WAGMAN

General Construction | Heavy Civil | Geotechnical

TECHNICAL PROPOSAL

CONTRACT NO.

PG6185470

SUBMITTED BY

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MARYLAND STATE HIGHWAY ADMINISTRATION
MD 4 (PENNSYLVANIA AVE) AT SUITLAND PARKWAY INTERCHANGE IMPROVEMENTS
CMAR

WAGMAN

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TECHNICAL PROPOSAL

B. CAPABLITY OF THE PROPOSER

MARYLAND STATE HIGHWAY ADMINISTRATION MD 4 (PENNSYLVANIA AVE) AT SUITLAND PARKWAY INTERCHANGE IMPROVEMENTS

CONTRACT NO. PG6185470

Anthony has 34 years of experience and 22 years with Wagman. Over the past 34 years Anthony has worked as a Project Manager, DB Project Manager, Design-Build Coordinator, and Estimator. As VP of Alternative Delivery, Anthony manages Alternative Delivery projects from design development through construction ensuring continuity through project completion. Anthony has built relationships with owners (including MDOT SHA & DOD), designers, MDE, PRD, National Park Service, subcontractors and partners during his experience on Alternative Delivery projects similar to the MD 4 at Suitland Parkway.

Anthony W. Bednarik
PROJECT MANAGER

PROJECT AVAILABILITY
Preconstruction / 75%
Construction / 75%

PROJECT MANAGEMENT EXPERIENCE

MD 32 Dualization from Linden Church Road to I-70 Design-Build ($85M) - Design-Build Project Manager DB Project Manager for this $85M design-build contract to dualize MD 32 for 6 miles, improve existing interchange, replace three bridges, install four box culverts, new roadway, rehabilitation of existing roadways, signing, utility relocations and stormwater management. Anthony manages the design and construction which includes constructability reviews, third-party coordination, partnering, CPM schedule, and public outreach meetings. Managed environmental compliance including reforestation, stream reconstruction, wetland creation, and redundant E&SC facilities to protect resources. Anthony's team developed ATCs to reduce cost, avoid and minimize impacts and improve the project schedule; a complex TMP/MOT was developed to improve mobility. Anthony managed an integrated team to identify & mitigate risk and answer questions, and he embraces partnering to avoid and resolve disputes, keeping the project on schedule and on-budget. **RELEVANT TO SUITLAND PARKWAY:** Design Development, partnering, safety, constructability reviews, QA/QC, environmental compliance, integrated team, stakeholder coordination, MOT/construction sequencing, on time/budget, utility coordination, public outreach, subgrade improvements, open communication to answer questions & resolve disputes, risk identification and mitigation with innovative technical solutions.

MD 404 from US 50 to East of Holly Road Design-Build, MDOT SHA, Queen Anne's County, MD ($105M) - Design-Build Project Manager Anthony worked with Design-Build Partners to coordinate an unprecedented innovative schedule dividing the project into 3 concurrent sections to meet an incredibly aggressive schedule milestone. The project was on an aggressive project schedule, increasing mobility and safety throughout the corridor. MD 404 included extensive earthwork, through multiple watersheds, environmentally sensitive areas, and many stakeholders. Anthony managed utility coordination and relocation, complex construction sequencing, extensive maintenance of traffic, maintenance of stream flow, bridge construction, box and culvert construction, SWM facilities construction, E&SC permit acquisition, permit modifications, MDE/PRD permitting, stream restrictions, dispute resolution through partnering, and risk management. The project won 6 awards. **RELEVANT TO SUITLAND PARKWAY:** DBPM for project with bridges, stormwater management, MOT, environmental compliance, utility relocations, stakeholder coordination, risk identification and mitigation, minimization of environmental impacts, ATC's, Stormwater BMP's and aggressive project schedule (18 months NTP to traffic), material & subcontractor procurement, and resource allocation (labor & equipment), and historic viewshed.

ICC Contract B Design-Build, MDOT SHA, Montgomery & Prince George's Counties, MD ($570M) - Wagman's Design Coordination Manager As Wagman's PM, Anthony managed a fully integrated construction joint venture to design and construct Contract B. Anthony used his experience from Contract A to streamline processes on ICC B. With primary attention to collaboration between the contractors MDOT SHA, designers, utility companies, environmental agencies and third-party stakeholders. Anthony conducted constructability reviews on this 7-mile-long design-build project which included major structures and earthwork and was designed and constructed in three years. A complex TMP involving phased construction was developed to construct three overpasses and two interchanges minimizing inconvenience to the community and the travelling public. **RELEVANT TO SUITLAND PARKWAY:** Project Manager for project with similar bridges, stormwater management, maintenance of traffic, environmental compliance, stakeholder coordination, risk identification and mitigation, minimization of environmental impacts, utility coordination and minor arterial overpass structures, poor soils, partnering to avoid and resolve issues/disputes and manage project risk to cost & schedule.

PROFESSIONAL EXPERIENCE: BS, Civil Engineering, Bucknell University • DBIA Certified Professional • ARTBA Project Management Academy, ASCE

David has 16 years of experience, all with Wagman. As Construction Manager (CM), David's projects were completed within or ahead of the allowable schedule. Utilizing P6, he develops and integrates project schedules with the construction operations and coordinates public outreach efforts on projects of varying; size, delivery method (DB, Bid-Build, CMAR), scope, and for multiple owners, including a $116M CMAR project in Frederick, saving the owner over $2.4M. He assists estimating and engineering with challenging work activities such as access, erection plans, MOT, complex utility relocations, and project sequencing.

David L. Leber
CONSTRUCTION MANAGER

PROJECT AVAILABILITY
Preconstruction / 100%
Construction / 100%

CONSTRUCTION MANAGEMENT EXPERIENCE

I-270 at Watkins Mill Road Interchange, Alternative Delivery A+B, Montgomery County, MD: David was the CM for this Project on I-270 in Gaithersburg MD, which was bid as an A+B contract with a substantial incentive / disincentive to complete the project per Wagman's proposed duration. Partnering helped to resolve issues and minimize risk to the project. The CPM schedule was developed by David, and he communicated the plan to the team ensuring the project was completed on time. David worked closely with SHA District 3 to resolve constructability issues in a timely manner and streamline design changes on this fast-paced project. He was responsible for the overall project safety, utility coordination, quality, environmental compliance, and costs. Through numerous outreach events, David assisted SHA with public outreach and was praised by the adjacent HOA for limiting construction impacts during the project. He spearheaded a value engineering proposal with SHA that provided numerous benefits to the project including reduced risk, traffic impacts and cost. Despite pandemic challenges, David worked with the team to ensure the highest quality and safety standards were maintained. He led the efforts that resulted in the project being completed 30 days ahead of schedule, achieving the full early completion incentive and was acknowledged by industry peers by receiving the MdQI Partnering and Modal Awards. **RELEVANT TO SUITLAND PARKWAY:** CM for project with bridges, utility relocations, stormwater management, MOT, environmental compliance, risk identification and mitigation plan, value engineering, CPM schedule development, heavy urban traffic for MDOT SHA, working with adjacent developers and creation of a new interchange.

Route 7 Widening & Bridge Rehabilitation over Dulles Toll Road & Airport Access Highway, VDOT, Fairfax County, VA: David was the CM for this complex, utility intense and heavily traveled (180,000 ADT) interchange project replacing the Route 7 Bridge over the DTR & AAH. David worked with the design team to complete constructability reviews and plan revisions to improve project cost & schedule. He was responsible for resource allocation, utility coordination, workforce & equipment, subcontractor coordination, and quality control. David coordinated with stakeholders inclusive of VDOT, WMATA, MWAA, Fairfax County, utility owners and others; to ensure compliance with contract requirements. He developed and executed an MOT phasing plan which reduced the number of construction phases from seven to four; thereby reducing the overall project schedule by approximately seven months and significantly reducing costs and impacts to the traveling public and stakeholders. **RELEVANT TO SUITLAND PARKWAY:** CM for project, maintenance of traffic, utility relocation, value engineering, complex project phasing, risk identification & mitigation, deep foundations, CPM schedule and alternate project sequencing/traffic in major metro area, heavy traffic control, public outreach program, third-party coordination with nearby major airport.

I-95 Bridge Rehabilitation and Joint Replacement, MDTA, Baltimore, MD: David was the CM for this heavily traveled (180,000 ADT) interchange project on I-95 in Baltimore MD which included rehabilitation of 28 bridges. The work was completed in 15 phases with multiple work zones in each phase. David supervised and coordinated all subcontractor activities; ensured work was performed per contract requirements; communicated and ensured compliance of safety plans. As the CM, his duties included coordination with MDTA, the Stadium Authority, the motoring public and other stakeholders to minimize impacts to the travelling public through proper planning. **RELEVANT TO SUITLAND PARKWAY:** CM with interchange construction, bridges, heavy commuter traffic, extensive traffic control, QA/QC subcontractor coordination, coordination with stakeholders, complex phasing, and public outreach in urban Maryland corridor.

PROFESSIONAL EXPERIENCE: CCM, DBIA, PMP Certified • MBA & Graduate Certificate in Project Management, Mount Saint Mary's • AS, Construction Management, Frederick Community College • BS, Economics, West Virginia University • MSHA Traffic Manager • MDE Green Card • MD E&S Yellow & Designer Registration • OSHA 10 & 40 HR

Jon has 38 years of experience in the industry, and 22 years with Wagman. As Chief Estimator for Wagman, Jon is responsible for producing accurate cost estimates totaling in excess of $2B per year. The estimating effort includes CMAR, Hard Bid, DB and other Alternate Delivery Methods. During his career, Jon has successfully estimated and procured work in excess of $3B, including projects requiring coordination with the National Park Service and Department of Defense. Jon has spent his entire career in the Maryland market and has unparalleled relationships with the local material suppliers and subcontractors who are familiar with Maryland specifications. As Cost Estimator (CE), Jon will quantify and estimate direct costs utilizing his 30+ years of experience and Wagman's extensive cost history. Jon's will assess risk and apply sound assumptions during the estimating process. Jon has a comprehensive list of subcontractors and suppliers and well established relationships with local vendors.

Jon P. Fiem
COST ESTIMATOR

PROJECT AVAILABILITY
Preconstruction / 75%
Construction / 50%

COST ESTIMATOR EXPERIENCE

I-270 at Watkins Mill Road Interchange, Montgomery County, MD: Jon was Wagman's Chief Estimator for this contract. He led the take-off and estimating effort resulting in Wagman's successful low bid and aggressive schedule. The project included a new interchange with a new overpass crossing a heavily travelled highway (I-270). Project included earthmoving, caissons, noisewall, culverts and steel and concrete structures, milling and overlay, environmental compliance, bio-swales, SWM basins, E&S, maintenance of traffic and major utility relocation. Project included a major stream reconstruction. Jon identified risk and developed strategies to mitigate. The project schedule was integral to the cost estimate and MDOT SHA evaluated cost and schedule; determining Wagman as the Best Value to Maryland. **RELEVANT TO SUITLAND PARKWAY:** Cost estimator for project with bridges, stormwater management, maintenance of traffic, environmental compliance, environmental minimization and mitigation, risk identification and mitigation plan, subcontractor and supplier solicitation, quantity take-off, and steel structure over Maryland highways for MDOT SHA.

I-95/I-695 Interchange, Phase 1, KH1501, Baltimore, MD: Jon managed the take-off and estimating effort of this $220 million project. Wagman was the managing partner of a three-way joint-venture. Jon developed bid instruction and estimating rules to allow all three partners to develop concise cost estimates. Jon created collaboration between three contractors that was achieved by open and honest communication during the cost estimate development. He managed the bid solicitation with subcontractors and suppliers. He developed a pre-bid schedule that was incorporated into the baseline CPM for the project. During construction, Jon developed a value engineering proposal saving the Owner close to $2 million and modified the maintenance of traffic plan to reduce construction phases improving mobility. **RELEVANT TO SUITLAND PARKWAY:** Cost estimator for project with steel bridges, maintenance of traffic, utility relocation, stormwater management, Value Engineering, complex project phasing, risk identification, risk mitigation, ground improvements estimate reviews with partners, partnering, deep foundations quantity take-off and comparison with partners and alternate project sequencing/traffic in MD.

Woodrow Wilson Bridge, Oxon Hill, MD: As Chief Estimator, Jon led the estimating effort on five separate contracts for the Maryland approach of the bridge located in Prince George County. Wagman was successful on five hard bid contracts totaling $270 million, proving Jon's ability to provide cost savings to MDOT SHA. Jon worked with our field personnel to identify risk and develop strategies during the estimate and throughout the project to mitigate and assess risk. During construction, Jon was integral in a foundation redesign value engineering and negotiation creating a savings for MDOT SHA of over $1M. This VE involved poor soils on Rosalie Island. Jon and the estimating team developed alternatives reducing cost and improving the project schedule. **RELEVANT TO SUITLAND PARKWAY:** PG County construction, bridges, retaining walls, commuters, steel structures, E&S, extensive traffic control, coordination with adjacent developers and contractors, utility relocation, complex phasing, stormwater management, bio-swales, risk identification and mitigation, quantity take-off, support of excavation, ground improvement, innovative engineered materials, estimating assumptions and quantifying project elements and subcontractor and supplier solicitation, subcontractor & supplier selection in urban area of Maryland.

PROFESSIONAL EXPERIENCE: BS, Civil Engineering, Penn State University

MD 404 Dualization

OWNER/CLIENT AND CONTACT INFORMATION

MD State Highway Admin
Mr. Sean Campion
Phone: 410.545.8863
scampion@mdot.maryland.gov

PROJECT DELIVERY METHOD

Design-Build

CONSTRUCTION COST

Initial Contract Value:
$104,440,000

Final Contract Value:
$114,788,000

Reason for Difference:
Incentive and Owner change orders

SCHEDULE PERFORMANCE

Initial Completion Date:
May 2020

Final Completion Date:
July 2020

Reason for Difference:
Additional work requested by owner

PROJECT DESCRIPTION

Wagman Heavy Civil, Inc. (Wagman) was the Managing Partner of the MD 404 Corridor Safety Constructors (404 CSC) Joint Venture to convert nine miles of the dualization of existing MD 404 from a 2-lane roadway to a 4-lane divided roadway with a green median. At select intersections, J-turns and Maryland T intersections were constructed to eliminate unprotected left turns from side streets and new service roads. These innovative traffic intersections consolidated access points with residential and commercial properties to improve safety along the MD 404 corridor. Other improvements included cross-street tie-ins to the dual highway; 18 significant cross culvert drainage structures, box culverts and multi-cell pipes; a 115 ft. single span bridge over Norwich Creek; new roadway pavement section; existing roadway rehabilitation (patching, milling, wedge and level, and surface paving); open/closed drainage systems; stormwater quality ESDv and quantity facilities; intersection lighting; corridor-wide signing, pavement marking, and ITS devices; traffic signal modification at US 50; noise abatement earth berms; and landscaping. To meet the aggressive 18-month schedule to design and construct, Wagman divided the project into three segments. As JV Partner, Wagman was responsible for the overall project management. Our team was able to reduce cost by incorporating multiple ATCs, resulting in a $12M savings to MDOT SHA. On November 20, 2017, MD 404 was opened to four lanes of traffic, two lanes in each direction, providing MDOT SHA with beneficial use of the highway. Environmental compliance was a priority to reduce environmental resource impacts. Several utilities were impacted, requiring relocation and coordination with the utility owners throughout design and construction. The design-build delivery method provided us the ability to prioritize the utility relocations and work around the existing utilities. In some instances, we were able to avoid the utility relocation entirely. Revisions that impacted the E&SC sequence of construction required OED QA Toolkit modifications to be prepared and submitted for approval. There were 22 cross culverts at various stream or Waters of the U.S. designations. At select locations, cross culverts were designed and constructed for fish passage. A comprehensive public outreach plan was developed with MDOT SHA. The program included regularly scheduled updates, lane closure schedules, and traffic switch milestones. Multiple public meetings were held and we held additional meetings with first responders to ensure free travel through construction zone. The project team also provided content to MDOT SHA's website and social media, including posting drone videos. To mitigate cost and minimize delay due to unsuitable soils, a soil cement design was developed to modify areas with a lower CBR. Wet swales, grass swales, and bio-swales were designed and constructed to meet the SWM requirements. A comprehensive landscape plan was developed. An efficient earthwork hauling plan was prepared by creating a 3D model of the project, allowing material to flow within and between segments.

RELEVANCE TO MD 4 AT SUITLAND PARKWAY INTERCHANGE

Minimize Project Cost: Open and honest estimate review between the JV partners, ensured the most competitive project cost. Our JV was over $30 million lower than the second bidder. Multiple Alternative Technical Comments reduced cost by over $12M. CMAR approach will allow Wagman to leverage our subcontractor pricing and innovative options to reduce project costs for the Suitland Parkway Interchange.

Minimize Project Delivery Time: MD 404 was designed and constructed to allow four lanes of unimpeded traffic within 18 months. Wagman lead the design & construction to effort to maintain the projects aggressive schedule. A key tool was a fully integrated CPM schedule that was maintained throughout the project that consisted of over 2,000 activities which defined each segment's design, submittal and construction activities. On MD 4 at Suitland Parkway, Wagman will utilize a fully integrated CPM schedule and distribute at weekly construction and design meetings to stay on-point. Project controls will ensure the latest drawings are in the hands of the field operations and MDOT SHA inspectors and changes will require coordination with MDOT SHA, PRD, MDE and third-party stakeholders such as environmental agencies. Wagman coordinated with local utility companies to facilitate the relocation prior to construction. Early work utility packages were developed to improve the project schedule. A similar approach to utility coordination and relocation will be employed on the MD 4 at Suitland Parkway project to mitigate utility risk to the project schedule.

Improve Safety and Mobility for Travelling Public: MD 404 had numerous access points, resulting in high crash rates. The dualization from a 2-lane section to 4-lane divided roadway provided opportunities to consolidate access points by incorporating an access control plan with select connections to MD 404. Furthermore, innovations at the intersections incorporated J-turns and Maryland Ts to eliminate select left turn movements while providing for predominate turning movements. We understand the complex MOT and sequence of construction on MD 4 at Suitland Parkway, and we will focus on innovative solutions for improved safety during and after construction.

Collaborative Team Approach to Manage the Project: Design development began as soon as the Notice of Award was issued. The design team, MDOT SHA, and constructors all met to discuss the information provided by MDOT SHA and the constructability of the project. Weekly task force meetings were held to progress the design and the task forces reported weekly to the management committee to maintain the schedule. We met with MDOT SHA monthly for partnering meetings and every two weeks for progress meetings. As an early work activity, we met with newly-established MDOT SHA-PRD (delegated authority from MDE) as soon as we were notified of award, starting the partnering and collaboration. Our design teams developed E&SC plans with sequence of construction for submission to our IDQA firm, who reviewed the documents for project compliance. After approval from our IDQA firm, the submission was forwarded to MDOT SHA and MDOT SHA-PRD for review. Issues were resolved through partnering and open communication. A reduction in permitted environmental impacts was achieved during design and construction with NEPA re-evaluation and modifications to the permits coordinated with the permitting agencies. Prior to issuing Released for Construction Plans, an all-inclusive work plan meeting was held with field personnel and designers to ensure the field personnel understood the sequence of construction, design elements, QA, safety, environmental compliance, and change management. This partnering and collaboration experience of the project team will increase the successful outcomes of the Construction Management at Risk for the MD 4 at Suitland Parkway Interchange Project. Additionally, we will utilize risk and innovative technical concept workshops to manage these processes during the CMAR process.

MD 404 Dualization

PROJECT AWARDS

AASHTO Quality of Life/ Community Development

2018 Project of the Year over $100M – ABC Chesapeake Shore Chapter

2018 Excellence Award, Mega Projects: Projects over $100M – ABC Chesapeake Shore Chapter

2019 MD SHA Award over $5M – MdQI

2019 Partnering Construction Bronze Award – MdQI

2019 Project of the Year over $5M – MdQI

2019 Honor Award – DBIA Mid-Atlantic Region

I-270 at Watkins Mill Road Interchange

OWNER/CLIENT AND CONTACT INFORMATION

MD State Highway Admin
Mr. Bill Kucharek
Phone: 410.322.5885
bkucharek@mdot.md.gov

DELIVERY METHOD

Alternative Delivery A+B
Design-Bid-Build

CONSTRUCTION COST

Initial Contract Value:
$91,440,000

Final Contract Value:
$98,788,000

Reason for Difference:
Incentive and Owner initiated change orders

SCHEDULE PERFORMANCE

Initial Contract Date:
August 2020

Final Contract Date:
July 2020

Reason for Difference:
Completed 1 month early

PROJECT DESCRIPTION

Construction included a new interchange on I-270 consisting of 14 structures, including a five-span bridge that connected communities, providing a multi-modal crossing over I-270 and a tributary to Seneca Creek. The project was advertised as an A+B, which is an Alternative Delivery method that applies cost per day to the bidders proposed project duration and Wagman's duration of 1,060 days provided the Best Value to MDOT SHA with an A+B evaluated price of $117,965,066.20.

The project had numerous challenges. This included the relocation of one mile of WSSC 48" DIP Water, WSSC 16" PVC Sewer and a Level 3 Duct Bank that ran parallel to existing I-270. This work was performed by our dedicated subcontract WF Wilson. This relationship will benefit the MD 4 Project.

The project reconstructed a stream and floodplain of a Tributary to Seneca Creek. A new stream channel and a 150-ft wide floodplain was constructed thru the entire project length. Numerous environmental enhancements were installed including log sills, rock vane structures, riprap underlayment, riffle grades, toe wood structures, live fascines, wetland seeds and planting to promote a high quality environment.

The retaining wall to support the new MD124 off-ramp from SB I-270 was designed with a Cast-in-Place section that was difficult to construct. It was adjacent to an existing MSE wall that is in excess of 20' and retained existing I-270 SB. To alleviate these concerns, reduce risk, and improve the project schedule, Wagman proposed a value engineering change proposal to replace the wall with a permanent top-down tieback wall. Working with SHA Office of Structures and utilizing our in-house geotechnical engineers, approval was granted and Wagman self-performed the engineering, design and construction of this structure.

Another challenging retaining wall was on the on-ramp to I-270 NB; it was designed to support the existing slope to I-270. This wall was located directly underneath the foundations for two high-voltage electrical towers over I-270. The proposed excavation encroached on the foundations, posing a significant risk to the project and the utility company. Wagman, utilizing its in-house engineers, designed and installed Support-of-Excavation utilizing drilled casing and two rows of tie-backs, minimizing impacts to the foundations.

To complete this project within the expedited schedule, the project team developed numerous creative modifications to the E&S Plans. The modifications accelerated sequencing of the project, while eliminating risk and impacts. Wagman worked with MDOT SHA to develop and receive agency approval of these modifications.

Two modifications included a temporary access bridge and temporary stream relocation. The bridge was built over the Tributary and allowed access for concrete and structural steel to construct the Watkins Mill Bridge. The stream relocation was a temporary relocation for approximately 500' along the MD124 off-ramp retaining wall. Relocating this existing stream in this location was a benefit by allowing access to construct this wall. Both of these modifications greatly reduced the impacts to the traveling public on I-270 and improved the project schedule.

I-270 at Watkins Mill Road Interchange

PROJECT AWARDS

2021 Partnering, Project over $10M – MdQI

2021 Modal Award, Project over $5M – MdQI

2021 Subcontractor Award, Construction (W.F. Wilson & Sons) – MdQI

2021 Excellence in Infrastructure, Project over $15M – Heavy Construction Contractors Association (HCCA)

Minimize Project Cost: MDOT SHA procured this project utilizing an A+B process where price and schedule ($31,400/day) factored into the best value evaluation. Considering project cost & schedule, MDOT SHA to selected Wagman with a best value evaluation price of $117,965,066.20. In addition, Wagman worked with MDOT SHA, designers and stakeholders to reduce cost through our retaining wall value engineering. Wagman will apply our integrated schedule and partner with the team during preconstruction of Suitland Parkway Interchange to determine the best value of schedule, price and alternates.

Minimize Project Delivery Time: During procurement, we developed a bid schedule to reduce the project duration by 6 months. Using our fully integrated construction CPM, and by successfully implementing our process of "plan the work, work the plan" we completed the project an additional 30 days early. The integrated CMAR process and CPM development along with our work plan process will minimize project delivery time.

Improve Safety and Mobility for Travelling Public: Wagman employed certified traffic crews and manager to ensure a safe work zone along this challenging corridor. Wagman videotaped every major traffic switch to ensure proper installation of all MOT TMP elements. Through planning and our safety program, Wagman worked over 400,000 man-hours without a lost time incident. Public outreach was vital to keeping the travelling patrons moving and safe, and Wagman partnered with MDOT SHA to provide up to the minute information. All work for Suitland Parkway Interchange will be planned and executed with safety as a priority people working and the traveling public. Our logical sequence of construction and communication to third party stakeholders and travelling public, in partnership with MDOT SHA, will ensure public support and confidence in the project.

Collaborative Team Approach to Manage the Project: Public outreach and third party coordination were vital to the success of the project. Through weekly schedule meetings, Wagman was able to inform the traveling public of any upcoming major traffic switches to simple lane or shoulder closures. Minimize Impacts to Utilities: An existing Level(3) ductbank ran parallel to I-270 SB and was in conflict with numerous proposed structures. Wagman performed numerous project outreach events with the local communities and HOA's adjacent to the project to provide project schedule updates, notification of upcoming work that could impact travel, and night/weekend work. Wagman also worked with MDOT SHA's community liaison to provide social media updates on construction activities and traffic shifts. Collaborative relationship of partnering: The Watkins Mill Project began with a day-long partnering kick-of meeting for representatives from MDOT SHA, Wagman, subcontractors, and designers. Monthly partnering meetings were held to discuss and collaboratively resolve issues to reach our common goals. Wagman developed open and honest communication with District 3 ensuring a successful project which we hope to further on the MD 4 project.

> As stated by Transportation Secretary Slater, **"This project will bridge two sides of the City of Gaithersburg, connecting residents to job centers, medical centers and the MARC station. Thanks to the crews of Wagman Heavy Civil Inc. and the hardworking SHA team for working through the health crisis. This project is delivering more travel options with improved access for everyone: motorists, truck drivers, cyclists, pedestrians, transit users – everyone."**

Section 100
I-95/I-695 Interchange

OWNER/CLIENT AND CONTACT INFORMATION

Maryland Transportation Authority
2310 Broening Highway
Baltimore MD 21224

Joe Jachelski,
Director, MDTA Construction Div.
Phone: 443.790.8973
jjachelski@mdta.state.md.us

DELIVERY METHOD

Design-Bid-Build

CONSTRUCTION COST

Initial Contract Value:
$208,440,000

Final Contract Value:
$216,788,000

Reason for Difference:
Incentive and Owner initiated change orders

SCHEDULE PERFORMANCE

Initial Completion Date:
June 2010

Final Completion Date:
August 2012

Reason for Difference:
Additional work requested by Owner extended completion date

PROJECT DESCRIPTION

This was a $216.7M interchange reconstruction project north of Baltimore City, MD, for one of the most heavily traveled interchanges ADT 330,000) in the United States. The I-95 & I-695 Interchange was designed to eliminate an outdated double braided interchange and Wagman was the managing partner of a construction joint-venture formed to build this project. Collaboration, coordination and open communication, facilitated by Wagman, between our joint-venture partners, MdTA, Designer and GEC, made this project a success. The work included 11 bridges – four curved steel flyovers, three mainline bridges, two ramp bridges and two overpass structures with deep foundations. The project also included 75,000 SF of retaining walls; 215,000 SF of drilled caisson post and panel noise walls; 1,100,000 CY of excavation; 30,000 LF of drainage pipe; 175,000 tons of asphalt paving; milling of mainline I-95; and grooving services. This interchange project created unique challenges in stormwater management. Working closely with Maryland Department of the Environment (MDE) we were able to adjust erosion and sedimentation sequencing to align with earthmoving and MOT operations. The I-95/I695 Interchange project also required strict environmental compliance and stormwater management with the construction of new ponds inside the interchange within the proper sequence of construction. Utility relocation and coordination enhanced the progress of the project when we proposed to hand tunnel under I-95/I-695 in lieu of micro-tunneling. This work was self-performed by the Joint-Venture allowing us to manage the schedule of the utility relocation. A major fiber optic communication line ran through the project, and we collaborated with the utility owner to locate and avoid relocation of this important utility during all phases of construction.

Public involvement was imperative for this project. The Wagman led Joint Venture and MDTA management team collectively addressed customer concerns. The Project Team regularly communicated I-95/I-695 Interchange construction progress as well as operational changes which occurred during construction and in the final configuration. A project website, www.I95ExpressTollLanes.com, was maintained to announce construction updates, traffic alerts and conditions. We met weekly to develop a three-week look ahead for all upcoming work, lane closures or major traffic switches. An outreach team provided information and services including community group presentations, special studies addressing potential noise impacts, and physical improvements to enhance project aesthetics. Wagman provided additional support by holdings daily meetings a giving information to MdTA management. To accelerate construction, the JV Partnership initiated and coordinated the establishment of an on-site concrete batch plant with the local supplier and MDTA.

It was located in the same complex as the project field offices. This vastly improved the level of service and enhanced safety as it reduced ready mix trucks traveling to and from the jobsite and minimized the number of trucks needed. By avoiding the extreme traffic, the team delivered a superior concrete product. MDTA and the project team greatly benefited from this in terms of cost, schedule and safety. The onsite plant ensured on-time deliveries of massive amounts of concrete needed in high-volume traffic areas, improving quality.

Wagman started to identify and mitigate risk during the project pursuit. After we were selected for the project we continued to identify and assess risk; developing risk mitigation strategies. In addition, we developed innovative solutions for deep foundations and MOT to mitigate risks and solve issues that saved MDTA over $2 million.

Minimize Project Cost: Wagman provided a major cost savings to the owner with a low bid that was over $20 million below the second bidder proving our cost competitiveness. During construction, Wagman proposed to Value Engineer portions of the foundation system on the main flyover structures. We designed the foundations to a more conventional pile foundation that suited our resources and resulted in a $1.8 million savings to the project improving project access and the project schedule. Wagman will use the long-term relationships with partners and subcontractors to ensure competitive pricing during preconstruction and offer innovative technical solutions for this project.

Minimize Project Delivery Time: Wagman met all schedule milestone including project completion while coordinating with adjacent contractors. Wagman continued to improve the construction schedule through modification of the traffic phasing, reducing costs, improving structural steel erection and reducing the number of lane closures on I-95 & I-695; improving the overall project schedule. The lessons learned on this complex interchange project such as organization, communication and planning will be applied to manage the MD 4 at Suitland Parkway Interchange schedule and ensure project milestones are met or exceeded.

Section 100
I-95/I-695 Interchange

PROJECT AWARDS

2010 Excellence in Concrete Award – ACI, Maryland Chapter

2010 Silver Award for Public Communication – National Partnership for Highway Quality

2011 Award of Excellence, Structure New/Structure Rehabilitation over $5M – MdQI

2011 Award of Excellence, Partnering Silver – MdQI

2011 National Achievement Award, Special Recognition for a Structure Project – National Partnership for Highway Quality

Improve Safety and Mobility for Travelling Public: Wagman worked over and along major interstates and arterial roadways maintaining traffic and minimizing impact to the traveling public. We re-designed the traffic phasing on both major interstate roads eliminating “contra-flow” alleviating bottlenecks created by exits on the left side of I-95 and increase motorist convenience and safety, this project relocated exits to the right, thus providing a more conventional geometric design. This modification improved safety & mobility for the travelling public and field workers. This project required major traffic control components to maintain vehicles on I-95 and I-695 during construction. Working with the designer and owner, Wagman proposed a very successful alternate traffic scheme that reduced the number of lane closures during steel construction by creating detours of mainline interstate to facilitate the erection process. Although there were over 100 nights this work was performed, there were few complaints registered and this MOT change resulted in a public relations win for the Owner. Wagman will balance the project goals of safety, schedule and mobility when creating and considering alternative MOT options for the MD 4 at Suitland Parkway Interchange.

Collaborative Team Approach to Manage the Project: Wagman developed a great working relationship with MDTA, the GEC, the designers and local stakeholder to create a collaborative working atmosphere that fostered innovation and alternatives (Value Engineering proposals). Daily coordination meetings and partnering at the lowest level encouraged open and honest collaboration to “Do what is best for the Project.” Wagman embraces the Partnering process developed by MDOT SHA and actively participates in the process. This partnering approach with open communication and clear lines for dispute resolution is the philosophy of the proposed Wagman Team and will tremendously benefit the MD 4 at Suitland Parkway Interchange CMAR project.

MDOT MARYLAND DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION

SHA Project Manager
ICE
Design Manager
Structural Design
Roadway / MOT Design
Design Utility Coordination
Geotechnical Design
Environmental Manager

EXECUTIVE COMMITTEE
Greg Andricos, P.E. - President / COO
Mike Glezer, CM at Risk Resource
Cory Gaye, Corporate Safety Director

THIRD PARTY STAKEHOLDERS
FHWA • Maryland National Capital Park & Planning • Prince George's County • PEPCO • WSSC (Water/Sewer) • Fiber Optics Communications • MD Dept. of the Environment, MD • US EPA • JBA DOD • Dept. of Natural Resources • ACOE US Fish & Wildlife • Traveling Public Local Business • Local Property Owners • PG County Police • Maryland Historic Trust • Developers (Wood, Westphalia, Smith Farm Home) • PRD

LEGEND
- Design Development/Preconstruction
- Construction
- Public Outreach
- Key Personnel

Project Manager
ANTHONY BEDNARIK, DBIA
Precon: 30 | Construction: 30

Cost Estimator
JON FIEM
Precon: 30 | Construction: 20

Construction Manager
DAVE LEBER, DBIA
Precon: 40 | Construction: 40

Safety Manager
MARK WARNER*
Precon: 20 | Construction: 40

Public Outreach
ALYSSA GIROUARD
Precon: 16 | Construction: 16

Design Integration Mgr.
SCOTT RHINE, P.E., DBIA*
Precon: 30 | Construction: 8

Structures Design Coord.
ALEX BROWN*
Precon: 20 | Construction: 8

Roadway/MOT Design Coord.
ROB SHUNK, P.E.*
Precon: 20 | Construction: 8

Utility Coordinator
JASON HERSHEY, DBIA*
Precon: 16 | Construction: 16

Geotechnical Design Coord.
ED LACZYNSKI, P.E.*
Precon: 20 | Construction: 20

MDE/PRD Coordinator
BRYAN SMITH, P.E.*
Precon: 20 | Construction: 20

MOT Manager
BRIAN SLUDER*
Precon: 20 | Construction: 40

Project Superintendent/Structures
ANDREW MICHENZI
Precon: 0 | Construction: 40

Civil/Roadway Superintendent
MARK BIXLER
Precon: 0 | Construction: 40

Utility Superintendent (WF Wilson)
DOUG ANDREW
Precon: 16 | Construction: 40

Geotech Superintendent
SHAWN PAINTER
Precon: 0 | Construction: 40

Environmental Compliance Mgr.
DAN ALT*
Precon: 20 | Construction: 40

Project Engineer/Scheduler
DAN RICE*
Precon: 8 | Construction: 40

Construction Engineer
DERRICK PEPPER
Precon: 0 | Construction: 40

Construction Engineer
MIKE SPECHT
Precon: 0 | Construction: 40

Survey
TONY MASCARO
Precon: 0 | Construction: 40

Office Manager
NICOLE WILSON*
Precon: 8 | Construction: 40

Admin / Clerk
JESSICA SARTAIN
Precon: 0 | Construction: 40

HR Recruiter / OTJ Coordinator
CRISTINA VELEZ*
Precon: 16 | Construction: 20

VALUE ADDED PERSONNEL*

Scott Rhine, P.E., DBIA - Scott is a professional Engineer with over 20 years of experience in complex transportation projects, Alternative Delivery and Design-Build.

Rob Shunk, P.E. - Rob has over 25 years of experience as a cost estimator and will support Jon Fiem, with roadway elements including paving, subbase, MOT, excavation, drainage, E&S and major subcontractors.

Alex Brown - Alex will support Jon Fiem with take-of and estimate organization. Alex started as a field engineer on the $464 Million ICC-A DB and has been an estimator for over 10 years.

Jason Hershey, DBIA - Jason has relationships with all of the utility companies and over 20 years of experience in highway construction and design build.

Ed Laczynski, P.E. - Ed is a Professional Engineer in Maryland, and stamps in-house design of ground improvements, piling, micropiles, cofferdams, tieback, soil nail walls, auger cast piling and drill shafts.

Dan Alt - Dan has worked the past 10 years developing, installing and policing Erosion & Sedimentation best practices on interchange projects. He maintains MDE E&S Control & Yellow Card.

Brian Sluder - Brian is ATSSA certified, MDOT-SHA Traffic Control Manager with extensive experience in planning and executing complex MOT.

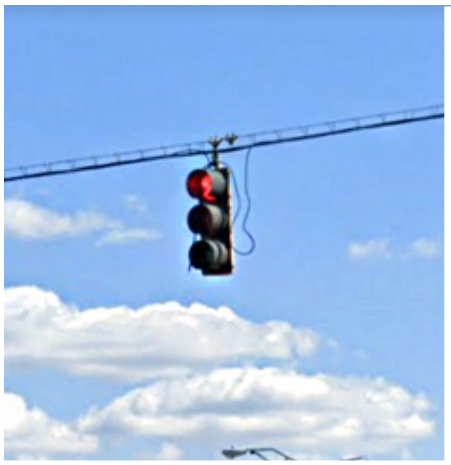
Mark Warner - Mark is responsible for the Environmental Health & Safety plan and will manage the safety program from design development until project completion. Mark maintains a CHST certifications.

Bryan Smith, P.E. - Bryan has 14 years of experience in design coordination, review, coordination with MDE and PRD, and integration. He performed the same role on the MD 404 & MD 32 DB projects.

Dan Rice - Dan has 10 years of experience developing CPM schedules.

Nicole Wilson - Nicole oversees Wagman's DBE/ EEO and Affirmative Action programs. She has over 25 years of relevant experience including serving in the same role for the I-95 over MD 214 and MD 32 Design-Build projects.

Cristina Velez - Cristina is bilingual and will work with the MTBMA and other key stakeholders to hold career open houses to solicit local applicants for employment to supplement Wagman's existing labor resources.



WAGMAN

General Construction | Heavy Civil | Geotechnical

TECHNICAL PROPOSAL

C. PROJECT APPROACH

MARYLAND STATE HIGHWAY ADMINISTRATION MD 4 (PENNSYLVANIA AVE) AT SUITLAND PARKWAY INTERCHANGE IMPROVEMENTS

CONTRACT NO. PG6185470

A. COLLABORATION

Preconstruction Approach

Critical to the Construction Management at Risk (CMAR) process is collaboration and coordination between the Designer, Contractor, and Owner. Collaboration for Wagman begins as soon as we decide to pursue a project. Once the decision is made to pursue a project, Wagman organizes all team members in a kickoff meeting, to discuss the project, identify risk, develop mitigation strategies to succeed, and assign work activities to the team members.

The initial step to get the CMAR process moving will be to have a project kickoff meeting with all necessary parties. During the kickoff meeting, the parameters to establish the necessary collaborative culture of the team will be set. Wagman's PM will introduce a partnering charter to SHA prior to partnering kickoff meeting to discuss vision and goals. Also at this time, the partnering charter will be finalized with all parties as well as a list of agreed upon goals for the project. Additionally, the framework for the risk and innovation workshops will be established. The team will determine discipline task force groups to review design concepts and brainstorm other solutions. Lastly, ground rules will be discussed for the creation of the project CPM and development of the OPCC. Wagman will make all team members available for scheduled meetings, impromptu meetings, telephone calls, and virtual meetings for over the shoulder collaboration. Since the pandemic, we have all adapted to the virtual meeting environment using Microsoft Teams, GoTo Meeting and other platforms so we can include team members who traditionally might have been unavailable due to travel.

Wagman creates a collaborative environment by encouraging team members to work together, freely communicate and express ideas. Each team member is empowered to create and provide input that relies on their extensive experience in the construction industry. We also setup a project specific SharePoint site for all team members to utilize for real-time collaboration. As part of the SharePoint site, we implement web-based software such as smartsheets for tracking and monitoring of project elements, utilize OneNote for meetings and Bluebeam for constructability reviews. On the I-95/I-695 Interchange project, Wagman was the managing partner of a Construction Joint Venture that successfully created a collaborative team with the three construction firms. In addition, Wagman created a partnering atmosphere with the Owner and Designer, allowing the project team to develop collaborative ideas such as Value Engineering proposals and modified traffic phasing. On the Intercounty Connector (ICC) project, Wagman co-located with the Designer and Owner, creating a collaborative effort to create the best solution for the project. The Woodrow Wilson Bridge was a major construction project divided into multiple contracts that required a collaborative team to complete our projects. The project also required a collaborative effort to work with the Owner, designers, adjacent contractor, adjacent developers and all other third party stakeholders. Wagman's excellent performance was recognized by the SHA Administrator Neil Pedersen by stating, "***The communication between the contractors, the media, and the police in both states was flawless. The diversion strategy was successful and traffic delays were kept to a minimum. The switch occurred exactly when promised and the work was completed ahead of schedule . . . you really made your clients look good on this one. Thank you.***" These projects demonstrate Wagman's ability to successfully create cohesive teams with open communication to maximize benefits and encourage collaboration.

For CMAR projects we establish smaller working groups, referred to as Task Forces (TF) to progress the project goals, for example we would pair our geotechnical lead with the designers geotechnical group and the owner's representative. This smaller group will concentrate on the geotechnical design, exploration and construction. If geotechnical issues affect other elements, the Wagman geotechnical lead will take the issue to the PM and the CE develop risk mitigation strategies and revised cost estimates. These TF ensure that Design Development and Estimating are proceeding according to schedule. Each TF will report weekly to the entire design development group at the weekly coordination meeting. Challenges can be assessed and additional resource requirements can be discussed during these meetings.

In addition to the TF meetings, we will establish regular estimating/schedule coordination meetings to discuss estimating and CPM. To foster trust and collaboration, Wagman will include the Independent Cost Estimator (ICE) and SHA representative in our weekly estimating meetings. In addition, the ICE and MDOT SHA will be involved in our quantity take-off and cost estimate set-up creating a transparent environment for project costs. Involvement from the beginning of the cost estimate will allow the Owner a degree of certainty that the overall cost of the project will remain within budget.

Third party stakeholder coordination and collaboration will help the team achieve the project goals of; minimizing cost, reducing delivery time, replacement of the structurally deficient bridge, minimize the impact to the environment and minimize impacts to the travelling public. To accomplish these goals on this Project, Wagman will support MDOT SHA with involvement of third-party stakeholders during design and prior to construction. Wagman has extensive experience supporting MDOT SHA in third party coordination including utilities and the travelling public. Wagman will contact the utility owners during design development and include the utility companies in our task force and planning process throughout the preconstruction phase. Utility conflicts can create undue risk to a construction project and Wagman and our value added utility coordinator, Jason Hershey, has successfully collaborated and coordinated with utility stakeholders in MD and VA on DB projects to minimize relocations, impacts, and cost.

MOT along major corridors such as I-495/MD 4/Suitland Parkway requires extensive collaboration and coordination. Wagman has proven our expertise implementing traffic control on major Interstates such as I-95, I-495, I-695, I-895, I-295, I-270, and I-370. For example, on I-95 in Baltimore, Wagman's CM, Dave Leber successfully reconstructed mainline I-95 through downtown Baltimore in over 40 unique work phases. The successful partnering implementation was recognized by the multiple partnering awards Wagman received from MdQI in Maryland for the ICC, I- 95/I-695 Interchange and WWB. We will use proven partnering processes and lessons learned to benefit the MD 4 at Suitland Parkway Interchange project.

B. DESIGN AND CONSTRUCTABILITY REVIEW

Wagman's objective in the preconstruction phase of this CMAR project will be to streamline the practical design process with open communication, reduce errors and omissions, improve constructability and quality, and reduce the cost of construction ensuring delivery within budget and on schedule. The Wagman Team will be proactive in forming a Preconstruction Design Integration Group (DIG) consisting of appropriate personnel from the Project Team Organizational Chart. The DIG will perform three major functions:

- participation in design development task force meetings
- conduct monthly progress meetings
- establish weekly cost/schedule meetings to evaluate the cost estimate and project schedule

TF will be comprised of technical subject matter experts and will include representatives from both the Designer, Wagman, and MDOT SHA and third-party stakeholders when necessary. Wagman representation will consist of both key personnel and value-added personnel as outlined on the Organizational Chart. Based on Wagman's evaluation of the major elements of the Project, we will work with the overall project team to establish TF teams and focus groups which best incorporate the representatives from structures, geotechnical, roadway, SWM/drainage/ESC, and utilities, MOT/phasing, and environmental disciplines for design development and constructability evaluations for efficiency and in collaborating effective solutions. Each design development task force will be assigned elements of project to solve issue and progress final design. The TF Groups will discuss estimating, engineering, scheduling and construction to continually evaluate constructability and provide feedback for design advancement. The TF approach will allow for systematic and efficient conceptualization and evaluation across all preconstruction divisions including cost and schedule analysis, early risk identification, phasing analysis and development of project risk mitigation strategies and potential innovations. TF meetings will encourage over-the-shoulder reviews and collaboration between the team to meet the project goals.

Each TF will collaborate regularly and report during the monthly progress meetings to the DIG to present findings and coordinate between the different TF ensuring design compatibility between disciplines. The TF will utilize a design development tracking log, an innovative technical concept tracking log, a risk matrix, and a constructability evaluation matrix to categorize, track and report the challenges throughout the design process. The main role of the DIG is to provide guidance during design to improve constructability, safety, minimize environmental impacts, improve the schedule and reduce costs. This will be accomplished through TF meetings, over-the-shoulder reviews, progress meetings, partnering meetings and open communication.

During Preconstruction Design Development we will work with the Designer to create constructability hold points, ensuring the design does not progress without the proper reviews, cost estimates and schedule evaluation. Each design

element will be reviewed and red-lined/commented utilizing our web-based Bluebeam Software by the DIG. When all design elements are compiled into a design submission, the DIG will complete additional constructability reviews to ensure that the scope of work is clear, the sequence of construction is complete, and that there are zero conflicts during construction among individual design elements. Working with MDOT SHA and the Designer, we will create a formal constructability evaluation matrix. The form will be tailored to highlight the goals of the MD 4 at Suitland Parkway Interchange Improvements Project, including elements such as cost, schedule, and risk impacts; sequence of construction; access; lay-down; equipment requirements; material selection; environmental impacts; and MOT impacts. Once a constructability review is completed, we will provide a Comment Resolution Form to the Designer and SHA with our comments. The Designer and SHA can address our comments on the Comment Resolution Form and collaboratively establish a final resolution before proceeding, reducing errors and omissions and costly redesign.

STREAMLINE THE DESIGN PROCESS - To assist with streamlining the design process, immediately upon selection the Wagman Team will work with the Designer and MDOT SHA to develop a mutually agreeable design schedule. The Design Integration Manager (DIM) and his Design Coordinators are available to meet as required to meet the Preconstruction Design Development schedule. The development of the design schedule will occur in conjunction with the development of the preliminary project schedule, phasing and work breakdown structure, and will be the main tool utilized to identify critical design tasks, advance the design effort and track progress. The design schedule will be monitored during the progress meetings and the Designer's progress will be tracked accordingly. As part of the Progress meeting discussions, a six-week look ahead for design and preconstruction activities will occur and the DIG will ensure that the appropriate resources are scheduled to complete the upcoming tasks.

The process of utilizing the monthly progress meetings to steer the design effort also allows for more efficient evaluation and integration of innovative ideas and risk management solutions proposed by the TF. While the advancement of innovative ideas and risk management solutions is a key component of the CMAR process, it is imperative that the continual evaluation of innovative ideas does not deter from the advancement of the overall design. During the monthly progress meetings, the DIG will review the progress information provided by the task forces inclusive of any innovative technical concepts. The DIG will rely on the analysis performed by the cost estimator and lead scheduler to determine which of these innovative technical concepts warrant further detailed analysis prior to allocating resources to ensure all project resources are effectively and economically applied.

Wagman believes in the partnering process and will request that all team members participate in the formal partnering process. Partnering promotes collaboration, coordination open communication and trust. We will promote resolution of issues at the lowest possible level, but an issue resolution ladder will be established to ensure issue are resolved quickly and to the benefit of the project goals.

The Wagman Team's involvement in the Preconstruction Design Development Phase will greatly reduce the potential for design errors and omissions and redesign through constructability reviews, reducing construction cost and improving the overall project schedule. Our approach will involve working with the Designer to incorporate Wagman constructability reviews within the Design QA plan. Our internal quality review process will be implemented in addition to Owner required Design QA/QC and will define the quality review process for all design elements of the project. This process will identify the planned schedule of submission for MDOT SHA review and approval.

Early coordination via TF meetings and constructability reviews will establish and follow a formal Quality Plan that will; facilitate practical design, reduce errors and omissions, reduce risks, and allow solutions to be fully vetted by the DIG, TF and Designers. A typical internal quality review process that includes Wagman constructability reviews will require the design documents to go through a 4-step quality review prior to submission to MDOT SHA.

Step 1 - Design Document Preparation - The Designer of Record will assign discipline specific designers to prepare documents for the project and participate in Contractor led TF meetings. The documents will be prepared in accordance with the contract requirements, MDOT SHA design standards, specifications, and special provisions.

Step 2 - Constructability Review - The Designer of Record will coordinate with the Design Discipline Leads and the

Contractor's Project Manager, Construction Manager, and Cost Estimator in the TF setting to conduct constructability reviews of the design. MDOT SHA, the Designer, and Construction personnel will attend the TF meetings and will review the documents for the following:

- Constructability, material compatibility, accuracy and clarity of plan details and typical sections.
- Review pre-purchased materials for incorporation into the project: Structural Steel for Bridge 16297, drainage pipe, drainage structures, sign structures, lighting and signalization.
- Identify additional long lead items for early material clearance and shop drawing submission.
- Analyze risk and develop mitigation strategies.
- Adherence to contract requirements, MDOT SHA standards, specifications, and special provisions.
- Review the sequence of construction to verify logic and practicality.
- Review the MOT, SWM and E&S plans for conformance with the sequence of construction.
- Review for utility conflicts, including BG&E, WSSC, Comcast and Verizon over-the-shoulder reviews.
- Review for easement and/or Right-of Way conflicts.
- Review for coordination between design disciplines.
- Review for budget compliance.

Step 3 - Quality Assurance (QA) Review - The Designer of Record will assign qualified, discipline specific, design QA Managers to perform a detailed QA review of the documents utilizing project specific checklists for each discipline that will also be reviewed by the Contractor. The QA review will include:

- Designer of Record will check engineering computations and corresponding design assumptions.
- Designer of Record will check math, geometry, drafting, spelling, and technical accuracy.
- Reviewing form, content, and organization.
- Evaluating the suitability and compatibility of materials.
- Designer of Record will review for coordination between all design disciplines.
- Reviewing the sequence of construction.
- Verifying conformance to contract documents, MDOT SHA standards, specifications, and special provisions prior to construction or material selection.

Step 4 - Designer of Record - Upon satisfactory completion of the internal design quality review process including the resolution of any review comments and corrections, the Designer of Record will review the documents and will verify that the constructability and QA reviews have been completed and that all comments have been incorporated or addressed.

In conjunction with this 4-step Quality Plan, we will implement a comment resolution process between discipline specific designers and reviewers that will occur during each step in the quality review process. Review comments will be recorded in red on the documents utilizing Bluebeam software and will be summarized in electronic format using a Comment Tracking Log on our Share Point site using Smart Sheets, Microsoft Word or Excel along with responses to the comments. Using this process on a CMAR projects will reduce errors and omissions, redesign, cost and schedule impacts.

Once the design is finalized, Wagman will create our construction work plans. We create work plans for each major work activity and they include: safety requirements, QC hold points, plans, specifications, special provisions, material requirements, budget, production, schedule, MOT, work area access, shop drawings, technical data sheets and unique issues associated with the work activity. This work plan is completed before the work starts promoting a high quality product that complies with the project specifications and provisions.

REDUCE COST OF CONSTRUCTION TO ENSURE IT IS WITHIN BUDGET - The Preconstruction phase is the most advantageous time to capitalize on reducing project cost, mitigating risks, and improving construction methods and sequence. Wagman frequently works with CMAR contracts for private clients and has developed longterm client relationships based on the transparent process and the ability to manage and better control budget and project outcomes. Our support staff and operational teams will use all resources and experience to benefit this project. Wagman's expertise building major bridges in the region, such as Woodrow Wilson Bridge, I-95/I-695 Interchange, and the Intercounty Connector (ICC), provides the Project with resources to meet the project goals. Our DIG team includes experienced cost estimators as well as over 100 years of documented cost trend reporting to utilize as a resource to evaluate design options. Our cost estimation approach will focus on transparent cost estimating in order to best evaluate each aspect of the design development to ensure its cost effectiveness. Our Team will utilize HCSS cost estimating software, one of the most respected and transparent software tools available. HCSS is extremely detailed - each cost activity includes detailed components; labor, equipment, production, trucking, permanent material, construction material, and subcontractors. Each project work element is efficiently quantified using systems such as Blue Beam, Carlson and AGTEK.

Our Cost Estimator (CE), Jon Fiem will generate a preliminary preconstruction estimate utilizing MDOT SHA typical bid items that will include reasonable assumptions and address typical project risks. This preconstruction cost model will be a tool for MDOT SHA and the Independent Cost Estimator (ICE) to evaluate the preconstruction process. Upon selection, Wagman will develop a preliminary schedule of values and cost estimate based on information provided within the RFP. This will be the baseline cost estimate to analyze potential innovations or design changes. Once we establish the preliminary estimate, we will create an "Innovative Technical Concept" Register to track potential cost savings, improved schedule, reduced environmental impacts staying within established ROW and other impacts to third party stakeholders. Each Innovative Technical Concept will be quantified and estimated to determine the real impact to the project. As alternates or options are introduced, we will populate our register, evaluate, and provide recommendations to the Project Team. As an example, we will work with the Designer and MDOT SHA to optimize construction phasing to minimize construction time and utility relocations. This technique was successfully employed on David Leber's Route 7 over DTR/DIAH DB in Tysons Corner and Wagman's Route 54 Project in Ashland, VA, reducing the; number of construction phases, cost and overall project schedule.

Our Construction Manager (CM) David Leber will review the design documents for constructability then review the estimate to ensure productions are attainable, assumptions are reasonable, and risks are properly identified. One regularly risk based on our experience involves geotechnical elements. Wagman's unique skill to self-perform multiple deep foundation solutions such as driven pile, drilled shafts, micropile and auger cast piling will reduce cost and mitigate risk inherent with deep foundations. Our in-house geotechnical engineers can assist with the evaluation of the design and geotechnical data and tailor the permanent and temporary design elements to the most cost effective solution.

OPTIMIZE THE PROJECT DELIVERY SCHEDULE - Wagman has extensive experience in CMAR projects and transportation DB projects and has been successful in accelerating both design and construction aspects. Wagman will work with MDOT SHA and the Designer to develop a fully integrated Project schedule inclusive of the design schedule, other preconstruction tasks, and conceptual construction activities. Wagman's Project Manager, Cost Estimator and Construction Manager will work together to create the preliminary project schedule. The development of the design schedule will occur in conjunction with the development of the preliminary project schedule, phasing and work breakdown structure, and will be the main tool utilized to identify critical design tasks, advance the design effort and track progress.

During Preconstruction Phase, the design is on the Critical Path, and through Preconstruction Design Development our coordinators will work with the designers to maintain the project schedule and mitigate risk to the project completion. Through the Preconstrution effort, Wagman will work with the designers to reduce the critical path design activities, thereby allowing construction to start earlier. During preconstruction, Wagman will work closely with the designer to obtain required environmental clearances and permits, property owner right of entry, Right of Way acquisition (in the unlikely event additional ROW provides an overall benefit to the project) and other required permits. In addition, the construction schedule will be optimized and shortened through proper project segmenting and sequencing. Our task forces approach to Preconstruction Design Development is key, as we will be able to constantly evaluate the project schedule

when determining the final sequencing and phasing to ensure the completion of the project ahead of schedule.

On the $114M MD 404 Dualization DB, Wagman managed a DB team that designed and constructed nine miles of roadway with one major structure in 18 months. The Preconstruction Design Development was accelerated and fast-track construction was required to meet the project substantial completion date. On the I-95/I-695 Interchange, we accelerated construction and increased safety to the traveling public by revising the construction sequence and MOT phasing along I-95/I-695 reducing the number of major traffic switches. Wagman has a working relationship with PG County DPW&T and will communicate with them as requested by SHA.

C. RISK MANAGEMENT APPROACH

Wagman has successfully completed over $224M of CMAR contracts in the last 20 years, generating over $20M in savings to the clients. We are very familiar with this alternative delivery and understand how the CMAR process helps manage risk, mitigate risk and encourage innovation. Working as a team, Wagman, MDOT SHA and the Designer can call upon all of our collective experiences and resources to create the most cost effective and efficient solution. Wagman believes the most important tool in risk mitigation is early identification of issues. Our PM, Anthony Bednarik and our CE, Jon Fiem has extensive experience in preconstruction project risk identification, and our CM, David Leber has the experience to identify risk via constructability reviews and successfully mitigate risks that occur during construction.

The main advantage of Wagman's engagement in the Project's risk management is our ability to participate in the Preconstruction Design Development and review concepts in terms of risk early during the design process. This early identification of risk will allow for mitigation, avoidance or elimination of the risk during design development, minor design changes, design optimization and constructability options. This method avoids the more costly risk control measures implemented post design, allowing the DIG to better project control costs and schedule impacts. Wagman will utilize a risk register which is a living document used to identify and track risk and mitigation methods as the Preconstruction Design Development progresses and during the construction phase. After identification of the risk item, key elements are assessed that may impact schedule, cost, environmental resources, safety, quality, third party stakeholders, utility owners, designer, contractor, subcontractor and owner. Risks will be evaluated for severity of impacts to cost, schedule and quality and will be ranked accordingly. Mitigation measures will focus on the highest ranked risks first. The application of design changes and optimization will allow for a reduced contingency item in the Opinion of Probable Construction Cost (OPCC) and the Guaranteed Maximum Price (GMP), thereby reducing Project cost. As stated in the RFP, we are actively identifying and evaluating potential project risks and tracking on the risk register.

As we start the CMAR process and engage the Owner and the Designer we will share risks identified by Wagman and also incorporate the risks previously identified by MDOT SHA, the Designer or other third-party stakeholders. We will analyze all risks on the risk register during TF and progress meetings. If required, we will host separate meetings just for discussion of significant risk items. By identifying and assigning risk to the party best capable of managing that risk, we will reduce cost and improve the project schedule. For example, ROW acquisition was identified as a risk on an Alternative Technical Concept on the $464M Intercounty Connector (ICC) – Contract A DB. During Best and Final Offer discussion, the ICC project team, including MDOT SHA, determined ROW acquisition risk was best managed and assumed by MDOT SHA. Because MDOT SHA assumed the ROW risk, the design builder (of which Wagman was an equity partner) was able to reduce the final project price substantially.

RISK REGISTER & MOST RELEVANT RISK

The Wagman Team assembled for this project have managed and mitigated risks on many past projects. Our team will create a risk register as soon as we start to review the project documents. With our extensive experience in the mid-Atlantic and in particular Maryland, MDOT SHA, National Park Service, Joint Base Andrews and other Maryland Agencies, we believe we are qualified to assist MD SHA to identify and mitigate risk.

In the Risk Register on the next page, we have identified the most relevant risk to the MD 4 at Suitland Parkway Interchange Improvements Project, the potential impact each risk and some of our mitigation strategies.

MD 4 (PENNSYLVANIA AVE) AT SUITLAND PARKWAY INTERCHANGE IMPROVEMENTS - RISK REGISTER

Risk Name and Description	Risk Impact	Mitigation Strategies
Existing Poor Soil Conditions - Wet soils	Cost & schedule. Poor soils can increase project costs due to expensive mitigation processes and it will impacts schedule due to the additional work.	• Wick-drains (possibly pre-drilled), drainage blankets, light weight fill, quarantines, 2 stage (wire wall with pre-cast face installed after settlement), undercut, subgrade manipulation (cement, lime, dry) • Additional testing during preconstruction to define limits; Defining limits will create greater price certainty and mitigate risk to the schedule
Utility Relocation / Coordination - Completion of WSSC water relocation	Cost, schedule & durability: Completion of the WSSC Waterline relocation must be completed before the interchange construction can commence	• Include WF Wilson on our team (WSSC approved contractor) • Coordinate with WSSC for any additional design and to develop a tie-in schedule
Utility Relocation / Coordination - ensure relocated utilities remain without additional relocations and identify potential utility impacts that will impact cost and schedule	Cost, schedule and durability: any additional utility relocations will impact project costs & schedule	• Value added staff Jason Hershey will serve as Utility Coordinator, performing the same duties on this project as he did on MD 404 Dualization DB which achieved maximum early incentive • Establish a utility coordination meeting to discuss the project requirements with each utility owner • Establish a comprehensive utility locate & test pit program to identify and survey all existing utilities
Widen bridge on Suitland Parkway - existing arch bridge creates unique challenges to retain Suitland parkway and working on a historical structure	Cost, schedule, durability & third-party satisfaction:	• Utilize our in-house geotechnical engineers to develop work plans to incorporate cost effective support of excavation and temporary support system • Establish formal coordination meetings with JBA & National Park Service • Utilize old photos to ensure proper installation of the stone facing
Third-party Coordination - Environmental Agencies, JBA, FAA, DOD, PRD, Local businesses	Cost, schedule, durability & public perception:	• Work with SHA to develop a robust Public Outreach Plan • Obtain and document all commitments to third party stakeholders • Establish formal coordination meetings to work through issues
Workforce availability	Cost, schedule & safety: qualified workforce is limited in our market due to the large number of construction projects in the Mid-Atlantic	• Wagman has over 500 experienced and trained in the region • Over 350 employees are within 50 miles of the project • Wagman is completing a major project for MDOT-SHA within 4 miles of the project
Material pricing & subcontractor availability	Cost & schedule: Material prices are very volatile at this time and subcontractors are stretched impacting their availably when required	• Develop detailed material and subcontractor packages to obtain current pricing from multiple sources • Discuss options with suppliers and subcontractors to mitigate costs • Identify long lead time items for early shop drawings and procurement • Pre-approve subcontractors & suppliers
Excess Material Disposal	Cost & schedule: Locating a waste disposal site can impact project costs and schedule and locating a site in close proximity to the project is paramount.	• Wagman has completed over $300M in PG County and are very familiar with the area to locate disposal sites • Wagman has existing relationships with local waste sites/facilities • Develop a earthflow diagram to “Map out” the earthwork & waste
Use of pre-purchased materials	Cost & schedule: Re-using materials that were purchased previously can become problematic due to age of the product, specifications of the product and new specifications	• Inspect & test all materials and work that was constructed on previous contract • Review specifications & shop drawings for all materials • Complete any work to bring materials into compliance
Right-of-Way	Cost & schedule: Additional ROW is expensive and time consuming. We will work with SHA to try to stay within the established project footprint in the design plans.	• Provide accurate survey • Review design for constructability and space required to build the project
Environmental Compliance	Safety, Cost & Schedule: Environmental compliance goes hand-in-hand with project sequence	• Project specific environmental compliance plan & mandatory training of all employees and subcontractors • Value added staff members Bryan Smith, P.E. and Dan Alt will perform constructability reviews to develop proper construction sequencing. Dan obtained approval on over 100 E&S toolkit mods at Watkins Mill • Establish formal review process with PRD to incorporate all comments; comment resolution
Obtain Permits	Safety, Cost & Schedule: Environmental Permits ensure a safe environment and obtaining a permit quickly reduces cost and improves the project schedule	• Establish regular task force meetings with the environmental agencies • Value added staff Bryan Smith, P.E. will work with the Designer to compile a complete permit submission based on a logical sequence of construction

To supplement the information in the Risk Register, Wagman would like to highlight a couple of the risks. Below are possible solutions to the following Risks.

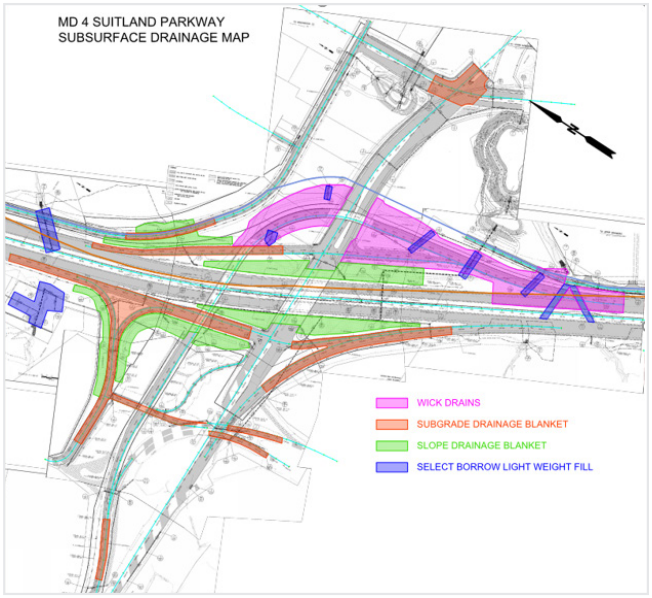
#1 Utility Relocation

Wagman has teamed with WF Wilson & Sons, Inc. to complete the watermain work. WF Wilson's Utility Superintendent, Doug Andrew, is very familiar with WSSC requirements, this project and the work that we need to complete to start the interchange construction. Below is a step-by-step solution with associated time frames to compete the watermain work:

Work Activity	Timeframe
Retest & chlorinate 36-inch watermain installed by others	10 workdays
Station 0+00 Connect 36-inch main and install concrete thrust block/collar	13 workdays
Station 42+76 Connect 36-inch main and install concrete thrust block/collar	13 workdays
Armstrong Road – Connect 16inch main & install concrete thrust block/collar	6 workdays
Station 37+72 Connect 12-inch main and install concrete thrust block/collar	5 workdays
Station 42+06 Connect 12-inch main and install concrete thrust block/collar	4 workdays
Station 42+06 connect 2-inch service	2 workdays

#2 Existing Poor Soil Conditions

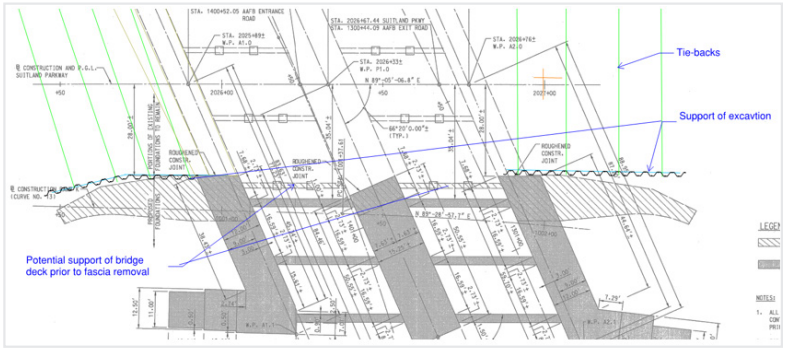
To the right is a sketch illustrating the required ground improvements and geotechnical features to address the poor soils as designated by MDOT SHA and the design engineers. The ground improvements will drive the project schedule and cost.



Wagman's in-house geotechnical engineers will work with the designers to determine the most cost efficient and time saving solution to resolve the poor soil conditions. Additional testing may be warranted to determine the limits and appropriate mitigation. If we can reduce or alter the ground improvement plan, we will reduce cost and improve the project schedule.

#3 Widen Bridge on Suitland Parkway

When the existing bridge is demolished to allow the new widening to the structure, Support of Excavation (SOE) will be required along the wing wall demolition and SOE or bracing will be required along the concrete arch to support the deck under traffic loads. The sketch to the right is a conceptual plan of the SOE and the framing of the arch bridge.



D. PROPOSED TECHNICAL CONCEPTS

Innovation is a core value for Wagman and we take pride in the ability to develop innovative construction solutions. Wagman has successfully developed innovative ideas that have been accepted by various owners such as MDOT SHA and MDTA to reduce cost, improve the project schedule, mitigate environmental impacts and improve

safety to the travelling public and work force, such as the Wall 12 VECP on the Watkins Mill project that was successfully implemented in District 3.

Wagman Innovative/Alternate Technical Concepts Approved by MDOT SHA/MDTA

During the review of the RFP and RFP documents, we have started our Innovative Technical Concept Register. Below is a list of innovations that we have created and successfully used on past projects, followed by the Technical Concept Register detailing a list of potential innovative technical concepts that could be pursued or discounted during design development.

In addition to the Proposed Technical Concept Log, Wagman would like to highlight two of the significant innovations:

Early work Package for WSSC watermain work & a dedicated WSSC approved contractor on our team: Wagman and WF Wilson, Inc have worked together on many projects in the mid-Atlantic region, most recently on the Watkins Mill Interchange project where we relocated a 48-inch watermain for 5,126 linear feet. WF Wilson has studied the existing project and developed a sequence of construction to complete the remaining work (discussed in our risk section). Leveraging our shared experiences will provide schedule, price & quality certainty for MDOT SHA on the MD 4 at Suitland Parkway Interchange project.

In-house Geotechnical Engineering Capabilities: Most major transportation projects involve unique geotechnical solutions from deep foundations to ground improvements. Wagman has been driving pile since 1917 but we have increased our geotechnical capabilities over the past 20 years including piling, caissons, micro-piles, auger-cast pile, rigid inclusions, engineered support of excavation, underpinning, tie-backs, low mobility grout overburden and wick drains. On many of our alternate delivery projects our geotechnical engineers are able to reduce cost and mitigate geotechnical risk. Since we self-perform the construction, we mitigate risk to the project schedule and ensure a quality product.

Project	Description	Benefit to Project
MD 404 Dualization	Developed alternative pavement section including soil cement to reduce risk of potential ground improvements and undercut to accelerate construction schedule. (ATC)	• $2.8M cost savings • Enhanced schedule by eliminating undercut • Reduced risk of poor subgrade
Woodrow Wilson Bridge I-95 / I-495 / I-295 MA4	Redesigned bridge and wall foundation fill material and approach at Bridge 29. (VECP)	• $2.2M cost savings • Improved schedule • Reduced ground improvement/ geotechnical risks
ICC-A DB I-370	Redesigned a WMATA metro access interchange that eliminated structures and reduced retaining walls. (ATC)	• $15M cost savings • Improved schedule by eliminating bridges and walls
I-95 / I-695 Interchange	Redesigned Pier Deep Foundations (VECP)	• $2.0M cost savings • Improved foundation schedule • Reduced deep foundation risk
I-95 / I-695 Interchange	Modified MOT for major traffic switches	• Improved Safety • Reduced major traffic switches • Improved schedule and impacts to motorists
I-95 Rehabilitation	Enhancement of MOT Phasing to combine phases	• Accelerated the schedule

I-95 Rehabilitation	Reducing number of major traffic switches by 10%	• Reduced overall project cost • Achieved maximum incentive payment
I-270 at Watkins Mill Rd Interchange	Redesigned a 700' long cast-in-place retaining wall (RW 12) to an anchored top down wall with CIP face (VECP) with in house geotechnical engineers and constructed the revised retaining wall.	• Wagman eliminated a 6-month traffic impact along SB I-270 and which reduced the project schedule by 30 days and reducing road user impacts by approximately $1M
Route 7 over the Dulles Toll Road	During design development in cooperation with the designer and owner, Wagman developed an alternate MOT sequence for phased bridge construction advancing utility relocations by 3rd parties.	• Reduced traffic phase from 7 to 4 • Improved schedule by 6 months • Minimized impacts to the WMATA rail lines, resulting in a $2M savings
Woodrow Wilson Bridge I-95 / I-495 MB4	Redesigned a secant pile retaining wall along the D.C. Beltway and adjacent to the U.S. National Park's Oxon Hill Farm. A combination MSE/CIP Wall was constructed.	• Reduced major impacts to the Park's primary parking area and saved the owner $2M
Homewood CMAR	We developed multiple work packages for the project to progress as financing and sales advanced. Packages were standalone infrastructure packages in phases that included earthmoving, drainage, utilities, SWM, paving, curd, sidewalk, foundations, etc.	• Worked with the owner's budget constraints and property sales to advance the project and maintain schedule reducing costs by over $5M • Our Geotechnical group developed a cost- effective solution working with the owner and designer, then constructed the sheet pile wall further reducing cost and improving schedule
I-95 SB Rappahannock River Crossing	Redesigned MOT to incorporate 3 complete traffic shifts of mainline I-95 through our work zone using temporary cross overs (while accommodating the posted speed of 70 mph) and modified interchange signalization to allow long term ramp closures. Each I-95 cross over was installed and removed using a single weekend diversion.	• Five month schedule improvement • $3M cost savings • Improved safety by separating construction operations from both the I-95 thru and interchange ramp traffic

"This project was envisioned as taking two construction seasons to complete. But our dedicated employees and contractors working to serve their neighbors and all those who use this bridge, have completed it in just over 7 months - a record time by any measure."

- Larry Hogan, Governor of Maryland, in reference to Wagman as general contractor for the Westbound Chesapeake Bay Bridge Deck Rehabilitation project (April 2020).

INNOVATIVE TECHNICAL CONCEPTS REGISTER

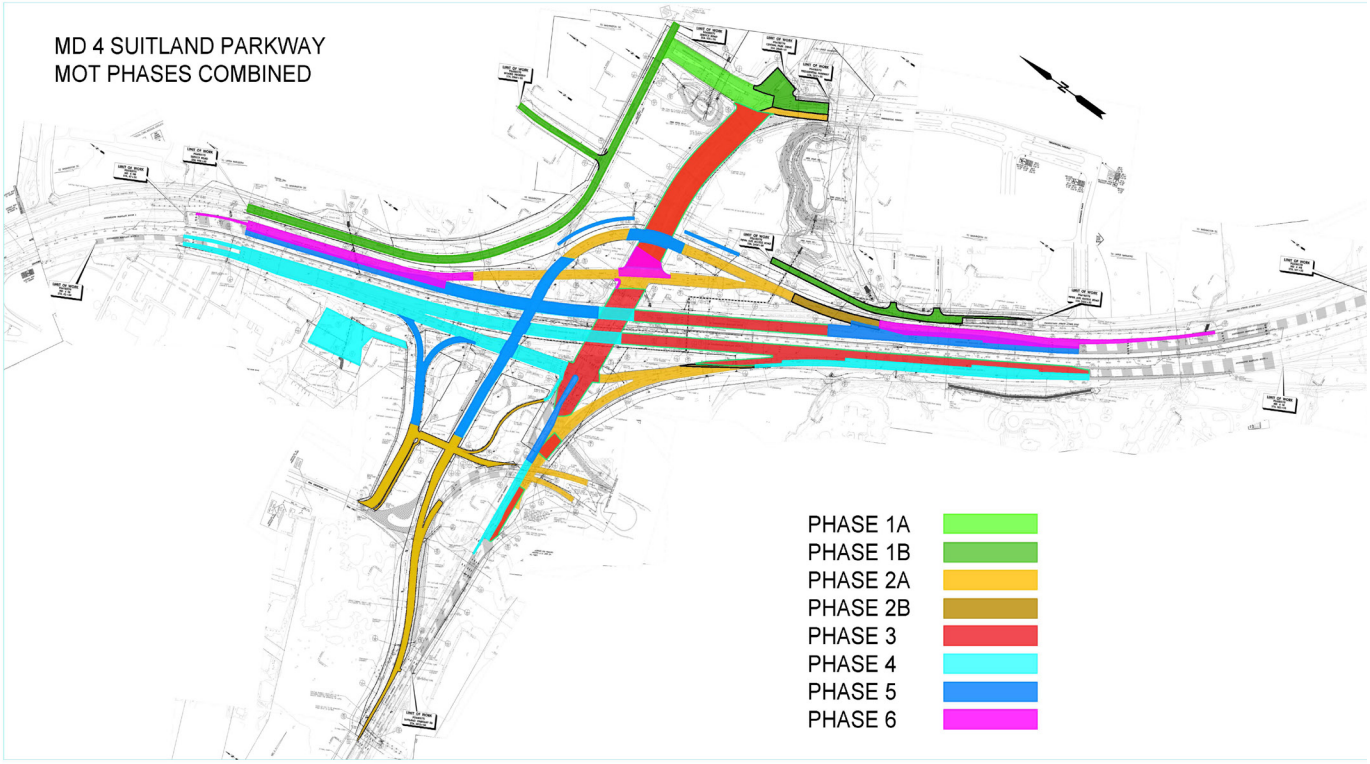
Proposed Technical Concept Description	Time	Cost	Quality	Previous Success
In-house Geotechnical Engineering Capabilities	Foundations & ground improvements are major risks to the project schedule. Wagman in-house engineers will work with the designers to ensure the most efficient design improving the design and construction schedule.	Foundations & ground improvements are major cost drivers and Wagman's in-house geotechnical engineers will work with the designers to ensure the most cost effective geotechnical solutions	Designers and contractors working together will increase the quality from design thru construction	Wagman leverages our geotechnical expertise on all of our projects to provide a cost competitive advantage and our ability to self-perform the geotechnical and foundation work mitigates risk to cost & schedule
Early Work Package - WSSC waterline completion & connection	This watermain must be completed to allow construction of the Interchange. If an Early Works Package is developed this work can be completed early improving the schedule	We have developed a plan to complete this work mitigating cost	Our WSSC approved subcontractor, WF Wilson, will complete the work to meet WSSC requirements	On MD 32 we worked with SHA to develop an early works package for Triadelphia Road bridge to ensure the bridge could be completed and opened within 1 year. On MD 404 we developed Early works Packages for Utility relocations to relocate the utilities before the heavy construction started
WSSC Qualified subcontractor on the project team	WF Wilson understands the work that must be completed and is prepared to attack this relocation with multiple fully coordinated watermain crews	WF Wilson is a pre-qualified WSSC contractor with intimate knowledge of the WSSC requirements ensuring cost certainty	WF Wilson understands WSSC specifications and QC requirements ensuring a quality relocation.	Wagman and WF Wilson worked together on the Watkins Mill Interchange to relocate a 48-inch watermain, on time, under budget with award winning quality.
Early work package - clearing for utility relocation	Relocating the utilities early will improve the project schedule	Clearing utility conflicts early eliminate unnecessary cost impacts	Quality will be increase by eliminating disruptions to the utility or construction	On MD 404 we developed Early Works Packages to clear for the utilizes which in turn facilitated the utility relocation
Asphalt Paving in lieu of Concrete Paving	Asphalt paving can be installed faster than concrete paving and can be opened to traffic within 24 hours of completion	Asphalt paving has been much cheaper than concrete paving	Asphalt paving is very durable and can be maintained easier than concrete paving with overlays	On MD 404, SHA allowed the option of Asphalt or concrete Paving. Our team decided to use Asphalt paving and we were $40M below the second bidder
Use of soil cement to reduce pavement section	Soil cement can improve subgrade and reduce risk of schedule impacts due to undercut	Reduction in undercut, reduces cost	Pavement section can be designed for 25-years	On MD 404 & MD 32 we incorporated the soil cement into our pavement design and reduced overall project costs while mitigating schedule risk due to poor soils
Early Work Package - pre-purchase of structural steel	With three new bridges, the structural steel can be designed, purchased and fabricated to mitigate schedule risk	Steel prices are volatile, but having the flexibility to purchase the steel early will increase our ability to reduce costs	All design and shop drawings can be completed early to ensure a quality product	Wagman routinely works with local suppliers to purchase major elements such as structural steel to mitigate price fluctuations and ensure price certainty
Alternate Design - Raise the fly-over bridge at the western abutment by 12-ft. Construct the flyover and Ramp D early to place traffic onto the flyover early. Split existing traffic on MD 4 onto the new ramp alignments and build all of MD 4.	The ramp can be built off-line, and MD 4 can be constructed in one phase improving the project schedule	Improving the project schedule will reduce the project cost	Improved durability will be achieved by building the project in larger segments	As part of ICC-A, Wagman redesigned an interchange eliminating bridges & retaining walls while improving operations/mobility
Alternate Design - Build the new bridge 16297 off-line to the north of the existing bridge location and build a Diamond Interchange to save the existing steel. Suitland Parkways would have to be raised and the bridge on Suitland Parkway at JBA would have to be widened to the north	Raising Suitland Parkway and the new bridge Suitland Parkway bridge over MD 4 can be constructed off-line utilizing the existing structural steel.	Raising Suitland parkway will reduce the ground improvements required thus reducing project cost.	Minimizing the ground improvements will improve long-term durability	As part of ICC-A, Wagman redesigned an interchange eliminating bridges & retaining walls while improving operations/mobility
Alternate Design - Build the new bridge 16297 off-line to the north and build a Single Point Urban Interchange (SPUI). Suitland Parkway would be raised and the bridge on Suitland Property at JBA widened to the north	The new SPUI bridge over MD 4 and raising Suitland Parkway can be constructed off-line Utilizing as much of the existing steel as possible	Raising Suitland parkway will reduce the ground improvements required; reducing project cost.	Minimizing the ground improvements will improve long-term durability	Wagman proposed a similar solution to VDOT to raise Route 7 over Battlefield Parkway. The ATC was rejected due to time constraints, the owner missed out on savings to ROW acquisition and environmental impacts and improving the project schedule
Alternate Design - Close Suitland Parkway for a limited time to construct a new bridge over MD 4	Raising Suitland Parkway and the new Suitland Parkway bridge over MD 4 will be constructed during the closure; utilizing the existing steel or building a new SPUI	Raising Suitland parkway will reduce the ground improvements reducing project cost.	Minimizing the ground improvements will improve long-term durability	Wagman did this in Leesburg VA, opening the detour in 11 months

CONSTRUCTION SEQUENCE

Construction Approach

Wagman has analyzed the information provided by MDOT SHA and understand the sequence of construction. Two major challenges on any project are utility relocations and Maintenance of Traffic (MOT) and both challenges will impact MD 4 at Suitland Parkway Interchange. Using the CMAR process the utilities can be coordinated and relocated before the major interchange construction begins. Wagman has added WF Wilson to our team to mitigate the risk with the waterline relocation. WF Wilson is a pre-qualified with WSSC and a respected contractor who won the MdQI Subcontracting project of the year award on our Watkins Mill Interchange project for relocating a 48-inch watermain.

Below is our understanding of the planned MOT phasing to build the project and reduce impacts to the travelling public.



Sequence of Construction Phase 1A

1. Restripe the exit ramp from southbound Marlboro Pike to Dower House Road to provide an exclusive left turn lane.
2. Begin work on the Presidential Parkway extension so that the service road can connect to Presidential Parkway when Central Park Drive is closed.

Sequence of Construction Phase 1B

1. Reconstruct the service road so that Presidential Parkway and Central Park Drive traffic may be detoured onto the service road in Phase 2A.
2. Close Pennsylvania Avenue access road west of Machinists place and detour traffic onto Presidential Parkway. Reconstruct Pennsylvania Avenue access road.
3. Continue construction on the Presidential Parkway extension.
4. Begin work on Ramps D, J, and O and widen westbound Suitland Parkway.

5. Begin constructing the Trails along Suitland Parkway, Ramp O, and Ramp J.

Sequence of Construction Phase 2A

1. Begin construction on Central Park Drive by detouring traffic via the service road, Presidential Parkway, Machinists Place, and Pennsylvania Avenue access road so that Ramps C and G can be constructed.
2. Begin work on Ramps C and G (the interim MD 4 detour road). The detour road will be constructed wider than the ultimate Ramps C and G so that mainline MD 4 traffic can be detoured in subsequent phases.
3. Widen eastbound Suitland Parkway and begin construction on Ramps I and K and the temporary Suitland Parkway connection to MD 4 so that the intersection of MD 4 and Suitland Parkway can be reconstructed in Phase 3. Remove portions of the right turn island at the intersection of MD 4 and Suitland Parkway so that the temporary Suitland Parkway connection to MD 4 can be completed in the next phase.
4. Reconstruct the right and left shoulder on MD 4 and construct the crossover south of Suitland Parkway so that traffic can be shifted in the next phase.
5. Reconstruct the inbound and outbound Joint Base Andrews Ramps to lower the profile and widen the bridge on Suitland Parkway.
6. Continue work on Ramps D, J, and O.
7. Continue work on the trails along Suitland Parkway and Ramps J and O.
8. Complete work on Presidential Parkway

Sequence of Construction Phase 2B

1. Ramp D and the interim MD 4 detour road can be constructed directly adjacent to MD 4.
2. Close the right lane on northbound MD 4 so that construction may be completed.
3. Due to the right lane being closed on northbound MD 4, the signal at the intersection of MD 4 and Suitland Parkway will be modified. Northbound MD 4 traffic will no longer stop at this intersection due to the reduction in capacity from the right lane closure. As such, the left turn lanes on southbound MD 4 and eastbound Suitland Parkway will be closed.
4. Construct the MD 4 crossover north of Suitland Parkway so that traffic can utilize the detour road in the next phase.

Sequence of Construction Phase 3

1. Detour mainline MD 4 onto interim MD 4
2. Construct Bridge on Suitland Parkway over existing MD 4
3. Construct bridge on Ramp D over Central Park Drive
4. Construct mainline MD 4 south of Suitland Parkway
5. Continue work on Central Park Drive, Ramp I, Ramp K and eastbound Suitland Parkway
6. Remove existing JBA outbound Ramp to eastbound Suitland Parkway

Sequence of Construction Phase 4

1. Construct MD 4 north of Suitland Parkway

2. Construct Ramp H, PEPCO storage yard and JBA Trail
3. Continue work on Suitland Parkway, Ramp D, N and O
4. Complete Ramp K
5. Shift traffic from temporary Suitland Parkway onto newly constructed Suitland Parkway
6. Remove temporary pavement

Sequence of Construction Phase 5

1. Complete construction of MD 4 not constructed in Phase 3 and 4
2. Complete Ramp D, N, O and Suitland Parkway
3. Remove temporary pavement

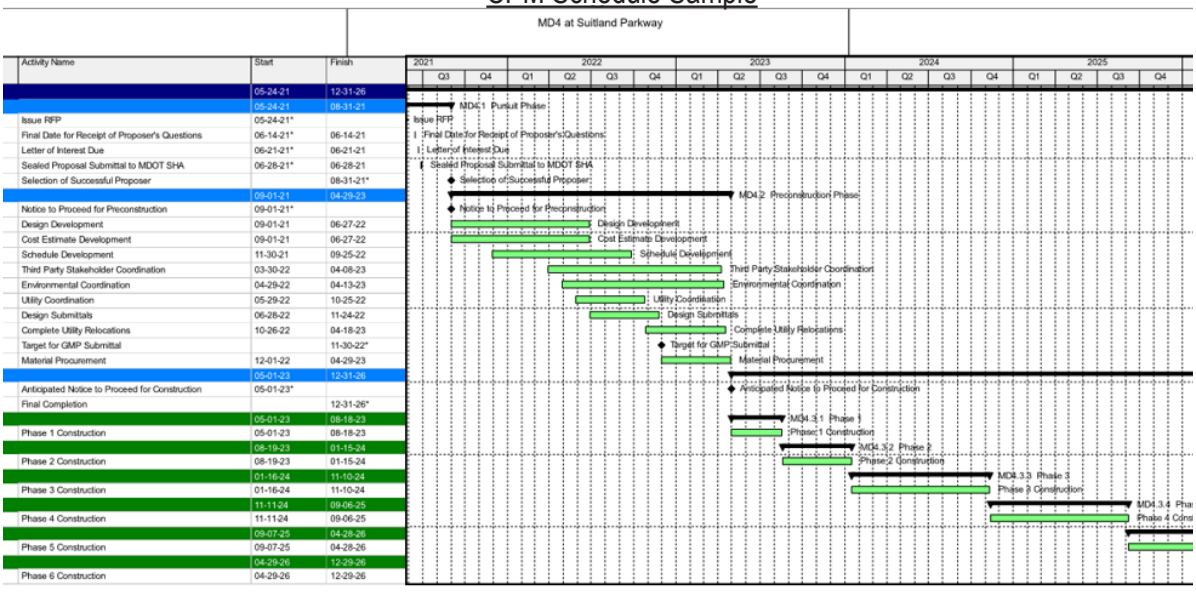
Sequence of Construction Phase 6

1. Complete construction of northbound MD 4
2. Remove temporary paving
3. Complete intersection of Central Park Drive, Ramp G and C
4. Restripe southbound MD 4 at Dower House Road exit
5. Final HMA surface layer, pavement markings and roadway finishes on entire project

Construction Schedule

Wagman believes that a thorough Critical Path Method schedule is imperative to the success of all projects. We have the expertise and systems to develop a detailed initial schedule and then provide intelligent alternatives with comprehensive analysis. We will work collaboratively with MDOT SHA, Project Stakeholders, and Utility Representatives to develop our schedule. Our Construction Schedule will be fully integrated with the design schedule. Wagman uses Primavera P6 Version 8.4 as its scheduling software, below is a snapshot of our conceptual preconstruction and construction schedule for the project.

CPM Schedule Sample



Wagman views the CPM schedule as a tool for planning and coordination. This way, we can effectively communicate project needs and impacts to those who need to know them. We believe it is important to create a comprehensive schedule including design and construction as a first priority in the preconstruction phase so that design of critical elements can be prioritized for an early start to the work. The complicated utility relocation sequence can be communicated to the utility companies well in advance of construction so that we can ensure that they perform their work within the time allotted in the schedule. Traffic impacts can be communicated to the community well in advance of construction so that people can prepare and adjust their travel routines. Sourcing and acquisition of the following long lead items can be planned properly: wire for power lines, fiber for communication lines, pipe and valves for the water main, reinforcing steel, form liners for aesthetic concrete finishes, bridge bearings, anchor bolts, bridge girders and structural steel, and ornamental bridge fence. Wagman will coordinate delivery of these items so they arrive on site on time. The purchases can be coordinated in advance of the work for the project if it provides savings or value-added risk reductions. Unique to ME 4 at Suitland Parkway, MDOT SHA has pre-purchased some items such as Structural Steel for Bridge 16297, drainage pipe & structures, sign structures, lighting & signalization; this will reduce cost improve the project schedule.

This project has many potential constraints that could impact the project. We have identified the following that we are prepared to mitigate: impacts to traffic, weather impacts to concrete placement, earthwork, and paving; utility relocations; Stormwater Management Concept and Plan Approval, sourcing materials; and sourcing labor and equipment. Impacts to Traffic can be mitigated through accelerating work, working off peak hours, and through other innovations noted in our Proposed Technical Concepts. Weather impacts on sensitive construction activities are a typical challenge on a construction project of this nature in the region. We will schedule the project to avoid these impacts as much as possible and if necessary, use mitigation techniques such as cold weather concrete plans to work through off season weather. Utility relocations are a critical aspect of the project. As noted earlier in this section and in our Construction Sequencing Section, our plan to mitigate utility constraints starts with active engagement early in the project and continued collaboration through communication of the project schedule. Stormwater Management Concept and Plan Approval is critical to the success of the project. Wagman is prepared to work alongside MDOT SHA, Environmental Agencies, Designers, and Plan Reviewers to create collaborative solutions to expedite approvals. Sourcing and acquisition of long lead time and critical materials will be done throughout the project to avoid impacts to construction. The list of materials that are critical will be continually updated to ensure that all potential hold points for material acquisition are accounted for. Labor and Equipment in our market are in high demand. Wagman can draw from our resources in the region to accomplish the goals of the project. We currently employ 450 trade personnel and own over 200 pieces of equipment. These resources will be mobilized as needed to perform work on the project.

Construction Schedule

The MD 4 at Suitland Parkway Project is an important Intersection of major roadways for travelers and members of the community in Prince George County. The new Interchange will provide a safer way to travel for those who use it every day. Our public outreach team's objective is to provide information to the community and project stakeholders so that they can be part of the design and construction process. Stakeholders include:

Third Party Stakeholders	
• MDOT SHA • Prince George County • FHWA • Joint Base Andrews - DOD • Environmental Agencies including MD Dept. of the Environment and ACOE • The Maryland Historical Trust • National Park Service • PG County Police	• Developers (Wood Property, Westphalia Developer, Smith Farm House) • Travelling Public • Local businesses along MD 4 • Local businesses along Old Marlboro Pike • Local businesses in developments east of MD 4 • Utilities - SHA Electric, PEPCO Electric, Verizon, WSSC, Telephone (OH - Unknown), CATV (OH - Unknown), Fiber Optic (U/G Unknown)

The objective for public outreach for this project is to establish and maintain open lines of communication with the project stakeholders listed above. Through the design and construction phases of the project, the public outreach team will work alongside MDOT SHA to support an open dialogue with the community regarding input and concerns relating to the project, information about aspects of the project that impact the community, and aid with community involvement. Our public outreach team will further support MDOT SHA's communications by:

- Providing an onsite Public Relations Coordinator;
- Engaging the local community in the design and construction process;
- Responding promptly and courteously to public comments and questions;
- Being an active participant in planning and conducting public forums;
- Providing notice to the community and stakeholders about the project;
- Documenting contact made with the community and project stakeholders; and
- Meeting as necessary individually with project stakeholders.

The public outreach team will develop and keep a complete list of those people, groups, and community organizations who feel the project impacts. The team will also document contact made to these people. Our documentation system will house contact information as well as any correspondence with these stakeholders and be used for the duration of the project. Our team will meet with these individuals early in the pre-construction/design phase to engage them in the project and hear their thoughts and concerns. A good faith effort will be made to include these suggestions in the plan for design and construction. All correspondence of this nature will be available to MDOT SHA and be saved within our document management system.

The public outreach team will submit a public contact record to MDOT SHA every month. Upon receipt of comments or questions about the project, the public outreach team will respond promptly via a personal visit or phone call. Documentation of these conversations will be maintained regularly within our document management system.

MDOT SHA will lead the public outreach program with support from our team. We intend to provide information, personnel to answer questions, up to date project information, and support staff as needed. If MDOT SHA needs support from our Project Manager, Anthony Bednarik will speak on behalf of the project for technical and safety issues with certain audiences.

One of Wagman's core values is community; therefore, stakeholder satisfaction is a priority for our team on this project. Our Public outreach team's approach to achieving stakeholder satisfaction will be through open communication about the status of the project and any upcoming impacts. Our preconstruction and field teams will work to reduce impacts as much as reasonably possible.

Our Public Outreach Team will utilize multiple avenues of communication to keep stakeholders and most importantly, the traveling public aware of progress and potential impacts. Our Team will collaborate with MDOT SHA on the communication strategy as well as the message. We plan to use the following methods to spread information:

- Stakeholder meetings
- Press releases to local media
- MDOT-SHA's Informational website for the project
- Social media – Facebook, Twitter
- E-mail updates
- Project information mailers
- Local 'bulletin board' notices
- Variable Message Signs
- Project Hotline
- Telephone Trees
- Fixed signage

Wagman's approach to a project includes a course of inclusion through the Partnering process between MDOT SHA and our team through pre-construction and construction phases of the project. Through the partnering process, we include MDOT SHA and project stakeholders in the project and maintain quality lines of communication. Open communication with all involved is critical to rapidly resolving issues and advancing the project in an efficient manner.

WAGMAN

General Construction | Heavy Civil | Geotechnical

TECHNICAL PROPOSAL

D. COST ESTIMATING APPROACH

MARYLAND STATE HIGHWAY ADMINISTRATION
MD 4 (PENNSYLVANIA AVE) AT SUITLAND PARKWAY INTERCHANGE IMPROVEMENTS

CONTRACT NO. PG6185470

SECTION D-1 ESTIMATING ENVIRONMENT

Approach To Cost Estimating

Integrity is a Wagman Core Value; therefore, we will establish an open line of communication during the estimating process. We believe open and honest communication, and collaboration is the best way to achieve the project goals. The estimating process can be complicated, but to ensure transparency we will explain and define our estimating process. The sequence below is an outline of Wagman's estimating procedure to achieve a transparent estimating environment:

1. Risk and Innovation Workshop
Immediately after selection, Wagman will work with MDOT SHA to establish a Risk & Innovation workshop. At this workshop, we will come together as a team to discuss the project risk and innovative technical concepts. This process will encourage an open and honest environment where all team members are making decisions that are best for the project.

During the risk workshop, we will identify the project risks and discuss potential risk mitigation strategies to achieve the project goals. Each risk will be evaluated for probability of occurrence, ownership of the risk, cost impact, schedule impact, durability and impacts to the travelling public. After the risks are identified, the team will categorize and assign the risk to the proper task force to develop additional risk mitigation strategies during the Preconstruction process. At this time, we will work to eliminate, mitigate or price the risk appropriately.

The team will further evaluate the innovative technical concepts proposed by all proposers. Each innovation will be evaluated for viability and assigned to the appropriate task force to further the technical concepts to reduce cost, improve the schedule or increase quality.

Cost and Schedule Drivers	
Structures - Bridge Construction	Wagman has built bridges for over 100 years and our extensive cost history and resources will provide a cost effective solution and schedule driven solutions. Wagman's extensive experience with multiple deep foundation solutions will assist with the development of the most economical design, and our ability to self perform all types of deep foundations we will control cost & schedule during construction. We intend to utilize structural steel purchased by SHA which provides cost & schedule certainty.
Asphalt & Concrete Paving	The bituminous and concrete pavements comprise a key portion of the scope and cost for this project. Wagman has formal partnerships with local pavers and understands fair material pricing and how to phase projects to maximize high traffic paving productions. This will ensure appropriate budgets are established while additional competitive pricing is obtained.
Earthwork - Unbalanced Site-	The plans indicate that over 600,000 CY of earth must be excavated over 6 construction phases, wasting close to 400,000 CY off site. Wagman has existing disposal and hauler agreements in place with local subcontractors to establish an appropriate budget. Wagman is very familiar with PG County working on multiple transportation projects within 5 miles of this project. (MD 214, Woodrow Wilson Bridge, MD 4 over 223)
Ground Improvements	Poor soils in the area will drive cost & schedule. Strategic testing and evaluation of design & construction will produce the best solution for cost and the project schedule. Wagman has extensive experience with wick drains, quarantine periods, drainage blankets and lightweight fill in PG County.
Utility Relocations	Utility relocation can be a major impact to the project schedule and costs. WF Wilson is intimately familiar with the project and has agreed to be part of our team to complete the WSSC work & major watermain connections.
MOT	With our knowledge of complex interchange projects & input from the CM, Traffic Manager and other field personnel, we will optimize the MOT sequence to reduce duration & cost.
Drainage	Lowering MD 4 over 25 feet creates unique drainage issues. Wagman will use existing drainage materials purchased by SHA to reduce cost and we will assign a drainage superintendent who has first hand knowledge of this project.
Erosion & Sedimentation	Wagman will provide a dedicated E&S manager whose sole job will be the installation and management of E&S facilities to keep the project in compliance. The E&S manager will have multiple E&S crews at their disposal.

The estimating team will work to develop cost estimates for risks and innovations. Based on the cost estimates, they will evaluate the risk or technical concept to best accomplish the project goals.

2. Estimating Model Set Up

When we are selected, we will invite MDOT SHA and the Independent Cost Estimator (ICE) to work in partnership when we set up the preliminary estimating model using our estimating software, HCSS. The estimate will be set up with appropriate wages, taxes, insurance, equipment rates, material plug pricing, and subcontractor plug pricing. Wagman will present our wage rates for craft and management including taxes, benefits & workers compensation insurance. Equipment rates will be established with market rates including rental, equipment repair, and fuel, oil & grease (FOG) consumption. Permanent and construction material plug prices will be created based on the latest information from our cost history. As a team, the initial estimate set up will be reviewed to ensure an accurate estimating model is developed and agreed upon. This set up can be completed immediately after notice of award.

3. Quantify Scope, Bid Items & Work Activities

Upon establishment of the estimating model, Wagman will complete a complete quantity take-off on the plans provided with the RFP. Even though design is not complete; however, we will make reasonable assumptions to quantify the scope of work. This defines focus scopes of work for Wagman, MDOT SHA, the Designer, and the ICE to assist with decisions during design and estimate development. In addition, preliminary bid items can be generated to be included in the cost estimating model. After design plans have been created and constructability issues vetted, Wagman will start the quantity take-off process. We will quantify every major element of work on the design documents, and then we will complete take-off for the work activities that make up each bid item. After we complete our take-off and prior to cost estimating, we will provide MDOT SHA, the Designer, and the ICE copies of our take-off work sheets so, that the scope of work can be verified. Below is an example of the concrete pier take-off:

Pier	Length (FT)	Width (FT)	Avg. Ht (FT)	No.	Form Area	UM	Concrete Volume	UM	Rebar lbs/CY	Reinforcing steel	UM
Stem	7	3	5	4	400	SF	15.56	CY	200	3,111.11	lbs
Pier Column	9.6	3.5	20	4	2,096.00	SF	99.56	CY	200	19,911.11	lbs
				Totals:	**2,496.00**	**SF**	**115.11**	**CY**		**23,022.22**	**lbs**

4. Development of the Direct Cost Estimate and Construction Packages

After the quantities are verified, we will enter the appropriate information, bid item and quantity, into our estimating software, HCSS. Within each bid item, we will create work activities required to complete the bid item and we will apply labor, equipment, permanent materials, construction material, and subcontractor costs to the work activities. For example, the bid item Substructure Concrete would have the work activities: Forming, Placing Rebar, Placing Concrete, Stripping Forms, Curing and so on. We will create a typical work crew for the work activity and apply a production factor based on our extensive cost history. In an effort to come to an agreed upon OPCC's and the GMP, Wagman proposes to group the bid items into Construction Packages. Bid items that are similar such as stone base and asphalt paving; or individual bridge elements such as deep foundations, footings, substructure and superstructure concrete will be packaged so that MDOT SHA and the ICE can evaluate production and cost. We propose these specific construction packages to ensure a complete scope and a full understanding of our cost estimate by MDOT SHA and the ICE. This process can be conducted throughout the pre-construction phase of the project with collaboration and transparency.

Grouping bid items into Construction Packages will allow us to submit elements of the project as it is designed accelerating the process. As a collaborative team, Wagman, MDOT SHA, and the ICE, will go through each construction package eventually coming to an agreement on the cost of the OPCC and GMP. By breaking the estimate down into construction packages, we will be able to focus on the work activities that need further discussion, ensuring that we will agree on cost and the project can be built on time and under budget.

To the right is an initial list of the Construction Packages.

Once the estimate is established, this will give the team another tool to make informed decisions. For example, we could price multiple deep foundation solutions such as driven pile, drilled shafts, auger-cast pile, or micro-pile to evaluate cost and schedule. We will conduct other "what if" scenarios to determine the solution that meets the most project goals. An example of a "what if" scenario would be cast-in-place concrete deck versus an accelerated bridge technique such as precast bridge units similar to Inverset with the concrete deck pre-cast onto the beams prior to erection. As a team we could then evaluate cost and schedule of the two options to decide on the most beneficial technique.

Construction Packages	
Roadway	Guardrail & Fence
Clearing & Grubbing & Roadway Demolition	Landscaping, Seeding & SWM Conversion
Maintenance & Protection of Traffic	Retaining Walls
Excavation & Disposal	Excavation & Backfill
Erosion & Sedimentation	Support of excavation
Subbase & Paving	Deep Foundations
Drainage	Footing concrete
Concrete Flatwork & Curb	Substructure Concrete & Rebar
Pavement Markings & Signs	Girder Erection
Signals, Lighting, & ITS	Bridge Demolition
Incidentals (Arch., Stain, Bridge Fence, etc)	Superstructure Concrete & Rebar

5. Development of Indirect Cost Estimate

Once direct cost and schedule are finalized, Wagman will develop indirect costs. Below is a chart of anticipated indirect costs associated with the project and identifying the way their cost will be estimated.

Project Management, administration, lay down yard, and the Contractors' field office are estimated by schedule and project organizational chart. Small tools and project incidentals are estimated by direct man-hours generated by the direct

INDIRECT COSTS				
Item	Schedule Driven	Direct Labor Cost Factor	Man-Hour Factor	Contract Value Factor
Bonds and Insurance				●
Project Management and Vehicles	●			
Engineering	●			
Administrative Support	●			
Contractors Field Office and Yard	●			
Holiday / Show-Up / Sick / Vacation Time		●		
Premium / Overtime		●		
Safety and Small Tools			●	
Welding and Piling Supplies			●	
Training and Hiring			●	
Portable Toilets, Ice, and Water			●	
Cell Phones and Computers			●	
Labor Stay Away and Per Diem			●	
Project Setup and Dismantle of Equipment & Material		●		
Site Equipment Repair and Damage		●		
Project Cleanup		●		

cost estimate. The remaining items such as vacation, premium time, mobilization, and demobilization are calculated by factors associated with direct labor cost generated by the cost estimate. Bonds and insurance are calculated based on the anticipated contract value. These costs are verified by over 40 years of indirect cost history. After the direct cost estimate is complete we evaluate the project and apply the appropriate factor.

Some of the indirect costs generated by the Wagman cost estimate will be applied to mobilization including Bond, Insurance, and Mobilization. Other indirect costs must be distributed across the bid items to ensure that all costs are recouped. Our estimating software HCSS allows us to spread indirect costs by four criteria: 1) Indirect cost is spread into each Bid Item by the percentage of direct labor cost in each Bid Item; 2.) Indirect cost is spread by a straight percentage of the cost of each Bid Item; 3.) Indirect is spread by percentage of the total cost minus subcontract in each Bid Item; and 4.) Indirect cost is spread into each Bid Item by the chief estimator. To ensure an open and transparent estimate, Wagman, MDOT SHA, and the ICE will agree on the most appropriate method to spread indirect costs to the construction packages during the development of the estimate model.

6. Material and Subcontractor Proposals

When the design has advanced, we will generate material and subcontractor packages to solicit actual pricing for material and subcontractors; with a focus on soliciting DBE vendors. Proposals will be compared and evaluated to determine the material supplier or the subcontractor that best support the team's approach to meet the project goals. This comparison is completed within HCSS (our estimating software) and then the most advantageous vendor will be chosen. The actual material and subcontractor costs will be automatically inserted into the cost model and then applied to the construction packages.

7. GMP Development

After the Cost of Construction is agreed upon through the estimate model and OPCC process, we will assess any remaining risk and apply the CMAR management fee percentage from our price proposal to determine the GMP.

SECTION D-2 SAMPLE ESTIMATE

Following this page is a sample estimate of our HCSS printout for an element Class 1 Excavation and Maintenance of Traffic, LS (MOT). Due to page constraints, the sample estimates are only pieces of the more in-depth estimate for Class1 Excavation and MOT.

Indirect costs and other mark-up will be applied to the estimate in accordance with methods described above in #5, Development of Indirect Cost Estimate. After the HCSS reports is a graphic of the "summary screen" for HCSS that calculates all of the project costs by category: Labor, Equipment, Materials, subcontractors, trucking, pass through costs for direct & Indirect costs. It also shows the mark-up and bond calculation. We use this "Summary Screen" with the Summary Report. Indirect costs, bond and mark-up will be spread to the direct items based on the knowledge of the job and our assessment of risk on the various bid items. We will assign the spread to each bid item individually. Due to page count we cannot show the "pricing" screen where this spread is applied by our Lead Cost Estimator, Jon Fiem.

Wagman Page 1
BM1609-1 SAMPLE - MD4 Suitland Pkwy - PG6185170R 06/16/2021 10:30
Anthony B. (DB) **Cost Report**

Project Name — Date & Time

Activity / Resource	Desc	Quantity Pcs	Quantity Unit	Unit Cost	Labor	Perm Material	Constr Matl/Exp	Equip-ment	Sub-Contract	Total
BID ITEM = 10	CLIENT# = 1020									
Description =	MAINTENANCE OF TRAFFIC			Unit = LS	Takeoff Quan:	1.000		Engr Quan:		1.000
47000	**TRAFFIC SWITCH PER PHASE**			**Quan: 4.00 EA**	**Hrs/Shft: 8.00**	**Cal: 40**	**WC: MD0601**			
										**Unreviewed
Four major traffic switches										
MOT	MOT Crew		12.00 CH	**Prod:**	**24.0000 MU**	Lab Pcs:	8.00	Eqp Pcs:		4.00
8TFBMOT	//(8)Truck, Maintenanc	2.00	24.00 HR	17.693			425			425
8TPU	//(8)Truck, Pickup Reg	2.00	24.00 HR	9.878			237			237
L007	LABORER	6.00	72.00 MH	18.000	1,823					1,823
L097	GROUP LEADER, LABO	2.00	24.00 MH	31.000	1,074					1,074
$3,558.62		24.0000 MH/EA	96.00 MH	[510]	2,897		662			3,559
1.5000 Shifts		2.6667 Un/Shift	0.0417 Unit/MH		724.23		165.42			889.66
47001	**FLAGGING**			**Quan: 200.00 SHF**	**Hrs/Shft: 8.00**	**Cal: 40**	**WC: MD0601**			
										**Unreviewed
Tie in, side roads, paving, pavment markings, milling, material deliveries										
MISL	(Mod) Misc Labor Crew		2,000.00 CH	**Prod:**	**0.1000 UH**	Lab Pcs:	2.00	Eqp Pcs:		1.00
8TPU	//(8)Truck, Pickup Reg	1.00	2,000.00 HR	9.878			19,756			19,756
L508	FLAGGER	2.00	4,000.00 MH	18.000	101,288					101,288
$121,044.00		20.0000 MH/SHFT	4,000.00 MH	[360]	101,288		19,756			121,044
250.0000 Shifts		0.8000 Un/Shift	0.0500 Unit/MH		506.44		98.78			605.22
47002	**LANE CLOSURES**			**Quan: 200.00 EA**	**Hrs/Shft: 8.00**	**Cal: 40**	**WC: MD0601**			
										**Unreviewed
[[Linked Files: MD 4 Lane Clsoures.xlsx]]										
Temporary Concrete Barrier, Material Deliveries,Erection,										
MISL	(Mod) Misc Labor Crew		800.00 CH	**Prod:**	**16.0000 MU**	Lab Pcs:	4.00	Eqp Pcs:		3.00
8TFBMOT	//(8)Truck, Maintenanc	1.00	800.00 HR	17.693			14,154			14,154
8TPU	//(8)Truck, Pickup Reg	1.00	800.00 HR	9.878			7,902			7,902
8ZAB	//(8)Arrow Boards	1.00	800.00 HR	1.282			1,026			1,026
L007	LABORER	2.00	1,600.00 MH	18.000	40,515					40,515
L097	GROUP LEADER, LABO	1.00	800.00 MH	31.000	35,791					35,791
T564	FLATBED TRUCK, DRIVE	1.00	800.00 MH	21.000	23,087					23,087
$122,476.00		16.0000 MH/EA	3,200.00 MH	[352]	99,394		23,082			122,476
100.0000 Shifts		2.0000 Un/Shift	0.0625 Unit/MH		496.97		115.41			612.38
47400	**SIGNS, BARRICADES & DRUMS**			**Quan: 1.00 LS**	**Hrs/Shft: 8.00**	**Cal: 40**	**WC: MD0601**			
										**Unreviewed
Subcontractor includes all Long Term MOT signs & signal. short term signs & material										
3MOTC	Cones	1.00	200.00 EA	16.000			3,200			3,200
3MOTD	Drums	1.00	200.00 EA	55.000			11,000			11,000
3MOTF	Flags	1.00	50.00 EA	5.000			250			250
3MOTW	Windmasters	1.00	20.00 EA	150.000			3,000			3,000
4MOT	MAINT & PROT OF TRA	1.00	1.00 LS	150,000.000					150,000	150,000
$167,450.00				[ ]			17,450		150,000	167,450
							17,450.00		150,000.00	167,450.00
=====> **Item Totals:**	**10**	**- MAINTENANCE OF TRAFFIC**								
$414,528.62	7,296.0000 MH/LS		7,296.00 MH	[144440]	203,579		17,450	43,500	150,000	**414,529**
414,528.620	1 LS				203,578.53		17,450.00	43,500.09	150,000.00	414,528.62
$414,528.62	***** Report Totals *****		7,296.00 MH		203,579		17,450	43,500	150,000	**414,529**

Bid Item Description — Bid Item Take-off quantity — Owner Bid Item Quantity — Estimator Notes — Work Activity — Work activity total & unit price — Take-off Quantity — Attached Excel Spreadsheet for take-off back-up — Production selected — Shifts — Production options — Subcontractor pricing — Bid Item total

>>> **indicates Non Additive Activity**
------Report Notes:------

Wagman
BM1609-1 SAMPLE - MD4 Suitland Pkwy - PG6185170R
Anthony B. (DB)

Cost Report

Page 1
06/17/2021 14:51

Cost Breakdown

Activity / Resource	Desc	Quantity Pcs	Quantity Unit	Unit Cost	Labor	Perm Material	Constr Matl/Exp	Equip-ment	Sub-Contract	Total
BID ITEM = 48000	CLIENT# = 2006									
Description = CLASS 1 EXCAVATION Partial			Unit = CY	Takeoff Quan: 579,077.000			Engr Quan: 614,427.000			
40000	**EXC OFF ROAD PHASE 4**			**Quan: 200,000.00 CY**	**Hrs/Shft: 8.00**	**Cal: 40**	**WC: MD0602**			
[[Linked Files: MD 4 Earth Flow by Phase.xlsx]]										
Excvation during Phase 4 using off-road Trucks										
EXCOFF	(Mod) Excavation with Off-Road Trk		1,027.17 CH	**Prod: 194.7083 UH**	Lab Pcs: 7.25		Eqp Pcs: 6.25			
8D6GCS	//Dozer 30-40K D6N GCS	1.00	1,027.18 HR	59.533			61,151			61,151
8EXPC400	//Excavator 100000lbs	1.00	1,027.18 HR	99.434			102,137			102,137
8TD35	//Articulated Off-Road	3.00	3,081.53 HR	76.715			236,400			236,400
8TPU	//(8)Truck, Pickup Reg	1.00	1,027.18 HR	9.878			10,146			10,146
8TW	//Truck, Water Tanker	0.25	256.79 HR	60.955			15,653			15,653
D166	DOZER OPERATOR	1.00	1,027.18 MH	25.000	42,071					42,071
L007	LABORER	1.00	1,027.18 MH	18.000	25,701					25,701
L097	GROUP LEADER, LABO	1.00	1,027.18 MH	31.000	45,423					45,423
O316	Excavator	1.00	1,027.18 MH	29.000	45,819					45,819
T044A	ARTIC TRUCK DRIVER	3.00	3,081.53 MH	21.000	87,849					87,849
T564	FLATBED TRUCK DRIVE	0.25	256.79 MH	21.000	7,321					7,321
$679,670.73	0.0372 MH/CY		7,447.04 MH	[0.88]	254,184			425,486		679,671
128.3963 Shifts	1,557.6779 Un/Shift		26.8563 Unit/MH		1.27		2.13			3.40
40030	**PLACE EMBANKMENT**			**Quan: 223,200.00 CY**	**Hrs/Shft: 8.00**	**Cal: 40**	**WC: MD0602**			
										**Unreviewed
EXC	(Mod) excav crew		2,400.00 CH	**Prod: 93.0000 UH**	Lab Pcs: 3.10		Eqp Pcs: 2.10			
85R84	//Rollers 84"	1.00	2,400.00 HR	81.530			195,672			195,672
8D6GCS	//Dozer 30-40K D6N GCS	1.00	2,400.00 HR	59.533			142,879			142,879
8TPU	//(8)Truck, Pickup Reg	0.10	240.00 HR	9.878			2,371			2,371
D166	DOZER OPERATOR	1.00	2,400.00 MH	25.000	98,298					98,298
L007	LABORER	1.00	2,400.00 MH	18.000	60,051					60,051
L097	GROUP LEADER, LABO	0.10	240.00 MH	31.000	10,613					10,613
OR	Roller Operator	1.00	2,400.00 MH	24.000	89,748					89,748
$599,632.87	0.0333 MH/CY		7,440.00 MH	[0.754]	258,711			340,922		599,633
300.0000 Shifts	744.0000 Un/Shift		30.0000 Unit/MH		1.16		1.53			2.69
40050	**FINEGRADE SUBGRADE HMA AREAS**			**Quan: 97,336.50 SY**	**Hrs/Shft: 8.00**	**Cal: 40**	**WC: MD0601**			
										**Unreviewed
3140 47.25 units per manhour										
3412 42.37 units per manhour										
FINE	(Mod) Finegrade Crew		539.09 CH	**Prod: 45.0632 UM**	Lab Pcs: 4.00		Eqp Pcs: 3.00			
85MGUTS	//Grader, 14' UTS	1.00	540.00 HR	101.051			54,568			54,568
85R84	//Rollers 84"	1.00	540.00 HR	81.530			44,026			44,026
8TPU	//(8)Truck, Pickup Reg	1.00	540.00 HR	9.878			5,334			5,334
L007	LABORER	1.00	540.00 MH	18.000	13,674					13,674
L097	GROUP LEADER, LABO	1.00	540.00 MH	31.000	24,159					24,159
O396	MOTOR GRADER OPER	1.00	540.00 MH	30.000	24,824					24,824
OR	Roller Operator	1.00	540.00 MH	24.000	20,410					20,410
$186,994.44	0.0221 MH/SY		2,160.00 MH	[0.571]	83,067			103,928		186,994
67.4988 Shifts	1,442.0489 Un/Shift		45.0632 Unit/MH *		0.85		1.07			1.92
=====> **Item Totals: 48000**	**- CLASS 1 EXCAVATION**									
$1,466,298.04	0.0294 MH/CY		17,047.04 MH	[0.69]	595,962			870,336		**1,466,298**
2.532	579077 CY				1.03			1.50		2.53
$1,466,298.04	***** Report Totals *****		17,047.04 MH		595,962			870,336		**1,466,298**

Indicates Take-off Quantity vs. Engineers Quantity - Quantity would need to be resolved with the engineer

Take-off file

Specific notes to work activity

selected production

Production options

Workers comp code

Crew: Labor equipment, material, subcontractor, trucking

Note illustrating past production performance

Work calendar

Crew Hours

Total cost

Total manhours

Unit Price

>>> **indicates Non Additive Activity**
------Report Notes:------

Wagman
BM1609-1 SAMPLE - MD4 Suitland Pkwy - PG6185170R
Anthony B. (DB)

ESTIMATE SUMMARY - COSTS & BID PRICES

Direct Cost Categories

Bid# / Client# / Bid Description	Quantity	Unit	Manhours	Direct Labor	Perm Matl	Constr Matl	Equip-ment	Sub-Contr	Direct Total	Indirect Charge	Total Cost	Total Cost Unit Price	Markup	------Balanced Bid------ Total	Unit Price	Bid Price	Bid Total
Direct Manhours																	
Totals:			173,525	1,934,149	6,785,326	23,509,232	1,827,726	4,750,695	22,896,244	61,703,374	61,703,374			62,339,300			82,870,345.98
											[62,337,969	]		61,703,374 ****Takeoff			[32.9 %
Trucking																	

Markup % is shown as a percentage of cost

Indirect Cost Summary

		Allowance	Labor	PM	CM	Equip	Sub	Addon Costs Not Spread Total	Dollars Not Spread
93000000	INDIRECT COSTS								
93030000	$10M PROJ - SUPERVISIO		2,735,831		31,655	359,520	3,127,006	3,127,006	3,127,005.70
93030001	-->SUPERVISION & INDIR		2,735,831		31,655	359,520	3,127,006		
93030120	PREMIUM & IDLE TIME	726,937					726,937	726,937	726,937.03
93030160	FIELD OFFICE EXPENSE	120 83,250	4,210	3,366	1,500	31,443	123,769	123,769	123,769.11
93030200	ADMINISTRATIVE EXPE	529,204			4,401	45,795	25,000 604,400	604,400	604,399.79
93030220	PROJECT SETUP & DIS	918,993			66,001		984,994	984,994	984,994.42
93030240	SMALL TOOLS & SUPPL	260,288		13,250			273,538	273,538	273,537.64
93030280	TESTS / QA / QC	349	9,287		9,699	3,450	22,437	22,437	22,436.65
93030300	WINTER WEATHER & S	900	28,709		7,500	2,963	39,173	39,173	39,172.77
93030360	INSURANCE & TAXES	3					3	3	3.00
93030380	AUTO CONSTRUCTION	164,814				175,000	339,814	339,814	339,814.13
93030390	PROJECT SPECIFIC GC								
Bond from Summary Table								353,213	353,213
INDIRECT TOTALS ==>		1,369 2,683,489	2,778,038	16,616	120,756	618,171	25,000 6,242,070	353,213	6,595,283	353,213 <= Subtotal
Markup on Resource Costs								4,025,018	4,025,018

Indirect Total Cost

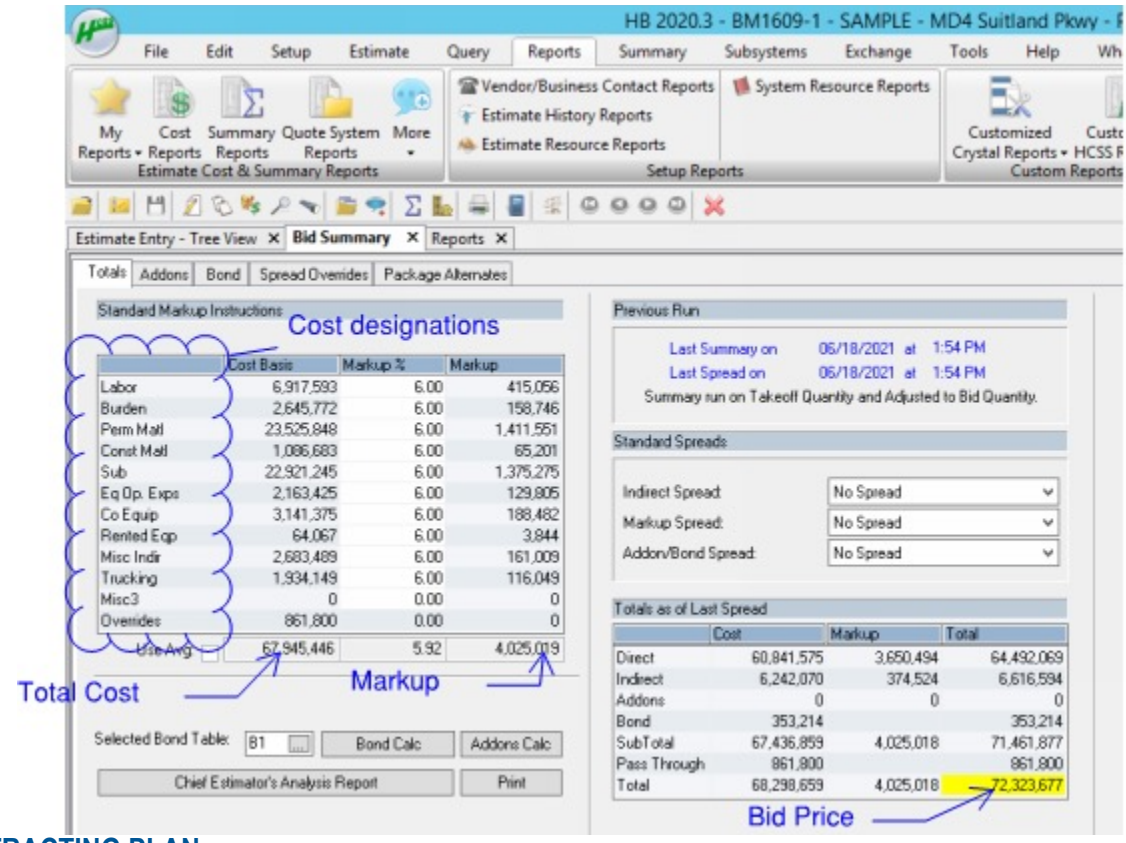
Bond Calculation

Mark-up

********** TOTAL	JOB ======>	174,894	4,617,638	9,563,364	23,525,847	1,948,482	5,368,866	22,921,244	67,945,444	353,213	68,298,658		4,025,018	66,717,532		82,870,345.98

Spread Indirects On DO NOT SPREAD Spread Markups On DO NOT SPREAD Spread Addons&Bonds On DO NOT SPREAD

HCSS SUMMARY SCREEN



D-3 CONTRACTING PLAN

When Wagman works as a prime contractor on heavy civil projects in the region we always self-perform more than 50% of the work. Historically, we are known for our aptitude in building traditional and complex interchange projects. We employ professionals who give us the ability to self-perform a majority of the heavy civil disciplines. We also have capabilities that set us apart from the competition in the geographical area including full service geotechnical construction abilities such as pile driving, micro-pile installation, auger-cast pile, and drilled shafts. We can manage and mitigate risk by selectively choosing the scopes of work that we perform in house to be sure that the most critical fall within our control. Reference figure D-3 Contracting Plan for a full list of capabilities applicable to this project.

Subcontractors will be selected on the project in a manner that promotes fairness and quality to MDOT SHA. Wagman desires to gain pricing from as many qualified subcontractors as possible to ensure that the pricing for the work is competitive. We have identified potential scopes of work for subcontractors in the figure D-3 Contracting Plan that we will use to pursue pricing. From that list and as plans are developed, we will issue and disperse bid packages for pricing of those scopes of work. Based on our experience in Baltimore and more specifically, Section 100, we have a list of known subcontractors in the region who we have built working relationships with over years. We will use this knowledge to acquire at a minimum three quotes from qualified subcontractors for each scope we may choose to be performed by a subcontractor. Our estimating software system, HCSS Heavy Bid, provides the capability to develop scopes of work and accurately compare them for subcontractor and major purchase order selection. Subcontractors will be selected based on the best value they provide. Other factors that will be evaluated when subcontractors are chosen include: Disadvantaged or Minority Business Status; Quality of Work Performed; Current Backlog; Qualifications and Certification to Perform A Given Scope of Work; History of Performance for Wagman and MDOT SHA; Environmental Stewardship; Adherence to Schedules; and Safety Performance.

D-3 CONTRACTING PLAN		Team Past Performance		
Scope of Work:	**Subcontract Potential:**	**I-95 & I-695 Interchange**	**Watkins Mill**	**MD 404**
Permit Acquisition	Sub/DBE	SP/Owner	SP/Owner	SP
Utility Coordination	SP	SP/Owner	SP/Owner	SP
Utility Designation	Sub/DBE	SP/Owner	SP/Owner	SP
Erosion & Sediment Control	SP	SP/DBE	SP/Sub	DBE
Sewer and Water Utility Relocation	SP/Sub/DBE	SP	Sub	SP
Bridge Demolition	SP	SP	N/A	SP
Geotechnical Construction: Driven Pile, Drilled Shafts, Micro-Piles, and Auger-Cast Pile	SP	SP	SP	SP
Support of Excavation: Design and Construction	SP	SP	SP	SP
Public Outreach	SP/Sub/DBE	SP/Owner	SP/Owner	SP/Sub
Asphalt Milling & Paving	Sub/DBE	Sub	Sub	Sub
Maintenance of Traffic	SP/Sub/DBE	SP/DBE	SP/DBE	DBE
Concrete for Foundations, Substructure, & Superstructure	SP	SP	SP	SP
Drainage Pipe & Structures	SP	SP/DBE	SP	SP
Concrete Flatwork	SP/Sub/DBE	Sub/DBE	DBE	DBE
Excavation, Embankment, and Topsoil	SP	SP/DBE	SP	SP
Landscaping	Sub/DBE	DBE/SUB	Sub	DBE
Aggregate Base Placement & Fine Grading	SP	SP	SP	SP
Structure Excavation & Backfill	SP	SP	SP	SP
Stormwater Management Facility and Best Management Practice Construction	SP	SP	SP	SP
Striping and Pavement Markings	Sub/DBE	Sub	Sub	DBE
Guardrail & Fence	Sub/DBE	Sub/DBE	DBE	DBE
Paint & Stain	Sub/DBE	Sub	N/A	DBE
Trucking	Sub/DBE	DBE	DBE	DBE
Reinforcing Steel - Furnish & Install	Sub/DBE	DBE	DBE	DBE
Structural Steel - Furnish & Install	SP/Sub/DBE	Sub	SP/DBE	SP

Wagman strives to achieve Disadvantaged Business Participation exceeding the established goal on all of our projects. We intend to work with MDOT SHA to establish a fair goal for MD 4 at Suitland Parkway Interchange Improvements Project. We will perform Good Faith Efforts in assisting MDOT SHA in the establishment of the goal and then we will continue to perform Good Faith Efforts to enhance Disadvantaged Business Enterprise participation as Subcontractors and Suppliers on the project. As a starting point, figure D3Subcontracting Plan outlines potential scopes of work that can be performed by Disadvantaged Business Enterprises in the area. We will perform outreach to Disadvantaged Business Enterprises to engage them in the project in the following ways: posting information on social media; advertising in local publications that target Disadvantaged and Minority Businesses; attending and conducting our own Disadvantaged and Minority Business outreach events; and utilizing our experience and relationships with Disadvantaged and Minority Businesses to get them involved in the project. Disadvantaged and Minority Business Enterprise pricing will be reviewed in line with other subcontractors and suppliers who provide similar services. We will work with the DBE's to be sure that they fully understand the scope of work and have the capability to perform the work in a safe, quality oriented, and efficient manner. Disadvantaged and Minority Businesses will be given priority in the subcontractor and supplier selection process if those qualifications are met and their price is competitive (but not necessarily low). Below is a successful process that we use on all Wagman projects to meet or exceed the project DBE Goals.

1. Wagman shall send the solicitation notice to the Governor's Office of Minority Affairs.
2. Wagman will work with the State to advertise the procurement on eMaryland marketplace.
3. Wagman will post the solicitation on our Website, in newspapers and in DBE publications.
4. Wagman will identify potential subcontractors and vendors through our in-house data base of prequalified sub contractors, from other databases (State DOT, MD DBE, Plan Holders List).
5. Wagman will send solicitations via facsimile or e-mail at least 15 days prior to bid date.
6. Wagman will provide plans, specification and schedule via hard copy or FTP site.
7. Wagman will establish pre-bid meetings and minority outreach meetings.

Wagman understands that compliance with the procurement requirements of the Code of Maryland Regulations (COMAR) is an important aspect of the Preconstruction Services for the project. COMAR section 21.05.10.05 states the requirements for the procurement of subcontracts on Construction Manager at Risk projects. We understand that should we be selected to perform work in the Construction phase of the project that we assume the risk of cost, schedule, and performance of subcontractors on the project. We also understand that we must provide notice to the Governor's Office of Small, Minority & Women Business Affairs as well as properly advertise the project 14 days in advance of the due date of trade proposals. We will provide MDOT SHA with information as needed so that MDOT SHA can publish notice of the project for trade proposals on its website and eMaryland Marketplace. As discussed previously in this proposal, we will select subcontractors in an environment of fairness to both MDOT SHA and to the subcontractors to ensure that MDOT SHA receives the benefit of the lowest cost combined with the highest potential Disadvantaged and Minority Business participation. Wagman is very successful in meeting or exceeding the DBE goals as shown by our actual results on projects for Maryland.

Project	County	$ Contract Value	MBE/DBE Req'd	MBE/DBE Actual
MD-4	PG County	20,592,000	14%	14.96%
ICC – A	Montgomery	464,000,000	20.00%	22.20%
ICC – B	Montgomery and PG County	560,000,000	20.00%	23.30%
I-95/I-695 Interchange	Baltimore	217,000,000	16.00%	16.30%
WWB I-95/I-295/I-495	PG County	106,000,000	18.00%	18.20%
WWB MD 210 Interchange	PG County	62,000,000	17.00%	18.00%