

Request for Proposals

**MD 97—South of Brookeville to north of
Brookeville, Montgomery County
Construction Management at Risk (CMAR)**



Submitted by

Facchina

COPY

TABLE OF CONTENTS

SECTION	PAGE NUMBERS
A. Cover Letter	
B. Project Management/Team Capability.....	1-15
C. Project Approach	16-30
D. Legal & Financial Information.....	31-33
E. Appendix.....	no page limit

Project Management Team/Capability of the Proposer



B. Project Management Team/Capability of the Proposer

Facchina will be the lead contractor for the MD 97 Brookeville Bypass project and accepts joint and severable liability for the performance of this contract. We understand that the success of any project is dependent upon assembling a team that has the expertise to meet the goals of the project we construct. The RFP provides clearly stated project goals:

- Provide a two lane roadway to direct traffic away from the Town of Brookeville which accommodates both motor vehicles and bicycles.
- Minimize impacts to the physical environment (e.g. parkland, forests, streams, wetlands etc.) and provide an aesthetically pleasing and context sensitive project.
- Complete the project within the current construction timeframe and within the current budget.
- Minimize inconvenience and impacts to the traveling public
- Facilitate a collaborative partnership with all members of the project team and stakeholders.

To meet these goals, Facchina has assembled a highly qualified team using internal key staff and value added positions. Our project team brings significant SHA experience with SHA and all of our key staff have extensive Design Build (DB) and or Construction Management at Risk (CMAR) experience with projects of similar scope, complexity, and delivery. Facchina has completed over \$180M in CMAR work. Our team will be engaged from the onset of the project and will provide a continuity to ensure all of the project goals are met.

Facchina recognizes that we are joining an existing team led by SHA. As such, we are committed to energetically establishing a partnering relationship with SHA, the Design Team, affected neighborhoods, utilities, local authorities and agencies, and other stakeholders. Our approach will be to align our priorities with the project goals as an integral member of the team utilizing our experience to make significant contributions to the quality, affordability, schedule improvements, innovation, safety, and impact mitigation. The expertise of our team in managing complex projects of this type along with the collaborative approach that we bring to all of our projects will ensure that all of the project goals are achieved through the CMAR process. Our Key Staff members offer the experience to meet each of the project goals including building a professional and collaborative project team as follows:

Durant Walters, P.E.; DBIA – Project Manager

- Managed over \$100M in Design Build roadway projects from urban arterial roads to major highway projects. As Design Build Project Manager for the 9th Street Bridge Replacement project in Washington DC, Mr. Walters worked collaboratively with the Federal Highway Administration (FHWA) and the Designer of Record, JMT, to design and construct a four span, four lane structure over existing railroad in the high density urban environment of the New York Avenue / US 50 corridor.
- Experienced with environmentally sensitive projects for a variety of Federal, State, and County governments. An example of his experience is the Western Parkway Phase 4B project where Mr. Walters was responsible for the phased realignment of two tributaries of the Mattawoman Creek to allow for the new roadway alignment.
- Proven track record of delivering projects within the construction timeframe and current budget. Throughout his 26 years of experience, Mr. Walters has had consistent success completing difficult projects on time and within budget including PG1865170: US 50 and Columbia Park Rd, PG3315170 Noise Abatement Walls I-95/I-495 – U.S. 50, and AA6805126 U.S. 50/301 Noise Abatement Walls performed in partnership with the SHA.
- Experienced in constructing roadway projects in highly congested areas with minimal impact to the traveling public. Mr. Walters served as Project Manager for the \$142.5M I-95 Express Toll Lanes MD 43 Interchange project. Minimizing impacts to the traveling public through carefully planned Maintenance of Traffic (MOT) phases was paramount to the success of the project that was located within this major highway corridor.
- Fosters a partnering approach to every project regardless of delivery method. Mr. Walters has worked with a wide range of public owners including the FHWA, SHA, and MdTA; as well as many of the most respected regional and national design firms including JMT, Dewberry, and RK&K. His genuine desire to partner was recently demonstrated on

the SHA MD 4 DB project. The collaboration between SHA, the designer and Facchina is a true testimonial of his ability to lead in this area.

Thomas McFall, P.E. – Construction Manager

- Successfully managed over \$300M in complex heavy civil projects and roadways with mixed use vehicles including automobiles, bicycles, and light rail. Mr. McFall most recently served as the Design Build Manager for the H Street/Benning Road Streetcar project in Washington DC where he collaborated with the internal design team of Systra and JMT, as well as, DDOT to implement a streetcar system along the congested H Street corridor that would operate within shared right-of-way with automobiles, transit buses, and bicycles.
- Expertise and knowledge to develop a work breakdown structure to determine the tasks needed to complete the project. Mr. McFall has been involved in a diverse array of projects each of which had their own complexities requiring a detailed plan of action to ensure success. In his role as Project Manager for the \$98M Tier 2 APM Station at Dulles Airport, Mr. McFall was the technical lead on a project with elements of work that included a concrete structure capable of supporting the largest commercial aircraft down to architectural features with construction tolerances of less than 1/4". The development of a detailed work breakdown structure and plan for its implementation was critical to the project's success.
- Constructed multiple projects in and around environmentally sensitive areas. In his role on the Program Management Team at the Richmond International Airport, Mr. McFall served as the Resident Engineer on a the construction of a wetland which provided off-site stormwater management for the airport. Mr. McFall has also held key positions on projects surrounded by protected and endangered species and federally protected waterways.
- Experienced with meeting the diverse needs of project stakeholders and balancing the desire for modern aesthetically pleasing elements within the context of a historically designated site. The H Street/Benning Road Streetcar project is an example of Mr. McFall's skills. The maintenance facility for the project is located within the Langston Historical District in Washington D.C. DDOT had the desire for a state of the art facility that incorporated modern architecture and innovative "green" technologies. This was countered by the Historic Preservation Board and Architect of the Capitol who mandated that the building and site maintain the same visual quality as the surrounding historic structures. The project team successfully blended what seemed to be diametrically opposed needs and developed a site that complemented the historic surroundings while incorporating elements such as green roofs and photovoltaic power.
- Experienced with context sensitive solution approach to projects. Mr. McFall takes a collaborative approach to every project he is involved with understanding that each team member adds value and contributes to problem resolution. Mr. McFall has chaired multiple team oriented collaborations such as "over the shoulder" design reviews, risk register development, and partnering meetings.

Gaetan Carrier – Cost Estimator

- Experienced cost estimator with all procurement methods for SHA. Mr. Carrier performed the structures pricing for the MD 24, Section A CMAR project.
- Has the skills and knowledge to lead the estimating team with means and methods, analyze productions and can reach out to his extensive network of local subcontractors. . Mr. Carrier has over 30 years' experience with both constructing and estimating SHA projects.
- Experienced in developing open cost models for estimating project costs, such as the MD 24 CMAR project. As lead estimator on several successful SHA DB pursuits, Mr. Carrier has been responsible for developing Work Breakdown Structures used by the project team, JV partners and Independent Cost Estimators (ICE) so that an Opinion of Probably Cost to Construct could be agreed to by all parties. The goal was to structure estimates that were detailed and comparable. The Guaranteed Maximum Price for the pursuits has been more a function of risks and market conditions. Under CMAR those components are addressed in full transparency with the client.
- Possesses the organizational skills to track constructability recommendations, value analysis, and technical alternatives; and provide continually refined costs. Mr. Carrier's extensive experience with SHA projects and pricing

structure makes him uniquely qualified to develop a tracking system where the evolution of project and the cost impact of design changes are formatted in a way that is easily reviewed by the project stakeholders.

In addition to our key staff, Facchina proposes several value added positions to ensure meeting the project goals.

Facchina Team Composition

Key Staff	Role	MD SHA Experience	Environmentally Sensitive Projects	MOT/Minimizing Impacts to Traveling Public	Integrated Team Approach	Previous Experience w/Other Team Members
Durant Walters, P.E., DBIA	Project Manager	x	x	x	x	
Thomas McFall, P.E., DBIA (pending)*	Construction Manager		x	x	x	x
Gaetan Carrier	Cost Estimator	x	x	x	x	
Value Added Staff						
Jeff Markle, P.E., DBIA*	Utility Coordinator		x	x	x	x
John Kelble	Estimator	x	x	x	x	x
Matt Minter*	Project Engineer		x	x	x	x
Gary Moore	Superintendent	x	x	x		x
Steve Arthur	E&S Manager	x	x	x		x
Matthew Wessel	Environ Consul	x	x		x	x
Ricardo Gonzalez	Environ Consul	x	x	x	x	X

* Served as core management staff on H Street/Benning Road Streetcar project.

Management Structure

Facchina will integrate with the SHA designer, just as if this were a DB project. The process will begin with immersing our project staff into the concept design so we can understand all major aspects of the project and how they may impact the Opinion of Probable Construction Cost (OPCC) and project goals. A design schedule will be structured within the first 30 days of contract award so that design efforts are both in line with project construction sequencing and focusing on major cost drivers. The absolute most important element in the process will be the weekly meetings where SHA, the Designer and Facchina key staff meet to discuss the current project issues. As the managing partner, we will set agenda items and lead all meeting functions between SHA and the design entity. Meeting minutes will be generated for each session to establish accountability for achieving project schedules milestones. Facchina has large meeting rooms with the latest technology for hosting these meetings in our Glen Burnie office that is conveniently located to most Baltimore based personnel.

Facchina has assembled a motivated, results driven team and placed them within a management structure that will ensure consistent quality services throughout the life cycle of the project. Our Key Staff (Project Manager, Construction Manager, and Cost Estimator) along with our Utility Coordinator and Environmental Consultant will be an integral part of the project team throughout the design and construction phases of the project.

Design Phase – The RFP has set out a list of services the contractor will provide during the design phase. The weekly planning/progress meetings will include all current issues as agenda topics. Each of our key staff members will be involved during the design process adding a wide breath of experience and cross disciplinary skills.

Utility Coordination is another important role that must be filled during the design phase. A lack of effective coordination with the utility owners is a common cause of schedule delays and cost overruns on construction projects. Facchina has assigned Jeff Markle, PE as utility coordinator for the project based on his role on the H Street/Benning Road Streetcar project. Among his many roles on that project, Jeff worked closely with our civil designers, JMT, as well as Thomas McFall our Construction Manager, to determine utility conflicts and work directly with utility owners to design, schedule and perform all necessary relocations.

Responsibility Within the Design Phase	Key Staff			Value Added Staff	
	Project Manager	Construction Manager	Cost Estimator	Utility Coordinator	Superintendent
Develop and monitor a Risk Register	X	X	X	X	
Update project estimate and construction schedule		X	X		X
Lead development of open cost model for the Independent Cost Estimator	X		X		
Develop a Subcontracting Plan to integrate Subs including local, small, MBE, and DBE vendors	X	X	X	X	
Participate in formal reviews	X	X	X	X	X
Participate in risk assessment and mitigation workshops	X	X	X	X	X
Provide progressively refined cost estimate & trend sheets			X		
Continually provide input on constructability, value & cost	X	X	X	X	X
Provide open-book examination of an cost model by SHA	X		X		
Prepare GMP proposal for construction, early work, and procurement packages	X		X		
Develop, propose, and track innovations	X	X		X	X
Coordinate with all project stakeholders	X	X	X	X	X

Environmental Considerations

Facchina understands the potential impacts to Reddy Branch, Meadow Branch and the wetlands associated with constructing the Brookeville Bypass. We have extensive experience in working within environmentally sensitive projects such as the ICC “C” project, the Seneca Creek project, and the H Street/Benning Road Streetcar project. Mr. Steve Arthur is listed in our organizational chart as E&S manager, and was responsible for both E&S controls and maintaining stream flows for the Seneca Creek project. Facchina was granted over twenty-five E&S control modifications vis-a-vis OOC62 form applications. These modifications ranged from revised pump-around details, expanded work reaches, revised construction sequences and revised stream diversions. The numerous modifications allowed work to progress, while at the same time still enabling us to be awarded all quarterly and final E&S incentives.

On the ICC “C” project, we made extensive use of Rain for Rent “Frac” tanks for treating temporary sediment basins that were deemed inadequate to treat storm flows. This specialty equipment was capable of treating high volumes of sediment laden runoff with the use of flocculants and filtering systems. The tank operators were solely dedicated to the treatment of storm flow, and thus served as committed stewards to the environmental protection component of the project.

We also demonstrated a firm commitment to environmental management on the H Street/Benning Road Streetcar project. One of the most critical components of the first phase of the Car Barn Training Center (CBTC) structure site involved the construction of the retention bay beneath the tracks leading into the center. The retention zone consisted of a four foot deep #2 stone bedding beneath the entire footprint of the yard tracks, parking facilities, and the maintenance structure. In addition to the storage stone layer, Facchina crews constructed two bio-retention ponds, which tied directly into two three-bay Contech bio-retention structures and ultimately tied directly into existing DC Water infrastructure.

The core element to sound environmental stewardship is having regular practices and a consistent commitment to meeting the project goals. Our jobs have regular inspections of controls that is always followed up with prompt action to meet and exceed expectations. For instance, we have employed a “no pump” policy on many of our multi-discipline projects. This mandate requires all Facchina crews and subcontractors to request a pre-pump installation inspection prior to powering the pump in the designated use area. Facchina holds environmental protection in the highest regard, ensuring that all employees and associated project team members maintain a strong advocacy to the environment at all times.

FORM A-1 – Key Staff Information

Name of Proposer: Facchina Construction Company, Inc.

Position	Name	Years of Experience¹	Education/ Registrations	Name of Employer
Project Manager	Durant Walters	1/26	B.S. Civil Engineering 1999 / Professional Engineer MD / VA / Designated Design-Build Professional (DBIA)	Facchina Construction Company, Inc.
Construction Manager	Thomas McFall	10/23	B.S. Civil Engineering 1992 / Professional Engineer MD / VA Designated Design-Build Professional (DBIA)*	Facchina Construction Company, Inc.
Cost Estimator	Gaetan Carrier	1/30	B.S. Building Construction 1985	Facchina Construction Company, Inc.

* Pending

¹ Present Firm/Total

Durant Walters, PE, DBIA

PROJECT MANAGER

Summary of Experience

Mr. Walters is a registered PE with over 26 years of experience in Heavy / Highway construction. He has been the Design Build Manager and/or Construction Manager on several major highway projects in densely urban environments with similar or greater complexity and breadth of scope as the MD 97 project. While providing overall management direction for field projects, Mr. Walters excels in establishing project objectives, policies, procedures and performance standards. His ability to plan, organize and staff key positions compliments his capability to manage the project.

RELEVANT EXPERIENCE

MD 4 Community Safety and Enhancement Project, Design Build | SHA, Prince Georges County, MD | Design Build Manager | \$21M | DOR - Dewberry

Mr. Walters is currently the Design-Build Manager for Contract PG7585184 for the MDSHA. This \$21M project is located in Prince George's County, MD and consists of the design and construction of pedestrian and shared-use facilities along a major highway. The project also includes improvement and upgrades to existing roadways and signalization and the construction of a new drainage system. The project is currently in the design phase and construction is expected to commence in August 2015 with substantial completion in August 2017.

I-95 Express Toll Lanes MD 43 Interchange | MdTA, White Marsh, MD | Project Manager | \$142.5M

Mr. Walters served as the Project Manager on the I-95 Express Toll Lanes MD 43 Interchange in White Marsh, MD for the MdTA beginning in November 2012. This \$142.5M project involved the reconstruction of 1.6 miles of the existing eight lane divided highway into eight General Purpose (GP) Lanes and four Express Toll Lanes. The project entailed the construction of six new bridges, 10 retaining walls, demolition of three bridges, over 30,000 sf of noise barrier walls and the realignment of 300' of the White Marsh Run and extension related multi-cell culverts along with the realignment of 8", 10" and 48" sanitary sewer interceptor. MD 43 was realigned and widened from four to six lanes for a distance of approximately 1.1 miles through the interchange. The interchange ramps were realigned, one full signal and two half signals at the ramp connections to MD 43 were added, miscellaneous structural repairs and construction were performed and the MdTA facilities were maintained.

9th Street Bridge Design/Build Bridge Replacement | DDOT, Washington, DC | Design Build Project Manager | \$58M | DOR - JMT

Mr. Walters served as the Design/Build Manager for the \$58M replacement of the 9th Street Bridge for the FHA in Washington, DC. The Project included the construction of a new 645' long-four span, four-lane structure over 9th street, AMTRAK and CSXT railroads in N.E. DC. Also included were three new SWM facilities, roadway drainage, two retaining walls, 700' of geotextile reinforced slope, three new signalized intersections and street lighting. Project challenges that were overcome include the coordination of multiple owner requirements and specifications, the development of a context sensitive design program providing the Owner with a 'gateway project', and working within the restrictions imposed by underlying railroads.

Western Parkway Phase 4B | Charles County, Charles County, MD | Design Build Project Manager | \$4M | DOR – SITE-Blauvelt Engineers

Mr. Walters was the Design/Build Manager for this \$4M Charles County Government project which consisted of the design and construction of one mile of new four lane, separated urban arterial roadway and the phased realignment of two tributaries of the Mattawoman Creek to permit for the new roadway alignment.

Total Years Experience – 26

Years with Facchina – 1

Education

B.S., Civil Engineering,
University of Maryland, 1999

A.A.S Civil Engineering
Technology, Hudson Valley CC,
1989

Certifications, Accreditations and Specialized Training

Professional Engineer, MD
#41726; VA #49300,
Designated Design-Build
Professional (DBIA),
MD SHA E&S Control
Certification "Yellow Card" (11-
188), MD E&S Control
Certification "Green Card"
(47034), MD SHA Temporary
Traffic Control Manager
(TTCTM), Commonwealth of
Virginia Certified Responsible
Land Disturber, OSHA 30 Hour

The logo for Facchina features the company name in a bold, green, sans-serif font. A small red circle is positioned above the letter 'i' in 'china'.

Thomas McFall, PE

CONSTRUCTION MANAGER

Summary of Experience

Mr. McFall is a registered Civil Engineer with over 20 years of experience in Heavy Civil, Heavy Highway, Transit and Commercial construction. He has played a key role in the management of numerous projects throughout the mid-Atlantic region, gaining experience with several Transit/Transportation Agencies as well as other Contracting organizations. The depth of Mr. McFall's experience includes project management using multiple delivery methods including design bid build, design build, CM at risk, and agency CM. Mr. McFall takes a collaborative approach to each project he manages believing a solid team is the best way to ensure success.

RELEVANT EXPERIENCE

H Street/Benning Road Streetcar Implementation Design Build CMAR Project | DDOT, Washington D.C | Design-Build Manager | \$95M | DOR - JMT

Mr. McFall currently serves as the Design-Build Manager on the H Street/Benning Road streetcar project in Washington D.C for DDOT. Facchina partnered with MC Dean on this \$95M Design Build project administered as a CMAR contract with JMT as the Civil/Structural Engineer. The project completes a 2.4 mile segment of streetcar line along the H Street/Benning Road corridor including significant work within the historically designated site of Spingarn High School and Langston Golf Course, as well as, the Anacostia River which falls under the federal Urban Waters Initiative. The work includes roadway reconstruction for multi-vehicle usage, utility relocations, and the development of a maintenance yard that utilizes an innovative stormwater management design which provides 100% on-site stormwater detention. Mr. McFall's leadership fosters a partnering approach to the project design, constructability and over the shoulder reviews, risk assessment and management, and daily construction activities. He has successfully navigated the diverse needs of all project stakeholders including DDOT, Architect of the Capitol, US EPA, local businesses, and the surrounding community

Dulles Corridor Metrorail MOT Early Roadwork | MWAA, Dulles, VA | Project Manager | \$92M

Mr. McFall served as the project manager for the early roadwork project associated with the Silver Line extension of the DC Metro to Dulles Airport. The project included underground utilities, retaining walls, roadway widening/relocation, and traffic signalization for an 11-mile section of road along the metrorail right of way on Route 267, Route 123, Route 7, the Dulles Toll Road, and the Dulles Airport Access Highway. Mr. McFall was primarily responsible for the financial and project controls including job cost tracking, change order pricing and negotiations, subcontract coordination, document controls, CPM scheduling, and owner relations. The project was successfully constructed through some of the highest density and congested areas in DC.

BWI Consolidated Rental Car Facility | MAA, Glen Burnie, MD | Resident Engineer

Mr. McFall served as the Resident Engineer representing the owner, Maryland Aviation Administration, on the BWI Consolidated Rental Car Facility. His primary responsibilities included: managing project scope, schedule, and budget; overseeing construction activities, managing quality assurance program and inspection staff; working closely with state, county, and federal regulatory agencies about environmental and other issues; and meeting with residents of the surrounding community to address their concerns. Wetlands of Special State concern were on the site and protected. Regular monitoring of wetlands was provided resulting in no violations. Mr. McFall implemented forest conservation plan for the project, SWM and E&S control and coordinated with MDE during construction. Mr. McFall was responsible for assuring ISO 9001 compliance for BWI construction.

Total Years Experience - 23

Years With Facchina - 10

Education

BS, Civil Engineering, University of Maryland, 1992

Certifications, Registrations, and Specialized Training

Professional Engineer, MD #26039 2001; VA 0402033060 1999; US Army Corp of Engineers Construction Quality Management for Contractors Certification; VDOT Intermediate Work Zone Traffic Control Certification, SHA Erosion and Sediment Control Certification



Gaetan Carrier

COST ESTIMATOR

Summary of Experience

Mr. Carrier has over 30 years of experience in heavy civil/highway/transportation related construction. Much of his estimating experience has been with MDSHA with both bid/build and design/build projects, successful D/B pursuits have been listed below. He has been lead cost estimator on most of these successful pursuits. Responsibilities for D/B projects included: establishing scope using RFP requirements and past experience, initiating and managing alternative technical concepts (ATCs) in conjunction with designers to optimize costs, and coordinating deliverables from design teams. Additional duties common to all procurement methods include: developing means and methods for major cost drivers, reviewing in-house pricing and coordinating estimating efforts.

RELEVANT EXPERIENCE

MD 24 Section A, CMAR | MDSHA Harford County, MD | Structures Estimator | \$6M

Mr. Carrier developed pricing for the rock-socketed soldier piles, sheetpile cutoff wall and associated concrete work. Negotiated pricing with specialty drilling subcontractor during CMAR GMP process.

ICC-B, DB | MDSHA Montgomery County, MD | Lead Estimator (JV partner) | \$560M

Led the estimate for one of the JV partners and estimated much of the structures work. Intimately involved with selection of caissons as foundation elements to reduce environmental impacts. Factors contributing to selection of caissons as foundation type included; scour requirements, potential stream migration and stringent environmental controls for large open excavations. Cost analysis resulted in effort to limit maximum caisson diameters to match capability/equipment of local contractors for optimum pricing. Additional reinforcing steel selected as strategy to offset less than optimum shaft diameters. Superstructure design for mainline bridges optimized with long-span bulb-tee girders.

ICC-A, DB | MDSHA Montgomery County, MD | Lead Estimator (JV partner) | \$479M

Mr. Carrier led the estimate for one of the JV partners, this project was particularly difficult to price because it was the first ICC project, and incorporated the heightened sensitivity to both environmental concerns and community impacts. Some key elements included the deck-over with tunnel lighting, arch-structure over Rock Creek and tolling facilities.

Hampstead Bypass DB | MDSHA Carroll County, MD | Lead Estimator | \$41M

Led estimate for 4.5 mile new alignment with extensive SWM, E&S controls and bog turtle habitat constraints. Employed cost effective pricing with MSE-wall supported abutments and bulb-tee girders. Over 800,000 CY of roadway excavation, personally supervised two contractor-led test pit operations to properly quantify/qualify existing rock excavation. Test pitting contributed to very competitive earthwork pricing and ultimately to a successful pursuit. The single span structures, environmental controls, roundabouts and earth moving aspects from this project are very similar in nature to the MD 97 Brookeville CMAR project but larger in scope.

MD 216, US 29 to I-95, DB | MDSHA Carroll County, MD | Lead Estimator | \$21M

Lead estimator for two mile roadway realignment. Over 300,000 sf of contractor-installed noisewalls were built on this project. Production based, Competitive noisewall pricing was a major contributor to this successful pursuit. Other aspects of work included major E&S controls along Hammond Branch, utility relocations, earth moving & box culvert.

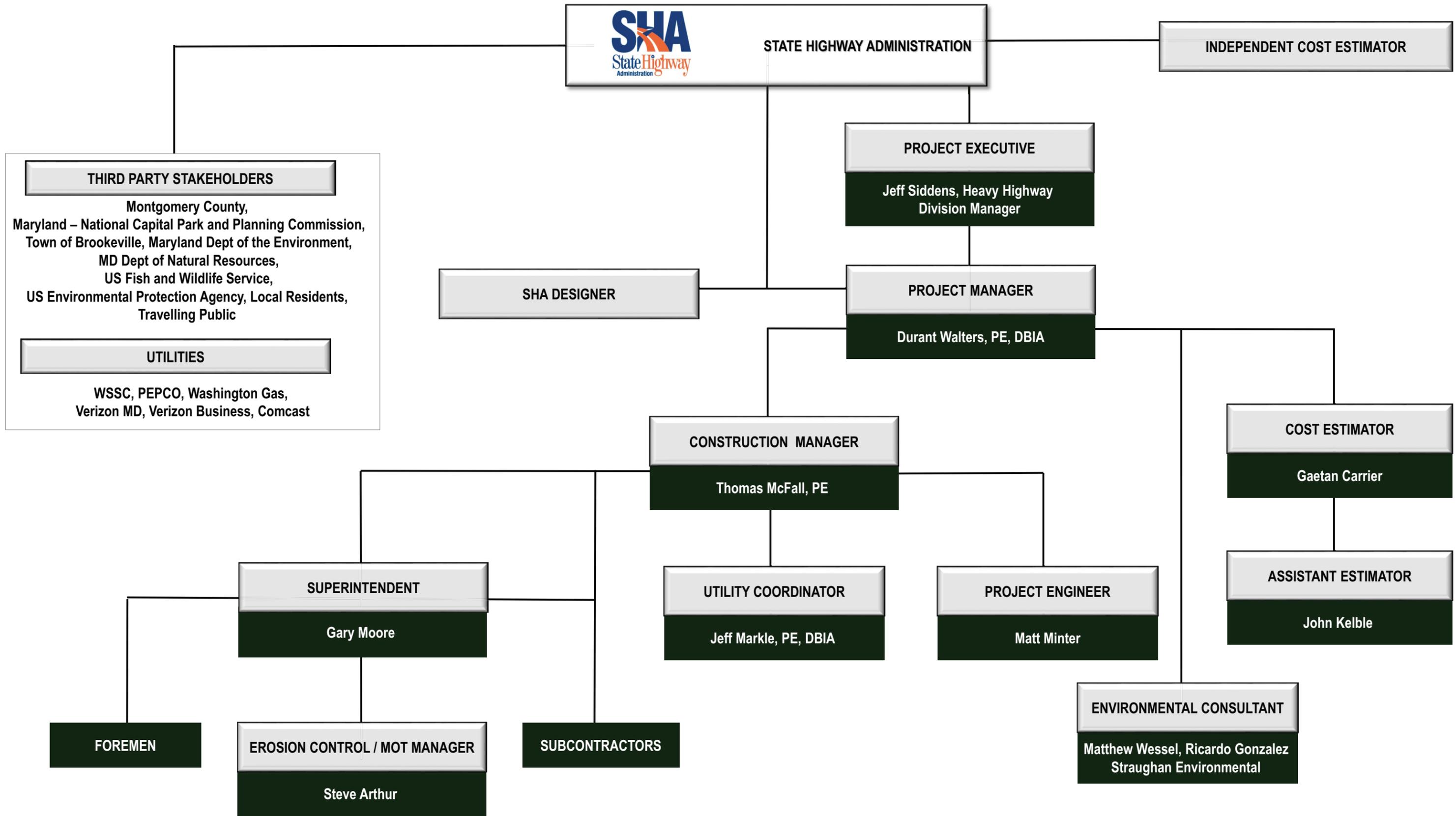
Total Years of Experience – 30

Years with Facchina – 1

Education

BS, Building Construction, Virginia Polytechnic Institute and State University, 1985





ORGANIZATION CHART
 MD 97 – South of Brookeville to North of Brookeville
 Contract No. MO7465171



FORM A-2 PAST PROJECT DESCRIPTION

Name of Proposer: Facchina Construction Company, Inc.

Name of Construction Firm: Facchina Construction Company, Inc

Project Role: Principal Participant

Contractor: Other (Describe): _____

Years of Experience:

Roads/Streets: 28 Bridges/Structures: 28 Environmental: 28

Project Name and Location: H Street/Benning Road Streetcar Implementation Design Build Project

Project Key Staff (as applicable to this project)

Project Manager: Tom McFall

Construction Manager: Jeff Markle (Value Added Position)

Description and Specific Nature of Work for which Firm was responsible and relevance to this contract:

In June 2012, the District Department of Transportation (DDOT) awarded Facchina-Dean Joint Venture the Design Build contract for the H Street / Benning Road Streetcar Implementation Project. Facchina partnered with MC Dean on this \$95M Design Build / CMAR contract, along with the design team of Systra and JMT. The original Contract was awarded for design phase services with a GMP negotiated at the 90% design stage. The initial phase was completed in October 2014. The final phase is scheduled for a July 2017 completion.

The H Street/Benning Road project is the first streetcar route to carry passengers in the District of Columbia in over 50 years. It extends between Union Station and the Anacostia River along H Street and Benning Road traversing dense residential and commercial areas. This 2.4 mile segment is part of the Once City Line connecting the Benning Road Metro Station and Georgetown, and is an integral part of the District's plan for an Integrated Premium Transit System.



The project consists of the relocation of existing water and sewer lines, the installation of new drainage, stormwater management, new track, overhead contact system (OCS), traction power and traction power substations, train controls, traffic signals, and system integration and roadway reconstruction. In addition, Facchina-Dean is contracted to develop and construct a car barn that will serve as maintenance facility/vehicle storage as well as a training and community center. The Car Barn Training Center (CBTC) is being constructed on a historically designated site, and will be built in the architectural context of the surrounding historic structures while maintaining a modern appearance and functionality. The CBTC site is also located within the immediate vicinity of the Anacostia River; a river that has become a landmark for environmental restoration in urban settings.

The Facchina-Dean Team is sensitive to the importance of a cleaner Anacostia. As such, our team has tailored the design and construction of the project to ensure that effluent from the site will have no negative impacts

Facchina-Dean worked closely with the District Dept. of the Environment during the stormwater management development and has designed a system that will provide 100% stormwater treatment on-site.

One of the challenges of the streetcar project has been constructing the project while maintaining access to the numerous small businesses that have invested in the area. Facchina-Dean has worked closely with DDOT's communication team to maintain an open line of communications between the businesses, residents, developers, and traveling public. We have developed and implemented plans to minimize disruptions to the traveling public through this highly traveled corridor and to provide safe access to all affected areas.



Our experience on this Design Build / CMAR project makes us uniquely qualified to be a team member for the design and construction of the MD 97 project.

Description of Specific Nature of Work for which Key Staff proposed for this contract was responsible for on project and how it is relevant to this contract:

Three members of our proposed staff were assigned to the H Street project in the roles of Design Build Manager, Construction Manager and Project Engineer. They will serve in the role of Construction Manager, Utility Coordinator and Project Engineer on MD 97. Many of the issues they faced are similar to those on the MD 97 project.

- **CMAR with a negotiated GMP**
- **Collaborative approach to meeting the needs of multiple stakeholders**
- **Roadway Design and Construction**
- **Maintenance of Pedestrian and Vehicular Traffic**
- **Innovative Stormwater Management Design**
- **Construction within Historically Designated Sites**
- **Community Relations and public outreach**

List any awards and/or commendations received for the project:

Name of Client (Owner/Agency, Contractor, etc.): **District Department of Transportation DDOT**

Address: **55 M Street SE, Washington, DC 20003**

Contact Name: **Mr. Thomas Perry**

Telephone: **202-907-7067**

Owner's Project or Contract No.: **DCKA-2010-R-0220**

Fax No.: **202-671-0650**

Contract Value (US \$): **\$42.6M**

Final Value (US \$): **\$95M**

Negotiated owner requested revisions to scope of work

Percent of Total Work Performed by Company: **50%**

Commencement Date: **November 2011**

Original Completion Date As Defined by IFB: **Dec 2013**

Actual Completion Date: **Ongoing – additional phases added for July 2015 completion**

Facchina moved over 125,000 CY of excavation on the project using state-of-the-art grading equipment. The project included construction of five stormwater management facilities, over 3,100 LF of dikes/swales, numerous sewer and waterline relocations and over 6,000 LF of storm drainage. The job team also constructed a soldier pile wall with an architectural cast-in-place finish, along with screen walls to shield the Chesapeake Woods community.



Our experience on this new roadway bypass project clearly demonstrates our ability to successfully construct roadways in environmentally sensitive areas that include major grading, structures and architectural features. The project team received glowing remarks from the owner and the engineer of record. All stakeholders were very satisfied with both our collaboration during construction and the final end product.

Description of Specific Nature of Work for which Key Staff proposed for this contract was responsible for on project and how it is relevant to this contract:

- Roadway design and construction
- Maintenance of pedestrian and vehicular traffic
- Retaining walls
- Bridge and Roundabout Construction
- Utility Coordination
- SWM and ESC
- Traffic barrier
- Wetland mitigation, forest mitigation
- Culvert replacement
- Coordination with multiple stakeholders including SHA, residents, and businesses and Community Relations and public outreach

List any awards and/or commendations received for the project: **2008 Maryland Quality Initiative (MdQI) Award of Excellence for roadway engineering**

Name of Client (Owner/Agency, Contractor, etc.): **Calvert County Department of Public Works**

Address: **County Services Plaza, Suite 202 150 Main St. Price Frederick, MD 20678**

Contact Name: **Gary Dobson** Telephone: **410-535-1600 ext 2415**

Owner's Project or Contract No.: **06-08** Fax No.: **410-535-2129**

Contract Value (US\$): **\$11,840,000** Final Value (US \$): **\$10,735,514.44**

Percent of Total Work Performed by Company: **60%**

Commencement Date: **September 2006** Planned Completion Date: **380 Working Day Project**

Actual Completion Date: **Construction – 318 working days (August 2008)**

Any disputes taken to arbitration or litigation? Yes No

FORM A-2 PAST PROJECT DESCRIPTION

Name of Proposer: Facchina Construction Company, Inc.

Name of Construction Firm: Facchina Construction Company, Inc.
Project Role: <u>General Contractor</u>
Contractor: <u>X</u> Other (Describe): _____
Years of Experience: Roads/Streets: <u>28</u> Bridges/Structures: <u>28</u> Environmental: <u>28</u>
Project Name and Location: ICC - Seneca Creek Wetland Mitigation and Stream Restoration
Project Key Staff (as applicable to project)
Cost Estimator: John Kelble (Value Added Position)
Description and Specific Nature of Work for which Firm was responsible and how it is relevant to this contract:
<p>In February 2011, Facchina was awarded a \$2.6M contract for the Site SC-A Seneca Creek Wetland Mitigation and Stream Restoration project at Brink and Huntmaster Roads in the Goshen Branch Stream Valley Park in Montgomery County. This project was part of the overall Compensatory Mitigation Program for SHA's Intercounty Connector (ICC) project within an area overseen by the MD – National Capital Park and Planning Commission.</p> <p>The project's objective was to create forested wetlands and uplands and to restore the adjacent Goshen Branch. The established wetland objectives were to provide flood storage, surface water filtration, recreational opportunities, habitat for amphibians and other wildlife, as well as for the state-threatened purple fringeless orchid. The project added 19.80 acres of forested wetlands, the enhancement of 1.46 acres of existing wetlands, and the creation of 8.99 acres of riparian floodplain forest and 8.94 acres of upland forest communities. The wetland creation and upland forest areas were seeded and planted with native species, suited to the site's specific hydrologic characteristics. Invasive species were eradicated returning the park to an original native condition.</p> <p>The stream restoration objectives were to arrest bank erosion, prevent degradation, minimize impacts to the existing trees and jurisdictional resources, enhance stream and riparian habitat, and to provide long term stability and sediment competency. The stream design included subsurface grade control structures, bio-engineering techniques, and bank protection and habitat features. Total stream restoration is 4,971 LF. The project's start date was June 1, 2011 since no in stream work was permitted from March 15th to June 15th. The project was completed in the Fall of 2012.</p>



This project included over 60,000 CY of wetland excavation and 8,000 CY of channel excavation for stream relocations. Seven major pump around operations were used throughout the course of the job to maintain flows with no impacts to the stream habitat. Over 25 each OOC62 applications initiated by the job team were approved. These changes helped to minimize environmental impacts, correct plan deficiencies, and improve the project's schedule. Despite the sheer volume work in sensitive environmental conditions, Facchina was awarded all quarterly and E&S incentives.

Description of Specific Nature of Work for which Key Staff proposed for this contract was responsible for on project and how it is relevant to this contract:

John Kelble was the lead estimator for this project. He is intimately aware of the multitude of wetland and stream restoration items of work. He has the experience and the knowledge to properly cost these items as well as any other construction work needed for this project.

Project Items Similar to work required for the MD 97 Project:

- **ESC and SWM**
- **Coordination with multiple stakeholders including SHA, Maryland National Capital Park and Planning Commission, Montgomery County and residents.**
- **Community Relations and public outreach**
- **Seeding & Landscaping including riparian seeding, upland seeding, wetland seeding, live facines, live fencing**
- **Stream Relocation with pump arounds, stream bed and bank restoration**
- **Wetland mitigation with microtopography, forest mitigation**
- **Habitat creation, vernal pools, salvaged wood habitats, brush pile creation**

List any awards and/or commendations received for the project: Received all four quarterly E&S incentives.

Name of Client (Owner/Agency, Contractor, etc.): **MD SHA Office of the InterCounty Connector**

Address: **11710 Beltsville Dr. Suite 200 Beltsville, MD 20705**

Contact Name: **Mark Coblentz**

Telephone: **301-586-9267**

Owner's Project or Contract No.: **AX3765N60**

Fax No.: **301-586-9222**

Contract Value (US \$): **\$2,616,357.70**

Final Value (US \$): **\$3,042,667.36**

Owner approved change orders for revisions to the scope of work.

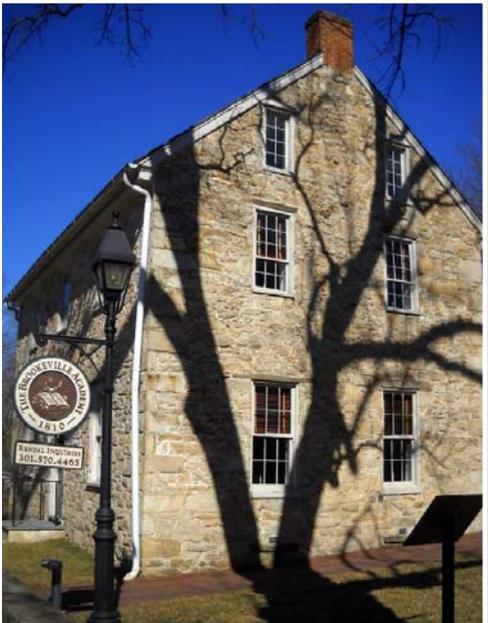
Percent of Total Work Performed by Company: **75%**

Commencement Date: **June 1, 2011** Original Completion Date As Defined in IFB: **April 20, 2012**

Actual Completion Date: **December 1, 2012 (Differing site conditions, owner approved extension)**

Any disputes taken to arbitration or litigation? Yes No

Project Approach



C.1 Strategic Project Approach

C.1.a Project Goals

The overarching goal for the MD 97 CMAR project is to reduce the traffic volumes within the historic town of Brookville Maryland, resulting from increased development along the MD 97 corridor. This reduction must provide a safe bypass for motorists and cyclists while minimizing impacts to the environment and respecting the history of the region. Achieving this goal is best accomplished through the formation of a partnership with a qualified contractor that willingly brings their experience and skills to deliver the overall project while achieving all the project's individual goals. The underlying framework for this goal is a transparent sharing of value engineering and cost information between the Facchina team and the SHA. Once a collaborative effort is in place and trust is established across all partners, development of the Opinion of Probable Construction Cost (OPCC) with the Independent Cost Estimator (ICE) consultant will result in a mutually agreed upon GMP and execution of the construction contract.

Providing a two-lane roadway to direct traffic away from the Town of Brookeville for both motor vehicles and bicycles is a fairly straight forward objective, but a seamless project delivery is far more certain when the team can demonstrate a proven track record of performance. Our referenced Lusby Southern Connector project clearly demonstrates our ability to build such a roadway, while our ongoing DB MD 4 CSEP solidifies our ability to collaboratively manage the entire process. Understanding the criteria for both modes of transportation by the builder leads to a higher quality project. Bicyclists will naturally gravitate towards the Historic Town of Brookeville. Therefore, providing a crossing or under-bridge access that leads to the old alignment may simplify the roadway design of the bypass itself. Providing an exit only lane for vehicles leaving town at the northern roundabout may provide a safe entry/exit for bicyclists to share the existing road at the northern termini. At this early stage of design, these are merely discussion topics for further evaluation, but our team wishes to highlight the creativity it has to offer.

Facchina has extensive experience on past projects fulfilling the goal of minimizing impacts to the physical environment (e.g. parkland, forests, streams, wetlands etc.) and providing an aesthetically pleasing and context sensitive project. Facchina was the prime contractor on section "C" of the ICC, arguably one of the most environmentally sensitive projects in Maryland history. Aesthetic features were also very prominent on that project, with radiused deck edges and parapet copings. Facchina is experienced in reducing environmental impacts on our Design Build projects and will strive to achieve the same successes on this project. On the DB MD 4 CSEP, changes to the SWM BMP's permitted grading changes that reduced the limits of disturbance by approximately 30%. Early review of the MD 97 project indicates that improvements may be made to alignments that reduce the project footprint, which in turn, will reduce the project's limit of disturbance. Alignment changes may also protect significant structures and park land. To minimize impacts to the sensitive streams, Facchina will work with the design team to ensure that the limits of relocation are minimized but still provide for long term stream stability. There is approximately 1,000 LF of stream relocation on the southern end of the project where ROW and topography limit the relocation options. Facchina will focus the project team on these critical relocation efforts.

Facchina was also the prime contractor on ICC D&E, Wilson Point Park on Middle River, Southwest Area Park on the Patapsco River, Four Mile Run in Virginia, and numerous other projects in environmentally sensitive areas. We are aware of at least one specimen grade oak tree within the project limits, and understand that any changes to alignments must account for all significant elements, either natural or man-made. Several aesthetic opportunities are available for the project. Facchina believes that the Newlin / Downs Mill Complex will be visible from the proposed alignment, and vice-versa. Accordingly, aesthetic items can reflect the rubble masonry construction of these structures, and be emulated in parapets, abutments, and retaining walls with a custom form liner. Additional aesthetics opportunities are present at both project traffic circles, and throughout the project thoroughfare where a unifying landscape theme could be applied. Facchina

recognizes that the aesthetics of the project must align with the natural beauty within the right-of-way and historical elements in and around the town of Brookville, and that these elements must be included in the balance of an efficient and pleasing design.

The most demanding goal for this project is completing it within the current construction timeframe and within the current budget. To achieve this goal we must balance the requirements of many other goals. This budget/time goal will be addressed almost daily as the Facchina team interfaces with the project designer and SHA to develop cost savings options and present comparisons. Our first task is to quickly immerse our team into the design and details of the selected concept and generate a conceptual estimate, the team's starting point for budget and schedule considerations. A design and construction schedule will be generated using Primavera P6 Scheduling software. The P6 schedule drives the long range course for the project and weekly internal schedule reviews help identify and manage individual tasks. Utility relocations are always highlighted on our project schedule because they have a high potential to delay the project. The wet utilities on this project may fall into that category, but further review will be required to confirm any of these assumptions. Facchina understands that evaluations must balance schedule as well as cost. For example, the roadway alignment, both vertically and horizontally may be balanced, but if excessive rock excavation is a result, the schedule impacts could be overwhelming. Minor adjustments of significant elements can reap large benefits. The previous example of using architectural concrete as the replacement culverts for the Meadow Branch crossing will be evaluated for both cast-in-place (CIP) and precast concrete. Again, these are just some examples of potential costs and time savings that will surface with our team's incorporation.

The majority of this project is constructed in green fields, which will inherently minimize impacts to the motoring public. However, consideration will still be given to the sequencing of tie-ins at the south and north ends of the project. MD 97 is a major commuter route so our team will strive to use wedge and level for tie-ins verses full depth re-construction. The northern tie-in is especially critical because of the steep approach grade from the southbound direction. Where possible, phasing will be scheduled to allow for major tie-ins outside of seasonal tourism influxes. Due to the proximity of historic sites and residences, work will be scheduled for weekday, daytime hours to the greatest extent possible. Special attention will be given to scheduled events in and around the Town of Brookeville. Facchina will participate in the SHA's Public Outreach efforts both before and during construction. We have found that continuous public communication is key to managing public expectations and coordinating significant project events, such as traffic switches. The team will consider bicycle routes during construction, and work with designers to provide dedicated bicycle lanes through the construction area to avoid cyclists being trapped with cars in chutes created by the placement of temporary concrete barrier. This is especially important at the northern tie-in as the steeper slopes will slow the cyclists.

A collaborative partnership with all members is essential for achieving the stipulated and overarching goals of the project. Facchina is adept at Partnering with the SHA and Designers through our experiences on multiple projects and with multiple delivery methods. Additionally, the project team adheres to the Best Practices prescribed by the DBIA and understands that the greatest component of a successful partnership is Trust. Achieving the goals of the partnership, mitigating risk, improving the Construction schedule, streamlining the Design process, improving the decision making process with better information, and developing a project that adheres to the budget will only be possible with open and honest communication between all stakeholders. Our proposed Project Manager for the MD 97 Bypass has a demonstrated track record of partnering with SHA. Mr. Walters is a known entity with the innovative procurement group and he brings true credibility to the Facchina team for a collaborative effort.

C.1.b Approach in the Design Phase

Throughout the Design Phase of the project, Facchina proposes to use an iterative system of Conceive-Evaluate-Review-Incorporate to reduce errors and omissions, improve constructability, and reduce cost of construction. All aspects of design will be evaluated for their impacts on cost, risk mitigation, functionality, aesthetics, value added, constructability, and

adherence to the project goals. Ultimately, our systematic evaluation of design elements and innovative concepts will provide a clear and defined direction for the project.

This iterative process begins with the project team performing an evaluation of the concept plan and risk register, discussed later in Section C.2. This generates a project baseline budget for comparison of value added and cost saving components to easily identify improvements going forward. The project risks and costs are openly shared with the integrated team, and are used to assist with generating and evaluating ideas throughout the design lifecycle. At the conclusion, an agreed upon cost baseline is established prior to moving forward with the design process.

As design progresses, our Design Build and CMAR experience shows that regular meetings with the Owner and Designers to review plan development and brainstorm innovative concepts are the most effective way of reducing project cost, avoiding errors and omissions, and incorporating innovation. As changes can be implemented with minimal design rework early in the process, it is recommended that these meetings be held on a weekly basis. The Value Engineering (VE) sessions will be attended by the project team along with specialty Subcontractor and Suppliers to provide the broadest knowledge base on a particular element. The discovered concepts will be evaluated by Facchina against the project requirements and goals, then selected for detailed evaluation of cost, schedule, risk and value added. Results are then documented on the Risk Registers and Trend Sheets, for presentation to the entire team for consideration.

It is recommended to follow Design Build best practices, and allow for constructability reviews of design drawings at predetermined design milestones. These formal reviews for constructability provide additional opportunity for the team to provide innovation and value engineering solutions. Experience in equipment selection, subcontractor needs and material applications will provide input for the needed staging and laydown areas and phasing requirements. The plan sets scheduled for constructability review will be distributed throughout the entire Facchina Team, from field personnel to specialty subcontractors and suppliers, as well as project management. The Milestone reviews also trigger a full estimate of the project by our Cost Estimator with assistance from the entire team. This serves to validate changes tracked by the Trend Sheets and confirm that complete components are included in the design scope, further reducing omissions.

Creative concepts resulting from VE sessions, or milestone reviews, may not be clearly associated with cost. Concepts without an easily defined Value (cost) will be tracked by Facchina and selected by the team using “Choosing by Advantages” (CBA) or Value in Design (VALiD) methodologies. Using these rating systems to assign “value” to items without defined costs aids in the decision process by providing clear advantages.

The impact of the most viable concepts will be evaluated for risk on the Risk Register maintained by Facchina. These risks are calculated by the management and estimating teams to complete the evaluation cycle of concepts prior to presentation to the Project Team. The selected concepts, changes to the current design, will be tracked by Facchina using a Trend Management Program. Trend management is a tool for identifying, evaluating, managing and resolving changes during design, procurement, & construction phases of the project. It encourages a proactive approach by all parties and mitigates disputes early. These processes will be real-time, allowing them to provide clear direction and decision making to the project.

Facchina’s adapted processes, taken from Design Build Best Practices and developed through the successful completion of numerous DB projects, provide the mechanisms needed to document and evaluate the creative ideas that stem from open communication within the team. Our Project Manager, Construction Manager and Utility Coordinator are Professional Engineers, Certified Design Build Professionals, or both. They are complemented by our Estimating Team, another branch of our firm with extensive DB experience. Together, this team brings a total of over 80 years’ of DB experience to the project.

C.1.c Approach to General Contracting

SHA seeks to construct a cost effective and timely-built bypass around the historic Town of Brookeville with minimal impacts to the environment. Along with the environmental sensitivity of the project, Facchina also understands the historic nature of Newlin / Downs Mill at the northern terminus of the project and how the town is a natural attraction for tourists traveling by vehicle or bicycle. We further realize that MD 97 is a major commuter route between north/central MD and Washington, DC, so our team will focus constructability reviews to minimize traffic impacts at the roundabout tie-ins.

A large part of Facchina's success has been based on a corporate structure that promotes innovation through highly qualified individuals. Our corporate philosophy is to provide strong support staff and abundant resources, along with proven processes for the projects to be successful. Ultimately though, we realize the single most important element to project success is the job staff. So accordingly, Facchina has chosen to meet and exceed the goals of SHA and various stakeholders by assembling a team of very experienced construction professionals. As our organizational chart and resumes reflect, these are highly qualified individuals with proven track records and superb accreditations. Our key staff managers include Mr. Durant Walters as project manager, he has extensive experience with SHA and DB projects. Our proposed construction manager, Mr. Tom McFall is currently completing a complex, highly technical \$95 mil CMAR project with the District Department of Transportation (DDOT). This particular project is prime example of the importance that we place on innovation, even as it relates to procurement methods.

Facchina will provide comprehensive design and construction planning by holding weekly design meetings with SHA and their selected designer. The process will start with developing and presenting a preliminary estimate model. This cost model will be used by us to lead an open-cost model with the Independent Cost Estimator (ICE). Open and honest communication is a keystone to our success as builders and is part of our corporate code of ethics. Facchina is currently in the design stage for the ongoing SHA DB MD 4 project. Our key staff on the MD 4 project have embraced the partnering process and it has led to a very positive, collaborative atmosphere for all stakeholders. The process for MD 97 will also include open book examination of our costs, and pricing will be structured to align with pricing by the ICE consultant.

Cost estimating is a quantitative and qualitative process of predicting the total expenditures to construct a project. Experience and a working knowledge of the owner are key components to a successful outcome. Our proposed cost estimator is Gaetan Carrier, he has a proven track record of compiling numerous successful, competitive SHA DB projects. He will be responsible for providing SHA a thorough breakdown of costs and quantities for all three of the design milestones for the respective design packages.

Comprehensive estimates include thorough quantity take-offs and productions that are reconciled with past history. These same processes will be used to provide continual feedback on value analyses throughout design development. Complete estimate reviews by upper management will be performed at the GMP milestones.

Our estimating staff will also develop an effective, inclusive outreach effort to obtain competent, competitive price proposals from specialty subcontractors, traditional subcontractors and disadvantaged subcontractors. Facchina uses an advanced data base system called Smart Bid Net. This system allows us to focus on firms that are willing to work in a specific region like the Baltimore/DC Metro area and to solicit specific bid packages. Smart Bid is our large in-house data base of subcontractors who have successfully partnered with us on previous projects. Smart Bid Net identifies these MDOT certified DBE/MBE/WBE vendors and subcontractors, as well as firms which require special licensing. We also extensively use MDOT DBE directory. Facchina understands the high commitment that SHA has made to the DBE contracting community and will meet those standards as they relate to the COMAR 21.05.10.05 procurement process.

Facchina is one of the largest heavy/highway contractors in the region. We have nearly 700 full time employees and over 300 pieces of construction equipment. We have completed several major local highway projects as the prime contractor such as the \$550 million ICC Contract “C”, the \$89 million ICC Contract “D&E” and the national award winning \$375 million 11th Street bridge over the Anacostia River in Washington DC.



On the other hand, we also construct much smaller jobs such as our three referenced projects. The Lusby Southern Connector Boulevard (LSCB) is very similar in nature to the Brookeville Bypass. Both projects involve wetlands, bridge structures, retaining walls, utility relocations and major grading operations. The LSCB was completed under budget and ahead of schedule. The project won an MDQI award. The following is a quote from that award “through aggressive scheduling and a “Can Do” attitude, Facchina was at the heart of the overall success of the project. Although this project was not officially “Partnered”, the relationship between the County, WM&A, and Facchina personnel throughout construction was nothing short of exemplary”.

Our Seneca Creek project demonstrates our ability to execute environmentally sensitive projects. Over 60,000 CY of wetlands excavation and 8,000 CY of channel excavation were performed on this project. Facchina submitted over 25 each OOC62 applications to correct unforeseen conditions, minimize impacts, reduce costs, and improve the project schedule. Over 1,000 LF of sand-bag/baffle-board diversions were used for stream control, along with seven pump-arounds. Despite the enormous challenges from the sheer volume of in-stream work, Facchina managed to receive all five E&S incentives for the project. Permanent features included eight vernal pools, over 3,000 SY of salvaged stream bed material and over 7,500 plantings.

H-Street/Benning Rd CMAR is a Facchina project that highlights our prior experience with innovative project delivery. This project involved fairly technical aspects associated with a streetcar system, along with typical utility relocations and roadway construction. The project team successfully developed OPCC estimates for the various project components. Constructability reviews and cost analyses turned out to be the greatest benefit to the project success. The information from those evaluations helped the team prioritize the implications from various needs of the stakeholders to aid in making informed/timely decisions. Early procurement also turned out to be a big plus in the process.



The single largest asset that CMAR brings to the procurement process is it that is allows the client to make timely decisions that can lead to costs savings that were typically not available to them through the DB or DB/B processes. Savings that Facchina flushes out through constructability reviews, innovation and various cost analyses will be tracked and presented to SHA for review. All three of our key staff have extensive experience with the DB build process from the bidding stage through final execution. Thus they all understand the criticality of performing cost analyses for each component of work. CMAR is a unique, relatively new-to-SHA process that requires the contractor to discuss all components of costs and risks with the owner.

Our estimating team is very familiar with standard SHA details for roadway sections, retaining walls, bridges or culverts so a concept can be quickly priced and compared without extensive design. Facchina has extensive DB experience through our ICC pursuits. Our named cost estimator has additional SHA DB experience. We have the skill set to quickly develop cost comparisons with minimal design. As a DB Contractor, Facchina is typically at risk with our design partners during the bid

phase so we have become very adept to pricing with minimal design support. Reinforcing steel factors, pile spacing and other details can be quickly approximated and coupled with current material prices to generate pricing for initial comparisons. Only when savings can be identified do we pursue additional design support.

Our key staff will develop a design and construction schedule with Primavera P6 to track and coordinate design deliverables. Design schedules enable our managers to track progress and to generate cost-to-complete reports for design. Design coordination is a major risk on our typical DB projects, design costs are not part of our contract but our costs for the fixed management fee are directly tied to the design progress. So we have a vested interest in having the design progress effectively. Our managers are very familiar with P6 and will also use this tool for balancing resource allocations and performing what-if scenarios throughout the planning process.

Facchina will use Prolog for construction management and ProjectWise to ensure successful communication and efficient document control. All internally and externally generated documents (RFI's, designs, schedules, submittals, etc.) will be date stamped and will receive a specific serial number. Documents generated by SHA and others will be entered into a tracking log and distributed to the appropriate team members. Issued for Construction (IFC) documents will be clearly identified. An example are change sheets which clearly identify elements that have been revised, who initiated the revision, who reviewed the change for conformance with the contract documents, as well as adjacent work product, who approved the change, and most importantly, who should be notified of the change.

Facchina intends to develop and implement a job specific quality control system which will ensure an end product that is safely built, environmentally responsible, cost effective and timely. The Quality Control (QC) plan will generally consist of plans, procedures, and organizational resources covering all design review and construction activities, both on site and off site. Facchina will provide all personnel, apparatus, and specialty services to perform the quality control functions required by the contract and ensure that the responsible quality control personnel carry out their duties in this contract. The QC plan will cover all design and construction activities performed by subcontractors, architects, engineers, fabricators, suppliers, and purchasing agents.

C.1.d Approach to Minimizing Environmental Impacts

Use of the CMAR delivery method for the MD 97 Brookeville Bypass Project will allow for early Contractor involvement and continuity between the design and the construction phases to minimize all potential environmental impacts. Facchina has engaged Straughan Environmental Services, Inc. (SES) to serve as our environmental consultant during the design phase. SES is a local environmental engineering firm with extensive experience in design, construction, and environmental construction oversight on a wide variety of project for SHA. SES brings an understanding of the project goals and innovative approach to resolving potential impacts associated with the construction of the project. We fully understand the sensitivity and potential impacts to the streams, floodplains, woodlands, specimen trees, historical sites and wetlands within the specified limits of disturbance. The proposed MD 97 Alternative 7 Modified route will pass through or near environmentally sensitive areas, including but not limited to Reddy Branch Stream Valley Park, the historic Town of Brookeville, and the Newlin/Downs Mill Complex.

The management of environmental impacts will be a collaborative team effort throughout all phases of design and construction. Facchina brings extensive environmental experience to this collaboration with personnel that have completed numerous projects with elements anticipated in this project; stream relocations, historical significance, tree preservation, context sensitive design, and complex environmental compliance. The collective project team will not only meet the federal, state, and local environmental requirements throughout construction, but also will use the ingenuity and innovation gained from its experience to minimize environmental impacts during design. The combined construction experience of the assembled team will provide the necessary trade knowledge to support the design team's decision matrix. The FCC team

will incorporate all potential environmental impacts into the project risk management program, providing clear direction for design. During all phases of the project, the team will maintain open channels of communication between the designer, contractor, SHA, MDE, and all other stakeholders to ensure all opportunities to additionally protect the environment are captured.

Phase 1 - Environmental Responsibilities:

Facchina strives to be outstanding stewards of the environment on all projects it undertakes. To accomplish this goal, all team members and stakeholders must have efficient and open lines of communication and a thorough understanding of the project scope and of the project commitments in order to ensure compliance with applicable federal, state, and local environmental regulations. As outlined in the Contract Documents, the key environmental stakeholders on MD 97 project include the following:

- MDSHA
- Montgomery County
- Maryland-National Capital Park Planning Commission
- Town of Brookeville
- MDE
- CMAR
- Maryland Department of Natural Resources
- US Army Corp of Engineers
- US Fish & Wildlife Service
- US Environmental Protection Agency
- Designer

Prior to beginning the design and construction phases of the project, the most critical element in forming the basis for an environmentally sound project is communication. The first step in communication is to ensure that the stakeholders fully understand the scope of the project. Cut-to-Fill earth moving operations will more than likely require a stream crossing over Meadow Branch. This will be discussed early in the process, along with permitting requirements and other options such as hauling over public roads. The various types of crossings and costs implications of hauling on MD 97 can be discussed with all stakeholders. Stakeholder buy-in and understanding of the project will allow for critical relationships to be established prior to building the design-construct interface. Ultimately, this will allow Facchina to work with the Designer and all the aforementioned stakeholders in working through the procurement of permits and necessary documentation prior to the commencement of construction. Prior to initiating Phase 2 of the environmental program, a matrix will be developed listing all applicable regulations, resource protections/required permits with the agency(s) involved, the applicable requirements and finally the schedule implications. This list will be reviewed with appropriate SHA and other key project stakeholders for completeness of overall project scope. As each impact to these resource is identified, the associated agency, requirement and time frame for review will be identified. This approach has proven successful on our past projects to reduce conflicts during the permitting phase.

Facchina has extensive experience with respect to effectively gaining stakeholder buy-in early in the development of a project. As the design-build contractor on the DC Streetcar H/Benning Implementation project, the Facchina team established a direct line of communication with District Department of the Environment (DDOE), DC Water, DDOT, and the local Advisory Neighborhood Commissions (ANC) prior to designing the storm water management system for the Car Barn Training Center (CBTC). The Facchina team set up a series of preliminary stakeholder over-the-shoulder meetings (OTSR's) with all stakeholders, designers from JMT, and various sub-consultants. At these meetings, team members and stakeholders had an open forum to review the iterative stages of conceptual design and to make comments accordingly so as to satisfy all environmental regulations and codes. Additionally, we were able to incorporate innovation and design concepts into the project with buy-in directly from the utility owners and regulatory agencies. This collaborative and integrated process allowed for far fewer delays when submitting design/construction documents than typically encountered on a Bid-Build project.

Phase 2- Design Review:

The second stage of the environmental management plan takes the team structure established in Phase 1 and applies them to over-the-shoulder and milestone constructability reviews of the environmental design for the MD 97 bypass from the conceptual stages through the various stages of bridging documents. The CMAR process enables a contractor like Facchina, who is very experienced with the high environmental commitments by SHA, to make informed recommendations on minimum Limits of Disturbance (LOD) that respects those commitments but can also be reasonably achieved in the field without requiring future permit modifications. The benefits for all stakeholders are reduced costs and minimized schedule impacts. As the CMAR, Facchina will foster full environmental compliance and innovation by working directly with the designer through the project design stages. Given the crucial importance of considering the environment in all elements of design, Facchina will minimize or totally avoid additional negative impacts through the use of design best practices and innovation. At each stage of design, Facchina will review the constructability as it pertains to the environment. Environmental constructability review will not only be limited to the permanent alignment of the Brookeville Bypass, but also to the temporary phases of construction. Stakeholder involvement and communication is of utmost importance, from inception of the design up to the release of 'Issued For Construction' drawings.

On the DC Streetcar project, Facchina worked hand in hand with JMT in designing and permitting the environmental components of the design. The CBTC site included the construction of the building, and the detailed plaza areas adjacent to Benning Road and 26th Street, NE. The stormwater management design for the plazas again resulted in 100% containment of all run-off on site. This was handled via approximately 181 linear feet of infiltration trench along Benning Road, and two additional bioretention rain gardens. The CBTC also contains a massive 10,000 gallon cistern, which captures all of the roof rainwater and retains it for re-use. The stored rainwater is then sent through the necessary filtration processes prior to being reused elsewhere on the project. This is an example of Facchina's exposure to innovative concepts for sustained environmental stewardship that can lead to design applications for the Brookeville Bypass. A similar innovation was employed on the MD 4 CSEP, where early changes to the SWM BMP's permitted a reduction in disturbance of approximately 30% while providing SWM facilities that are easier to maintain.

Phase 3 - Construction Compliance:

In order to effectively follow the Erosion & Sediment Control and Storm Water Management Plans, the entire project team must stay committed to daily coordination, inspections, and continuous documentation of all construction activities as they pertain to wetlands and all waterways affected by construction. The E&S control program will be communicated not only to FCC's workforce, but also to all subcontractors working on the project site, thereby reducing the potential for costly mistakes. The installation of E&S controls will begin after the plans have been approved and all necessary pre-construction conferences have been held. Following the installation of the controls, Facchina will meet with local and state inspectors to perform a group inspection on the best management practices (BMP) to ensure that all controls have been installed correctly. Following the first rain event, Facchina and stakeholders will again inspect the site to ensure the BMP devices are protecting all environmentally sensitive areas. Prior to all subsequent predicted rain events Facchina will walk the site, and if deficiencies are found, they shall be repaired immediately. Most importantly, all stakeholders and construction team members must recognize both the environment and the construction site as highly dynamic and interactive body. In order to be successful, we will plan and make any necessary changes to the E&S and SWM Plans as dictated by the field conditions.



Facchina has extensive construction experience with respect to managing projects in and around highly environmentally sensitive areas. In the spring of 2011, Facchina was awarded the site contract for the ICC – Seneca Creek Wetland Mitigation and Stream Restoration project. The project included wetland creation, wetland restoration/enhancement design, habitat creation, surface water filtration, and flood storage for the wetlands. Additionally, the project also included installing

erosion control features to stabilize approximately 4,971 LF of Goshen Branch, which is a direct tributary of Seneca Creek. These project goals were achieved both through reducing stream velocities and reducing stream bank erosion. The Facchina team on the project not only worked directly with SHA personnel to effectively manage the environmental impacts associated with this project, but also worked within the established permit waterway restrictions set forth by the respective permitting agencies.

C.1.e Construction Approach and Sequence

We are proposing a construction approach and sequence that optimizes value to the project both from a budget and schedule perspective, with a realistic view of known constraints. The construction sequence takes into account the following constraining factors:

- Design development / milestones and permitting
- Weather restrictions and limitations
- Utility relocations
- In stream restrictions from March 1 through May 31
- Road closures, detours, diversions
- Community events
- Preconstruction NTP of August 2015
- Construction NTP in early Fall 2016
- Completion of construction at the end of 2018

As an integral part of the design team, Facchina will aid with design coordination and scheduling to ensure that the design and permitting are complete on or before August 2016. Procurement of long lead items will be well underway by Construction NTP in early fall 2016 through early schedule identification. These items may include precast box culverts, MSE wall panels and bridge beams. Mobilization with LOD stakeout and E&S controls will be the first order of work. Our initial site investigation revealed several sanitary sewer lines that may require wholesale relocations or simple protection measures, depending on the amount of roadway embankment or cut in those areas. If the alignment does impact these wet-utilities, they could be major cost and schedule considerations. Another schedule consideration is the in-stream work that could fall into the 2017 spring restriction period. These impacts can be minimized by placing temporary or permanent re-alignment structures in place in the preceding winter months, opening up the area for access and earthmoving operations. Our ability to progress earthmoving operations in the 2017 construction season will be a key contributor for overall project success. Our design sequencing, project scheduling and overall approach will be to eliminate all obstacles to commencement of mass earth moving in early summer 2017. Other items of work in this first construction season include:



- Completing stream relocations
- Permanent bridge construction
- SWM
- Earth moving access with temporary bridge over Meadow Branch and off-road haul roads
- Retaining walls
- Completing utility relocations
- Wetland and forest mitigation

Construction of the northern roundabout will most likely require a temporary road closure of Brookville Rd. Logistically, budget wise and for safety aspects, a temporary closure will be the best approach. Facchina will focus on minimizing the closure period. This roundabout will likely be tied to cut-to-fill grading operations and will therefore be part of early planning and project sequencing. As outlined in our earlier design approach, we will construct the majority of the Brookeville Bypass with little to no impact on the MD 97 commuter traffic. Tie-ins will be the last order of work in the mid to latter portion of 2018. Initial review of the conceptual roll plan indicates that borrow fill may be required for the overall earth balance. This scenario would enable us to make the embankment from station 68+00 northward a separate and non-critical operation

from cut-fill operation. Items driving this work will be the north abutment of the bridge over Reddy Branch and securing cost effective borrow sources.

There are many factors that would affect budget and schedule on all construction projects such as outside constraints, utilities, seasonal work, materials, equipment and labor availability. We will work to keep our schedule flexible enough to allow for the inevitable unforeseen issues associated with utility relocations and possible conflicts. Alternative relocation plans considered during the design phase will remain on the shelf as emergency options. Despite all of our plans to avoid these possible issues, we must be prepared to deal with them when they do occur. Facchina will work with SHA and all affected parties to resolve the impact of unforeseen issues or last minute design changes. After reviewing the possible remedies, Facchina will choose the best possible alternative. Facchina will consider rescheduling existing crews, bringing in additional resources, and all reasonable means to minimize the disruption to the project schedule.

Design-build and CMAR projects often encounter changes as the design is ongoing and released for construction, prior to the final completed design. Facchina will continuously review all field changes resulting from unanticipated field conditions, owner directed changes, changes for the contractor's convenience, constructability issues, or other similar reasons. One example of a potential need for review and change would be for establishing MOT changes to meet actual field conditions. If this occurs, the designers and construction staff, as well as the SHA and appropriate stakeholders, will immediately meet on-site and brainstorm on alternate MOT means and methods to improve the condition. All recommended changes to design and/or construction implemented in the field will be properly discussed with the SHA and outside stakeholders as appropriate. This work will only be performed after review and under authorization by SHA. All changes will be tracked and available to all required staff through our Document Control procedures that tracks revisions, approval process, reason for change, and a narrative or description of the change.

Outside constraints on this project include the historic nature of Brookeville with its archaeological sites within the project limits. The historic and archaeological factors will primarily be mitigated in the design phase through avoidance of impacting these areas. We could however, discover additional unforeseen areas during construction. This would halt construction until the areas are investigated and cleared, resulting in lost time and additional cost. Again, our intent is to have a proactive approach in identifying these sites early to mitigate risks.

Additional to the major wet utilities discussed previously, our site investigation also revealed a potential waterline relocation for the southern roundabout and existing overhead lines that are present at each end of the project and along Brookeville Rd. that will require relocation by others. Utility relocations for the tie-ins at the terminuses' should not be an issue since ample time is available in the project schedule. We anticipate that the overhead lines on Brookeville Rd. will be more critical because this work is earlier in the schedule and the grade is being raised in that section of the project. As always, identifying a catch point early in the process is always the best approach to mitigating risks and impacts.



Grading and paving work typically cannot be performed on a project such as the MD 97 Bypass between mid-December through mid-March due to weather conditions. Our project schedule will account for these limitations, along with the typical rain events throughout the year. Additional shifts and longer hours will be scheduled for optimum earth moving periods. Any minor additional costs for extended hours in the OPCC will far outweigh the schedule impacts generated from not capitalizing on seasonal benefits. These cost evaluations will all be presented during the constructability reviews.

Our review thus far does not indicate that there will be any long lead items that would affect the start of the project. When the project team is selecting aesthetic features during the design, the lead time will be accounted before final selection. Delays to the schedule could occur due to issues with the supply of materials throughout

the life of the project. To help prevent this, purchase orders and submittals for all materials will be executed as soon as the design is complete. When feasible, we will take early delivery of material as long as there is a storage area and a means of protecting the material from damage.

As outlined in earlier sections, Facchina has ample resources to construct the MD 97 Brookeville Bypass. We have demonstrated that we are capable of building very complex work and we can adapt to the constraints of working in environmental sensitive areas. Our greatest project challenge is to effectively develop and execute a strategy that delivers a project with an optimized GMP that meets or exceeds the outlined schedule and addresses all project goals. For this reason, we have assembled the strongest project team available, capable of meeting this challenge and far exceeding the expectations of SHA.

C.1.f. Other Resources & Capabilities

Facchina brings unique resources and capabilities to the project that will be beneficial in achieving the project goals.

We have assembled a project team that includes our Key Staff as well as additional value added personnel, with extensive experience on similar projects. All have extensive Design-Build project experience and many are registered professional engineers and Design-Build Professionals. The value added personnel include:

- Project Executive, Jeff Siddens. Jeff was the Design Build Construction Manager on our recently completed 11th Street Bridge project. Jeff will ensure that we facilitate a collaborative partnership with all members of the project team and stakeholders.
- Project Engineer / Utility Coordinator, Jeff Markle. Jeff, is the Construction Manager on our H Street/Benning Road Streetcar Implementation CMAR project.
- Assistant Estimator, John Kelble. John was our estimator for our recently awarded SHA MD 4 Design Build Project as well as our SHA Seneca Creek project.
- Erosion Control / MOT Manager, Steve Arthur. Steve has over 24 years' experience in highway and civil construction. During construction, Steve will ensure that we minimize impacts to the physical environment as well as inconvenience and impacts to the traveling public.
- Superintendent, Gary Moore. Gary has over 24 years' experience in highway and civil construction. During construction Gary will supervise all work on the project.

Facchina self-performs the majority of the work on our roadway projects. This allows us to have greater control over the work and will facilitate completing the project within the current construction timeline and within the current budget. This will enable us to perform a best value comparison of self-performing versus subcontracting each scope of work.

Facchina routinely self performs the following scopes of work found on this project:

- Prime Contract design and construction management.
- Earthwork, grading and roadway construction
- Roundabout and intersection construction
- Bridge and structural concrete construction
- SWM construction and ESC installation, maintenance and removal
- CIP and precast retaining wall construction
- Bridge, roadway, and structure demolition and removal
- Storm drain and culvert installation and replacement
- Water and sewer facility construction and relocation
- Traffic barrier installation

- Stream relocation, wetland mitigation, forest mitigation

Regardless of the contract delivery method, and whether partnering is required by the contract or not, we approach each of our projects with the intent to partner with the owner. We prefer this collaborative approach where the focus is building constructive relationships to satisfy all stakeholders. Many of our competitors tend to search for disputes and claims to add to their bottom line. We prefer working together for the benefit of all associated with each project. A collaborative approach is essential to mitigating the impact of problems that arise during the course of the project. Rather than focusing on placing blame, the partners focus on correcting the problem.

The core of Facchina is Heavy and Highway Construction. For 28 years we have successfully completed countless projects in the Baltimore, DC and Northern Virginia Metropolitan areas. We also have divisions performing work in the fields of concrete, commercial, residential, office, education, and retail construction locally as well as in Southern Florida. We have completed dozens of projects with aesthetic requirements including the Pentagon Secure Bypass, Capitol Visitor Center, and H Street / Benning Road Streetcar just to name a few. We will draw upon these resources and experiences to provide an aesthetically pleasing and context sensitive project.

C.1.g. Innovations and Proposed Technical Concepts

As a matter of practice Facchina approaches all of our projects with the intent to develop innovative ideas and propose alternate technical concepts. This begins in the estimating and / or design phases and continues through the completion of construction. We have extensive experience with Alternative Technical Concepts and Value Engineering.

We have already conceived of some innovative ideas and proposed technical concepts that may or may not meet the requirements of this RFP and could increase the likelihood of success and help balance the project goals. The table below details some of these ideas / concepts and how they may further improve reaching project goals including savings to time or cost while maintaining quality.

Facchina had several Alternative Technical Concepts approved by the SHA on our recently awarded MD 4 Design Build Project. These included using bio-swales in lieu of micro bioretention facilities, cured in place pipe lining in lieu of rigid pipe lining or replacement and revisions to the milling / wedge and level section resulting in \$600,000 in savings to the SHA on a \$21,000,000 project.

The table below details Innovative Ideas / Proposed Technical Concept we have developed thus far for the MD 97 project for each of the goals as well as their benefits to the project.

Project Goal	Innovative Idea / Proposed Technical Concept	Benefit
Provide a two lane roadway to direct traffic away from the Town of Brookeville which accommodates both motor vehicles and bicycles.	<ul style="list-style-type: none"> • Adjust alignments to minimize rock excavation • Construct exit lane at northern roundabout • Contractor quality control • Replace north roundabout with signalized intersection • Provide a crossing or under bridge access 	<ul style="list-style-type: none"> • Reduces time and cost of construction • Provides safe passage for cyclists • Improve overall quality of final product • Less disruption to existing traffic during construction • Simplify the roadway design of the bypass itself

Minimize impacts to the physical environment (e.g. parkland, forests, streams, wetlands etc.) and provide an aesthetically pleasing and context sensitive project.	<ul style="list-style-type: none"> • State / Local agency involvement during design • Construct stream relocation in the dry • Use of readily available aesthetic elements • Replicate stone elements on structures with form liner • Unified landscape design at both roundabouts 	<ul style="list-style-type: none"> • Eliminates potential delays during permitting and approval phase • Eliminate sediment / reduce risk of flooding • Avoid customization lead times / reduce costs • Reduce costs • Maintain beauty of surrounding natural landscape
Complete the project within the current construction timeframe and within the current budget.	<ul style="list-style-type: none"> • Value added personnel • Develop and maintain a risk register • Detailed short term scheduling 	<ul style="list-style-type: none"> • Added design and construction experience • Acknowledge, prioritize and manage risks • Avoids schedule creep
Minimize inconvenience and impacts to the traveling public.	<ul style="list-style-type: none"> • Public information sessions • No work during community event • Use of wedge and level at tie ins in lieu of full depth paving 	<ul style="list-style-type: none"> • Inform public of coming work / answer questions and concerns • Eliminate noise / traffic backups • Reduce costs and decreased time for construction
Facilitate a collaborative partnership with all members of the project team and stakeholders	<ul style="list-style-type: none"> • Work activity preparatory meetings • Establish formal partnering program 	<ul style="list-style-type: none"> • Stakeholder involvement / update before each phase of work • Facilitates development of new ways to solve old problems and complex issues

C.2 Risk and Innovation Management

C.2.a. Risk Mitigation and Innovative Savings

For Facchina, risk and innovation management begins at the proposal phase of the project. This process will continue through design development and construction. Ultimately this will result in a successful project, which meets all the owner's stated goals in an economical and timely manner. We have assembled a team of construction experts to evaluate all aspects of the project. Our proposal team consists of experienced design build managers, construction managers, senior estimators, and proposal specialists who have extensively examined and reviewed all aspects of the project. Properly used, the CMAR process will eliminate or reduce risk and apply innovations. Facchina, as the CMAR, will reduce the cost of construction and provide the best value to the public. The CMAR process provides the opportunity to bring on the contractor during the design phase to perform as an integrated team with the owner and their Designer. This promotes innovation and collaboration in order to deliver the most efficient, and cost effective design while permitting the owner to maintain the decision making authority.

Facchina is extremely familiar with the risk management concept. Our firm mandates that we prepare and employ a "risk register" on all of our projects, regardless of the project delivery method. The Facchina approach is similar to the approach recommended by the Construction Management Association of America (CMAA). The project team (SHA, designer, and

contractor) will all be active participants. The risk register system is widely used as it provides a list of known risks, potential impacts, and mitigation strategies. Experienced designers and construction managers identify risks instinctively and are always looking for innovative means to save time and/or money. The CMAA's process ensures that all team members are informed and that these issues are openly shared and properly tracked through mitigation.

The project team will employ the following risk management approach:

- **Identification** - This is the most critical aspect. Constructability reviews, design specific groups, stakeholder input, and cost estimators will identify and augment risks or provide cost effective innovations and alternatives.
- **Responsibility** – A team member who is best suited will be assigned responsibility for managing the risk.
- **Assessment** – This determines the potential severity of the impact or effectiveness of an innovation, the probability of occurrence, the potential cost and schedule impact
- **Manage** – Control or eliminate the risk by preparing and executing a detailed task specific risk elimination plan defining ownership of risk, preparing response plans and actions, and particularly the management of the risk.
- **Continual Review** – The risk register is a tool that needs to be continually monitored, reviewed, and updated from project start to finish. The risk plan response should be analyzed for effectiveness and regularly refined and updated. Reports should be generated to track progress.

Risk Mitigation and Innovation – A key element of a successful project is to anticipate and eliminate risks by identifying, analyzing, and mitigating them prior to impacting the project. Several causes have been cited for cost overruns including initial omission of essential components, optimistic preliminary estimates, the estimating methods used, differing site conditions and scope creep. We will provide full, complete, and realistic cost estimates. For each major risk factor, a remedial action with its associated cost will be devised and incorporated into the project's Risk Management Plan. As a team, we will also evaluate the design and construction alternatives and strategies that provide such mitigation. New techniques, revised concepts, means and methods, alternate materials, etc. will all be considered and scrutinized. Detailed cost estimates will be performed on selected alternatives. Savings from innovations and/or refinements will conscientiously be tracked in risk register log. Both the CM and the owner can benefit from a carefully developed Risk Management plan.

Support Services – As the CMAR on the project, we will assemble a team of true experts in all the primary aspects of this project from design through construction. Facchina is not only a major heavy/highway general contractor who self performs most of their work, we are also very experienced in the world of design build and CMAR projects. Our CM will be working with the PM from the onset as part of our preconstruction services. This will not only ensure continuity but also provide two sets of very experienced eyes reviewing constructability, alerting the team of potential pitfalls, and providing cost effective alternatives or new technologies. The project will benefit by having reviews done by two PEs each with over 20 years of heavy/highway design and construction experience. Our chief and our lead estimators are both degreed engineers with over 59 combined years of Heavy/Highway experience. Our core group will be augmented by specialists who are experts in various types of construction disciplines. This is the advantage of choosing a multi-faceted self-performing GC, who understands the SHA's goals and needs.

C.2.b. Risk Register

The table below identifies risks that we will help manage in the Design and Construction. We have detailed how we will mitigate / eliminate the risks as well as the projected cost and / or time saving. We have assumed liquidated damages in the amount of \$1,500.00 per calendar day.

MD Route 97 - Risk Register

Risk #	Risk or Innovation Description	Probable Cost Savings of Risk Mitigation or Innovation	Probability of Occurrence	Cost Savings to Project	Schedule Impact to Project (Days)	Summary of Mitigation / Elimination or Implementation Plan
1	Environmental Permitting Delays The project requires extensive state and federal permitting	Construction Cost Savings: \$500,000 User Cost Savings: \$75,000	50%	\$287,500	50	The team needs to constantly track the status of these permits and expedite our processing.
2	Utility Relocations Delays - There are overhead lines to be relocated at each end of the project	Construction Cost Savings: \$500,000 User Cost Savings: \$112,500	50%	\$306,250	75	Attempt to advance the scheduling of this work. Monitor Scheduled Relocations, consider temporary relocations.
3	Restrictive Access Access to most of the work is restricted to Georgia Ave. and Brookville Road	Construction Cost Savings: \$50,000 User Cost Savings: \$15,000	100%	\$65,000	10	Project scheduling and E&S sequencing should reflect the limited access available
4	Environmental Damage Potential damage to the park and the streams is a major concern	Construction Cost Savings: \$250,000 User Cost Savings: \$22,500	50%	\$136,250	15	Concern for the environment should be reflected in the design. Contractor should assign an individual with a primary duty to prevent any environmental mishaps
5	Flooding This will retard construction , and potentially damage materials and equipment, and cause environmental impacts	Construction Cost Savings: \$150,000 User Cost Savings: \$15,000	100%	\$165,000	10	Be cognizant of upcoming storm events and make appropriate accommodations
6	Rock Impacting Design and Construction Rock excavation is both costly and time consuming	Construction Cost Savings: \$200,000 User Cost Savings: \$15,000	50%	\$107,500	10	Shift alignment and adjust appurtenances to avoid rock if possible
7	Budget Overruns/Scope Creep Scope creep and budget overruns are common in this type of construction, particularly since the project traverses through historic and environmentally sensitive areas.	Construction Cost Savings: \$250,000 User Cost Savings: \$37,500	20%	\$57,500	25	Maintain public outreach. Review design to minimize all quantities



Facchina

Facchina Construction Company, Inc.
102 Centennial St. Suite 201
La Plata, MD 20646
240.776.7000