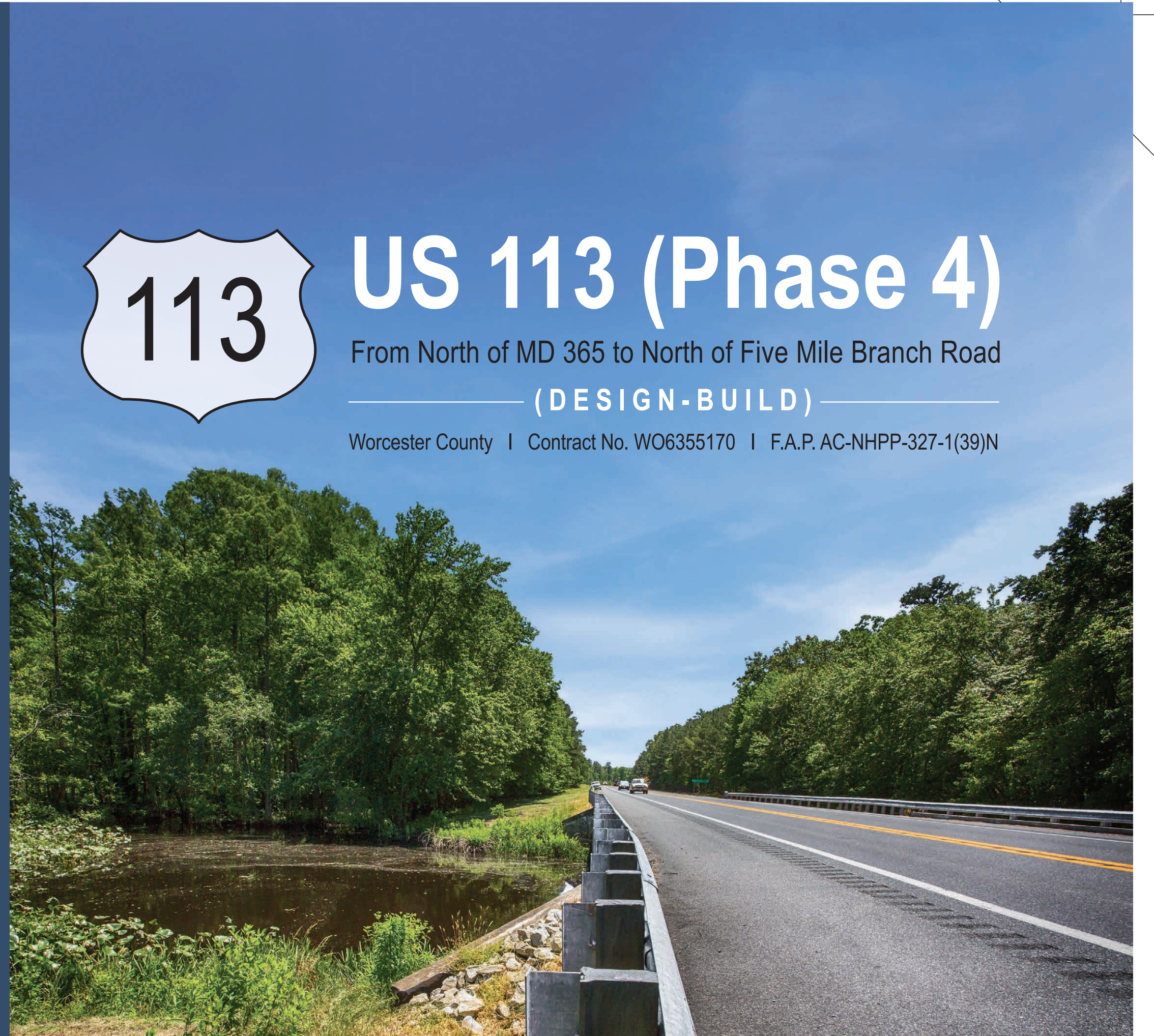




# US 113 (Phase 4)

From North of MD 365 to North of Five Mile Branch Road  
(DESIGN-BUILD)

Worcester County | Contract No. WO6355170 | F.A.P. AC-NHPP-327-1(39)N



## US 113 (Phase 4)

From North of MD 365 to North of Five Mile Branch Road

(DESIGN-BUILD)  
Worcester County



GENERAL CONTRACTORS  
DAVID A.  
**BRAMBLE**  
INC.  
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A Joint Venture

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GENERAL CONTRACTORS  
DAVID A.  
**BRAMBLE**  
INC.  
CHESTERTOWN, MD.



**CENTURY**  
ENGINEERING

A Design-Build Team



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## Lead Design Firm Experience/ Qualifications & Past Performance

## WILLIAM (BILL) SCHAUB, PE

### Project Design Manager



*Bill has 35+ years of experience in the planning and design of highways and bridges from conceptual design through preliminary engineering, final design and construction services. He is JMT's Practice Leader for transportation design-build (DB) efforts throughout the U.S. He has managed the construction document preparation of numerous transportation design-build (D-B) and design-bid-build projects for both federal and state DOT agencies. Highlighted projects include:*

SHA | US 113 Dualization (Phase 2B) from Goody Hill Rd. to South of Massey Branch (D-B), Worcester County, MD (\$12.1M) - *Design Quality Manager (2010-2012)*. Developed/implemented the project Design QC Plan consisting of two additional lanes adjacent to the existing US 113 for approximately 2.5 miles.

SHA | US 40 at MD 715 Interchange and Improvements (D-B), Harford County, MD (\$17.8M) - *Project Design Manager (2010-2013)*. This project was adjacent to Aberdeen Proving Ground (APG) and accommodated additional personnel relocated to APG as part of the BRAC. The work included widening of US 40 and MD 715 in both directions; upgrading the interchange; widening the bridge on MD 715 over US 40; design improvements; connecting ramps; and adjoining roadways for a total of 2.40 miles. Provided relocation designs for 800 LF of a stream, drainage design, SWM/ESC, traffic/lighting, landscaping, utility relocation design and coordination, and MDE permits. Bill oversaw the multi-disciplined design effort, and developed and implemented the Design Quality Control Plan.

DeIDOT | SR 1/SR 72 Diverging Diamond Interchange (D-B), New Castle County, DE (\$7.0M) - *Project Design Manager (2015-2016)*. Responsible for coordination of all the engineering disciplines, executing the design and QA/QC program for DeIDOT's first DDI project and the design/construction of Wilson Rd. Connector and improvements to McCoy Rd. The DBT developed a high quality, innovative, and cost efficient design and construction DDI configuration that will improve congestion and safety; minimize impacts to vehicular/bicycle traffic during construction; minimize the duration of construction; and protect the environment through ESC/SWM and drainage design measures. To meet the aggressive schedule, the DBT is using a rolling design package submittals that allows certain elements to progress early.

FHWA-EFLHD/VDOT | Mark Center Short & Mid-Term Improvements (D-B), Alexandria, VA (\$9.2M) - *Project Design Manager (2011-2013)*. Responsible for executing the design and QA/QC program, which included ROW acquisition services, retaining wall design, utility relocations/coordination, roadway widening, intersection improvements, full depth reconstruction and widening of the Interstate on-Ramp to I-395 from Seminary Rd. The project schedule required and the DBT delivered the reconstruction and widening of the ramp, open to traffic within 4-months of Notice-to-Proceed.

FHWA-EFLHD/VDOT | Fairfax County Parkway (FCP) Ext. (D-B), Springfield, VA (\$112.5M) - *Project Design Manager (2008-2011)*. Executed the design and QA/QC program, which included 2 interchanges, roadways, 7 bridges, and widening of I-95. Oversaw the design effort using over 75 engineers with multiple design firms for geotechnical, environmental mitigation for hazardous materials, permitting, roadway/structural design, traffic engineering, SWM, drainage, ESC, shared use path, lighting, utilities, ROW plat development, public coordination including Citizen Information/Pardon-Our-Dust meetings and in depth stakeholder coordination. *Bill received a "Star Partner" award for his exceptional dedication, teamwork, and professionalism in support of the project's goals.* The project was also recognized by several organizations including *DBIA National and Mid-Atlantic, VTCA, and many ACEC Chapters.*

FHWA-EFLHD/DDOT | 9<sup>th</sup> Street Bridge Replacement over CSXT and Amtrak Rail and New York Avenue (D-B), Washington, DC (\$58.4M) - *Design Manager (2006-2011)*. Responsible for the design QA/QC program and the multi-disciplined design effort to replace the existing structure and the reconstruction of the 9<sup>th</sup> Street/New York Avenue Interchange. The project included context sensitive solutions, which resulted in numerous user enhancements.

### Years of Experience

35 Years (11 with JMT)

### Education

BSCE/1984/Civil Engineering  
AA/1981/General Studies  
Dale Carnegie Mgmt. Training  
JMT Leadership Development

### Registration

1989/Maryland Registered  
Professional Engineer #17318  
Also registered in DC, DE, VA



## RANDALL BRYAN, PE

### Highway Engineer



*Randall has 15+ years of experience in civil/site and transportation related projects. His broad based design expertise encompasses all facets of civil engineering design including geometric design, site design, stormwater management, drainage and ESC design and construction phasing. He was the highway engineer working with David A. Bramble on four previous segments of the US 113 corridor. Additionally, he has worked extensively on SHA District 1 projects and is familiar with the challenges of the flat terrain and soil conditions. Highlighted projects include:*

#### Years of Experience

15 Years (14 with JMT)

#### Education

BSCE/2000/Civil Engineering  
SHA Partnering for Success

#### Registration

2007/Maryland Registered  
Professional Engineer #33931

SHA | US 113 Dualization (Phase 2B) from North of Goody Hill Road to South of Massey Branch (D-B), Worcester County, MD (\$12.1M) - **Highway Engineer (2009-2013)**. Design for the addition of two lanes adjacent to existing US 113 for approximately 2.5 miles. Improvements included a J-turn and a Maryland T intersection, new service roads consolidated access to residential and commercial properties. Coordinated between the various design groups and oversaw the assimilation and distribution of plans for review and construction. He also participated in partnering meetings with the contractor, SHA District 1, and SHA OHD.

SHA | US 113 Dualization (Phase 2A) from Hayes Landing Road to North of Goody Hill Road (D-B), Worcester County, MD (\$14.9M) - **Highway Engineer (2007-2010)**. Responsible for the dualization of 2.5 miles of roadway. Intersection improvements included left and right turn lanes, acceleration and deceleration lanes, and Maryland T intersections. The typical section consisted of 2, 24' roadways with 10' outside shoulders. The NB and SB traffic were separated by a 34' median, which included 4' paved shoulders, a 26' grass median, and median w-beam traffic barrier. Access management roads were constructed to provide access to local businesses and residences. The existing 9' x 5' single cell box culvert conveying Beaverdam Creek/ Poplartown Branch was extended under the new roadway.

SHA | US 113 Dualization (Phase 1) from Market Street to North of MD 365 (Public Landing Road) (D-B), Worcester County, MD (\$15.4M) - **Highway Engineer (2005-2007)**. Responsible for the design of a 4-mile section of US 113 from an undivided, two-lane highway to a median divided, four-lane highway. Checked/refined horizontal and vertical alignments developed by the planning team, as well as implemented and refined the typical sections. Designed a truck check weigh station including on-ramp and off-ramp design; lighting and signing; inspection facility requirement; and vehicle storage requirements. Participated in partnering meetings with the contractor, SHA District 1, and OHD.

SHA | US 113 Dualization from North of Jarvis Road to Delaware Line (D-B), Worcester County, MD (\$10.9M) - **Highway Engineer (2001-2004)**. Responsible for a 2.5-mile D-B project. He was in charge of checking horizontal and vertical alignments from the planning team, implementing and refining the typical sections, intersections including Maryland T's, Maryland and Delaware Railroad crossing, and coordinating between the various support groups, including water resources, environmental, traffic and landscaping. Attended progress meetings with the contractor and SHA District 1, and coordinated requirements from each. Performed site visits to inspect compliance of construction with contract drawings and specifications. Created as-built drawings from on-site inspection and contractor's notes.

SHA District 1 | Open-End Survey and Engineering Services, Dorchester, Somerset, Worcester and Wicomico Counties, MD (\$500K) - **Highway Engineer (2001-2009)**. Performed engineering services under this District 1 Special Projects contract. Design services have included highway and bridge design, horizontal and vertical geometry, H/H analysis, storm drain design, SWM, ESC, Metes & Bounds ROW plats, MOT plans and topographic and field surveys. An example task assignment included the MD 675 at MD 822 Roundabout, Somerset County, where Randall was a Highway Engineer, responsible for preparation of construction documents to eliminate left-turn, head-on and angle accidents. Attended review meetings for the semi-final; final plans; and pre-bid meeting on the project.





## RENATO (RON) GNEO, PE

### Water Resources Engineer



*Ron is a Water Resources Engineer with 19+ years of experience in the management, design, review, analysis and inspection of a variety of civil/structural engineering projects throughout Maryland. He is one of the first consultants invited to perform expedited sediment and stormwater reviews on behalf of SHA's Plan Review Division (PRD) and is extremely familiar with their policies and procedures. His design experience includes water quality, water quantity and ESD, SWM facilities, extensive storm drainage systems, small and large specialized culvert crossings, hydraulic modeling / scour, as well as ESC measures for roadway construction and bridge replacement projects. He also has extensive experience in NPDES/TMDL projects such as storm drain and SWM inventory/inspections, illicit discharge detection and elimination, watershed action plans, watershed site searches, BMP retrofits and GIS database updating and development. He has been responsible for preparation of contract documents (plans, specifications, and cost estimates), procurement of environmental permits, and coordination with various environmental regulatory agencies at the federal, state, and county levels (including MDE and USACE). He has been involved with design-bid-build, D-B, CMAR, and on call contract mechanisms. Highlighted projects include:*

#### Years of Experience

19 Years (3 with Century)

#### Education

ME/2003/ Environmental Engr.  
BS/1997/Civil Engineering

#### Registration

2003/Maryland Registered  
Professional Engineer #29189  
Certified MDE & PRD  
Expedited Reviewer  
MDE Responsible Personnel  
Cert. #RPC005876  
SHA ESC Yellow Card #10-366  
Rosgen Training

- Level I(e) – Fluvial  
Geomorphology for Engineers
- Level II – River Morphology  
and Applications

SHA | MD 404 – US 50 to East of Holly Road (D-B), Caroline, Queen Anne's and Talbot Counties, MD (\$105M) - *H&H Lead for Independent Design QA (2016-2018)*. Responsible for all design elements performed by the 404 Corridor Safety Designers, which includes JMT, related to roadway drainage, cross culverts, SWM and ESC to ensure compliance with the contract documents. The project involved the dualization of approximately 9-miles of MD 404. Duties also includes reviewing all packages and certifying conformance with PRD requirements prior to submission. David A. Bramble, Inc. is a member of the contractor JV partners of the 404 Corridor Safety Constructors.

SHA | US 113 Dualization (Phase 3) North of Massey Branch to Five Mills Branch (D-B), Worcester County, MD (\$32.2M) - *Water Resources Project Manager (2011-2013)*. Responsible for preparing storm drainage, SWM and ESC design to a 30% design completion as required to advertise this D-B project. The project involved the dualization of approximately 5 miles of US 113. Duties included preparation of contract documents (plans, specifications and cost estimates) and preparation of SWM report, to facilitate stormwater Letter of Intent acceptance through MDE. The new development project involved the design of 64 stormwater BMPs, including submerged gravel wetlands, bio-swales, grass swales, and infiltration berms to provide Environmental Site Design as well as 2-year quantity management.

SHA | MD 32 at Linden Church Road (D-B), Howard County, MD (\$10.6M) - *Water Resources Project Mgr. (2012)*. Performed QA/constructability reviews related to the storm drainage, SWM, and ESC portions during the preparation of the bid documents. Built to alleviate traffic and improve safety, the project replaced the two existing intersections at MD 32 and East/West Linden Church Roads with a full diamond interchange and a new bridge over MD 32.

SHA | MD 355 at Randolph/ Montrose Road (D-B) Montgomery County, MD (\$47.2M) - *Water Resources Project Manager (2008-2011)*. Prepared SWM quality treatment facility design, ESC design and SWM As-Built Certification package. The purpose of the project was to upgrade the existing intersection to a grade-separated interchange, and tie in with the County's Montrose Parkway project. Responsibilities consisted of preparation of plans and specifications for SWM facilities at three locations within the project limits, which included two surface sand filters for quality management and a dry detention pond for quantity management. Duties included coordinating with MDE and facilitating sediment and stormwater permit approval and serving as the SWM As-Built Inspector.





## CHRISTOPHER (CHRIS) MINICK, PE

### Senior Structural Engineer

*Chris has 33+ years of experience in structural design for transportation related structures and 20+ years of experience as a Project Manager for SHA, MTA, and MDTA projects. He has expertise in Structural/Foundation Design for all types of transportation structures. He has received FHWA training in LRFD design, driven pile foundation design, design of fatigue resistant steel bridge details, value engineering, and bridge inspection. His experience includes Shop-Drawing Reviews for bridges, culverts, pre-cast and cast-in-place drainage structures, retaining walls, temporary sheeting/shoring, formwork, false work, construction staging, steel erection, pile load testing and concrete pouring sequences. He is very familiar with the SHA partnering process. Highlighted projects include:*

SHA | Contee Road Bridge over I-95 (D-B), Prince George's County, MD (\$30.7M) - *QA/QC Construction Phase Services Manager (2012-2013).*

Responsibilities included preliminary design for a 6 lane, 5-span bridge structure over I-95 to accommodate mainline, C-D lanes and possible I-95 Express Toll Lanes. Reviewed milestone submissions for conformance to the project specifications, managed shop drawing and source of supply submissions, reviewed shop drawings, and represented the OOS at partnering meetings.

SHA | MD 272 over AMTRAK, Cecil County, MD (\$10.3M) - *Structural Project Manager (2008-2011).*

Managed the design of the bridge replacement project including a new, wider, one-span steel girder bridge with top-down constructed approach retaining walls through the TS&L stage of the project. Responsible for the coordination of approach roadway and electrification design along with an MOTAA study and environmental work.

MDTA | I-95/ I-895 - Segment – Section 100, Baltimore, MD (\$213M) - *Structural Project Manager (2007-2008).*

Developed the initial geometric layout of the bridge superstructure and span arrangement for this 1,500' highway overpass carrying I-895 over I-95. Oversaw the design of a rigid frame culvert structure carrying I-95 over Red House Run, retaining walls, and noise barriers. Managed the review of construction phase submissions.

SHA | Bridge No. A-67 Rye Street over Braddock Run, Allegany County, MD (\$683K) - *Structural Project Manager (2003-2007).*

Prepared the Feasibility Study and supervised the design for the replacement of the existing bridge. The 56'-0" long pre-cast pre-stressed concrete adjacent plank beam bridge was founded on caissons. He was also responsible for coordinating the development of the hydrologic and hydraulic study, scour study, and permit acquisition.

SHA | Replacement of Bridge No. CL407 on Bollinger Road over Beaver Run, Carroll County, MD (\$651K) - *Structural Project Manager (2009-2012).*

This project consisted of an alternate study and design of a hydraulically in-kind replacement for an existing Acrow Panel truss bridge with a 52'-0" span pre-cast, pre-stressed adjacent plank beam superstructure founded on the existing substructure. The project included topo/hydrologic surveys, roadway design, ESC, H/H, scour analysis, environmental permitting, archeological and cultural resource assessment and M&Bs plats.

SHA | I-70 over Black Rock Road (D-B), Washington County, MD (\$6.7M) - *Structural Project Manager (2007-2008).*

Responsible for OA/QC for the SHA OOS's first D-B project. Chris supported development of the Design QC Plan providing regular oversight and compliance checks to ensure that procedures were followed as well as oversight of structural design, coordination with the contractor, and critical review of MOT staging plans. As a DBT member Chris worked closely with the contractor to develop details for the temporary Acrow Panel bridge.

### Years of Experience

33 Years (22 with Century)

### Education

BSCE/1982/ Civil Engineering

- FHWA-NHI-130078/Fracture Critical Inspection Techniques for Steel Bridges, 2012
- FHWA-NHI-130055/Safety Inspection of In-Service Bridges, 2013
- FHWA Seismic Design and Retrofit of Bridges, 2006
- FHWA Economical and Fatigue Resistant Steel Bridge Details, 1992
- AMTRAK, CSX, and MTA Safety Training

### Registration

1989/Maryland Registered Professional Engineer #17321  
Also registered in DE, DC, PA, VA, and WV





ii. Past Performance -  
Lead Design Firm

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# US 113 Dualization (Phase 1) (Design-Build) Worcester County, MD



**Project Description** | JMT was the lead designer for our D-B partner DAB, which included dualization of US 113 from Market Street to North of MD 365 (Public Landing Road) in Worcester County, MD (approximately 4 miles). This project consisted of the preparation and design of final plans, securing of permits and the construction of US 113 on existing alignment. The southern limit of work began at the end of the existing dualized roadway just north of Market Street. The improvements included constructing US 113 (Worcester Highway) as a dualized divided highway. Two additional lanes were constructed on the east side of the existing US 113 roadway, ultimately becoming the northbound roadway. Intersection improvements included intersection control beacons and left and right turn lanes with acceleration and deceleration lanes. The typical section consisted of two, 24' roadways with 10' outside shoulders. The northbound and southbound traffic was generally separated by a 34' median, which included 4' paved shoulders, a 26' grass median and w-beam median traffic barrier. The median was narrowed at select locations to preserve wetlands. Access management roads were constructed to provide access to local businesses, residences, and farms. A truck weigh station was constructed along the northbound lanes.

Detailed H/H were performed for drainage culverts that were extended or replaced in the process of dualizing the roadway. A total of seven drainage structures were extended or rebuilt, including an extension of a 8' x 10" x 6' x 1" structural plate pipe arch culvert and two 54" circular pipe culverts.

Major project activities included full depth pavement, wedge and level and resurfacing of the existing pavement and shoulders, reforestation and landscaping, drainage systems, ESC and SWM facilities, intersection control beacons and lighting, signing and pavement markings. JMT's services included surveys, highway

## Owner Contact

Maryland State Highway Administration, District 1  
Mr. Donnie Drewer, District Engineer  
T 410-677-4006  
E [ddrewer@sha.state.md.us](mailto:ddrewer@sha.state.md.us)

**Contract/Project No.**  
WO7675170

**Delivery Method**  
Design-Build

**Construction Cost**  
Initial Contract Value:  
\$15,427,400

Final Contract Value:  
\$15,992,009

**Reason for Difference:**  
Change order issued for additional work items, under-estimated quantities, redline revisions.

**Schedule Performance**  
Initial Completion Date:  
August 2007

Final Completion Date:  
August 2007

**Reason for Difference:**  
N/A

*The Bramble-JMT Design-Build Team has partnered extraordinarily well with the SHA." ... Mr. John Zanetti, Former SHA Project*



design, structural design, geotechnical engineering, storm drain and SWM design, ESC design, reforestation and landscaping design, traffic engineering analysis and design, environmental permit acquisition and utility relocation coordination. This project received monetary compensation for saving 0.95 acres of wetlands. It was also nominated for four awards from MdQI for *Partnering, Major Construction Project, Environmental and DBE participation*.

#### Successful Methods, Approaches, and Innovations |

1. Schedule - This project had an aggressive schedule to open the roadway before the summer months. The DBT was able to meet the schedule while adhering to in-stream restrictions and rigorous environmental and design review.
2. Safety - The project separated the northbound and southbound traffic to make the US 113 corridor safer, and to alleviate the higher than normal traffic accident history. Our Maintenance of Traffic (MOT) plan provided for safe travel during construction with no accidents resulting from the MOT.
3. Mobility - Access management roads were constructed to provide safe access for local traffic. DAB and JM effectively coordinated with the local farm community and emergency responders to minimize construction impacts.
4. Environment - This project received a monetary incentive for saving 28% of the permitted wetlands; 0.95 acres.
5. Maintenance - Traffic barrier w-beam was constructed with a strip of asphalt millings to prevent weeds from overgrowing and obstructing the barrier. This reduced the need to maintain the area under the w-beam.

JMT and David A. Bramble have successfully completed three additional segments of the US 113 Corridor under separate contracts.

Relevance of Work to WO6355170 | The project utilized the Design-Build method of innovative project delivery, constructed two additional lanes along the US 113 alignment to create a 4-lane divided highway serving commuters, commercial trucking, summer travelers, businesses, and adjacent farms. The typical section consisted of two 24' roadways with 10' outside shoulders. The northbound and southbound lanes were generally separated by a 34' median which included 4' paved shoulders, a 26' grass median and w-beam median traffic barrier. Intersections and access points were developed using AASHTO and SHA design criteria and included access management roads and accommodations for tractor trailers, farm vehicles and emergency response vehicles.

The extremely flat grade in this region of Maryland presented a challenge to coordinate the drainage and SWM needs with the MOT and ESC requirements. Because of the abundance of wetlands in the area, a responsible approach to the removal of undercut was required. To minimize disturbance to the wetland resources by mats were carefully placed in the path of the excavators. This distributed the working loads and reduced the impact on the vegetation and soils. Because of the aggressive schedule and the stringent State review process, JMT's managers and engineers were faced with the task of acquiring State approvals that allowed the contractor to start construction and meet the deadline schedules. This was accomplished by adopting a rolling submittals approach to design.

#### Relevance to WO6355170

- Design-Build
- Roadway Dualization
- Structural Design
- New Pavement Construction
- Existing Pavement Rehabilitation
- Drainage, SWM, and ESC
- Reforestation and Landscaping
- Signing and Pavement Marking, Lighting
- Culvert Extensions and Replacements
- Survey and Utility Coordination/Relocations
- Environmental Permit Acquisition Including ESC and Minimizing Wetland Disturbances



# SR 26 Mainline and Detour Routes Improvements

## Sussex County, DE



**Project Description** | SR 26 is one of the three (3) major east-west corridors leading to the Sussex County Resort Towns. During the planning stages of the SR 26 project, four (4) main goals were established: to reduce congestion; to improve safety; to establish defined entrances and exits; and to improve the overall condition of the roadway. This construction project consists of widening and realigning approximately four (4) miles of roadway to provide two 11' travel lanes with 5' shoulders and a 12' shared center left-turn lane. Right turn lanes are proposed at most of the 21 intersections with State and local roads as well as the many existing, newly constructed and proposed commercial and residential entrances.

In advance of the SR 26 Mainline project, Century was also tasked with designing the SR 26 Detour Routes project to improve a series of roadways and provide an alternative route during the construction of the SR 26 Mainline project. By widening four (4) miles of area roads to provide two 11' travel lanes with 5' shoulders and improving 8 major intersections and numerous entrances, the general public had a safe route to take while avoiding the construction on the mainline. This phase completed construction in the Fall 2013 at a cost of \$8.6M.

Extensive public outreach was conducted for these projects including coordination with project stakeholders consisting of state legislators, the local school district, emergency responders, chamber of commerce, and the Towns of Millville and Ocean View. Numerous public workshops were conducted along with advisory committee meetings. In response to concerns expressed during the public outreach, the Project Team initiated an interim project. This interim project involved utility relocations, signal design, right-of-way acquisition with advance access as well as the installation

### Owner Contact

Delaware Department of Transportation (DelDOT)  
Mr. Tom Banez, PE, Project Manager, South Design  
T 301-760-2363  
E [Tom.Banez@state.de.us](mailto:Tom.Banez@state.de.us)

**Contract/Project No.**  
T200411210

**Delivery Method**  
Design-Bid-Build

**Construction Cost**  
Initial Contract Value:  
\$24,900,000

Final Contract Value:  
\$24,900,000

Reason for Difference:  
N/A

**Schedule Performance**  
Initial Completion Date:  
June 2016

Final Completion Date:  
August 2016

Reason for Difference:  
Schedule extended because of client approved scope changes and weather related delays.







of a traffic camera to better allow DeIDOT to monitor the conditions along the roadway. This project was designed and constructed in an accelerated time frame and was open to the public as promised before the start of the summer traffic season. Century designed and coordinated all utility relocations for this project and performed utility stakeouts and inspection for the advanced utility relocations. Century also coordinated design of the sanitary sewer line with the State and the County to include construction of the sewer line as a part of this project which resulted in cost savings for the County and limited the impacts to the traveling public.

This project involved innovative and unique construction phasing approaches. To construct the SR 26 Detour Routes project in the shortest construction duration possible the improvements were completed under full roadway closures and included full-depth in-place pavement reclamation.

#### Successful Methods, Approaches, and Innovations |

1. Schedule - Roadway closures and detours were used to reduce construction duration and impacts to the users.
2. Safety - The project provided intersection improvements and constructed turning lanes to improve safety along the corridor. The Maintenance of Traffic provided safe conditions for vehicular, bicycle and pedestrian traffic, while providing the contractor adequate space to safely construct the improvements.
3. Mobility - Access points to residential and commercial properties were evaluated and consolidated where appropriate. Temporary traffic signals were installed on Detour Routes to accommodate the increased traffic flow.
4. Environment - Offsite wetland mitigation site was utilized to address wetland impacts. Coordination with FHWA and SHPO was performed to ensure project goals were met while limiting impacts to historic and natural resources.
5. Maintenance - Meetings with property owners, business owners, chamber of commerce and emergency responders were held to make sure their needs were being met with this project and access to their properties was provided throughout the project.

Relevance of Work to WO6355170 | The roadway improvements were needed to reduce congestion; improve safety; establish defined entrances and exits; and improve the overall condition of the roadway. Extensive utility coordination and relocations were performed in advance of the project to allow for construction of roadway improvements. MOT plan for the project included multiple construction phases, road closures, detours, temporary signals, alternate route signing and night work to construct the improvements in an efficient way and minimize the impacts to the traveling public.

The extremely flat grade along the corridor presented challenges during drainage and stormwater management, and erosion and sediment control design. The impacts to State and Federally regulated waters and wetlands were mitigated using a shared wetland mitigation site. A comprehensive public outreach campaign was developed and utilized during the design and construction phases to inform the public of the construction activities.

Both projects, the Detour Routes and the Mainline project, were constructed by George & Lynch, Inc. (G&L). The well-established working relationship between Century and G&L allowed for efficient communication, and resolution of issues during construction with minimal time loss when questions were asked and additional information was needed. The communication and good working relationship between Century and G&L was a benefit to the overall contract. The SR 26 Mainline project started construction in January 2014 under a low bid of \$24.9 million and duration of 2.5 years.

#### Relevance to WO6355170

- Roadway Realignment and Widening
- New Pavement Construction
- Existing Pavement Rehabilitation
- Drainage, SWM, and ESC
- MOT Design and Public Outreach Coordination
- Signing and Marking, Lighting Design
- Culvert Extensions and/or Replacements
- Survey and Utility Coordination/Relocations
- Accelerated Design and Construction Schedule
- Private and Commercial Entrance Design



## US 40 at MD 715 Interchange and Improvements (Design-Build)

Harford County, MD



**Project Description** | JMT and our Design-Build partner were selected for this project to accommodate additional personnel being relocated to the U.S. Army's Aberdeen Proving Ground (APG) facility as part of the BRAC initiative. The work included widening of MD 715 in both directions south of Amtrak Bridge to the APG entrance under Phase 1. The Phase 2 work included upgrading the interchange including widening the bridge on MD 715 over U.S. 40. JMT designed improvements to connecting ramps, and adjoining roadways and intersection improvements, for a total project length of approximately 2.40 miles.

Design work included providing supplemental topographical surveys including a detailed bridge survey, approach roadways and tie-points, drainage and utilities, and stream channel profile and alignment. The performance of extensive utility coordination with utility agencies to address the numerous communications, electric, fiber optic, and water line relocations required to accommodate the construction. Included in this effort was the relocation design of approximately 1,300' of 16" water main, 385' of 12" water main, 115' of 8" water main, relocation of 12 fire hydrants and the relocation of 405' of 8" sewer main.

H/H design and stream restoration services that included the design of storm drain systems consisting of approximately 20,000' of new pipe, four (4) SWM ponds, and associated ESC design. Stream restoration services assessed and designed the most sustainable and ecologically suitable location for the relocated and restored channel at the downstream limit of the stream restoration. At the upstream end of the stream restoration limit an extensive forested wetland existed. A sustainable tie-in location was assessed and designed while considering minimization of waterway and wetland impacts.

### Owner Contact

Maryland State Highway  
Administration  
Mr. David Phillips, Design  
Project Manager  
T 410-545-8823  
E [dphillips@sha.state.md.us](mailto:dphillips@sha.state.md.us)

**Contract/Project No.**  
HA2705171

**Delivery Method**  
Design-Build

**Construction Cost**  
Initial Contract Value:  
\$17,777,000

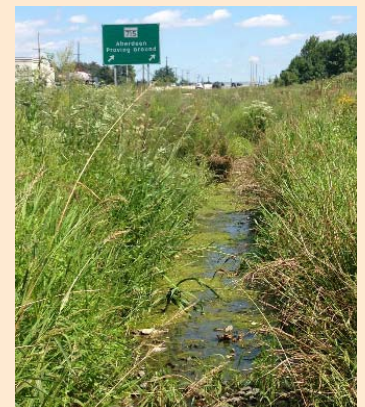
Final Contract Value:  
\$17,777,000

Reason for Difference:  
N/A

**Schedule Performance**  
Initial Completion Date:  
July 2013

Final Completion Date:  
July 2013

Reason for Difference:  
N/A



Roadway design included the preparation of design plans to address the roadway widening required along eastbound US 40, along northbound and southbound MD 715 leading into APG and along Old Philadelphia Road. The development of structural design plans for the widening of the existing 203' long, 2-span bridge carrying MD 715 over US 40 and a 300' retaining wall. These structural designs incorporated aesthetic features on the bridge parapet and abutment wingwalls and ornamental lighting. Traffic engineering and lighting design that included two new traffic signals, updates to an existing traffic signal, interconnect plans and lighting design. Detailed maintenance of traffic (MOT) and detour plans were prepared, and a transportation management plan (TMP) was prepared to address proposed improvements and impacts to the motoring public. Geotechnical investigations were performed which consisted of deflection testing of the pavements, and engineering for earthwork stability, pavement sections, bridge foundations and retaining wall. In addition, extensive public relations and partnering services were performed including; attending public meetings, preparation of flyers, mailings to over 500 addresses, advertisements in local media outlets and the establishment of a toll free information number.

#### Successful Methods, Approaches, and Innovations |

1. Schedule - Aggressive Project Management and Partnering with SHA on distinct work packages for long lead items and critical path activities were prepared and approved on time or ahead of the project design schedule.
2. Safety - Detailed MOT plans and a thorough TMP were prepared. On-Site MOT managers were employed to evaluate in-place MOT. Adjustments to the MOT plan, including signal phasing were made when predicted traffic congestion differed from modeling.
3. Mobility - Extensive traffic modeling, including obtaining updated traffic counts allowed the traffic modeling to accurately predict and evaluate traffic through the work zones for each stage of construction. Adjustments to the models were made as the project construction progressed.
4. Environment - Approximate 800' of an unnamed degraded tributary to Cranberry Run from its confluence with Cranberry Run that paralleled east bound US 40 was relocated and stabilized. The geomorphic assessment and stream relocation design exceeded the project goals and objectives for the relocated channel and included, minimization of impacts to wetlands, waterways and floodplains; maintained and discharged natural groundwater flows and seeps associated with waters of the US and wetlands; provided a new stream channel and associated floodplain which is capable of conveying its water and sediment in a stable manner and replaced the existing deteriorated stream channel with a new stream having natural channel features.
5. Maintenance - Extensive low maintenance landscape features were designed and incorporated in the project. The SWM pond designs heavily considered maintenance requirements, including access and plantings.

Relevance of Work to WO6355170 | The project has relevance because of the Design-Build method of innovative project delivery which included development of rolling design submittals and phased construction.

#### Relevance to WO6355170

- Design-Build
- Roadway Widening
- Structural Design/Bridge/Retaining Walls
- New Pavement Construction
- Existing Pavement Rehabilitation
- Drainage, SWM, and ESC
- Reforestation/Landscaping
- Signing and Marking, Lighting
- SD Culvert Extensions and/or Replacements
- Survey and Utility Design/Coordination/Relocations
- Environmental Permit Acquisition including ESC and minimal disturbance to wetlands





## Lead Construction Firm Experience/ Qualifications & Past Performance

## CHRISTOPHER (CHRIS) BAKER, PE

### Design-Build Project Manager



Chris has 27+ years of extensive experience in the management and estimation of projects ranging from a variety of road and bridge projects to wastewater treatment plants. His design-build (D-B) experience commenced in 1993 as estimator and project manager for a \$16M D-B WWTP facility constructed for Sussex County, Delaware that resulted in lifting a building moratorium imposed in the Inland Bays area. The project included procurement of a 100-acre plant site and 20-year lease of 300+ acres for spray irrigation lands. He is currently the Exec. Vice President and Chief of Operations. Along with his duties at G&L, highlighted projects include:

#### Years of Experience

27 Years (27 with G&L)

#### Education

BS/1989/Civil Engineering

#### Registration

- 1994/Delaware Registered Professional Engineer #9855
- CPM Scheduling

DeIDOT | Bridge 1-377 on N435 over Back Creek (D-B), New Castle County, DE (\$1.3M) - *D-B Project Manager (2000-2001)*. Responsible for coordinating with Design Engineer, Century, on the design, preparing the construction estimate and ultimately managing the construction of the project. The project scope of work included right-of-way acquisition, historical preservation investigation and clearance, maintenance of stream flow, maintenance of access to adjacent private properties, and relocation of existing utilities to accommodate the horizontal curve realignment. The DBT worked with DeIDOT to develop a precast arch design that deviated from bridge design standards and still met the structural capacity and life-cycle requirements of the project. This was DeIDOT's *first highway D-B project*.

DeIDOT | Milling & Overlay of US 113 NB/SB Lanes, Millsboro to Selbyville, DE (\$8.9M) - *Operations Manager (2013-2014)*. Responsible for the overall coordination of manpower/equipment required to keep the project on schedule. G&L provided the milling/overlay for an approximate 10-mile stretch of roadway. In addition, ADA pedestrian ramps and median concrete noses were replaced throughout the project. Numerous business entrances and residential entrances had to be addressed during construction. A majority of this project was performed at night to minimize disruption to traffic and mitigate interference with the businesses along US 113. Project was finished on-time/within budget.

DeIDOT | Indian River Inlet Bridge Approaches, Roadway and Bridge Demolition, Sussex County, DE (\$14.0M) - *Operations Manager (2011-2013)*. Responsible for the coordination of the labor force and equipment for the project. G&L constructed the approach slabs for the new Inlet Bridge, reconfigured the asphalt roadway leading up to the bridge, installed the storm water system, constructed the MSE retaining walls, installed a sand bypass transmission system, constructed new sand dunes, installed timber and concrete pedestrian access to the bridge and oversaw the demolition of the old bridge. A significant addition to project scope involved a sheet pile retaining wall to protect the northeast bridge abutment from potential undermining caused by seasonal storms due to proximity to the Atlantic Ocean. This project received an *Award of Excellence* in Construction from the DE Contractors Association and a *Project Showcase Award* from the ASHE - Delaware Chapter.

Dover Air Force Base (DAFB) | Runway 14-32 Reconstruction, Dover, DE (\$22.6M) - *Operations Manager (2008-2009)*. Responsible for the overall coordination of the manpower/equipment that was required to keep the project on schedule and ensure minimal interference with the operations of DAFB. G&L provided demolition of the existing asphalt (2,000,000 SY-IN) and concrete (128,000 TN) runway, replacement of the storm drainage system (5,000' large diameter RCP), placed new subbase material (128,000 TN from crushed PCC removal) and FAA asphalt paving (120,000 TN). The schedule was critical and the project received an *Award of Excellence* from the DE Contractors Association.

DE Division of Motor Vehicles (DMV) | Inspection Lanes (D-B), Delaware City, DE (\$4.9M) - *Operations Manager (2013-2014)*. Responsible for the coordination of the labor force/equipment for the project. G&L was a DBT member responsible for all of the infrastructure portion of the project, consisting of transforming a 28-acre field into a large parking, vehicle inspection and driver training area for the DMV.





## ROBERT (BOBBY) BRAMBLE, JR.

### Construction Manager



*Bobby has 36 years of experience in civil works projects. He started at DAB during summer as laborer and was promoted to operator. He enlisted in the Navy in 1981, and was assigned to the U.S. Navy Atlantic Seabees Naval Construction Battalion. As a foreman on construction projects, Bobby went to various locations including Puerto Rico, Guam, Texas, and Spain. In 1986 he resumed his position with DAB. By 1990, he was promoted to foreman. Bobby became a project superintendent in 1998. He has worked on major projects for the company and won numerous awards for his work. He has extensive experience with highway construction, drainage construction, environmental sensitivity, utility coordination, and MOT. Specifically, Bobby has led the construction effort on three of the four US 113 D-B projects built by DAB. Currently, he heads the Salisbury Branch of DAB, and focuses on projects within District 1. Highlighted projects include:*

### Years of Experience

36 Years (36 with DAB)

### Education

High School Diploma  
U.S. Navy Atlantic Seabees  
Naval Construction Battalion

### Registration

- ATSSA Certified Traffic Control Supervisor #53893
- Safety First, Inc./Competent Person Training
- MDE RPC #31830
- SHA Yellow Card #14-08

SHA | US 13 Business at South Division St. Intersection Improvements, Salisbury, MD (\$2.3M) - **Construction Manager (2015-2016)**. This job was for the construction of intersection improvements on US 13 Business at South Division Street. The project consisted of full depth roadway widening with hot mix asphalt, new curb and gutter, storm water management improvements, bicycle pocket lanes and traffic signalization and lighting installation.

SHA | US 113 at MD 12 (Snow Hill Rd) and MD 365 (Public Landing Road), Worcester County, MD (\$3.7M) - **Construction Manager (2014-2015)**. This project was for the construction of J-turns on US 113 to service the MD 365 intersection. The project featured widening of existing pavement on US 113 and at MD 12 to accommodate the addition of a fully actuated traffic signal, median modification, construction of bio-swales and bioretention facilities, and storm water management improvements.

SHA | US 113 Dualization (Phase 2B) on Existing Alignment from North of Goody Hill Road to South of Massey Branch Road (D-B), Worcester County, MD (\$12.1M) - **Construction Manager (2009-2013)**. This was a D-B project which included construction of the dualization of approximately 2.5 miles along the west side of existing US 113, a J-turn, Maryland T intersections, and access management roads. JMT was the Lead Designer for this segment.

SHA | US 113 Dualization (Phase 2A) on Existing Alignment from Hayes Road to North of Goody Hill Road (D-B), Worcester County, MD (\$14.9M) - **Construction Manager (2007-2010)**. This was a D-B project which included construction of two additional lanes for approximately 2.5 miles along the West side of existing US 113, South of Berlin, MD. JMT was the Lead Designer for this segment.

SHA | US 113 Dualization (Phase 1) from Market Street to North of MD 365 (D-B), Worcester County, MD (\$15.4M) - **Construction Manager (2005-2007)**. This project dualized 4 miles of US 113 from Market Street to North of MD 365 (Public Landing Rd.). This project consisted of the preparation and final plans and the construction of US 113 on existing alignment. The southern limit of work was the end of the dualization just north of Market Street. This project received monetary compensation for saving 0.95 acre of wetlands. It was also nominated for four MdQI Awards of Excellence for *Partnering, Major Construction Project, Environmental, and MBE/DBE Participation*.

SHA | MD 16/MD 14 Community Safety and Enhancements, East New Market, MD (\$6.2M) - **Construction Manager (2007-2008)**. This project consisted of full depth reconstruction of MD 14 (West of Linkwood Road to Corporate Town Limits) and MD 16 (Creamery Road to east of MD 392). This project was nominated for two MdQI awards for *Partnering and Streetscape Project*.







ii. Past Performance - Lead  
Construction Firm

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# US 113 Dualization (Phase 2A) (Design-Build)

Worcester County, MD



**Project Description** | David A. Bramble Inc. (DAB) was the lead construction firm in this D-B project with JMT as the lead designer. The project started north of Goody Hill Road (southern limit) and ended just north of Hayes Landing Road (northern limit), a distance of about 2.5 miles. The project consisted of the construction of this section of US 113 (Worcester Highway) as a dualized divided highway. The two additional lanes were constructed on the west side of the existing US 113 roadway, ultimately becoming the southbound roadway. Intersection improvements included left and right turn lanes with acceleration and deceleration lanes. The typical section consisted of two, 24' roadways with 10-foot outside shoulders. The northbound and southbound traffic was separated by a 34' median, which included 4' paved shoulders, a 26' grass median and w-beam median traffic barrier. Access management roads were constructed to provide access to local businesses, farmers, and residences. The existing 9' x 5' single cell culvert conveying Beaverdam Creek/Popular Branch was extended under the new roadway.

DAB & JMT have successfully completed three additional phases of the US 113 Corridor under separate Design-Build contracts.

This project was built under the leadership of Construction Manager Robert (Bobby) Bramble, Jr. Bobby lead the effort on US 113 Phase 1, and utilized his past experience in the US 113 corridor to deliver a successful project to SHA on schedule with no accidents.

### Owner Contact

Maryland State Highway Administration, District 1  
Mr. Donnie Drewer, District Engineer  
T 410-677-4006  
E [ddrewer@sha.state.md.us](mailto:ddrewer@sha.state.md.us)

**Contract/Project No.**  
WO6345170

**Delivery Method**  
Design-Build

**Construction Cost**  
Initial Contract Value:  
\$14,290,293

Final Contract Value:  
\$14,501,410

**Reason for Difference:**  
Project incentives achieved including ESC and minimal disturbance to wetlands.

**Schedule Performance**  
Initial Completion Date:  
December 2009

Final Completion Date:  
December 2009

**Reason for Difference:**  
N/A



## Successful Methods, Approaches, and Innovations |

1. Schedule - Despite the stringent level of environmental review and oversight the Bramble/JMT Design-Build Team (DBT) was able to meet the aggressive schedule.
2. Safety - Our Maintenance of Traffic (MOT) plan provided for safe travel during construction with no accidents resulting from the MOT. The Construction Manager went door-to-door to communicate with property owners to ensure access was maintained to properties and farm access, and to provide all stakeholders with advance notice of any traffic changes.
3. Mobility - Access management roads were constructed to provide safe access for the local traffic. DAB effectively coordinated with the local farm community and emergency responders to minimize any construction impacts.
4. Environment - The Project utilized recycled concrete base (RC6) on the service roads, and addressed SHA concerns of increased PH in the RC6 by innovating a check dam made of pine needles wrapped in Curlex matting to treat run-off from the RC6. The DBT was able to provide warm mix asphalt, which is better for the environment, for the project at no additional cost. Additional care was taken where possible to preserve large trees and other landscape elements when requested by residents. The project achieved ESC incentives and provided minimal disturbance to wetlands.
5. Maintenance - The final pavement surface achieved incentives for both ride and density, ensuring that the new pavement would provide the SHA with the quality it expects for a long lasting product.

Relevance of Work to WO6355170 | The project has relevance because of its location on the US 113 corridor, and the Design-Build method of innovative project delivery, consistent with the WO6355170 project, DAB successfully managed identical traffic volumes, environmental issues, and project stakeholder groups. In addition, the project construction elements were equal to WO6355170 with the construction of two additional lanes along the US 113 alignment to create a 4-lane divided highway, with the inclusion of service roads and Maryland T intersections. As a Design-Build, the project's delivery method provides the same opportunities for innovation, and has given DAB and JMT both strong understandings of what SHA and specifically District 1 expects for a successful project on the US 113 corridor. Furthermore, the Construction Manager on Phase 2A, Bobby Bramble, will assume that role on this procurement, bringing his extensive knowledge of the US 113 corridor.

## Relevance to WO6355170

- Construction Manager experience
- Design-Build
- Roadway Dualization
- Structural Design
- New Pavement Construction
- Existing Pavement Rehabilitation
- Drainage, SWM, and ESC
- Reforestation/Landscaping
- Signing and Marking, Lighting
- Culvert Extensions and/or Replacements
- Survey and Utility Coordination/Relocations
- Environmental Permit Acquisition including ESC and minimal disturbance to wetlands



## Bridge 1-377, Choptank Road over Back Creek (Design-Build)

New Castle County, DE



**Project Description |** The DBT of George & Lynch, Inc. (G&L) and Century Engineering, Inc. (Century) were selected by DelDOT as the successful team to design and construct Bridge 1-377, Choptank Road over Back Creek in southern New Castle County. DelDOT selected G&L/Century based on team qualifications including experience, work force, equipment, schedule, and price.

This innovative project delivery method marked a new era for DelDOT, by awarding a construction project based on qualifications, design, schedule, and not necessarily the low price. Based on the successful procurement and completion of this D-B project, DelDOT has continued to utilize and expand the design-build method of project delivery.

G&L's responsibilities included assistance with right-of-way (ROW) acquisition, permit acquisition, utility relocations, subsurface investigations, historical and archeological investigations, maintenance of traffic, design, construction and all other aspects to complete the project.

The D-B process and the client expected the project to be delivered without change orders. The DBT delivered on this expectation in that there were no changes orders requested for the project. The fast track schedule was achieved by overlapping project activities including permitting, property ROW acquisition, utility relocations, design, construction and inspection, resulting in a reduced duration for road closure and detour.

### Owner Contact

Delaware Department of Transportation  
Mr. Barry Benton, Assistant Director, Bridge Design  
T 302-760-2299  
E [barry.benton@state.de.us](mailto:barry.benton@state.de.us)

### Contract/Project No.

20-071-10  
F.A.P. No. EBROS-N435

### Delivery Method

Design-Build

### Construction Cost

Initial Contract Value:  
\$1,191,000

Final Contract Value:  
\$1,191,000

Reason for Difference:  
N/A

### Schedule Performance

Initial Completion Date:  
December 2001

Final Completion Date:  
December 2001

Reason for Difference:  
N/A

The project success was acknowledged by DelDOT's Secretary of Transportation, Nathan Hayward...  
*"Overall, we saved \$300,000 - \$400,000 on the project by going with D-B and brought the job in 6 months early."*

Aesthetics was important to the community, therefore, the DBT designed and constructed an innovative, visually pleasing pre-cast concrete double elliptical arch bridge. The pre-cast approach provided expedited construction that enabled the fast track schedule to be met and minimized exposure to inclement weather conditions associated with off-peak construction season. G&L provided high performance concrete for the pre-cast bridge. Low permeability of the concrete and added strength was achieved by using Silica Fume and Steam Curing.



A public outreach innovation was to provide a Project Website so the community could follow progress of the bridge construction. The community was fully satisfied with the results and 100% of the owner and DBT's project goals were accomplished.

Successful Methods, Approaches, and Innovations |

1. Schedule - The project was awarded in December 2000. The design was completed and construction began in August 2001. The project was completed by December 2001 on schedule. This included ROW acquisitions and utility relocations.
2. Safety - Safety was paramount during all phases of the project. The traveling public and adjacent homeowners were of primary concern during the construction phase. During construction, there were no recordable injuries and no accidents involving the public.
3. Mobility - Continuous access was provided for the adjacent homeowners during the construction phase. They were continually informed with the progress of the project and were not hampered by the construction activity
4. Environment - The key environmental concern on this project was the stream diversion. It was critical that minimal impact was imposed on the surrounding environment and that the adjacent homes were not exposed to flooding conditions. Temporary steel sheet piling was used to separate the footing excavation from the stream. The top of footing was designed above the low flow stream level to allow the sheeting to be removed prior to placement of the precast arches. This procedure minimized the overall environmental impact and preserved the streambed material. The bypass system worked as designed throughout the entire project.
5. Maintenance - The project team kept the adjacent property owners informed via a website for the project and written communication. Care was taken to create as little disruption for adjacent project stakeholders throughout the project.

Relevance of Work to WO6355170 |

This project has relevance for several reasons. First, it was a design-build project that was performed by two of the team members. G&L and Century have had a long standing working relationship. It also involved placing a box culvert in an existing stream and wetland area which will be a crucial step in this project.

Relevance to WO6355170

- Design-Build
- Right-of-Way Acquisition
- Structural Design
- New Pavement Construction
- Existing Pavement Rehabilitation
- Drainage, SWM, and ESC
- Reforestation/Landscaping
- Signing and Marking, Lighting
- Culvert Extensions and/or Replacements
- Survey and Utility Coordination/Relocations
- Environmental Permit Acquisition including ESC and minimal disturbance to wetlands

## MD 404 from South of Double Hills Road to South of Sennett Road

Caroline County, MD



**Project Description** | David A. Bramble, Inc. (DAB) was the low bidder on this project that dualized a 1.50-mile portion of MD 404 near the Town of Denton from South of Double Hills Road to South of Sennett Road.

The improvements included constructing MD 404 (Caroline County) as a dualized divided highway. The two additional lanes were constructed on the west side of the existing MD 404 for the northern third of the project which then transitioned for the southern two thirds of the alignment to be built on the east side of the existing MD 404. Intersection improvements included signalization, left and right turn lanes with acceleration and deceleration lanes. A critical component of work on the project was the erection of a new bridge over Watt's Creek to serve westbound traffic. George & Lynch (G&L) was DAB's subcontractor for the 240' four-span, prestressed concrete girder bridge work (four span, 240' +/-, box beam) which accounted for 30% of the contract value.

The professional relationship between G&L and DAB is long standing, with both companies having a history of working together, both formally, as was the case on this project, and informally, for example loaning equipment to each other when needed. Through the combined efforts of both companies, the project was completed on schedule and under budget.

### Owner Contact

Maryland State Highway Administration  
District 2  
Mr. Greg Holsey  
District 2 Engineer  
T 410-778-3061  
E [gholsey@sha.state.md.us](mailto:gholsey@sha.state.md.us)

**Contract/Project No.**  
CO3215270

**Delivery Method**  
Bid-Build

**Construction Cost**  
Initial Contract Value:  
\$10,747,995

Final Contract Value:  
\$10,099,384

**Reason for Difference:**  
Eliminated one phase of MOT and all associated costs.

### Schedule Performance

Initial Completion Date:  
September 2007

Final Completion Date:  
August 2007

**Reason for Difference:**  
Eliminated one phase of MOT allowed for early completion.





Successful Methods, Approaches, and Innovations |

1. Schedule - The Project was completed ahead of schedule due to innovations that resulted in the elimination of an entire phase of MOT.
2. Safety - The project separated the eastbound and westbound traffic to make the MD 404 corridor safer, and to alleviate the higher than normal traffic accident history.
3. Mobility – Through the elimination of the 3<sup>rd</sup> MOT stage, the contract duration was reduced by a month. As such, the public had unrestricted access sooner than anticipated.
4. Environment – Watts Creek is a tributary of the Choptank River. Working within spawning restrictions, and the projects erosion and sediment control plan, G&L and DAB where able to mitigate any potential risks on the project, and thus it earned A-ratings throughout the project duration.
5. Maintenance – The final surfaces and bridge were turned over to SHA meeting or exceeding the contractual specifications.

Relevance of Work to WO6355170 | Though smaller in size, this project has relevance to WO6355170 due to the types of motorists and the respective roles of DAB and G&L on the project. Both projects are dualizations of busy roadways servicing local, agricultural, and commercial interests, as well as seasonal beach traffic. On MD 404, DAB focused on building the roadway and all items of work not related to the bridge construction. The same will hold on US 113 (Phase 4), except DAB will focus on the northern portion of the project, and G&L will build the southern portion of the project. As on MD 404, G&L will be building the bridge on US 113 over Purnell Creek. Though G&L will provide the hot mix paving on US 113 (Phase 4), the job is similar to MD 404 in that the entity with the closest asphalt plant to the project is taking the lead construction role.

Relevance to WO6355170

- Roadway Dualization
- Structural Design
- New Pavement Construction
- Existing Pavement Rehabilitation
- Drainage, SWM, and ESC
- Landscaping
- Signing and Marking, Lighting
- Bridge Installation
- Survey and Utility Coordination/Relocations
- Collaboration between JV contractors





# Project Understanding & Design-Build Approach

## i. UNDERSTANDING THE PROJECT GOALS AND SCOPE |

The Design-Build Team (DBT) of G&L, DAB, JMT and Century have thoroughly evaluated the RFP documents, conducted site visits and has worked as a collaborative DBT to understand and address SHA's project goals and key issues for the Project. Our DBT is committed to Partnering with SHA and project stakeholders to complete the design/construction expeditiously while conscientiously and continuously being mindful of the following project goals:

1. SCHEDULE. Our DBT is committed to minimizing the outage of the Railroad (RR) line plus the total days to complete the design and construction. Our DBT understands the Project schedule, has evaluated key risks and milestones, and developed a high level CPM that includes design, obtaining permits, working with the RR, constructing approximately 4.6 miles of roadway, including the Purnell Branch Bridge, retaining walls/culverts that will deliver the final project to the traveling public on-time and on budget. With SHA NTP anticipated in February 2017, there are various key requirements and activities to ensure project success, including:

### US 113 Phase 4 Design/Construction Milestones

- Notice to Proceed
- Clearing Plan/Grading/Drainage Approvals
- Minor Structure Approval
- Southern and Northern Construction
- Purnell Branch Bridge Approval
- ROW Clearance
- RR Embargo Notification (3 months in advance)
- RR Construction (joint activities)/Completion
- Utility Relocations (by others)
- Project Completion

- Maryland-Delaware Railroad Company. At-Grade Railroad Crossing of US 113 will be taken out of service in order to allow the new expanded crossing to be constructed. Our DBT will coordinate our design and construction activities with the Railroad activities for the embargo to minimize overall outage and to ensure it meets the desired opening no later than November 1, 2017.
- Resources. Our DBT has formed a contractor and design joint ventures (JV) to leverage resources and provide the project to SHA and the traveling public on-time and within the agreed to budget. Based on our initial evaluation of the approximately 4.6-mile-long project, our DBT will design/construct the project in two major segments. G&L will construct the project from approximately station 1300+00 to the southern limit, including the bridge, retaining walls, and RFP identified railroad facilities. DAB will construct the project from approximately station 1300+00 to the northern project limits. G&L will provide all asphalt paving for the project. The design team will follow the construction split with JMT designing the northern and Century designing the southern sections. The design will incorporate phased and concurrent design approach with construction occurring concurrently in both sections. Certain corridor wide activities, such as environmental design, led by Century; and traffic/maintenance of traffic (MOT) and geotechnical engineering, led by JMT will provide continuity between section design. Our plan to divide the work for both design/construction will ensure that the overall project schedule duration is minimized.
- Quality. To expedite design reviews, we will implement a QC program for design whereby JMT and Century will each provide independent review of each other's design so that review times of SHA are minimized. Our independent quality reviews will focus on obtaining plan approval for early start activities and to fast-track utility relocation efforts.
- Constraints. We recognize that in stream work will be restricted from March 1 - June 15 and have accommodated the time of year restriction (TOYR) in our high level project planning. We have also evaluated Forest Interior Dwelling Species (FIDS) restrictions of no forest clearing in breeding season of May – August, and will accommodate the restriction. We expect Choptank Electric, Delmarva Power, and Verizon utility relocations to occur concurrently with construction and the DBT will design and relocate the Maryland Broadband Cooperative (Maryland Broadband) facilities. Our schedule has considered the ROW acquisition for the corridor and confirmed that receiving ROW clearance for the entire corridor by June 20, 2017 will accommodate our planned work. We understand SHA is currently approaching clearing ROW in a phased approach from the south to the north, however, with our proposed approach to ROW and construction, we believe that the project can be delivered more expeditiously. We look forward to working with SHA to discuss a phased approach to ROW that corresponds with our proposed construction sequences.



2. SAFETY. During construction, our MOT design and implementation will include provisions for the safe and efficient passage of typical and non-typical vehicular traffic including school buses, farm equipment, chicken hauling trucks, combines, truck traffic, emergency responders, and pedestrian and bicycle traffic through and around construction zones. The DBT will schedule/ sequence the work to provide continuous access throughout the project limits and throughout the project duration. The DBT will develop and enforce incident management protocols to ensure that responses to incidents are efficient and timely.

The DBT will develop and maintain a contingency plan that specifies actions that will be taken to minimize traffic impacts should unexpected events occur in the work zone. An Incident Management Plan will also be developed and maintained for accidents occurring within the project limits, including crash prevention strategies, emergency procedures, reporting requirements, and mitigation strategies. Our Contractor JV (CJV) members have a long history of providing safe working conditions as exhibited by our Experience Modification Rate, which are consistently below the industry average of 1.0. To promote safety, we will develop a project-specific Health & Safety Plan and our on-site Safety Manager will conduct safety training and discuss operation-specific job hazard analyses with construction crews prior to starting an operation and at end-of-shift huddles.

The DBT will develop and implement a Transportation Management Plan (TMP)/Public Outreach Plan that is compliant with SHA criteria, actively coordinated with emergency responders, and communicated with property owners, businesses, schools, and farmers. The TMP will consider access points and intersection controls, such as signal timing and phase changes that will minimize potential conflicts and improve safety. The DBT will cooperate with the Maryland State Police, local law enforcement, and other emergency response agencies in response to accidents, fires, spills, or other emergencies in any area affected by the project, including construction site and traffic lanes open to the public.

At the end of construction, the additional lane in each direction reduces the potential for head-on collisions by removing passing zones on the existing two-lane roadway and by allowing opposing traffic to be separated by a predominately 34' wide median. Partial acceleration/deceleration lanes will be provided at intersections and through movements and unprotected left turns will be eliminated from side streets with J-turns and Maryland T intersections. Service and Access roads will be provided throughout the corridor to minimize access and conflict points. These roadway facilities features will be designed and constructed to improve safe access to residential, farm, commercial properties and through traffic.

3. MOBILITY. The DBT will provide a full-time Traffic Manager on site whose sole responsibility will be to supervise and continuously monitor installation and maintenance of all traffic control devices ensuring vehicular (typical and non-typical), pedestrian and bicycle safety are maintained. The DBT will monitor queues/delays during MOT operations. If thresholds established in the SHA's "Work Zone Lane Closure Analysis Guidelines" are exceeded, the DBT will modify the MOT plans or incorporate other mitigation strategies to reduce the queues/delays below threshold levels. The DBT will cooperate fully in modifying/expanding the methods of traffic control and will modify working hours, if required.

In addition, the DBT will assist SHA in providing advance information to the public regarding construction phasing, and expected travel impacts. We will actively coordinate these activities through frequent meetings with our Public Relations Officer and our public outreach program. If warranted, we will utilize work zone intelligent transportation systems such as SHA variable message signs as part of the TMP. Access to property by owners, customers, businesses, deliveries, visitors and emergency vehicles will be provided and maintained at all times.

The TMP will consider access points and intersection controls, such as signal timing and phase changes that will minimize potential conflicts and improve safety. Special consideration will be given in the TMP/MOT design and final design so that the characteristics and limitations (turning ability, vehicle clearance, width, length, etc.) of the various types of non-typical vehicles (Combines, tractor trailers, school buses, farm equipment, chicken hauling trucks, etc.) using this section of US 113 are accommodated during construction and at completion of the project.

4. ENVIRONMENT. There are many important aspects associated with environmental compliance and stewardship. The DBT has numerous members with experience with environmental compliance for SHA D-B projects and has the experience/knowledge to maintain a high level of compliance throughout design and construction. The DBT is committed to meeting the requirements of the FIDS restriction as related to forest clearing and will abide by the requirements of no clearing between May - August. The Bald Cypress Swamp is located in the southern portion and contains some of the most northern stands of bald cypress. The DBT will conduct our work in an environmentally friendly manner reducing limit of disturbance (LOD) and fill to the greatest extent possible; reducing median widths, roadside drainage/SWM features through this area utilizing 2:1 slopes or steeper, if possible; strictly adhering to MDE Wetland BMP's during construction; utilizing protective orange fencing/signage (English/Spanish) along LOD adjacent to swamp and wetlands to notify crews of sensitive resources; addressing swamp, wetlands and BMP's with crews prior to starting work in this area; protecting water quality during and after construction; preventing any drainage features (swales, ditches, or underground facilities) from inadvertently draining into the swamp and/or wetlands; and communicating the present resources and their need for protection to the crews working in those areas. We recognize that the boundary for the Chesapeake Bay Critical Area is just west of the project on US 113 Business and will evaluate ways to reduce clearing adjacent to Critical Area; reduce LOD; reduce new impervious surface area adjacent to Critical Area boundary; and evaluate opportunity to provide additional plantings. We will design the project to address the future sea level rise in the area of Purnell Branch.

Environmental permitting efforts will focus on proactive and timely permit design, evaluation, review, and submission efforts for the SHA Plan Review Division (PRD) issued SWM/ESC approvals. To assist with PRD's SWM/ESC review, the DBT will commit to pre-submittal reviews by qualified PRD reviewers prior to submissions. These reviews will ensure that the plans/reports submitted to PRD have been reviewed for compliance and that any comments have been addressed, thus reducing overall PRD efforts. Also, we will meet with reviewers as formal design efforts commence and coordinate thereafter to confirm design/calculations criteria and to fully understand special conditions.

We will comply with all permit conditions and requirements included within the SHA obtained Joint MDE/USACE Permit, MD Reforestation Law approval, and MDE Water Appropriations Permit. The DBT will review and thoroughly understand these permits to ensure compliance of our designs. The Environmental Team will work with SHA's provided Independent Environmental Monitor/Manager, especially focused on daily inspections of the ESC installations at Five Mile Branch and its tributary, Poorhouse Branch, and Purnell Branch. The Environmental Team will work closely with construction forces and SHA's environmental management staff to closely monitor construction, complete checklists/rating forms to ensure superior ratings are maintained.

The DBT's successful experience on previous US 113 projects includes the use of sustainable, cost and schedule effective grass/wet swales for SWM treatment; and temporary ditches/dikes to divert clear or convey sediment laden runoff. We understand the challenges of adhering to in-stream TOYR and have applied practical means to protect the existing habitat while still allowing schedule of critical construction to continue including: installing stable stream diversions prior to the closure period to maintain streamflow and passage of aquatic life while keeping the construction schedule on track; maintaining suitable ESC adjacent to stream diversions to protect water quality during the spawning period; and limiting construction activities that could result in spills or inadvertent releases that could impact water quality. We understand that the waterways within the project limits are classified as Use I waters, with an in-stream closure period of March 1 - June 15, inclusive.

5. MAINTENANCE. The DBT will explore design/construction techniques that will provide a facility that is able to be adequately maintained. These methods will focus on providing environmentally friendly aspects to make Project changes that produce benefits and/or maintenance savings to the SHA without impairing the essential functions, characteristics, or quality of the Project, such as safety, traffic operations, ride-ability, long-term durability, desired appearance, maintainability, environmental protection, drainage, and other permitted constraints.

The DBT will design SWM facilities that best fit the site context, the adjacent communities and local ecology. We will develop BMP designs that require lower maintenance, use SHA standard details, and consider the long-term maintenance requirements. Our design will ensure each part of the BMP facility is accessible by the equipment needed to maintain or rehabilitate the facility. To ease maintenance requirements, we will employ flatter slopes, less than or equal to 3:1, to the extent possible. Using flatter slopes will enable safer and easier access for SHA maintenance forces. Landscape design will emphasize the use of plant material that will ensure long-term growth, survivability and low maintenance.

To provide a facility that can be maintained requires that the constructed project be well documented. To meet this important project maintenance aspect, the DBT will provide complete as-built plans of the built condition. The as-built plans will meet the requirements of the SHA and be certified. For SWM facilities we will complete and submit a SWM Facility As-Built that includes a Certification Package for each stormwater filtration facility.

**PROJECT SCOPE.** The SHA started work on US 113 with a project planning study in early 1996. The planning study focused efforts along the two-lane portions of US 113 extending from the DE line to south of Snow Hill, MD. Located in Worcester County, MD, US 113 Phase 4 project limits extend from N. of MD 365 to N. of Five Mile Branch. It is functionally classified as a Rural Principal Arterial and once the project is constructed will complete the southern study area as depicted in the FEIS and Record of Decision granted on May 28, 1998.

#### US 113 Corridor Experience

- Phase 2B, N. of Goody Hill Rd. to S. of Massey Br.
- Phase 2A, Hayes Landing Rd. to N. of Goody Hill Rd.
- Phase 1 - Market St. to N. of MD 365
- South of MD 589 to North of Jarvis Rd.
- MD 12 (Snow Hill Rd.) and MD 365
- Milling and Overlay in Millsboro to Selbyville, DE

The project scope includes the design and construction services to provide 2 additional lanes along existing alignment to create a dual 4 lane divided highway with 12' lanes and 4' minimum insides shoulders throughout the project limits where left turn lanes or J-turns are not provided. Minimum width 10' outside shoulders will be provided throughout the project limits where right turn lanes/deceleration lanes or acceleration lanes are not provided. The minimum width of the median will be predominately 34', except at the median south of US 113 Business. Partial acceleration/deceleration lanes will be provided at intersections and through movements and unprotected left turns will be eliminated from side streets with J-turns and Maryland T intersections. Service and access roads will be provided throughout the corridor to minimize access and conflict points. These roadway facilities are required to maintain safe access to residential, farm and commercial properties. The pavement for the new roadway will be asphalt and the existing roadway will be rehabilitated.

The project design/construction services to be provided by the DBT will include, but not be limited to earthwork, new pavement construction, existing pavement rehabilitation, drainage, SWM, ESC, reforestation, landscaping, signing and markings, intersection lighting, signalization, a new bridge over Purnell Branch, retaining walls, new culverts, culvert extensions and/or replacements, utility coordination, utility relocations, landscaping, environmental permit acquisition, community relations/public outreach and railroad coordination/construction in accordance with RFP Section 3.09.15. Ten structures are required to complete the project. The DBT will complete the requisite structural design and construction for the bridges, walls, culverts, and any and all other incidental structures specifically required for this project. The design will include the hydraulic and scour analysis, design, and agency approvals.

#### ii. UNIQUE PROJECT RISKS |

**NO. 1 - UTILITY RELOCATIONS.** The DBT has identified utility relocations as one of the unique risks that is critical in meeting or exceeding the Project Schedule Goal. The DBT reviewed and evaluated design and construction activities that have a probability of negatively impacting the established schedule; requiring additional time to design, redesign, secure permit revisions, and reconstruct the improvements; and concluded utility relocation is a major risk.



To minimize the possibility of the utility relocations negatively impacting the schedule of this project, the DBT will concentrate on minimizing the risk associated with the activities in the DBT's Control (coordination, design, construction phasing, permitting and relocation of utilities performed by the DBT) and will proactively assist other stakeholders in minimizing factors that are outside the DBT's control (design/construction performed by utility companies).

Based on the information included in the RFP, there are a number of utilities that will be relocated by the utility companies and by the DBT concurrently with the Phase 4 improvements. Those utilities include, Delmarva Power, Choptank Electric, Verizon, Maryland Broadband and SHA's TCDs. Delmarva Power, Choptank Electric and Verizon facilities will be relocated by the utility companies, while Maryland Broadband and SHA's TCDs will be relocated by the DBT. There are a number of factors that make utility relocations a risk for impacting the schedule including:

- Time frame required to relocate the utilities. Delmarva Power, Choptank Electric, and Verizon all require 6 to 12 months to relocate their facilities from the time the ROW is cleared. Such a long duration will require the DBT to make certain assumptions in establishing the overall construction schedule to account for the utility relocations.
- Conflicts between relocated utilities and US 113 Phase 4 improvements. It is likely that the utility companies will start design of the relocations prior to the design of the US 113 improvements being finalized. This will introduce the potential for redesign to address conflicts.
- Each of the utility companies will perform independent designs using their own clearance requirements. Concurrent designs performed by individual utilities might not account for relocations proposed by the other utilities.
- Different priorities between SHA, DBT, and the utility companies. The utilities are independent of SHA and the DBT and their priorities and project schedule goals might not align with what SHA and the DBT are trying to accomplish under this project.
- Accuracy in the information used for design. The accuracy/completeness of design can only be as accurate as the base information available to the DBT. If discrepancies are discovered, it might have impacts on schedule.
- Utility relocation impacts on other time sensitive project components. Changes in design or construction phasing for utility relocations will impact approvals/schedules of other design elements such as MOT, SWM, and ESC.

The goal of the DBT is to design/construct improvements once and do it correctly the first time to avoid timely and costly design revisions and reconstruction. Redesign/reconstruction presents a direct financial risk to the DBT. The DBT will perform preliminary studies, design and coordination in the preliminary stages of the project to minimize impacts on the schedule and the cost of the project. The DBT's risk mitigation strategies in dealing with utility relocations will include:

- Open/continuous communication with utility companies. Communication will be crucial in minimizing schedule impacts associated with utility relocations. Whether or not the utility relocation will be performed by the DBT or by utility company, prior the start of the design or construction, coordination meetings will be scheduled to define roles, responsibilities, expectations, priorities, time frames, issue resolution, and change management practices. This effort will not be able to be accomplished with each of the parties working individually and only coordinating when a major design or construction milestone is reached. The design and construction will be a fluent process requiring nonstop communication, cooperation, coordination and collaboration in order to alleviate potential delays.
- Development of the schedule to account for the duration of relocation. The DBT will work closely with the utilities companies to establish an accurate schedule for design and relocation of their facilities. The updated design and construction schedule for the relocations will be incorporated into the overall project schedule, to determine durations, predecessor and successor activities, identify if utility relocation activities fall on the Critical Path for the project, and if not, determine the time available before the activities have an impact on the Critical Path.
- Confirm location of existing utilities. The DBT will perform field investigations, utility test pits, as-built surveys and accurate 3D design to remove uncertainties with the locations of the existing and newly constructed utilities. Without

- an accurate representation of the utility locations, the DBT will not be able to design improvements that will avoid existing utilities and provide the required horizontal and vertical clearances.
- Development of comprehensive utility relocation plan. The DBT will perform a project-wide evaluation of utilities to develop a comprehensive utility relocation map. The evaluation will take into consideration interim construction phasing, final footprint of the proposed improvements, ROW areas, agreements, and ESC/MOT design to identify a utility corridor. This will allow the utility companies to relocate their facilities efficiently and without the need for additional relocations. The evaluation will also take into consideration timing/location of utility relocation performed on adjacent projects in order to achieve a corridor-wide utility design that will be easily accessible and maintainable.
  - Change management/communication plan and issue resolutions. Due to sensitivity of schedule and fluidity of design and construction processes, individual change management and communication plans will be established at the beginning of the project to address potential changes in design and construction. Key decision makers from involved parties will be identified to efficiently and effectively address changes.
  - Coordination meetings including coordination with adjacent projects. In conjunction with the partnering process, the DBT will schedule coordination meetings with the parties involved in the utility relocation process. The intent of the meetings is to keep all the parties updated on the latest design/construction activities, identify any changes in phasing or schedule, identify and resolve design/construction issues at the earliest stage, and coordinate resources with adjacent projects. The DBT will assign a Utility Coordinator whose main responsibility will be to coordinate design status and changes with the utility companies to address design changes efficiently minimizing impact of the schedule.
  - Coordination for design/construction activities with SHA. The DBT will coordinate design revisions, changes in construction phasing/scheduling of utility outages with SHA to obtain their concurrence on the proposed revisions.

The SHA will play an important role associated with utility relocations. For the utility relocations that are part of the DBT's scope of work, the DBT will depend on SHA to perform reviews and approvals for proposed relocation design. If design modifications result in permit revisions, SHA will be involved in review and approvals of the permit revisions; and utilizing the partnering process, SHA will be involved in issue resolutions throughout the duration of the project.

NO. 2 - SHA Plan Review Division (PRD) Review / Approval. The DBT has identified obtaining SHA's PRD approvals as one of the unique risks that is critical in meeting or exceeding the Project Schedule Goal. The design and construction of this project will be performed in phases. The design will be performed and submitted to SHA using a "rolling" process resulting in a number of design packages submitted to SHA for their reviews and approvals. The construction will also be performed in stages, resulting in varying construction zones, grading areas, ESC phasing and maintenance of traffic patterns. Due to a phased approach in design submittals and in construction phasing, the DBT anticipates numerous reviews by PRD in order to secure approvals for each of the design packages including earth disturbance activities. Delays in securing PRD approvals for ESC design, SWM design or acceptance in stabilization of construction areas before mobilizing to subsequent phases will have impacts on meeting/exceeding the Schedule Goal.

It will be the responsibility of the DBT to secure ESC/SWM permits from PRD, SWM pond design approvals from the Maryland Department of Environment's (MDE) Dam Safety Division, if the proposed SWM ponds fall under the approval jurisdiction of MDE, Notice of Intent from MDE as well as any approvals, permits, licenses required for the implementation of the project beyond those obtained by the SHA.

There are a number of factors that make PRD permitting a risk for the schedule of this project. Those include:

- Conceptual SWM Report. The Conceptual SWM has not yet been approved by the PRD or provided to the DBT. Conceptual design, as shown on the advertised plans, could be revised to obtain PRD approvals. Once the approved SWM report has been received, the DBT will review the approved SWM design and determine if proposed design changes would necessitate a resubmittal for conceptual approval or if the design could progress to site development and final design submittals. A revision to the conceptual design may impact the critical path of the schedule.

Additionally, differing site conditions, such as high groundwater identified during geotechnical investigations, could necessitate significant changes to SWM BMP types used and the overall SWM approach.

- PRD Reviews and Comments. Time frame and extent of the comments from PRD will impact the project schedule. In preparation of the project schedule, the DBT will make assumptions on the numbers of submittals and time to perform the reviews and if PRD requests more submittals it will result in schedule revisions.
- Acceptance of phased Grading Unit approach. The DBT anticipates constructing this project with multiple crews, segmented work areas and earth disturbance. If such methods of segmented earth disturbance are not approved by SHA, the project schedule will be impacted.
- Revisions in PRD Requirements. PRD's review and approval process is still evolving and could be revised during the US 113 Phase 4 project. If PRD requirements are modified during this project, and if the DBT will be required to follow new interpretations of regulations, the project schedule will be impacted.
- MDE approvals for SWM ponds. The design of small ponds, if required, will have to be reviewed and approved by MDE. The review and approvals by MDE Sediment & Stormwater Division and/or Dam Safety Division are outside of SHA's control. While SHA may elect to utilize an expedited reviewer, that reviewer can only recommend the package/project for final approval. It will ultimately be up to MDE how long the final reviews and approvals will take.
- Project-wide SWM approval. It is the DBT understanding that the SWM design/approval will be done on a project-wide basis and the DBT will not be required to design temporary SWM facilities in each of the design/construction phases. If temporary SWM facilities are required, the design revisions will have impacts on the schedule.

In order to minimize the risks associated with PRD permitting, the DBT will implement following mitigating strategies:

- Timely and accurate submittals of PRD design packages. The DBT will utilize their most qualified engineers with extensive PRD experience to perform SWM, ESC and drainage design. They will utilize lessons learned from previous PRD submittals on both Design-Build and Design-Bid-Build projects to prepare complete packages. The comments received from PRD on each of the design packages will be saved and tracked to prevent duplication of design errors in subsequent submittals.
- Internal QA/QC process. The DBT will utilize the experience gained in performing Independent Quality Assurance reviews for the MD 404 D-B project (AW8965170). Century is providing Independent Design Quality Assurance (IDQA) and is performing quality assurance reviews of all PRD submittals developed by the MD 404 Design Team, of which JMT is a JV Design member. Knowledge and understanding of the PRD requirements, and how those apply to a D-B project, will allow the DBT to prepare accurate and complete PRD submittals.
- Coordination with PRD regarding upcoming submissions. The DBT will notify PRD at least 14 days in advance of the upcoming PRD submittals. Prior to making the submittals the DBT will perform a number of reviews, including over the shoulder reviews, team leader reviews and final QA/QC reviews. With the 21-day time frame for providing the comments back to the DBT, it will be crucial to the overall schedule of the project that resubmittals are minimized and approvals or approvals with comments are obtained after the first submittal.
- Constructability and ESC reviews. Each of the PRD submittals will be closely reviewed by the DBT to assure that proposed LOD areas will give the contractor sufficient space to construct the improvements and that ESC measures proposed for each phase will work as intended. The constructability reviews will determine if the proposed environmental site design provides positive drainage between phases and for the ultimate project, assure that structures are appropriate for the location/use intended and any temporary drainage systems are recognized and properly designed.
- Utilize Independent PRD Reviewer. We will utilize an independent PRD reviewer as an integral part of the DBT. The independent reviewer will have an extensive experience and knowledge of PRD requirements and expectations, and will provide a last round of reviews and comments, on the materials prepared by the DBT, prior to making a submittal to PRD for their review. The DBT's expectations of this process is such that if the independent reviewer finds the



submittal acceptable, the amount of PRD's comments would be minimized and approval would be received in a timely manner without impacting the project schedule.

The SHA will play a major role in alleviating schedule risks associated with obtaining the PRD approvals. In order to secure the approvals in timely fashion, both the DBT and the SHA will work as a team and maintain communication during the design/construction phase of this project. One of the ways SHA can alleviate schedule risks would be to provide clear, consistent, complete and timely comments to the DBT. By having a clear/consistent direction, the DBT will be able to develop designs that match SHA expectations and by doing so limit design revisions/ resubmittals.

In the event that the proposed ponds will have to obtain MDE approvals, the DBT expects that SHA will provide initial reviews of proposed ponds prior to submittal of the designs to MDE. It is also anticipated that SHA would assist the DBT in coordination with MDE in order to receive a timely review of the pond designs. Since MDE is not under the jurisdiction of this RFP and has not committed to specific time frames for reviews, it will take a combined effort of SHA and the DBT to secure MDE's approvals in a timely manner.

NO. 3 - RIGHT-OF-WAY (ROW). SHA's Office of Real Estate (ORE) is acquiring all ROW for US 113 Phase 4 as shown in the contract documents. This work includes 52 negotiations with 47 partial acquisitions and 5 total acquisitions. There are 5 relocations including 4 residential displacements and a 1 commercial displacement.

It is our understanding that SHA has begun negotiations on 5 properties including all total acquisitions and has secured option contracts on 4 of these negotiations. Appraisals/appraisal reviews are being completed by SHA on the remaining 47 properties. SHA hopes to secure agreements on most of these properties and if negotiations break down will file condemnation on properties in order to clear the necessary ROW. We further understand that SHA anticipates clearing the ROW in a phased approach from the existing SHA ROW at US 113 and US 113 Business intersection in the south portion of the project and proceeding north. SHA anticipates clearing the ROW by June 20, 2017.

As with all ROW acquisitions, there are several risks involved with the right-of-way aspect of this project including one relocation where the owners are not cooperating with the SHA Relocation Specialist. The displaced persons are part of the well-known Powell family in Worcester County and are also part of the acquisitions on Phase 3 of the US 113 improvements. We are aware that SHA has been unsuccessful in reaching an agreement with the Powell family on the negotiations for the Phase 3 project and that the family has been uncooperative on the Phase 4 negotiations.

If SHA is unable to reach agreement on the Powell relocation, then the real estate negotiation process will need to be completed before the process of relocation can take place. This means that a court trial may be needed to clear the property and have the displaced persons leave the property. This process can take up to 18 months from making the monetary offer for the real estate to complete depending on the timing on the Worcester County Circuit Court scheduling a trial. SHA cannot use "quick take" and require the displaced persons to leave unless the SHA can prove to a Judge that the displaced persons have purposely delayed the process. This requirement is very difficult to prove.

Another risk involves impacting wells and/or septic systems on the properties. If this occurs and the well and/or septic cannot be relocated on the property, SHA will be obligated to purchase the property(s) in their entirety and relocate the impacted parties. Our investigation has discovered that 4 properties are being impacted due to well(s) and/or septic impacts. It is possible that more wells and/or septic systems for properties may be relatively close to the existing road and ROW limits, requiring further obligations for ROW than is currently anticipated.

Notwithstanding the above, disturb area limitations, grading sequencing (borrow and fill areas), ESC sequencing, MOT, utility relocations, FIDS restrictions, in-stream TOYR, and the Maryland-Delaware Railroad crossing embargo will have to be carefully orchestrated with the timing of ROW clearance and construction to effectively implement and execute the project.

The SHA will play an important role associated with clearing ROW and anticipated total ROW clearing by June 20, 2017. Construction activity will only begin where the disturbance is entirely contained within the ROW certified by SHA. It is understood that SHA may issue multiple ROW certifications throughout the acquisition process and will only list properties that have been cleared at the time of issuance. The DBT will acquire at its expense all other rights in landed need for construction staging and yarding.

### iii. APPROACH TO DESIGN-BUILD CONTRACTING |

The CJV between G&L and DAB was assembled with the sole intention of joining established, well respected, and local contractors with specific resources, materials, and asphalt plants on the Delmarva Peninsula that have delivered successful D-B and Design-Bid-Build projects to SHA. Over the past 10 years, there is not a contracting team with more hands-on experience delivering successful D-B projects to District 1. The DBT's approach to D-B contracting includes:

- Developing a DBT based on the project requirements and goals.
- Partnering with SHA and project stakeholders to coordinate effectively and promptly resolve issues.
- Selecting the most qualified key personnel to manage and mitigate the project risks.
- Involving construction staff during the design phase to incorporate construction means and methods into the phasing and work sequencing during design development.
- Engaging design staff during construction to confirm design assumptions and oversee field changes.

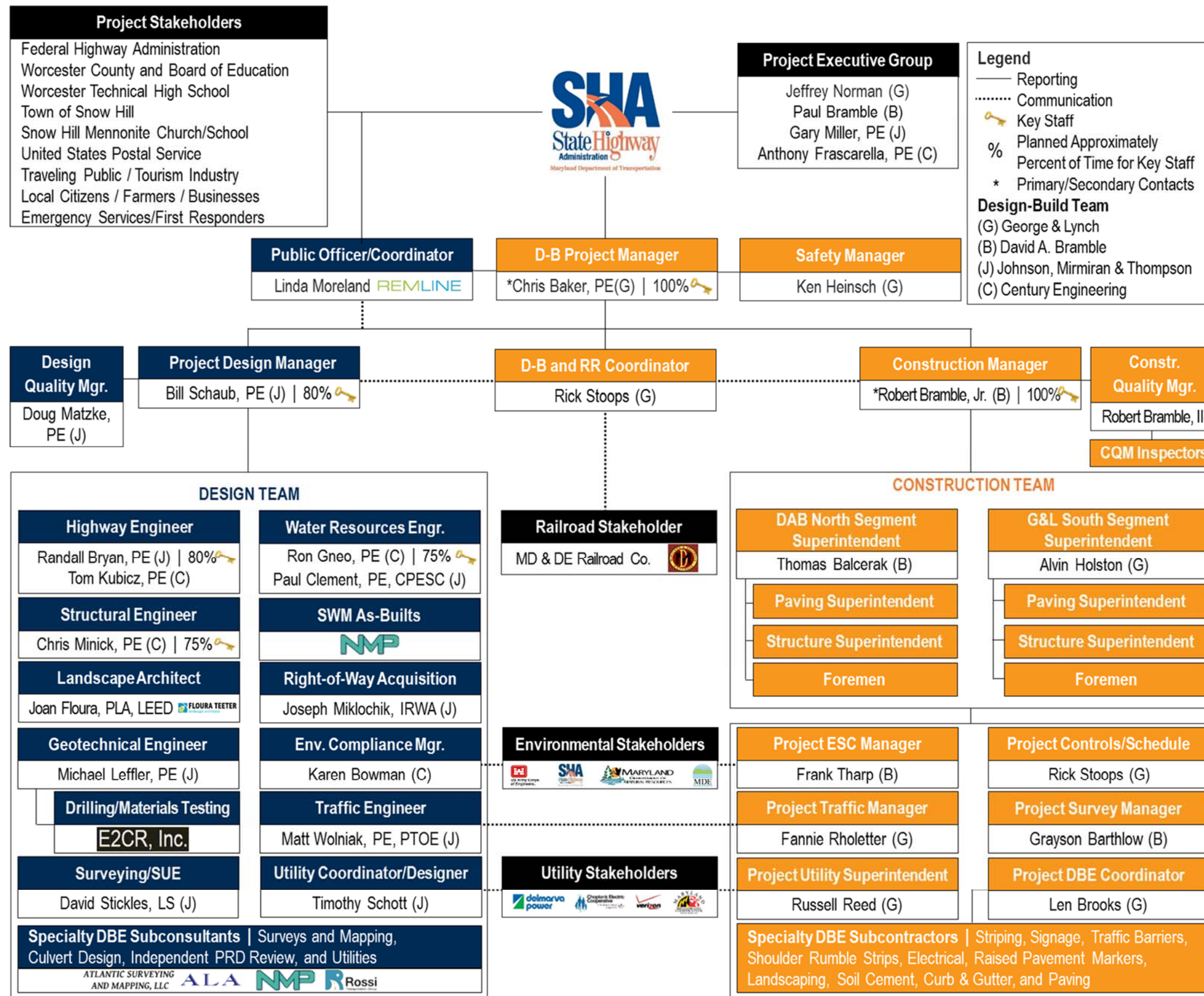
**D-B Team Development.** To accelerate construction, the Project will be divided into a northern and southern segments and concurrently constructed to use the resources of the DBT. G&L will tackle the southern portion including the bridge and railroad crossing while DAB builds the northern portion. The ability of our DBT to self-perform and supply asphalt for paving will directly contribute to quality, customer satisfaction, and timely construction of the Project.

To support our construction effort, the CJV has teamed up with the DJV of JMT and Century. Our design approach will mirror the construction approach, with JMT designing the segment DAB will build, and Century designing G&L's segment. The design will incorporate phased and concurrent design approach with construction occurring simultaneously in the north and south sections. Certain corridor wide activities, such as environmental, led by Century and traffic and geotechnical engineering, led by JMT will provide continuity between section design. Our plan to divide the work for both design and construction will ensure that the overall project schedule duration is minimized. Our team is built with the sole purpose of performing the design and construction of the project as quickly as possible by utilizing the pooled resources of the four team members, with no sacrifice in quality.

**Partnering with SHA and Project Stakeholders.** Early initiation of the partnering process will establish relationships that will continue throughout the life of the Project. Involving project management, safety representatives, field managers, and project stakeholders will foster open communication at all levels, facilitate prompt issue resolution, and clearly delineate responsibilities in managing project risk.

**Selecting Qualified Key Personnel.** When selecting key personnel for this project, our DBT evaluated the best candidates from each member of our design and construction teams. Individual leads were selected based on their D-B experience, work history with SHA, and relevant experience on similar type projects. The staff presented will ensure the project risks are effectively managed and a safe, cost-effective project is constructed while minimizing inconvenience to the roadway users and the local community.

**Design and Construction Staff Integration.** Our DBPM and CM will provide constructability reviews during every stage of design development. A formal program will be utilized for construction staff and key subcontractors and suppliers to provide written reviews with comments and recommendations. DBT meetings will address project phasing/sequencing, earthwork/hauling, MOT and ESC early in the design phase and as construction progresses. During construction, design staff will attend progress meetings, answer questions, and resolve field issues as they arise.



**HIGHLIGHTED DESIGN SUPPORT STAFF**

- Doug Matzke, PE (J) Design Quality Mgr. | 33+ years of engineering, PM and design quality experience 30+ years of experience with SHA, MTA, and MPA.
- Tom Kubicz, PE (C) Highway Engineer | 15+ years of experience in delivering transportation improvement projects and a former SHA OHD Team Leader.
- Paul Clement, PE, CPESC (J) Water Resources Engr. | 39+ years of experience in water resources and is a MDE Expedite Reviewer and holds MDE RPC & SHA Yellow Card.
- Karen Bowman (C) Env. Compliance Mgr. | 18+ years of experience in env. regulations, permitting, and avoidance/mitigation for SHA. Holds SHA Yellow Card & MDE RPC.
- Joan Floura, PLA, LEED (F) Landscape Architect | 25+ years of experience in client relations, design and project management and extensive LA experience with SHA.
- Matt Wolniak, PE, PTOE (J) Traffic Engineer | 34+ years of traffic engineering, planning and forecasting experience including design plans for MOT, signals, ITS, lighting, etc.

**HIGHLIGHTED CONSTRUCTION SUPPORT STAFF**

- Ken Heinsch (G) Safety Manager | 31+ years of construction experience with G&L. OSHA authorized trainer, attended the AGC Safety Managers Academy.
- Robert Bramble, III (B) Constr. Quality Mgr. | 15+ years of experience spanning operating equipment from graders to excavators, running crews as a foreman, quality, and mgmt.
- Thomas Balcerak (B) North Segment Super. | 17+ years of exp. in all facets of constr. extensively in District 1. Holds SHA Yellow Card, MDE RPC & ATSSA Traffic Control Mgr.
- Alvin Holston (G) South Segment Super. | 37+ years of constr. experience and has managed all of G&L's projects for the last 15 years. Holds MDE RPC.
- Rick Stoops (G) D-B/RR Coord. /Project Controls & Schedule | A Sr. PM with G&L for 25+ years. Extensive experience with both State/Federal and RR projects.
- Frank Tharp (B) ESC Mgr. | 15+ years of experience in stormwater utility installation including ESC Mgr. on multiple District 1 projects. Holds SHA Yellow Card & MDE RPC.
- Fannie Rholetter (G) Traffic Control Mgr. (TCM) | 10+ years with G&L in TCM. Certified Flagger, ATSSA trained Traffic Control Supervisor and a MD Temporary TCM.
- Russell Reed (G) Utility Superintendent | 30+ years with G&L as a General Superintendent. Experienced with all aspects of utility construction including trenchless technology
- Len Brooks (G) Project DBE Coordinator | 28+ years with G&L and is the VP of Admin and EEO Officer.