Lack of geotechnical/subsurface data along the project alignment presents significant risk to cost schedule, planning and design. The project site lies in the Appalachian Plateau where depth to rock as well as type and quality of rock can be highly variable.

**Why is it a critical risk?** Construction will require cuts up to about 15-feet and fills up to about 25-feet. Cost and time required for rock excavation is typically significantly higher than soil excavation. Geology of the area indicates the underlying rock consists primarily of sandstone, shale and mudstone with potential for limestone. The shales and mudstone are typically rippable however excavation of sandstone and limestone may require hoe ram or possibly blasting. The shale and mudstone are more erodible than the sandstone and limestone and slopes are susceptible to rock falls when the more erodible rock underlies the harder less erodible rocks. Design of cut slopes will need to take into consideration the jointing and dip of the rock and erodibility of the exposed face of the slope. Cut slopes in soil versus rock will impact excavation quantities. Cut slopes in rock may require rock fall protection such as a rock fence or rock impact area adjacent to the road. Presence of soft soil in low lying areas could result in settlement beneath fill embankments.

**Mitigation:** Develop and implement a subsurface exploration program to identify subsurface conditions and material types. The subsurface exploration program would include both test borings with rock coring and test pit excavation. Where soil is encountered split spoon, undisturbed tube and bulk samples will be obtained for testing and analysis. A laboratory testing program will be undertaken to identify soil and rock physical and strength characteristics. The soil testing will include consolidation for compressible soil, shear strength test to aid in slope design, compressive strength test on rock core samples, moisture density and California Bearing Ratio test. Profile optimization will be critical for minimizing rock excavation. In the event that blasting is required, a blast monitoring plan will be developed. Additional mitigation may include drilling holes and filling with water along the edge of blasting to dampen vibration.

Geophysical testing may also be used to identify subsurface conditions between test borings and areas inaccessible to drill equipment. Air track drilling (air probes) are very time efficient and cost-efficient for this purpose. Geotechnical analysis and report will be prepared which will address design and construction aspects of the project.

**Experience Mitigating Risk:** Development of a comprehensive subsurface exploration program based on site conditions, proposed project alignment, grades and structures has proven successful on similar projects.

**Role of the Administration:** The Wagman/WM Team will work to manage the risk, however access to property along the alignment for subsurface investigations will need to be provided if not already acquired.

### Environmental Permits, Approvals and Design

According to the RFP, the DBT is responsible for securing the Wetlands and Waterways Permit, including the Phase I and Phase II mitigation plans; and Reforestation Site Review Permit. As always, timely PRD approval of SWM and/or ESC is important with regard to project start-up and schedule for subsequent construction. In the western Maryland region, localized terrain and subsurface conditions create challenges that limit SWM, ESC and environmental mitigation design, including:

- 1) Bedrock encountered close to the surface or outcroppings that limit excavation for side ditches/swales, ponds (or sediment traps), microbioretention BMPs, and bio-swales; including, limitations on establishing outfalls for spillways or underdrain systems. Bedrock may also limit infiltration possibilities.
- 2) Roadway side ditches or swales set on steep terrain that exceeds the allowable longitudinal slope of water quality BMPs.
- 3) The potential for karst topography complicating SWM and drainage design.

Similarly, ESC design will have to consider the local terrain concerns, such as steep slopes adjacent to roadways hindering placing silt fence or other ESC devices.

**Why is it a Critical Risk?** The wetlands/waterways approval process is typically a long-lead item that can greatly affect project schedules. It is of utmost importance to schedule appropriate time to complete designs, prepare permit applications, go through the regulatory agency review and approval process and obtain authorizations in a timely fashion. The roadway/interchange design needs to be of sufficient detail to prepare impact plates and allow for avoidance and minimization measures. In addition, the mitigation requirements must be determined (based on the resource impact numbers) and the mitigation design should be advanced concurrently with the roadway design. The JPA must include the project impacts as well as the Phase I and II Mitigation package before MDE and USACE will provide authorizations.

The wetlands and waterways permit will likely have Special Conditions for a Designated Stream Specialist, As-Built Stream Restoration Inspector, and As-Built SWM Inspector to ensure compliance with permits. In addition, there will likely be a requirement for the Design-Build team to monitor the mitigation site (stream restoration/wetland mitigation) post construction.

# US 219 from I-68 to Old Salisbury Road

## Garrett County, MD

The project contains both Use III (October 1 through April 30, inclusive in any year) and Use I streams (March 1 through June 15, inclusive in any year). Impacts in Use III waterways must go on Public Notice for 30 days and will need to be factored into the schedule.

Securing timely approvals from PRD are critical because no construction can begin until SWM Concepts are established and ESC approvals for the imminent phase of work in hand. In addition, prudent selection of BMPs results in construction and maintenance cost saving as well as more effective water quality enhancement.

**Impact to Schedule:** We have set our design/construction work areas/phasing focused on the areas clear of wetlands/WUS to allow construction to commence while the JPA is being secured. We can build the southern ½ mile of New US 219 and both roundabouts (Work Areas 1 and 2). See the Design and Construction Development Section in the attached Bii. DESIGN-BUILD APPROACH write-up. Note all wetlands/WUS are located within WA 3 (Ramps A & B and along I-68) and WA 4 (New US 219 from US 40 Alt and north).

At the onset of our work, design for SWM will be integrated into roadway and other design efforts for the project. Final locations of SWM water quality BMPs will be optimally located to maximize pavement area treated while minimizing footprint, with a particular focus on avoidance and minimization of impacts to trees and other natural resources. Where needed, the footprint of quantity control BMPs will also be minimized. These design efforts will be documented in a SWM Report geared to addressing PRD requirements and facilitating approvals.

**Wagman/WM Team Mitigation Strategies:** To mitigate these risks, we have incorporated refinements of the design to minimize impacts and streamline the permitting approval process. Reductions in impacts will further minimize the amount of mitigation that is required for this project, which minimizes risk.

- Refinements to the Road Vertical Geometrics – For New US 219, AASHTO allows max grades of 6%. We could refine the vertical profile along New US 219 north of US 40 Alt to minimize the road embankment heights. This in turn will minimize impacts to a US 219 wetland/WUS crossing and adjacent roadside wetland. (*Case-in-Point as implemented on the Hampstead Bypass and on the I-95 Contee Road Interchange Design-Build Projects.*)
- Refinements to the Road Horizontal Geometrics (ATC#5) – Referencing Potential ATC#5, we could refine the Ramp B horizontal alignment to follow the Ramp A Loop Ramp which will reduce impacts to delineated linear pocket wetlands. Also, in conjunction with ATC# 5, we propose to provide only the required deceleration lane for Ramp A and not the full I-68 WBR 3rd lane drop into Ramp A. This results in elimination of 800' of wetland/WUS (also floodplain) impacts along I-68.
- Refinements to the Road Horizontal Geometrics (ATC#1 & 2) – Referencing Potential ATC# 1 & 2, we could avoid all wetland/WUS (also floodplain) impacts along I-68 and the proposed Ramps A & B. (*Case-in-Point as implemented on the Hampstead Bypass and US 113 Dualization Design-Build Projects.*)
- Refinements to the Typical Sections – We could introduce some bifurcation between the NBR and SBR or consider reducing median and roadside slope widths. (*Case-in-Point as implemented on US 113 Dualization Design-Build Project.*)
- Refine (Or Even Eliminate) Location of SWM Features to Reduce Footprint – The need for and size of all previously considered SWM BMPs will be assessed, with unnecessary BMPs eliminated, and the size of all practices optimized. (*Case-in-Point as implemented on the I-95 Contee Road Interchange Design-Build Project.*)
- Construct Embankment Slopes greater than 2:1 – Possibilities include reinforced earth slopes or serrated rock slopes, if geotechnical conditions allow. (*Case-in-Point as implemented on the I-95/I-495 and MD 5 Interchange Reconstruction.*)

The **Wagman/WM Team** is committed to continuing the Administration's environmentally sensitive approach and philosophy during the preparation of final design plans and throughout Project implementation. We will evaluate the environmental resource permits and identify temporary and permanent impacts, time of year restrictions, and special conditions to allow limited work within or a reduction of the LOD to maintain compliance with environmental permits including the WUS/wetland permit, SWM/ESC approvals, and reforestation site review permit.

The Team will also ensure that all design package submissions, and specifically SWM/ESC, contain and address the latest guidelines as defined by MDOT SHA and MDE. We will also evaluate maintaining forest canopy closures and maximize on-site reforestation and restrict impacts to forest edges where possible. Forest habitat disturbance will be avoided during April to August, the breeding season for most FIDS. We will adhere to time of year restrictions for the stream crossings and phase work to maximize construction duration in those areas. Stakeout of the approved ESC Plans' LOD will be in accordance with the Contract Provision and we will install orange construction fence to protect resources outside of the LOD.

**Experience Mitigating Similar Risks:** WM has significant experience obtaining permits within tight schedules in order to get projects under construction. On the US 301/MD 304 New Dual Roundabout Interchange – WM provided wetland environmental permits and approvals for over 3 acres of wetland impacts, 900 linear feet of stream impact and 3.8 acres of reforestation. To

facilitate the permit process and obtain permits on schedule, WM conducted site visits with the agencies early, participated in a Pre-Application Meeting, evaluated impacts “on-the-fly” as design progressed, engaged EPD on the best approach to stream mitigation and coordinated with EPD and MDE proactively to obtain relevant permits and authorization. Successful wetland permitting on this project is attributed to agency coordination and timely preparation of JPA submissions. We provided wetland impact plates to MDOT SHA, in advance of a comprehensive agency meeting just prior to Final Design. We submitted the JPA two weeks after the Final Design submittal, incorporating all LOD changes. As minor changes occurred after Final Design and through PS&E and Advertisement, we provided MDOT SHA with updates to the impact plates.

WM has experience providing Environmental Compliance during construction. In addition, we have experience on multiple stream and wetland post-construction monitoring and annual reporting to MDE. On the ICC, Scot Aitkenhead (WM) provided construction inspection and independent environmental monitor (IEM)/E&S control compliance monitoring for NW-160 and NW-170 Stream Restoration Projects. Anna McAninch (WM) worked for three years within MDOT SHA’s Office of Environmental Design Mitigation Monitoring section and is intimately knowledgeable of their mitigation and monitoring requirements.

With regard to SWM/ESC, WM mitigated similar risks also on the US 301/MD 304 project. We submitted a concept SWM report to MDE with the PI submittal, incorporating the results of a Director’s Review. The first major ESC submittal, incorporating six phases of construction, was submitted at Semi-final review. Based on our experience with the MDE system and the positive relationships we have built with MDOT SHA/MDE staff, we obtained the final SWM approval for 56 ESD facilities and ESC approval approximately 18 months after the original concept SWM submittal.

**Role of the Administration and Other Agencies:** We anticipate that MDOT SHA will retain a qualified, independent, Designated Specialist and/or Independent Environmental Monitor, independent from the design-build team, to participate in the development of the final design and to oversee construction and ensure permit conditions are met. The Administration will also apply a Quality Assurance Program for compliance with the approved ESC plans, utilizing a checklist and rating system.

**Other Risks Considered**

Risk / Issue	Description
<i>R/W Clearance</i>	A significant number of properties are yet to be acquired and will not be acquired prior to NTP, potentially limiting work areas for the Design-Build Team.
<i>Truck Access</i>	Since truck traffic is very high in the area and is a critical part of the local economy, road and roundabout design must account for the turning movements and sight distance requirements associated with WB-67 and OSOW design vehicles.
<i>Agency Approvals / NEPA Compliance</i>	Multiple agencies have jurisdiction on the Project, given the federal funding and the presence of federally protected resources (including USACE, MDE, DNR and SHA-PRD). The NEPA document is not yet approved and may include unforeseen commitments or requirements.
<i>Emergency Response Access</i>	In the interest of public safety, emergency responders - including law enforcement, ambulance and fire – require continued access through the corridor and good communication with regard to staging, lane shifts and intersection controls. The details of roundabout operations are always of interest to emergency responders.
<i>Outreach and Property Owner Coordination</i>	To ensure positive public perception and coordination of construction activity, a successful Public Outreach program and good communication with affected property owners must occur.
<i>New Bridges</i>	The new bridges to be constructed over US 40 Alt include multiple challenges, including presence of rock, construction over traffic, aesthetic finishes and foundations.
<i>Concurrent Utility Relocations</i>	Utility relocations must be proactively coordinated in order to avoid potential delay to roadway construction activities and additional impacts.
<i>Impacts Beyond LOD</i>	Roadway, MOT, SWM and ESC features must be carefully designed so that LOD is not exceeded as a result of interim staging or permanent conditions.
<i>Safety on the Permanent / Constructed Facility</i>	Given high percentage trucks in the area and new interchange footprint with roundabouts, it is critical that the intersections, tie-in points, and corridor as a whole be designed to support requirements in sight distance, operations, and safety.

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## XVII. B.

### ii. Approach to Design-Build Contracting

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## Bii. DESIGN-BUILD APPROACH

The **Wagman Heavy Civil/Wallace Montgomery (Wagman/WM)** Team was assembled with the sole intention of joining established, well-respected, firms that have delivered successful Design-Build and Design-Bid-Build projects to MDOT SHA. **Wagman** and **WM** present MDOT SHA with a professional, collaborative, and integrated project team for the US 219 from I-68 to Old Salisbury Road Project. Our firms are currently working together on the MD 404 Dualization Design-Build project and have collaborated during construction and/or through the partnering in construction process on several MDOT projects including I-95 Section 100, US 301/MD 304 Interchange, Howard County Bridge Deck Rehabilitations (six bridges), and the I-95 Bridge Deck Rehabilitation project, which received the MdQI Partnering in Construction – Gold and Project of the Year over \$5 Million Awards of Excellence for 2016. Through this shared experience, we have developed a joint approach to Design-Build project delivery, established strong working relationships, and created procedures that ensure integration of design and construction personnel as well as transparent collaboration with MDOT SHA and Project Stakeholders. Our structured approach to Design-Build project delivery includes:

- Developing a Design-Build Team based on the project requirements and goals and selecting teaming partners we have worked with successfully with on other similar projects.
- Selecting the most qualified key personnel capable of assessing and managing the project risks.
- Utilizing innovative designs to minimize environmental impacts and expedite the project's construction.
- Involving construction staff during the design phase to incorporate construction means and methods into the design development.
- Engaging design staff during construction to confirm design assumptions and oversee field changes.
- Partnering with MDOT SHA and project stakeholders to promptly resolve issues and achieve project objectives.

## Design and Construction Development

**Wagman/WM** will implement a comprehensive design and construction development approach to efficiently order materials, mobilize work forces, and construct the project in accordance with the RFP, below noted requirements and to deliver a completed project well in advance of the RFP's contractual completion date. Our scheduling and construction phasing will be driven by the requirements of:

- Restricted work within and adjacent to the delineated Waters of US (WUS) and wetlands until securing MDE and USACE final authorization for proposed impacts of the wetlands/WUS and their mitigation features;
- Clearing of right-of-way (R/W) for the new US 219 corridor north of US 40 Alt (noting that MDOT SHA generally owns the R/W between I-68 to US 40 Alt);
- Relocating existing corridor utility facilities along US 219 Business and primarily along US 40 Alt;
- Minimizing (forest-wetlands/WUS) impacts to and protection of environmental resources;
- Restricted work within and adjacent to primarily Class I Use WUS from March 1 to June 15 and Class III Use from October 1 to April 30;
- Restricted clearing of forest stands from May 1 through August 31;
- Maintaining US 219 Business traffic movements and the existing I-68 ramps and adjoining properties access to US 219 Business for the duration of the project or until the proper integration of the proposed intersections, new interchange ramps and access tie-ins; and
- Maintaining existing and/or new established road and roadside drainage facilities.

Therefore, we will breakdown the project's design and construction into the following sequential work areas (WA) focused on the areas clear of wetlands/WUS and with already cleared right-of-way to mobilize construction while the wetland/WUS Impacts JPA is being secured and all the MDOT SHA right-of-way acquisitions are being completed:

- WA 1** – The US 219 Business/Ramps A & B Roundabout, US 219 Business (South), New US 219 (Southern Portion) from the US 219 Business/Ramps A & B Roundabout to South of US 40 Alt (Road Profile High Point), and the New US 219 Bridges over US 40 Alt;
- WA 2** – The US 219 Business/Ramps C & D Roundabout and access tie-ins to the Comfort Inn and Ellis Drive;
- WA 3** – The Ramps A & B, I-68 WBR Auxiliary Lane/Shoulder widening, and removal of Existing Ramps A & B; and
- WA 4** – New US 219 (Northern Portion) from South of US 40 Alt to the US 219 Business tie-in including the New US 219 Bridges over US 40 Alt embankments and US 219 Business (North) connection.

# US 219 from I-68 to Old Salisbury Road Garrett County, MD



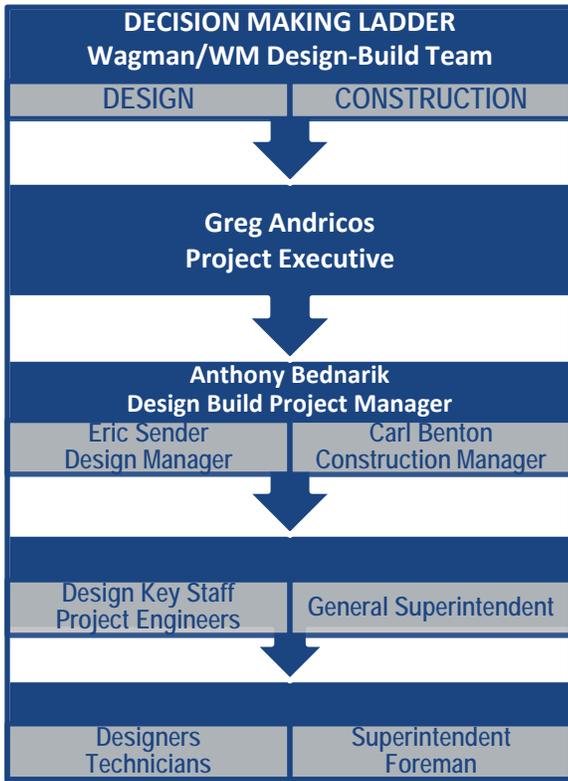
For the most part **WA 1** and **WA 2** are without delineated wetlands/WUS to impact. With **WA 1** there is a WUS running along (roadside ditch) the Southside of US 40 Alt, which we anticipate will be avoided with the placement of the proposed New US 219 over US 40 Alt bridges' abutments well away. **WA 3** and **WA 4** have the significant wetland/WUS impacts. Related to clearing of right-of-way, **WA 1** and **WA 2** work areas for the great majority fall within existing I-68 and US 219 MDOT SHA right-of-way. The construction of **WA 3**'s Ramps A & B and **WA 4**'s New US 219 and US 219 Business tie-in requires the most of the new right-of-way acquisitions.

Activities within each work area will include basic construction operations, from initial erosion & sediment control (ESC), preliminary clearing, cross culverts, rough earthwork & drainage, final ESC, final clearing, fine-grading, drainage-stormwater management completion, and pavement section installation. Lighting, signing, interim landscaping, all precede the final paving followed by pavement markings, final traffic barrier installation and landscaping activities. The construction of the new US 219 Bridges over US 40 Alt, (**WA 1**) will follow the necessary design and approvals process and the activities of excavation, pilings, footings, substructure, structural steel, and superstructure.

Design activities include plan preparation, constructability reviews, IDQM reviews/acceptance, and necessary PRD SWM/ESC reviews of appropriate submittal packages. PRD/MDE approval is anticipated for all WUS hydraulic crossings, rough grading plans and final roadway/SWM-drainage/grading plans. The plans for the new US 219 bridges over US 40 Alt, traffic features (lighting and signing & markings), and landscaping along with supporting documents such as geotechnical engineering reports will require IDQM approval. We also recognize that these design plans submissions are subject to MDOT SHA final/audit acceptance.

**Design Approach:** Our design submission approach will be to implement a "rolling" design submission process to allow construction to proceed in each work area. A perimeter ESC/preliminary clearing package will be submitted to initiate a formal PRD and NPDES approval for the project. Rough grading and drainage (with MOT) submissions will then be developed for **WA 1**, **WA 3** and **WA 4**. With limited rough grading, a rough grading and drainage submission will not be developed for **WA 2**. Our planned design submittals for the construction of the New US 219 Bridges over US 40 Alt WB consists of a TS&L/foundation submission and then separate structural details/final design submissions for the substructure and the superstructure. To expedite PRD/MDE maintenance of stream (MOS), ESC and H&H analysis reviews/approvals of WUS hydraulic crossings, we will develop as standalone elements with independent ESC and MOS plans, however coordinated to the sequencing of the rough grading submissions. Supportive independent submittal packages required for constructing the proposed structures and rough grading will include the Roadway Line & Grade, SWM Concept Plan Review, Geotechnical Planning & Pavement Investigation Reports, and the Transportation Management Plan. The Final Design Roadway Plans will then be developed for each Work Area and will include final grading, roadway layout, SWM/drainage, pavement construction and necessary MOT and final ESC for the US 219 and

I-68 roadways, final interchange ramps/roundabout intersection configurations and connecting roads/access driveways. Supportive independent submittal packages required for constructing the final roadways, ramps, and roundabouts include the Interim Geotechnical Design and Pavement Reports Submissions along with definitive and final traffic roadway lighting/signing & pavement markings, stream restoration/wetland creation, and landscaping.



### Coordination and Decision Making

The Wagman/WM approach to project coordination and decision making emphasizes teamwork and partnering, both within our Design-Build Team and with MDOT SHA and the Project stakeholders. Design-build is a potentially powerful tool for innovative project delivery, but it has to be executed in an environment of mutual trust, a willingness to make decisions in real-time, and with a constant eye on the Project's purpose and need and ultimate goals. Greg Andricos, PE, President and COO of Wagman, will provide executive support for a team of individuals who understand the design-build environment, the needed timely coordination and decision making/issue resolution and have the experience and expertise to ensure that schedule, costs, and project controls are balanced to deliver a quality product for MDOT SHA.

Design-Build Project Manager, Anthony Bednarik, will be responsible for execution of the work under the contract, including oversight of design and construction, coordination with third-parties, and managing the project risks and schedule to ensure timely completion.

**Design Management:** Design Manager, Eric Sender, PE, will be responsible for overall management of the Design Team to ensure quality design submittals are completed on-time. Coordination of subconsultants and their design assignments can be challenging, like putting the pieces of a puzzle together. Eric will communicate clear direction to the subconsultants and integrate them as a seamless extension of the WM Design Team. He will conduct progress reviews

weekly to measure progress towards milestone targets and conduct QA checks of their work product. Managing subcontractors' work product is paramount in meeting the overall design submittal deadlines.

**Construction Management:** Construction Manager (CM), Carl Benton, will manage the construction process and will ensure that the materials used and work performed meet the contractual requirements. Jerry Whitlock, the Design-Build Coordinator in conjunction with Carl will coordinate with Design Manager Eric Sender to verify conformance with approved construction plans and address any required field changes. Jerry and Carl will provide construction progress updates and will support PR Managers Lisa Glezer and Linda Moreland with public outreach efforts to address public concerns, communicate changes in access, and provide advance notification prior to changing the traffic configuration.

Project Engineer/Controls Bryan Smith, PE will oversee the comprehensive construction operations planning process and General Superintendent Steve Wood will oversee all field operations throughout the construction of the project. Bryan and Steve are supported by a Construction Team that includes a Roadway and Structures Superintendent, Traffic Manager, Utilities Coordinator, Environmental Control Manager, and Survey Manager.

Construction Quality Manager Todd Becker, PE will ensure that our Construction QC program is functioning and construction is compliant with the final design and specifications. Todd will review work plans prior to the start of construction, and will oversee quality of all operations. He will participate in project construction planning meetings held by CM, Carl Benton and PE/Controls, Bryan Smith along with the Superintendents, Managers, and Foremen to review upcoming work activities.

### Design Quality Management

With over 42 years of local experience, our designers have the experience and resources to complete a quality design. Dave Borusiewicz, PE (Structural) and Ed Smith, PE (Civil) will lead the design quality effort for our Team using tried and true methods developed on past design-build projects. Led by Leon Kriebel, PE our Independent Design Quality Management (IDQM) firm, Whitney Bailey Cox & Magnani, LLC, also brings their 40 years of wide ranging experience,

including design-build projects. While the use of an IDQM may change the way that MDOT SHA has typically been involved in Design-Build projects, we believe that keeping MDOT SHA involved remains critical to achieving project goals. Our approach to design quality management is focused on producing plans that are: compliant with the RFP; constructible; permittable; and available for construction in a timely manner according to the project schedule. A primary challenge on this job will be maintaining design quality while meeting an aggressive construction schedule. In recognition of this challenge, our approach to design quality management will include:

- Over-the-shoulder (OTS) reviews/input by our design QC staff, IDQM, OHD, OOS, EPD, OOTS, District 6, PRD and MDE staff will ensure design solutions are RFP compliant and constructible early in the process, reducing the time required for formal reviews.
- IDQM, MDOT SHA, PRD and MDE staff at task force/coordination meetings to resolve issues on a real-time basis and ensure design concepts are RFP compliant and acceptable for securing approvals.
- A detailed design schedule that provides ample time for design, reviews, audits, and approvals.
- Constructability and environmental OTS reviews/input integrated within the design development and design quality process, ensuring that constructability and environmental/permitting issues are identified and corrected early.
- Design staff integrated with construction activities. Design staff will attend progress/field meetings answer questions and resolve field issues as they arise.

MDOT SHA is a primary client for all of our team members. We have a vested interest in maintaining our high standard of quality that we produce on all of our projects. As with any project, we expect that there will be a learning curve on this project. We will incorporate lessons learned from our initial submittals into all submittals thereafter.

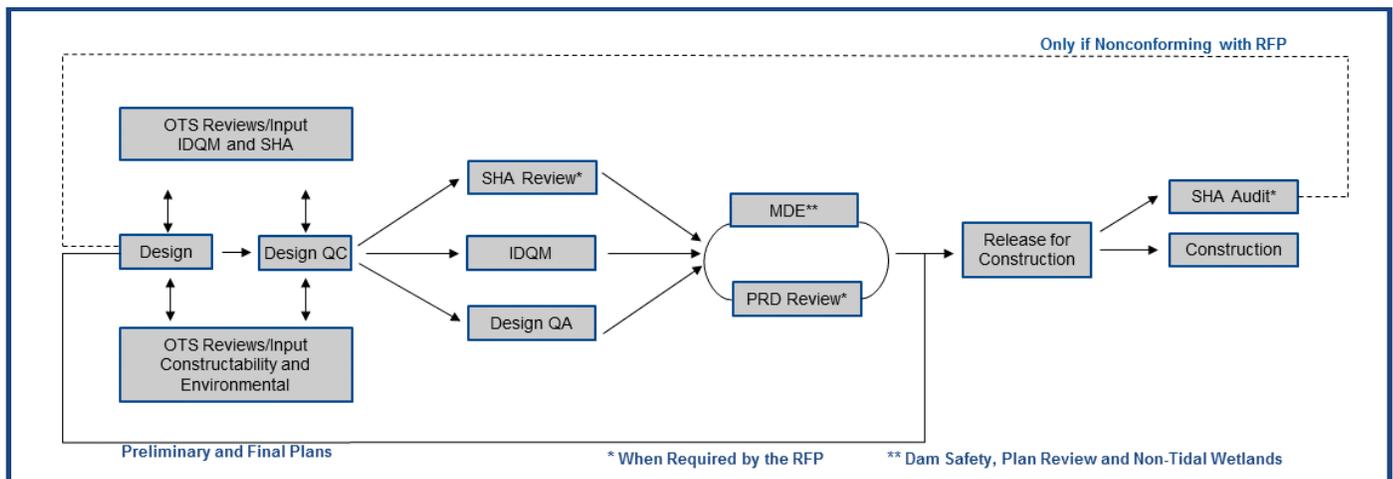
**Key Elements of Our Design Quality Management:** To ensure that each and every design package released for construction meets these goals, our Design Quality Management will include the following key elements:

- Design Quality Control & Assurance
- IDQM
- Constructability Review
- Environmental Review
- PRD Review
- MDE Review
- DQCP Certifications
- Document Control

*MDOT SHA involvement will be encouraged throughout:*

- Regular Meetings
- Partnering
- Over-The-Shoulder Reviews
- EPD Coordination/Input
- PRD Coordination/Input

The following workflow and key element descriptions demonstrate how our Design Quality Management has been optimized to improve efficiency.



**Design Quality Control:** Integrated into daily work performed by our design staff, our experienced and licensed design personnel will perform a complete check of all design, calculations, plans and specifications including overall concepts, element coordination, and detailed checks. Submissions to PRD will be peer-reviewed by staff familiar with PRD requirements before IDQA review.

**Design Quality Assurance:** Design Quality Assurance will be focused on verifying that all aspects of the project's approved Design Quality Control Plan (DQCP) have been followed. If any procedure or the end product is lacking in any manner, DQCP improvements will be implemented to prevent repeat occurrences.

**Constructability Review:** Key construction staff will provide over-the-shoulder reviews during every stage of design development, making constructability reviews an integral part of the design quality process. Combined Design-Build Team (designers and builders) OTS review meetings will address project phasing/sequencing, earthwork/hauling, MOT and ESC early and throughout the design phase.

**Environmental Review:** Specialized in-house WM staff and support subconsultants will use OTS reviews to ensure compliance with commitments and provisional/final permit conditions, as well as to identify and obtain any additional permits or permit modifications.

**Independent Design Quality Management:** We understand that our IDQM firm will function in the role of MDOT SHA with respect to ensuring conformance with the RFP requirements. We will involve our IDQM firm in the design process from beginning to end, through OTS reviews and a dedicated review process. The IDQM firm will:

- Review and approve the DQCP prior to submission to MDOT SHA.
- Document all IDQM submissions and reviews.
- Review all design elements for RFP and DQCP compliance.
- Sign, seal and certify that design submittals meet the Contract requirements prior to construction.
- Review and certify that the SWM and ESC submissions meet PRD requirements prior to submission to PRD.
- Check all working/shop drawings and stamp with approval.
- Review and approve any revisions during construction.

**PRD/MDE Review:** We recognize that PRD and MDE Plan Review, Dam Safety, or Non-Tidal will be required to review elements of the design and are prepared to obtain such approvals directly from PRD and MDE. We will provide plans for PRD/MDE review that can be approved with minimal comments by engaging PRD/MDE at the start of the project and throughout design with monthly environmental agencies coordination meetings; encouraging over-the-shoulder reviews/input by PRD/MDE; and by requiring the IDQM to provide an independent peer reviews of all design before it can be submitted to PRD/MDE.

**Design Quality Management Certifications:** Before any package can be released for construction, we will ensure that the following certifications are present:

- Designer – Sign, seal and certify that all calculations, plans, specifications and technical documents were prepared in accordance with the DQCP.
- Designer – Sign and seal all calculations, plans, specifications, and technical documents by the Professional Engineer, Landscape Architect, or Licensed Forester as applicable.
- IDQM – Sign and certify that submittals comply with the RFP and Contract requirements.

**Document Control:** All design submissions to MDOT SHA will be made and tracked through the use of ProjectWise, an effective tool to store and update project documents, including CAD files, reports, and other large files. We utilize the latest version of the MDOT SHA workspace for CAD standardization. MDOT SHA's Materials Management System (MMS) will be utilized for materials management to document and approve material source of supply. Submittals, shop drawings, and catalog cuts will be transmitted in accordance with the distribution protocols established by the appropriate parties (i.e. Traffic Operations, the Office of Highway Development, the Office of Structures or engineering consultants as appropriate). E-mail will be used to expedite communication and share certain drawings, meeting minutes, etc. between Wagman/WM and MDOT SHA. All Project correspondence and communication will be documented within Wagman/WM's project management software system including submittals, transmittals, RFIs, and meeting minutes.

## Schedule Management

Our approach to schedule management emphasizes staying ahead of design submittals, construction operations, eliminating obstacles, and communicating the plan before the work occurs. Detailed planning and scheduling are the foundation of the Wagman/WM Team's approach. Wagman/WM is dedicated to the project schedule and will use several

### Avoiding Surprises

Unexpected constructability and environmental issues can delay the schedule. By integrating our process in the earliest stages of design, we avoid surprises and delays during construction.

### Maximizing IDQM

The IDQM firm, as an integral part of our Team, will provide input on the plan and schedule development, allowing our Team to maximize efficiency during the design process and start construction earlier.

well tested means to effectively manage the project. The first step to proper schedule management is the use of an accurate project wide CPM schedule. The CPM schedule will be the driving force behind all long-term and short-term planning and will be used to plan, organize, and execute the work. Our Team will take special care and attention to ensure that our project wide CPM schedule is accurate and update as necessary in close coordination with MDOT SHA.

Our next method is wide distribution of the schedule and important deadlines to our team members, subcontractors, vendors and MDOT SHA. This ensures that everyone involved with the project is on the same page in regards to schedule. The day to day scheduling will be managed by use of a 3-week look ahead developed from the overall CPM schedule and its current update. This 3-week look ahead schedule is updated weekly by the Construction Manager and disseminated to both the Design-Build Team and MDOT SHA field staff to ensure coordinated efforts and proper timely QC efforts.

Our planning and scheduling process prevents unanticipated delays through inclusion of design staff, construction staff, subcontractors, and stakeholders during schedule development. Daily construction operation planning, weekly look-ahead schedules, and monthly CPM updates facilitate early awareness of any issues meeting the schedule milestone dates. If the potential for schedule slippage occurs, the necessary adjustments will be made and may include utilizing additional shifts and additional crews to accelerate construction.

## Stakeholder Coordination

The US 219 Relocated Corridor is a top roadway operations priority for Garrett County. The relocated 4-lane roadway will support planned economic development and community access. The Public Outreach Plan for this project provides a framework to and a variety of mechanisms for stakeholders and special interests groups to receive information about this critically important improvements project. Stakeholders include:

- Adjacent Property owners and tenants within the roadway corridor
- Businesses including Pilot Travel Center/Truckstops, Garrett College Outreach Center, Grantsville Shopping Plaza, Comfort Inn, Hilltop Auto Center
- Local government and elected officials in Garrett County
- Planned Economic Development groups such as Chestnut Ridge Development Corridor (CRDC) and the Casselman Farm Development
- Media representatives for Project updates and traffic impacts/lane closures
- Public service providers (schools, EMS, Police, Fire, USPS)

**Public Outreach Goal:** The Public Outreach Plan establishes and maintains open lines of communication with residents, tenants, and businesses in the immediate area of the work site. Our Team will partner with MDOT SHA to provide timely information, support and assistance with community participation and interaction activities during the development of the design and throughout construction of the project. Construction inconveniences will be minimized and ongoing information will be provided to the traveling public about travel impacts.

A key element of the public outreach program is the preparation and distribution of project information to the public. Wagman/MM will share the responsibility for the Public Outreach program by:

- Committing to significant assistance for community participation and interaction activities;
- Providing a Public Relations Coordinator;
- Participating in meetings with individual land owners, local officials, developers, and community groups and emergency responders;
- Providing a good faith effort in addressing public inquiries and comments;
- Facilitating notifications to the public and surrounding community;
- Maintaining a consistent system for documenting all contact with stakeholders; and
- Assisting with public forums.

**Major Stakeholder Outreach:** We will maintain a database of individuals and groups impacted by the project. The database will include contact information such as phone, address and e-mail information. This database will form the foundation for the documentation of all contacts with business owners, residents, media and property owners through design and construction. Early during the design phase, our Team will meet with the major stakeholders to share designs and associated impacts in order to collect comments and concerns. We will make a good faith effort to address any concerns the public may have, and take under consideration any suggestions or wishes they express if those suggestions are reasonable in regard to cost, time, and construction effort. All questions, comments, and/or complaints will be referred

to MDOT SHA within four business hours. Our Team will maintain a log of all public comments/ questions and include the person's address, phone number and/or e-mail.

An electronic copy of all public contact records will be provided to MDOT SHA by the 1st of each month, including all contacts made prior to the 25th of the previous month. When questions or concerns are brought up, in coordination with MDOT SHA they will be responded to either in person or by telephone as soon as possible. Written documentation will be included in the Project Field books and in the form of follow-up meeting minutes and correspondence, including e-mails and telephone logs. This database will be continually updated and maintained and used as a resource for the Team when communicating with stakeholders.

MDOT SHA will be the lead on public outreach activities with active support provided by our Team, to include necessary project information/materials and adequate staff support/representation. Unless otherwise directed, our team members will not act as spokesman for the project. If requested by MDOT SHA, our Design-Build Project Manager, Anthony Bednarik, will serve as spokesperson for the project for technical and safety issues with certain audiences.

**Wagman/WM** prioritizes customer satisfaction. In this case the customers are roadway users, project neighbors, and the greater community. Our Public Outreach Plan will make use of many tools to keep the public informed about the project. However, the major components of the plan are minimizing impacts and keeping stakeholders and the affected greater community informed about the project. We will work closely with the MDOT SHA to ensure a coordinated effort is in place to address public information.

Our Team will make use of communication opportunities and venues to keep the roadway users, adjacent property owners and greater community informed on the progress and potential project impacts. Communication will be done in complete coordination with the MDOT SHA to ensure a consistent message. **Wagman/WM** will assist with developing communication for public dissemination. We anticipate utilizing various outreach tools to keep the public fully informed on how the project may affect them, including the following:

- Press releases to local newspapers, radio, TV stations
- Informational website (hosted by MDOT SHA)
- Social media – Facebook, Twitter
- E-mail updates
- Project information mailers
- Stakeholder meetings
- Local 'bulletin board' notices
- Variable Message Signs
- Develop graphics, animations, content for US 219 website
- Project Hotline
- Telephone Trees
- Fixed signage

### **Partnering with MDOT SHA and Project Stakeholders**

**Wagman/WM** maintains a culture that embraces partnering and works collaboratively with MDOT SHA, project stakeholders, property owners, and other interested third-parties. Communication within the **Wagman/WM** Team, between the Team and MDOT SHA, and all Project stakeholders throughout all phases of design/construction is crucial to the project's success. Involving project management, executive support, field managers, safety representatives, major suppliers/subcontractors, and project stakeholders will foster open communication at all levels, facilitate prompt issue resolution at the lowest responsible management level, and clearly delineate responsibilities in managing project risk. The strength of this commitment includes early execution of a partnering kick-off meeting and development of the Public Outreach Plan. Partnering will continue throughout the life of the project; meeting monthly to collaboratively resolve issues encountered during design and construction.

Upon NTP, the Formal Partnering Process will be initiated with the Partnering Kick-off Workshop Meeting, establishing both internal and external relationships that will continue throughout the project. The Partnering Kick-off Workshop Meeting provides an opportunity to develop a mission statement that each stakeholder can support, including MDOT SHA, **Wagman/WM**, and third-parties. Our Team will proactively coordinate with project stakeholders to prevent and reduce the risk of changes outside of the scope of work defined for the project, including early and continuous coordination with the environmental agencies and utility companies along the corridor. However, changes in project's scope may become necessary to address various needs, such as differing field conditions, or requests by various stakeholders through partnering. Should changes to the scope of work occur, the necessary authorizations will be secured prior to incorporating any scope change with respect to design or construction. The **Wagman/WM** Team will review the potential changes with MDOT SHA to collaboratively align to the best solution for the project.

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## XVII. B.

### iii. Approach to Obtaining Required Environmental Permits

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### Biii. APPROACH TO OBTAINING THE REQUIRED ENVIRONMENTAL PERMITS

The **Wagman Heavy Civil/Wallace Montgomery (Wagman/WM)** Team has reviewed the project requirements in accordance with the US 219 Phase 1 Additional Info-Mapping, the Phase 2 Draft RFP and responses to our questions along with available public information workshop and joint public hearing materials. We offer the following evaluation concerning the environmental constraints, approach to permitting, minimizing impacts, context sensitive design, and environmental compliance during construction.

#### Environmental Permits and Constraints

The US 219 project includes numerous constraints on environmental and cultural features that require permits and approvals. These permits include completing the JPA, including the Wetlands and Waterway permit, Phase I and Phase II mitigation plans, and H&H approvals; Reforestation Site Review permit; stormwater management (SWM) and erosion and sediment control (ESC), including potential MDE Small Pond approval; and NPDES Permit. In addition, we recognize that there are several environmental and cultural features that have constraints or special requirements by the RFP. Some constraints and requirements include:

- Avoiding and minimizing impacts to the natural and forest areas, community, and cultural resources with no impacts greater than the provided concept LOD;
- Designing fish and aquatic passage for proposed culverts as required by MDE/USACE;
- Specific design for bridges within the Historic District boundary;
- No impacts to Wetland 3A and its buffer and no permanent impacts to Wetland W41-A and WUS W8-A along with maintaining hydrology within wetlands;
- Protection of Forest Interior Dwelling Species (FIDS) habitats; and,
- Additional constraints regarding cultural resources will be included in MOA among FHWA, MDOT SHA and MHT.

#### Approach to Permitting

The **Wagman/WM** Team has reviewed the permits required by this project and has extensive expertise and experience in obtaining these permits/approvals and developing necessary mitigation features on projects with tight schedules. Our approach will be to coordinate early starting with the pre-permitting meeting and then often and continually with the appropriate agencies to keep them involved and engaged in the process regarding our proposed designs.

**SWM/ESC from PRD:** Our Team understands the PRD review and approval process based on our recent just completed efforts with the MD 404 Design-Build project. PRD requires Concept, Site Development, and Final Design approvals. Since this is a Design-Build project, these approvals are critical since no construction of any kind may begin until after the concept SWM approval is obtained and an initial site development and final approval is obtained.

*On the MD 404 Project, WM successfully engaged PRD with informal over-the-shoulder reviews of specific SWM/ESC items as needed to maintain project progress.*

Unlike other Design-Build projects advertised recently by MDOT SHA, a SWM letter of intent is not being issued; therefore, it is the responsibility of the Design-Build Team to obtain not only the final SWM/ESC approvals, but the concept SWM approval from PRD. Obtaining this concept SWM approval is on the critical path for the project. The SWM concept design will be of the highest priority, working from the line and grade plans as they are being developed. Our Team will hold a pre-submittal meeting with PRD to confirm that our design approach is in line with current PRD policies and procedures. The PRD submittal packages will meet the requirements of the current design submittal checklists.

Once concept SWM approval is obtained, to facilitate the PRD site development and final design approval process, the first final design package for approval will incorporate the entire site with either a clearing and grubbing package or a grading package. A design package for the entire site will ensure only one final approval is required for the project rather than multiple site development/final approvals for different sections of the project. In addition, ESC approvals for rough grading can facilitate the construction starting with ongoing final road design efforts. Frequent meetings with PRD to discuss our design philosophy, submittal schedules, and PRD policies are key to a smooth review process.

Once the first Final Design Package receives final approval, all subsequent changes will be treated as modifications. Modifications to the SWM/ESC approval will be sought for each construction phase, based on design packages that include complete ESC and SWM for the final proposed roadway areas.

**SWM Small Pond from MDE:** In addition to PRD approvals for SWM, if any ponds need to meet the requirements of MD 378, a separate submittal for the pond design will be sent to MDE. This submittal will be made concurrently with the Site Development level submittal to PRD that contains the pond. Design for all ponds will be concurrent with MDE and PRD to ensure that any

conflicting comments are resolved simultaneously in the process. *WM has recent applied experience with resolving conflicting PRD and MDE comments on the I-95/I-495 Greenbelt Metro Interchange project.*

**Wetlands and Waterways from MDE/USACE:** MDOT SHA has submitted the JPA with a Phase I Mitigation Plan and has received a US Army Corps of Engineers (USACE) provisional permit. However, it will be our responsibility to respond to comments and finalize the permit application for approval, including Phase I and II Mitigation from MDE and USACE. Once we receive the JPA that has been submitted, along with the provisional permit, we will have a baseline for wetlands and waterways impacts for the project. Through the design process we will evaluate opportunities for additional avoidance and minimization, which will reduce the mitigation requirement. All design changes and potential reductions will be reviewed by MDOT SHA and presented to the agencies during field meetings for advanced feedback and to streamline the permitting approval process. It is possible that MDE may need to put the project on public notice, which will be factored into the schedule. Our Team expects to take the conceptual mitigation plan from the Phase I package through detailed design and permitting. Designs may be adjusted, as needed, to ensure that the mitigation package is tailored to compensate for the actual resource impacts. We would develop the detailed Phase II Mitigation package which will need to be submitted to MDE and USACE as part of the JPA before they will provide final authorization.

In addition, all H&H studies for cross culverts in the WUS will require review by MDE. Therefore, the culvert crossings will be designed in concert, but independently from roadway grading construction, to minimize comments from all agencies and expedite approvals. The H&H submittals and maintenance of stream plans for work in WUS or near wetlands will be submitted to MDE for review simultaneously with the submittals to PRD.

**Reforestation and/or Roadside Tree Permit from DNR:** Our Team will be responsible for avoidance and minimization of impacts to forest and Forest Interior Dwelling Species (FIDS) habitats. Our Team's ISA-certified Arborist will document specimen trees. If not already provided in the final RFP, we will prepare forest impact plates and reforestation plans using the concept/preliminary design LOD as part of the Reforestation Site Review form for MDOT SHA and DNR review and approval. We will then provide updated documentation based for any necessary changes in impacts from our final design LOD. Impacts to trees, woods and forest areas shall be in accordance with the MD Reforestation Law and/or Roadside Tree Law. To minimize impacts to FIDS we will avoid disturbing forest from April through August.

**NPDES Permit from MDE:** The NPDES permit will be applied for once the concept SWM report is submitted and the preliminary LOD impact numbers are known. The goal will be to permit the entire project at once and not need to modify the permit for an increased LOD. As design packages are approved, the approved LOD will be tracked to ensure it does not exceed the LOD allowed by the NPDES permit.

**Memorandum of Agreement (MOA) between MDOT SHA, FHWA and MHT:** *Wagman/WM* will maintain compliance with the MOA. If changes to the design inside or outside the LOD are necessary, we may need to complete cultural resources investigations and provide the documentation to MDOT SHA to coordinate approvals with MHT. We will use a steel girder design for identified overpass structure with concrete abutments, wingwalls and parapets within the Historic District Boundary. Additionally, we will develop three alternative designs for bridge cladding with a stone and mortar bonding pattern similar in nature to the Casselman River Bridge.

**NEPA:** MDOT SHA expects to receive NEPA clearance in July 2017. Any modifications to the design (both inside and outside the LOD) would need to be brought to MDOT SHA for approval and possible reevaluations to the NEPA documentation. Our environmental staff will review the design change's impact to the natural, social or cultural environmental resources and then present these changes in the form of an Environmental Summary narrative to the MDOT SHA Project and Environmental Managers. We will assist EPD with any other documentation/graphics as need for acceptance of the reevaluations.

### Minimizing Impacts/Context Sensitive Design

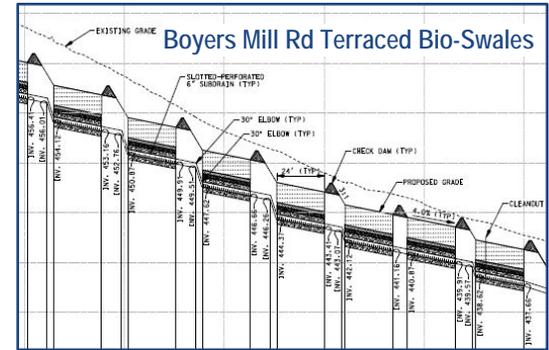
Although impacts to wetlands, WUS, and forested areas have been preliminarily evaluated, *Wagman/WM* recognizes MDOT SHA's goal to further avoid and minimize impacts to environmental resources. *WM* and *Wagman* will work together to evaluate potential design changes to further avoid and minimize impacts to environmental resources. Some examples are described below.

*WM* has designed and permitted terraced bio-swales where the roadway slope exceeds 4%, such as for the Boyers Mill Road Improvements project in Frederick County along 8% roadway grades. A terraced bio-swale flattens the slope of the swale media to 4% and then at the check dams, has a controlled drop to a lower elevation to tie-in to another flatter bio-swale slope. The advantage of a terraced bio-swale is that a SWM practice with a maximum linear slope may be used in locations where the roadway slope is steeper. Linear facilities along the roadway use less right-of-way and better mimic existing hydrologic

conditions than using a larger facility at the bottom of the slope. Since the roadway grade of US 219 is proposed to be steeper than 4% in several locations, terraced bio-swales can minimize impacts and integrate SWM into the road design.

WM will evaluate the proposed roadway profile for US 219 for potential to more closely match existing grade. By changing the profile closer to existing grade, the cut and fills are minimized, reducing the LOD and impacts to adjacent natural resources. In addition, slopes greater than 2:1, such as serrated or reinforced earth slopes can be evaluated.

In particular, our designers will evaluate the US 219 roadway profile at hydraulic crossings to minimize the required length of proposed culverts. To further minimize the stream impacts from culverts, minimum roadside slopes will be incorporated with traffic barrier and culvert headwalls will be evaluated instead of end sections. The end treatments chosen will need to consider a balance of constructability, roadway safety, and environmental impacts, both temporary and permanent. Reducing the US 219 median can also be evaluated to reduce crossing impacts. *In addition, open bottom culverts were used on the ICC Contract A to minimize impacts to WUS and may be beneficial on this project.*



SWM ponds will be required for each outfall location to manage the 10-year peak discharge since the peak discharge cannot be managed in the required ESD micro-scale practices. Design of the ponds will be integrated into the existing contours to minimize the total footprint required for the cut and fills. The cut and fill requirements that may impact forested lands will be balanced with the requirement to maintain 30 ft. vegetated stream buffers and 15 ft. no woody zones at the base of the pond embankments.

Our ESC design will utilize phased construction to minimize amount of exposed earth during clearing and grading. Clear water diversions for offsite runoff will minimize the burden on E&S controls and reduce runoff which would ultimately create erosive conditions. Near environmentally sensitive resources, lower impact E&S controls, such as diversion fence, will be used to minimize waste. Redundant ESC measures will be implemented at sensitive environmental features.

### Environmental Compliance During Construction

Prior to field work, the construction team including Construction Manager Carl Benton, Project Engineer Bryan Smith, General Superintendent Steve Wood and E&S Manager Eric Mock will coordinate and review the sequence of construction and ESC construction details with designers. The construction team will have input during the design development and in turn will have a solid understanding of the environmental resources and constraints prior to mobilizing construction activities.

Wagman incorporates Environmental Stewardship into our construction practices. Installation, inspection, and maintenance of ESC measures will be provided by staff trained and certified by MDE and MDOT SHA. Wagman will follow established guidelines for Best Management Practices and will monitor compliance during construction to ensure construction impacts are minimized. Specific construction practices we anticipate utilizing on the US 219 Project include:

- Orienting field personnel to the job-site and highlighting environmentally sensitive areas;
- Delineating/marketing out the LOD at environmentally sensitive areas with orange construction fence and signage;
- Installing tree protection fence to protect existing trees and leave existing vegetative buffers intact;
- Minimizing the amount of exposed area by strictly adhering to the construction sequence and promptly stabilizing;
- Planning operations in detail to incorporate best practices and optimize efficiency which reduces the duration of exposure to environmental impacts.

In addition, Wagman will employ a fully equipped ESC Crew with the proper material resources to inspect, correct and maintain ESC devices. Our E&S Manager will meet with the project staff daily to discuss upcoming work and any potential QA toolkit modifications. All foreman and supervisors will be ESC Certified and each foreman will conduct end of shift inspections of all ESC devices/measures. Any deficiency will be corrected immediately. Our ESC staff will meet with production crews prior to any major rain event to ensure the project is in compliance. After a major storm event, all personnel will be utilized to return the project to compliance within 24 hours.

Our Environmental Manager will track compliance with environmental commitments/permit conditions and provide quarterly updates on field adherence to those commitments. The construction team will attend agencies coordination meetings to better understand agencies' concerns and discuss field implementation of construction operations and then needed protection devices/measures.

*Compliance reporting, dedicated ESC crews, prompt stabilization, and proactive correction of deficiencies will minimize environmental impacts during construction.*

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## XVII. B.

### iv. Potential Alternative Technical Concepts (ATC)

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**Biv. POTENTIAL ALTERNATIVE TECHNICAL CONCEPTS (ATCs)**

The **Wagman/WM** Team has reviewed the provided GA6465270 - US 219 RFP Phase 1, GA6465270 – US 219 Phase 1 Additional Information including MDOT SHA’s preferred concept design – Alternative 4 Modified, and GA6465270 - US 219 RFP Phase 2 Draft and developed the following potentially innovative Alternative Technical Concepts (ATCs) that provide costing savings and/or value-added benefit to the Project while achieving the project goals of schedule, environmental compliance (stewardship) and design excellence. These potential ATCs have also been developed with the principles of Practical Design including the Project’s purpose to provide transportation improvements that are responsive to planned economic development and needs to support regional and local economic growth; efficient highway operations for development (safety and mobility); and a sustainable community (accessibility and maintenance).

The Table below provides an initial list of our potential ATCs and notes if it will further advance the goals of costing savings, expedited schedule, environmental stewardship, and design excellence. We will further evaluate and explore pursuing these ATCs along with other potential ATCs for the US 219 Project’s Phase 2 (Price Proposal) dependent on MDOT SHA’s Final RFP Phase 2 and supplemental project information, including future intersection traffic volumes; concept design CADD files; NEPA documentation; FHWA, Environmental Agencies, other stakeholder commitments; and in accordance with the discussions from the US 219 Project’s Phase 2 (Price Proposal) One-on-One meetings with MDOT SHA.

Proposed Potential ATC	Cost Savings	Expedites Schedule	Environmental Stewardship	Design Excellence			
				Safety	Mobility	Accessibility	Maintenance
<b>ATC No. 1: US 219 and Ramps A &amp; B Roundabout Reconfiguration</b> – Maintains existing Ramps A and B and adds a 5 <sup>th</sup> leg connection from existing Ramp A to the US 219 Northern Roundabout to access US 219 Business. A direct connection spur ramp is added from existing Ramp A to the new US 219.	◆	◆	◆	◆	◆		◆
<b>ATC No. 2: US 219 and Ramps A &amp; B Roundabout Relocation</b> – Moves the US 219 Northern Roundabout further to the north and maintains existing Ramps A and B. A direct connection spur ramp is added from existing Ramp A to the new US 219. Existing Ramp A connection to US 219 Business is maintained.	◆	◆	◆	◆	◆		◆
<b>ATC No. 3: US 219 Connector Relocated at US 219 Business and US 219</b> – At the northern limit, relocates the US 219 Connector between the new US 219 and US 219 Business 300 ft. to the south and directs southbound traffic from north of Old Salisbury unto the new US 219. Provides for a future US 219 left turn lane to proposed Casselman Farm Development and full access from new US 219 to US 219 Business properties south of the Casselman Farm Development.			◆	◆	◆	◆	
<b>ATC No. 4: US 219 Business SB Connection Via Ramp D to Ellis Drive</b> – Provides US 219 Business Southbound Roadway access to Ellis Drive with a spur connection from Ramp D. As shown on Alternative 4 Modified access from US 219 Business SBR is prohibited with right in/right out access and the close proximity of the US 219 Business and Ramps C and D Roundabout.				◆	◆	◆	
<b>ATC No. 5: I-68 Deceleration Auxiliary Lane Only to Ramp A</b> – Provides only a deceleration auxiliary lane along I-68 Westbound Roadway (WBR) to the proposed new (loop) Ramp A. Maintains existing I-68 WBR 3-lane to 2-lane reduction at the existing Ramp A departure from I-68 WBR. Eliminates over a ¼ mile of Alternative 4 Modified proposed widening along I-68 WBR.	◆	◆	◆	◆			◆

Each of the potential ATCs are described in more detail below.

### ATC No. 1: US 219 and Ramps A & B Roundabout Reconfiguration

**Description:** ATC No. 1 proposes to reconfigure the US 219 (Northern) Roundabout connecting US 219 Business and the new US 219 with the incorporation of the existing Ramps A and B from and to I-68. The proposed ATC maintains the existing Ramp A from westbound I-68 and Ramp B to westbound I-68 (direct connection diamond ramps) in lieu of proposed new realigned direct outer connection Ramp B and new Ramp A as an inner loop cloverleaf as shown on the Alternative 4 Modified concept. The ATC proposes a 5th leg connection from existing Ramp A to the US 219 Northern Roundabout to access US 219 Business and a new direct connection spur ramp from existing Ramp A to the northbound roadway of the new US 219. The US 219 Business and US 219 connections to the roundabout will remain. The roundabout will be enlarged and/or if needed its proposed location refined to the north and/or east to accommodate the 5-leg configuration.



**Advancing Project Goals:** ATC No. 1 - US 219 and Ramps A & B Roundabout Reconfiguration will eliminate the I-68 westbound roadway (WBR) widening and construction of new Ramps A and B along with the removal of existing Ramps A and B. The ATC further advances the Project goals as follows:

Cost Savings/Expedites Schedule – The ATC provides a significant cost savings and reduction to the Project's construction schedule with eliminating the I-68 WBR widening/resurfacing and the construction of the new Ramps A and B along with the removal of the existing Ramps A and B; further reduces maintenance of traffic (MOT) and drainage construction phasing as would be needed to construct the I-68 widening and the new ramps while maintaining the existing Ramps A and B traffic operations.

Environmental Compliance – The ATC provides a context sensitive solution that exceeds the project goals in terms of avoidance and minimization of impacts to environmental resources. The removal of roadway widening along I-68 and the new Ramps A and B construction eliminates impacts to the WUS/wetlands running adjacent to westbound I-68 along with forest/wooded areas. In addition, the reduction of new impervious with utilizing the existing Ramps A and B will decrease SWM requirements, if not potentially providing SWM credits for MDOT SHA.

Design Excellence – This ATC offers enhanced: 1) Safety with the elimination of the proposed tight radius (25 mph) new loop Ramp A from the I-68 high speed facility along with the reduced MOT phasing; 2) Mobility with the direct connection to northbound US 219 from westbound I-68 and therefore also eliminating the traffic movement from the operations of the roundabout; and 3) Maintenance with an overall reduce pavement footprint and reduction in needed SWM facilities.

### ATC No. 2: US 219 and Ramps A & B Roundabout Relocation

**Description:** ATC No. 2 proposes moving the US 219 (Northern) Roundabout connecting US 219 Business and the new US 219 approximately 125 ft. to the north and slightly east. Similar to ATC No. 1, the proposed ATC maintains the existing Ramp A from I-68 westbound and Ramp B to I-68 westbound (direct connection diamond ramps) in lieu of proposed new realigned direct outer connection Ramp B and new Ramp A as an inner loop cloverleaf as shown on the Alternative 4 Modified concept, and provides a new direct connection spur ramp from existing Ramp A to the northbound roadway of new US 219. The existing Ramp A connection to US 219 Business is maintained providing access to US 219 Business. The existing Ramp A connection is located



approximately 225 ft. from the new roundabout intersection. The US 219 Business and US 219 connections to the roundabout will remain.

**Advancing Project Goals:** ATC No. 2 - US 219 and Ramps A & B Roundabout Relocation will eliminate the I-68 WBR widening and construction of new Ramps A and B along with the removal of existing Ramps A and B, similar to ATC No. 1. The ATC, further advances the Project goals as follows:

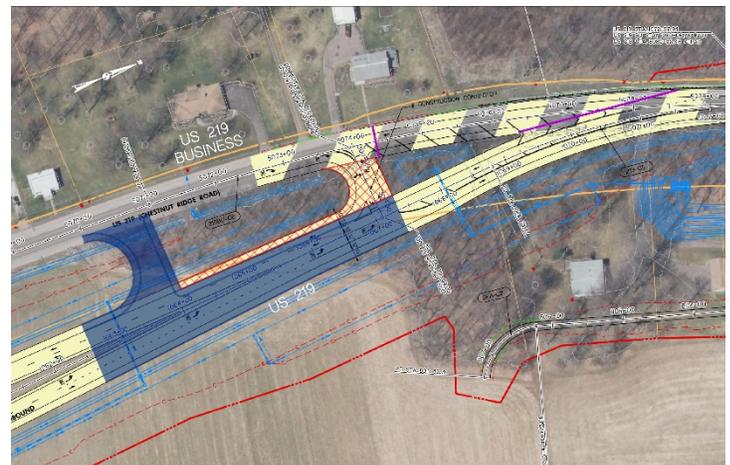
Cost Savings/Expedites Schedule – The ATC provides a significant cost savings and reduction to the Project's construction schedule with eliminating the I-68 WBR widening/resurfacing and the construction of the new Ramps A and B along with the removal of the existing Ramps A and B; further reduces maintenance of traffic (MOT) and drainage construction phasing as would be needed to construct the I-68 widening and new ramps while maintaining the existing Ramps A and B traffic operations.

Environmental Compliance – The ATC provides avoidance of impacts to environmental resources. The removal of roadway widening along I-68 and the new Ramps A and B construction eliminates impacts to the WUS/wetlands running adjacent to westbound I-68 along with forest/wooded areas. In addition, the reduction of new impervious with utilizing the existing Ramps A and B will decrease SWM requirements, if not potentially providing SWM credits for SHA.

Design Excellence – This ATC offers enhanced: 1) Safety with the elimination of the proposed tight radius (25 mph) new loop Ramp A from the I-68 high speed facility along with the reduced MOT phasing; 2) Mobility with the direct connection to northbound US 219 from westbound I-68 and therefore also eliminating the traffic movement from the operations of the roundabout; and 3) Maintenance with an overall reduce pavement footprint and reduction in needed SWM facilities.

### ATC No. 3: US 219 and US 219 Business Northern Connection

**Description:** ATC No. 3 proposes at the Project's northern limit, placing the connection (US 219 Connector) between new US 219 and US 219 Business approximately 300 ft. to the south of the proposed location as shown on the Alternative 4 Modified concept. The ATC also proposes to direct southbound traffic from north of Old Salisbury onto the new US 219 only with removing or barricading the existing US 219 roadway just south of the Casselman Farm. All US 219 Business properties south of the Casselman Farm will then utilize the above noted US 219 Connector for accessing new US 219 to the south and the existing US 219 to the north.



**Advancing Project Goals:** ATC No. 3 - US 219 and US 219 Business Northern Connection is primarily a value-added ATC improving safety and accessibility between US 219 Business and new US 219 along with supporting planned economic development. The ATC provides minimal cost savings and schedule reduction. However, the ATC does further advance the Project goals as follows:

Environmental Compliance – The ATC provides avoidance of impacts to environmental resources. The ATC's proposed location of the US 219 connector will reduce impacts to forest. The removal of existing pavement can potentially decrease SWM requirements; minimizing facility footprints.

Design Excellence – This ATC offers enhanced: 1) Safety with providing traffic calming (with eliminating the direct diverge) of US 219 southbound traffic onto US 219 Business along eliminating potential turning conflicts; and 2) Mobility with the ATC's placement of the US 219 Connector allowing for a future northbound US 219 left turn lane to the future Casselman Farm Development; and 3) Accessibility with the ATC's placement of the US 219 Connector providing US 219 full access (to the north and south) to all the US 219 Business properties south of the Casselman Farm.

### ATC No. 4: US 219 Business Southbound Connection Via Ramp D to Ellis Drive

**Description:** ATC No. 4 proposes to re-establish the access to Ellis Drive from southbound US 219 Business. As shown on the SHA preferred Alternative 4 Modified concept the access from southbound US 219 Business is prohibited with a right in/right out access only and the close proximity of the US 219 Business and Ramps C and D (Southern) Roundabout. Our proposed ATC concept re-establishes the access with a spur connection from Ramp D to Ellis Drive. Southbound US 219 Business and Ramp C vehicles entering the US 219 and Ramps C and D Roundabout can exit the roundabout onto Ramp D, and then make a right turn unto the Ramp D spur connection to access Ellis Drive. The Ramp D spur

connection can also provide access to the any proposed SWM facility located between Ramp D and Ellis Drive and adjacent to the US 219 Business Southern Roundabout.

**Advancing Project Goals:** ATC No. 4 - US 219 Business Southbound Connection Via Ramp D to Ellis Drive is a value-added ATC ensuring the adequate operations for US 219 Southern Roundabout. The ATC provides no cost savings and schedule reduction. However, the ATC does further advance the Project goals as follows:

Design Excellence – This ATC offers enhanced: 1) Safety/mobility with maintaining the adequate operations and traffic flow through the US 219 Business Southern Roundabout (eliminating any queue into the roundabout caused by a left turns to Ellis); and 2) Accessibility with providing access to properties and any future development serviced by Ellis Drive from southbound US 219 Business.



**ATC No. 5: I-68 Deceleration Auxiliary Lane Only to Ramp A**

**Description:** ATC No. 5 proposes to provide only a deceleration auxiliary lane along westbound I-68 to the proposed new Ramp A (inner loop cloverleaf). The proposed westbound I-68 deceleration auxiliary lane to Ramp A will consist of approximately a 600 ft. auxiliary lane length providing a deceleration of 70 mph to 25 mph and a 300 ft. taper from the westbound I-68 travel lane. The proposed ATC to maintain the existing westbound I-68 3-lane to 2-lane reduction at the existing Ramp A departure point from I-68. Therefore the ATC proposes eliminating over a ¼ mile of Alternative 4 Modified proposed widening along I-68. In addition, the ATC incorporates Ramp A and B horizontal geometric design refinements. The Ramp A horizontal geometric refinement provides a single 25 mph horizontal curve leaving westbound I-68 to the approach tangent for US 219 (Northern) Roundabout; therefore eliminating the Alternative 4 Modified Ramp A compound curve geometrics. Ramp B horizontal geometric refinements include following the Ramp A curvature while placing the absolute minimum tangent for superelevation transition with the returning tie-in reverse curve to existing Ramp B.



**Advancing Project Goals:** ATC No. 5 - I-68 Deceleration Auxiliary Lane Only to Ramp A will eliminate over a ¼ mile of proposed I-68 WBR widening. The ATC, further advances the Project goals as follows:

Cost Savings/Expedites Schedule – The ATC provides a significant cost savings and reduction to the Project's schedule with eliminating the I-68 WBR widening. The ATC further reduces MOT and drainage construction phasing to construct the I-68 widening and final traffic guide signing; potentially eliminating additional overhead sign structures.

Environmental Compliance – The ATC provides avoidance of impacts to environmental resources. The removal of roadway widening along I-68 eliminates impacts to the adjacent WUS/wetlands. In addition, the reduction of new impervious with the eliminated I-68 widening will decrease SWM requirements.

Design Excellence – This ATC offers enhanced: 1) Safety with minimized MOT staging along I-68; and 2) Maintenance with a reduction of the pavement footprint, SWM facilities, and permanent traffic guide signing.

**Past Successes** – The Wagman/WM Team has successfully incorporated innovative ATCs in the delivery of pervious design-build projects. The ATCs have provided significant cost/schedule savings and reduced impacts.

- **WM** on the I-95 Contee Road design-build incorporated an ATC to realign the I-95 northbound CD roadway and therefore reduced the length of the Contee Road Bridge over I-95; resulting is a \$2M cost savings.
- **Wagman** on the ICC B design-build incorporated a value added ATC utilizing drilled shafts in lieu of spread foundations minimizing impacts to streams, wetlands and floodplains.