

**MD
404**

MD404



US 50 to East of Holly Road | Contract No. AW8965170

STATEMENT OF QUALIFICATIONS



November 23, 2015



 **Kiewit**
PARSONS



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US 50 to East of Holly Road | Contract No. AW8965170 | November 23, 2015

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A. Lead Design Firm Experience/Qualifications and Past Performance

PROJECT DESIGN MANAGER: JOSH WADE, PE

Experience includes serving as project design manager on the Inter-County Connector Segment B (ICC-B), as well as projects with alternative configurations, such as Virginia's first diverging diamond interchange (DDI) and first continuous flow intersection (CFI). Project experience also includes working mostly with Kiewit, including serving as Project Design Manager (PDM) or Deputy PDM on Goethals Bridge Replacement in New York and the WMATA Silver Line Phase 2 project in Virginia.

22 years experience | B.S., Civil Engineering, University of Maryland College Park |
M.B.A., Business Administration, University of Maryland University College | PE #22467, MD, 1999; VA

Design-Build Inter-County Connector Contract B | SHA | Montgomery County, MD | \$560M

Project Design Manager. Oversaw all aspects of design from staff management, concept development, resource scheduling, estimate development and analysis, subconsultant and task force management to package development and permitting, quality control and post-design services. Managed over 100 engineers, CADD technicians and other specialists who worked on the 3 independent segments on an accelerated schedule during the design phase. Work included development of over 30 Alternative Technical Concepts (ATC); dozens of environmental permits; earthwork balancing; new and rehabilitated pavement; drainage; 10 new dual mainline bridges that spanned water ways, accounted for stream migration and scour effects and minimized impacts to floodplains and wetlands while providing wildlife crossings; new box culverts; extensive ITS infrastructure; utility avoidance and relocation designs and had various time-of-year work restrictions for endangered species. Design-build project featured Kiewit as the lead contractor and consisted of approximately seven miles of six-lane roadway and two interchanges through part of the most environmentally sensitive areas of the County.

Relevant items of work similar to the MD 404 project:

Design-build, SHA project, ATC's, highly environmentally sensitive, aggressive schedule, pavement design, new pavement, utility relocations, bridges, retaining walls, drainage facilities, storm water management, E&S controls, ESD type facilities, reforestation, in stream work restrictions, floodplain protections and restrictions, protection of wetlands, ROW acquisitions, ITS devices, landscaping, signing, signals, lighting and pavement markings, permitting, coordination with third parties, design coordination, GPI as environmental consultant, reforestation, relocation of streams, earthwork, roadway work, grading work, public outreach, maintenance of traffic and partnership with SHA and local stakeholders.

Design-Build Military Highway Continuous Flow Intersection | VDOT | Norfolk, VA | \$60M

Project Design Manager. Oversees all aspects of design from staff management, concept development, resource scheduling, estimate development and analysis, subconsultant and task forces, package development and permitting, quality control and post-design services. Manages the multi-disciplined design effort utilizing over 20 engineers, CADD technicians, environmental and permit specialists across the Parsons Team and subconsultants. Work includes earthwork, pavement replacement, SWM facilities, grass ditch maximization, signing and marking, intersection lighting analysis, ITS systems, a double box culvert replacement, environmental permitting with in-stream work restrictions, phased construction, roadway widening, wetland protections, landscaping, endangered species protection, and ROW acquisition. Developed and oversaw the implementation of the Design Quality Control Plan and participated in the agency and public outreach efforts. Design-build project consists of approximately 1.58-mile-long roadway located along Military Highway. Scope includes roadway widening and the design and construction of Virginia's first Continuous Flow Intersection (CFI) elements. Design phase of this project will be completed prior to the NTP of the Route 404 project.

Relevant items of work similar to the MD 404 project:

Similar classified roadway, seasonal traffic considerations, accelerated design schedule, multiple design packages, partnering, many of the same discipline leads, complex MOT scheme to minimize impacts to users and to accomplish the work without long-term lane closures, extensive signal design.

Design-Build I-64/Route 15 (Zion Crossroads) | VDOT | Louisa County, MD | \$6.8M

Project Design Manager. Managed the more than 12 engineers, CADD technicians and specialists responsible for balancing earthwork, new and rehabilitated pavement, E&SC and drainage designs including a SWM basin and mix of grass ditches and enclosed systems, signing and marking, lighting, ITS systems including CCTV camera relocations, utility coordination, widening of Route 15, signal design including for alternative configuration signals, and a complex TMP/MOT plan. Scope consisted of improving traffic operations and increasing safety at the interchange with I-64 and signals along Route 15 while improving access to the adjacent businesses and land uses. Improvements consisted of a conversion of the interchange configuration from a standard diamond to the first DDI in Virginia. ROW acquisitions shown in the RFP plans were eliminated by Parsons re-design of the owner's initial concept.

Relevant items of work similar to the MD 404 project:

Design-build, alternative configurations, accelerated schedule, coordination and avoidance of many utilities, ROW acquisitions avoided through design, and an extensive public and third party outreach and education program.

HYDROLOGICAL/HYDRAULICS DESIGN ENGINEER: BRIAN SMITH, PE

Experience includes civil and water resources engineering in support of transportation projects, specializing in hydrology and hydraulics (H&H), with a significant emphasis on design-build projects. Experience also includes working on multiple SHA projects with submittals to Maryland Department of the Environment (MDE). Familiar with storm drainage systems, stormwater management (SWM) practices, and erosion and sediment control (E&SC) design under current SHA and MDE criteria. Knows the requirements and processes for Maryland environmental permits, which includes National Pollution Discharge Elimination System (NPDES) Construction General Permits (CGP), and includes Joint Permit Applications to cover impacts and avoidance of jurisdictional wetlands and waterways. Expert knowledge of Environmental Site Design (ESD) practices required to satisfy stormwater permitting in the state of Maryland as well as in adjacent jurisdictions.

Experience also includes completing several projects on the Eastern Shore, including MD 300 at Sudlersville Drainage Remediation and US 50 at MD 8 in Queen Anne's County, and US 13 at MD 513 Bikeway, MD 349 at Rockawalking Creek Culvert Replacement and MD 349 at Crooked Oak Lane in Wicomico. These projects have given Brian excellent knowledge of the conditions and requirements of doing H&H engineering in the Route 404 area.

Certifications: MDE E&SC Green Card, SHA E&SC Yellow Card, and SHA E&SC Designer Certification and MDE Reviewer.

16 years experience | B.S., Civil Engineering, University of Maryland College Park | PE # 29925, MD, 2004; VA, DC, DE, WV

I-70 Phase 2D Design-Build: From 2,750-ft East of Patrick Street to 1,250-ft West of MD 355 Overpass | Maryland State Highway Administration | Frederick County, Maryland | \$45M

Design Engineer. Oversaw H&H design in support of a one-mile interstate highway widening and bridge replacement DB project. Design submittals broke down the project into 17 design packages of various design scopes. Additional responsibilities included phased storm drain placement, open channel design, SWM, multiple E&SC phasing, and submittals to MDE for stormwater permitting compliance. SWM design included a large detention pond providing water quantity management.

Relevant items of work similar to the MD 404 project:

Maryland design-build project, accelerated schedule, multiple work packages, similar open channel/grass swale design, large detention pond, SHA-standard drawings for storm drainage, E&SC, and SWM, and SHA and MDE review processes.

US 29 Relocation Design-Build: Interchange Improvements from South of Blackburn Road to North of Dustin Road Design-Build | SHA | Montgomery County, Maryland | \$40M

Design Engineer. Responsible for stormwater management analysis and design of five stormwater management ponds and one sand filter for a major bypass highway design-build project. Transportation improvements included a bypass highway of a commercial corridor, two grade-separated interchanges, major improvements at two intersections, and a new park and ride facility. Ancillary improvements included storm drainage, culvert extensions, stormwater management facilities, and retaining walls. Other design responsibilities include design of closed storm drains, cross-culverts at stream crossings, and open-channel drainage.

Relevant items of work similar to the MD 404 project:

Maryland DB, ESD elements, phased construction, multiple design packages, intersection improvements, culvert improvements including extensions, similar H&H, drainage and permitting requirements, storm drainage, E&SC, and SWM drawing development.

DC-CSX Virginia Avenue Tunnel Clearance Design-Build | CSX Transportation | Washington, District of Columbia | \$220M

Design Engineer. Responsible for closed storm drains, open-channel ditches, E&SC, and SWM measures of track and roadway areas of this railroad tunnel replacement and roadway reconstruction project. Duties included designing infiltration trenches to perform SWM and utilized ESD practices such as permeable pavements, roadside bioretention, bioswales, and grass channels to perform SWM for roadways, sidewalks, and bike paths. Additional responsibilities included overseeing plan, report, and document development for SWM submissions to procure CGPs and approval from the regulatory environmental agencies.

Relevant items of work similar to the MD 404 project:

Major design-build transportation project, phased construction, multiple design packages, similar H&H, drainage and permitting requirements, pavement rehabilitation and reconstruction, storm drainage, E&SC, and SWM drawing development.

DC-CSX National Gateway Phase II Design-Build | CSX Transportation | District of Columbia, Maryland, West Virginia | \$40M

Design Engineer. Responsible for closed storm drains, open channel ditches, E&SC, and SWM measures, for improvements at six sites. Oversaw storm drain installation in corridors with multiple underground utilities and floodplain crossings, and he utilized infiltration trenches to provide SWM water quality.

GEOTECHNICAL DESIGN ENGINEER: JEFF SEWELL, PE

Experienced in geotechnical design engineering for large transportation projects, including many design-build projects such as the \$560 million Inter-County Connector and \$1.2 billion WMATA Silver Line Phase 2. Provided geotechnical engineering on hundreds of Maryland projects throughout his career and has a successful relationship with SHA, Parsons and Kiewit on many design-build projects. Additional experience includes being a Queen Anne native, and serving as a project geotechnical engineer for John Hynes and Associates in Salisbury, Maryland.

19 years experience | M.E., Civil Engineering, University of Maryland | PE # 26561, MD, 2001; DE, FL, NC, VA

Inter-County Connector Contract A Design-Build | SHA | Montgomery County, MD | \$478M

Geotechnical Design Engineer. Responsible for management and review of the geotechnical engineering analysis and recommendations for this project. Oversaw lab work performed to ensure timely and accurate completion. Developed the subsurface exploration plans laying out the boring and test pit locations needed to meet the contract requirements and to develop accurate recommendations. Project consisted of approximately 7.2 miles of new six-lane roadway. Scope included construction or modification of 18 bridges, including a 625-ft.-long cut and cover tunnel, 5 miles of new noise barrier, and multiple SWM ponds and retaining walls. Earthwork consisted of cuts and fills of over 40 feet, including cuts of up to 20 feet below the groundwater table.

Relevant items of work similar to the MD 404 project:

Maryland design-build, similar length, designed and constructed in segments, similar geotechnical features including test boring numbers, pavement cores and recommendations for elements such as pavement sections, rehabilitation options, unsuitable soils, drilled shaft sizing and depths, SWM designs with infiltration rates, slope grades, and bridge, MSE and other retaining walls, noise walls, signage and signal foundations.

Inter-County Connector Contract B Design-Build | SHA | Montgomery County, MD | \$560M

Geotechnical Design Engineer. Oversaw the lab work performed to ensure timely and accurate completion. Developed the subsurface exploration plans laying out the boring and test pit locations needed to meet the contract requirements and develop accurate recommendations. Project consisted of seven miles of a new six-lane highway. Scope included construction of 10 bridges, eight stormwater ponds, five miles of noise barrier, and new pavements. Project required over 800 test borings and 40 geotechnical reports within the 14-month design period. Schnabel performed specialized strength testing of the soils to aid the team in expediting the earthwork. Tests such as these aided in reducing foundation costs and schedule for the bridge sites.

Relevant items of work similar to the MD 404 project:

Design-build, SHA project, ATC's, highly environmentally sensitive, aggressive schedule, pavement design, new pavement, utility relocations, bridges, retaining walls, drainage facilities, storm water management, E&S controls, ESD type facilities, reforestation, in stream work restrictions, floodplain protections and restrictions, protection of wetlands, ROW acquisitions, ITS devices, landscaping, signing, signals, lighting and pavement markings, permitting, coordination with third parties, design coordination, GPI as environmental consultant, reforestation, relocation of streams, earthwork, roadway work, grading work, public outreach, maintenance of traffic and partnership with SHA and local stakeholders.

WMATA Silver Line Phase 2 Design-Build | MWAA | Dulles, VA | \$1.2B

Geotechnical Design Engineer. Managed the subsurface exploration consisting of more than 1,200 test borings and the design packaging contains in excess of 30 design reports and technical memos. Developed the subsurface exploration plans laying out the boring and test pit locations needed to meet the contract requirements and to develop accurate recommendations. Project consisted of 11.2-mile rail extension consisting of six stations, several miles of aerial guideway, aerial crossings of Broad Run and Horsepen Creek, as well as wayside and civil improvements including the widening/shifting of more than 10 miles of the Dulles Access Road and several cross roads, SWM ponds and structures including bridges, noise walls, signs and signals. Aerial guideway was supported on rock socketed drilled shafts. Multiple axial and lateral load tests were performed to verify the axial and lateral.

Relevant items of work similar to the MD 404 project:

Design-Build, designed and constructed in segments, included more than 10 miles of roadway widening and improvements, more than 1,400 borings. Similar recommendations and requirements on pavement sections, unsuitable soils, drilled shaft sizing and depths, SWM designs with infiltration rates, and bridge, MSE and other retaining walls, noise walls, signage and signal foundations.

LANDSCAPE ARCHITECT: CRAIG RICHARDSON, RLA

Experience includes serving as a senior landscape architect and planner for projects involving context-sensitive solutions, urban design, land use and community master planning, transportation-related planning and streetscape design, parks and recreation design, waterfront planning, historical landscape preservation, landscape enhancement, and environmental planning and permitting. Developed the Washington, D.C., Open Space Manual. Also manages a team of landscape architects to ensure the timely delivery of quality products based on local conditions and needs.

20 years experience | B.S., Landscape Architecture, Pennsylvania State University | RLA # 3375, MD, 2006; VA, PA, NJ

Inter-County Connector Contract B Design-Build | SHA | Prince George's County, MD | \$560M

Landscape Architect. Managed all urban design and landscape architecture components, including participating in community outreach meetings; preparing the final landscape design plans, plant list, details, and designs; and coordinating aesthetics related to the structural design, which included 10 bridges and a signage system. Prepared planting designs based on local drought resistant species most likely to survive and that were available in needed quantities. Duties included coordinating designs and aesthetic features with all disciplines, including the structural engineers, noise and retaining wall designers and utility leads. Designs were also part of the permitting packages and included items such as SWM plantings, historic viewshed analyses, reforestation and bridge aesthetics and treatments. Additional responsibilities included performing historic view shed analyses and reforestation efforts between the Willow Grove historic property's main house, barn and stables and the roadway.

Relevant items of work similar to the MD 404 project:

Design-build, SHA project, ATC's, highly environmentally sensitive, aggressive schedule, pavement design, new pavement, utility relocations, bridges, retaining walls, drainage facilities, storm water management, E&S controls, ESD type facilities, reforestation, in stream work restrictions, floodplain protections and restrictions, protection of wetlands, ROW acquisitions, ITS devices, landscaping, signing, signals, lighting and pavement markings, permitting, coordination with third parties, design coordination, GPI as environmental consultant, reforestation, relocation of streams, earthwork, roadway work, grading work, public outreach, maintenance of traffic and partnership with SHA and local stakeholders.

Inter-County Connector Contract A Design-Build | SHA | Montgomery County, MD | \$478M

Landscape Architect. Led all landscaping and landscape architecture aspects consisting of approximately 7.2 miles of new six-lane roadway. Scope included construction or modification of 18 bridges, including a 625-ft.-long cut and cover tunnel with deck-over, five miles of new noise barrier, and multiple stormwater management ponds and retaining walls. Responsibilities included developing extensive landscape plans for the entire project as part of the permitting packages. Designs included planting plans for SWM detention facilities and along swales and filtration trenches to ensure runoff would outfall to existing streams clean and cooled to proper temperatures. Duties included coordinating the landscape plans with other disciplines with the retaining and noise wall and utility designs. Provided landscape architectural input and planting plans for the gateway treatments at the major bridges, including the Rock Creek Bridge and other structures throughout the project. Additional duties included leading the design of the reforestation of areas along the corridor.

Relevant items of work similar to the MD 404 project:

Maryland design-build, similar length, many of the same design discipline leads, designed and constructed in segments, extensive landscape plans, planting plans for SWM detention facilities and along swales and filtration trenches, multiple permitting packages, landscape architectural input and planting plans for the gateway treatments at the major bridges and other structures throughout the project.

I-395 HOV Ramp at Seminary Road with I-395 NB Auxiliary Lane Extension | VDOT | Alexandria, VA | \$56M

Landscape Architect. Managed the entire landscape task, including leading the public outreach meetings that focused on landscape elements like HOA meetings. Effectively explained landscape elements to the general public, allowing them to participate in the decision-making process and obtained their buy-in into and understanding of the process. Scope included improving traffic operations and increasing safety for HOV and transit users working at or near the Mark Center, as well as incorporating ramp and pedestrian improvements to mitigate impacts on the surrounding neighborhoods and businesses. Project included a new reversible HOV ramp in the center of I-395, a new pedestrian bridge across I-395, and the widening of an existing mainline bridge on I-395.

Relevant items of work similar to the MD 404 project:

Design-build project, cross discipline coordination, many of the same design discipline leads including the design manager, landscape plans based on local, drought-resistant plants available in the area.

HIGHWAY ENGINEER: DHIMANT SOJITRA, PE, PMP

Experience includes the planning and designing of urban and rural roadways throughout Maryland, Virginia and the Washington, DC Metro region according to SHA, FHWA, WMATA, and AASHTO road and bridge design standards and criteria. Experience also includes highway project development from conceptual to right-of-way and final PS&E; interstate, primary, urban, and secondary roadway improvements, at-grade intersections and safety improvements. **Certifications:** Project Management Institute, #1400072

27 years experience | B.S., Civil Engineering, Gujarat University | PE # 26982, MD, 2001; PMP, 2011

Inter-County Connector Contract B Design-Build | SHA | Prince George's County, MD | \$560M

Lead Highway Engineer. Responsible for the management and coordination of multiple teams for three segments of the ICC-B project with delivery of multiple packages for roadway, bridges, retaining walls, sound walls, drainage structures, earthwork and grading, traffic control plans, detail design of interchanges and E & SC plans. Project consisted of approximately 6.9 miles of six-lane, controlled-access toll road beginning 600 feet east of MD 97 and ending just west of Route 29, Columbia Pike, in Montgomery County. Additional responsibilities included ensuring that geometric and other design standards were consistent across the segments and met all contract, SHA and AASHTO standards and requirements. Identified several deficiencies in the RFP concept plans such as improper vertical coverage and clearance over culverts along the mainline of the roadway near Route 28.

Relevant items of work similar to the MD 404 project:

Design-build, SHA project, ATC's, highly environmentally sensitive, aggressive schedule, pavement design, new pavement, utility relocations, bridges, retaining walls, drainage facilities, storm water management, E&S controls, ESD type facilities, reforestation, in stream work restrictions, floodplain protections and restrictions, protection of wetlands, ROW acquisitions, ITS devices, landscaping, signing, signals, lighting and pavement markings, permitting, coordination with third parties, design coordination, GPI as environmental consultant, reforestation, relocation of streams, earthwork, roadway work, grading work, public outreach, maintenance of traffic and partnership with SHA and local stakeholders.

WMATA Silver Line Phase 1 Design-Build | MWAA | Dulles, VA | \$2B

Senior Engineering Supervisor. Led a team of engineers to detail design and drawings for the Tyson's Corner, Virginia, area along Rt. 123, Rt. 7, Dulles Airport Access Road, and Dulles Corridor Road. Responsibilities included supervising and originating roadway design, performing QA/QC, permitting, and coordination with various design groups. Project included Phase 1 of the 23.1-mile addition to the current Metrorail system that will extend from the Metrorail Orange Line (between the East and West Falls Church stations) in Fairfax County through Tyson's Corner to Washington Dulles International Airport and beyond the airport to Route 772 in Loudoun County. Scope included constructing 11 new Metrorail stations, a new rail yard on Dulles Airport property, and improvements to an existing rail yard at West Falls Church.

Relevant items of work similar to the MD 404 project:

Design-build, designed and constructed in phases, roadway widening, intersection improvements, stormwater management, special drainage designs.

Oxon Hill Road | DPW&T | Prince George's County, MD | \$12M

Lead Highway Engineer. Led design effort to prepare a complete set of construction plans, including permitting, right-of-way, utility relocation and adjustments, erosion and sediment control, traffic control, signing and pavement marking; public involvement; resolution of issues/comments from the public and authorities; specifications; and estimate. Project scope included highway, roadside design, and stormwater management of reconstruction of 1.5 miles of existing two-lane roadway to a three-lane urban collector with a shared bike/parking lanes and closed storm drainage system. Project includes agency and public focus groups and public hearings. The feasibility of using roundabouts was also included. The project was geared toward Context Sensitive Design and Solution developing feasibility studies to incorporate traffic calming devices such as chokers, islands, and roundabouts, bike lane, and sidewalk on either side of the roadway to maintain local heritage and environmental features of the roadway while maintaining safety and mobility of motorized vehicles, bicycles, and pedestrians. The project also included two major and three minor intersections.

Relevant items of work similar to the MD 404 project:

Maryland project; included roadway widening, pedestrian and bicycle improvements; local, state, and federal standards and criteria for roadway design and pedestrian facility; increased mobility and safety, pedestrian and bicyclist friendly route; alternative configurations such as roundabouts and public involvement.

TRAFFIC ENGINEER: AMY MORRIS, PE, PTOE

Specializes in traffic engineering, including the design of plans for traffic signals, signing and marking, lighting, traffic management, maintenance of traffic (MOT), and intelligent transportation systems (ITS). She also is experienced in traffic operational analysis and traffic engineering design for roadway widening and safety improvement projects for intersections and corridors. She has significant experience on SHA projects and fully understands and applies SHA standards and criteria. Amy has managed over \$200,000 of traffic engineering task orders in the Eastern Shore Area, including design plans for two DMS structures on US 50 and evaluation of pedestrian equipment and facilities at 100+ signalized intersections.

24 years experience | B.S., Civil Engineering, George Mason University | PE # 37187, MD, 2009; VA | PTOE, 2006
SHA Temporary Traffic Control Traffic Manager, 2014

Statewide Traffic Engineering Task Order (TO) Contract | SHA | MD | \$2.7M

Traffic Engineer. Managed nearly 100 individual TOs, including the design of traffic signals, signing and marking, ITS and CCTV cameras, lighting, and MOT in a variety of settings, including rural and high volume roadways. MOT plans have included temporary signal plans to show the sequencing and phasing, as well as detailed the progressive construction and installation of signal equipment. Each TO is designed in accordance with SHA standards and includes quantity summaries and an engineer's cost estimate. Many of these task orders have been completed concurrently and/or under accelerated schedules that required additional SHA coordination before submittal to garner consensus on design decisions and allowed for a significant reduction in both design and review time.

Relevant items of work similar to the MD 404 project:

Accelerated schedules, wide array of various traffic engineering scope, signal improvements, ITS devices, lighting for corridors and intersections, detailed photometrics and luminaire design, and signing and pavement marking design.

MDTA Traffic Engineering Services: I-95 Bridge Joint Replacement Maintenance of Traffic | MDTA | Baltimore, MD | \$30K

Traffic Engineer. Developed MOT and permanent pavement marking plans for the resurfacing of mainline I-95 bridges, south of the Ft. McHenry Tunnel. Completed a pavement marking inventory to determine if existing markings met current SHA standards and proposed new markings when appropriate. Prepared MOT and detour plans to show work areas, lane shifts, tapers, buffers, lane shifts, work zone signing, overhead guide sign modifications during construction, and DMS/PVMS message requirements for every work area. Seasonal traffic fluctuations and local special event traffic was evaluated for work zone impacts, and MOT plans were designed for specific work hours and seasonal periods. Plans included quantity summaries, construction cost estimates, and special provisions. Traffic operations were analyzed for existing and future conditions. All work performed adhered to the SHA Manual Engineering Access Permits Division Guidelines for Traffic Impact Reports/Studies.

Relevant items of work similar to the MD 404 project:

MOT plans that met SHA standards, seasonal traffic variations, temporary signing and marking, portable message boards, work zone traffic analyses, queueing during construction analyses, and hours restrictions determinations.

US 301 Pedestrian Safety Study | SHA | Charles County, MD | \$52K

Traffic Engineer. Conducted a crash analysis and evaluated the corridor for potential improvements, including changes to access management and driveway consolidation along the project length. Identified roadway deficiencies and recommended improvements for safe pedestrian movement throughout the corridor by intersection and by roadway segment. Prepared detailed operational analyses, along with short-term and long-term recommendations and their associated costs. Project consisted of a safety study of a 4.3-mile segment of US 301 between Small Wood Drive and MD 5 in Waldorf, MD.

Relevant items of work similar to the MD 404 project:

Long corridors, significant traffic volumes, lighting, pedestrian facilities, signal design and timing, signing and marking, multitude of direct access points, right and left turn lane warrants, storage and taper length requirements based on projected queueing, crash history analysis, development and analysis of alternatives, and recommendations for access point consolidation/elimination.

STRUCTURAL ENGINEER: ALAN KITE, PE

Specializes in structural engineering and design of bridges, tunnels, retaining walls, sound walls, hydraulic structures, sign structures and other structural design related to highways. Experience includes project management; design and drawing development for Stage I (TS&L) and Stage II PS&E; detail design of all types of bridges including steel, concrete, curved, and long span; supervision of staff and subconsultants; client coordination; review of structural plans for constructability; compliance with federal, state and local laws; conformance with codes, specifications and standards. Experience also includes accelerated bridge construction experience, consisting of elements of the Northwest Corridor project that are to be highlighted at the upcoming ABC Conference.

37 years experience | M.S., Civil Engineering, University of Virginia | PE # 24500 MD, 1999; VA, FL, NC, GA

Inter-County Connector (ICC), Contract A Design-Build | SHA | Montgomery County, MD | \$478M

Lead Structural Engineer. Led the preparation of construction documents for 18 bridges, retaining walls, sound walls, drainage culverts, and sign structures. Led the structural design effort for the project, organizing the work and schedule, reviewing and checking design drawings, coordinating the design with the general engineering consultant (GEC) and client, and responding to construction-related questions. Project consisted of designing the signature arch bridge over Rock Creek and a 611-ft.-long, cut-and-cover deck-over structure where the ICC passes through a densely populated residential neighborhood. He also managed the design and post-design services for all of the sign structures, MSE and gravity retaining walls, noise walls, and special culvert designs.

Relevant items of work similar to the MD 404 project:

Maryland design-build, similar length, similar length bridge spanning a Maryland creek, many of the same design discipline leads, designed and constructed in segments, extensive structural plans, structural coordination with other disciplines including for special designs for SWM detention facilities, culverts and other structures, multiple permitting packages.

Inter-County Connector (ICC), Contract B Design-Build | SHA | Montgomery County, MD | \$560M

Lead Structural Engineer. Led the structural design effort for the project, organizing the work and schedule, reviewing and checking design drawings, coordinating the design with the GEC and client, and responding to construction-related questions. Project consisted of approximately 6.9 miles of six-lane, controlled-access toll road beginning 600 feet east of MD 97 and ending just west of Route 29, Columbia Pike, in Montgomery County, Maryland. Project constructed a diamond interchange at MD 182, a single-point urban interchange (SPUI) at MD 650, and 10 new bridges.

Relevant items of work similar to the MD 404 project:

Design-build, SHA project, ATC's, highly environmentally sensitive, aggressive schedule, pavement design, new pavement, utility relocations, bridges, retaining walls, drainage facilities, storm water management, E&S controls, ESD type facilities, reforestation, in stream work restrictions, floodplain protections and restrictions, protection of wetlands, ROW acquisitions, ITS devices, landscaping, signing, signals, lighting and pavement markings, permitting, coordination with third parties, design coordination, GPI as environmental consultant, reforestation, relocation of streams, earthwork, roadway work, grading work, public outreach, MOT and partnership with SHA and local stakeholders.

Woodrow Wilson Memorial Bridge | SHA | Alexandria, VA and Oxon Hill, MD | \$680M

Lead Structural Engineer. Led the Baltimore office structural design effort, developing design details, checking calculations and contract drawings, and coordinating design work with the staff and client. Project consisted of a design section of the 6,000-ft.-long signature replacement structure crossing the Potomac River near Alexandria, Virginia consisting of steel I-girder approach spans and a bascule span over the navigation channel. V-shaped piers were used throughout the project, which included precast for the approach spans and cast-in-place for the bascule span. Design was distinguished for its aesthetics and innovative structural system. Bridge was also designed to carry 12 lanes of traffic on two structures, 15 feet apart, with two lanes to be used for high occupancy vehicle or future rail traffic.

Relevant items of work similar to the MD 404 project:

Maryland-led and reviewed design project, roadway widening at approaches, Maryland waterway spanned and reviewed by Maryland structural staff.

Northwest Corridor Design-Build | GDOT | Atlanta, GA | \$599M

Structural Engineer. Responsible for organizing and coordinating bridge work done in four offices, checking drawings and reviewing calculations for bridges. Project is known as the largest transportation project in Georgia's history, which includes 29.7 miles of reversible managed toll lanes along I-75 and I-575 in Cobb and Cherokee Counties in metropolitan Atlanta. Approximately \$100 million was saved through innovative designs and alternative technical concepts. Example: precast concrete pier caps were utilized to accelerate the bridge construction and reduce impacts to existing traffic. Project included ramp bridges at the I-285/I-75 interchange with continuous curved steel girder superstructures and prestressed concrete beam superstructure ranging in length from a single-span bridge to a bridge more than one mile long.

Relevant items of work similar to the MD 404 project:

Design-build, designed and constructed in segments, extensive structures including water crossings.

INTER-COUNTY CONNECTOR CONTRACT B

Montgomery County, Maryland



Owner/Client

Maryland State Highway Administration
Mark Coblentz
301.586.9267

Delivery Method

Design-build

Initial Contract Value

\$41,255,263 (design value)
\$545,092,000 (construction value)

Final Contract Value

\$42,966,685 (design value)
\$560,740,488 (construction value)

Contract Value Difference

Owner added scope

Initial Completion Date

January 2012

Final Completion Date

November 2011

Completion Date Difference

Completed ahead of schedule.

Kiewit was the lead constructor for the joint venture and Parsons was the lead designer for the design-build Inter-County Connector, Contract B (ICC-B), which consisted of the middle segment of the ICC automated toll way. The work included more than seven miles of new six-lane highway design and constructed through some of the most environmentally sensitive and heavily populated areas in the Baltimore/Washington corridor. Construction began in January 2009 and was open to traffic in November of 2011, resulting in approximately 1.2 lane miles designed and constructed every month. Key elements included a diamond interchange at MD 182, a single point urban interchange (SPUI) at MD 650, and 10 new bridges.

Environmental mitigation included wildlife monitoring, management of mammal passage, turtle and trout relocation programs, reforestation efforts, and pre and post-construction water quality monitoring. The team utilized an extensive sediment and erosion control system and minimized equipment idle time to reduce emissions.

Relevance to MD 404 Project

- Design-build
- Kiewit and Parsons teamed together
- Majority of key staff proposed served in similar roles
- 7 mile length
- 1.2 lane miles designed/constructed monthly
- 3 segments designed/constructed separately
- Maintained adjacent roadway traffic.
- Early partnering resulted in a smooth permitting and coordination effort
- 2.4 million CY of earthwork
- A diamond interchange at MD 182, a single point urban interchange at MD 650, and 10 new bridges
- 500,000 tons of asphalt paving
- 54,000 LF of storm drainage
- Erosion and sediment control
- Coordinated several utilities and managed utility conflicts
- Coordinated with adjacent ICC Contracts A and C
- Construction of ITS, new and modified traffic signals and corridor lighting.
- Signing and markings
- Dozens of Environmental and MDE permits acquired
- 325 acres of clearing
- 80 acres of reforestation
- Historic view shed analyses and improvements
- Constructed 8 stormwater management ponds and two underground storage containment structures
- Constructed redundant treatments such as ESD facilities, sand filters, infiltration trenches and grass swales
- 12,938 LF of hiker and biker trails
- Coordinated with SHA; multitude of project stakeholders including Montgomery County, MDE, USFWS, M-NCPPC, MDNR, USACE, EPA, utility companies, environmental agencies, county agencies, adjacent landowners, and community organizations

INTER-COUNTY CONNECTOR, CONTRACT B

SUCCESSFUL METHODS/APPROACHES

There was no live traffic on the ICC, however the corridor intersected five major roadways that could not be closed during construction. MOT at four of these locations included a temporary detour around the ICC site, during which time our team elevated the intersecting roadway over the ICC and switched traffic back onto the roadway and new bridge before continuing construction of the ICC underneath. The ICC spans over one intersecting roadway. During beam setting and overhead work at this location, traffic was detoured to avoid lane closures.

A major element of the project was the MD Route 650 crossing. The plan called for constructing a SPUI interchange in one of the area's most heavily congested utility corridors without closing additional lanes. Through an innovative, highly coordinated and detailed approach, Parsons was able to design the interchange to be built in halves and allow for the shifting of all through lanes of traffic to each side during construction. This minimized the number of utility conflicts, traffic switches, and overall time to construct while maximizing work safety zones.

The project required a full time public outreach team that proactively addressed the concerns and issues to ensure the community was informed and satisfied with the project.

The ICC project experienced a 6-month delay to start-up due to proposal protest procedures and experienced numerous delays after start-up, in the approval and issuance of grading permits by the Maryland Department of the Environment (MDE). Delays in start-up were overcome by a couple of key steps. Kiewit began design, mobilization and procurement activities "at risk" to ensure a rapid start-up when available. The other was overcoming the start-up delay by working with the owner to develop a Limited Notice to Proceed, which allowed a limited number of critical activities to begin that were beneficial to the project regardless of the protest outcome. The tightly scheduled project was completed on time and SHA was able to open to traffic as planned. Grading permit issues were overcome by breaking the project into select areas that allowed work to begin in some as issues in other areas were addressed as the design advanced.

INNOVATIONS

The project requirements called for numerous environmental protections, mitigations, and construction methods. One example involved early clearing and grubbing packages prior to commencing construction, allowing the relocation of wildlife. A turtle exclusion fence was installed along the limit of disturbance to prevent the Eastern Box Turtle from migrating back into the work area. After the fence installation, multiple field sweeps were performed to capture and relocate more than 520 turtles. Specially trained dogs were used to locate and retrieve the turtles. All rescued turtles were relocated to a suitable habitat outside of the project's right-of-way. Fish were also removed and blocked from returning to areas of instream work.

To fully address potential impacts during the proposal phase, our environmental and design teams worked closely to design ICC-B with a comprehensive set of avoidance, minimization and mitigation to protect the environment to the utmost extent. Environmental design functions included environmental studies and documentation required for design modifications; preconstruction baseline environmental monitoring; environmental reviews during design for additional avoidance and minimization; validation, verification of existing environmental features; environmental design for wetland, streams, fish passage, vernal pools and reforestation similar to Norwich Creek and the associated floodplains; and training construction field staff on environmental issues. This experience will serve us well on the MD 404 project.

For Contract B, bridges over parks and streams were built longer than normal to lessen the amount of environmental impact in these sensitive areas and allowed greater clearance for wildlife and vegetation. The path of the ICC roadway was also lowered into the ground near existing communities to reduce noise and visual impacts.



Key Staff Includes:

Ben Carnazzo, Offsite Principal
Michael Graham, Construction Manager
Josh Wade, Project Design Manager
Jeff Sewell, Geotechnical Engineer
Craig Richardson, Landscape Architect
Dhimant Sojitra, Highway Engineer
Alan Kite, Structural Engineer
Glenn Christensen, Design Coordinator
Odessa Phillip, Public Outreach
Bill Park, Environmental Manager

AWARDS

- The project received an "A" (Excellent) cumulative rating from the Maryland Department of the Environment on more than 150 inspections
- Design, construction, and program management were assessed by SHA and contract conformance was scored using a quality oversight database. The project ended with the project team earning a 95% conformance rating and meeting all key project goals
- 2013, ENR Northeast Region Best Project
- 2012, ARTBA 2012 GLOBE Award for Major Highway, Project Greater than \$100M
- 2012 Maryland Quality Initiative Silver Partnering Award
- 2012 National Design-Build Award, Transportation

SR 101L HOV LANES DESIGN-BUILD

Phoenix, Arizona



Owner/Client

Arizona Department of Transportation
Steve Mishler, PE, 520.429.4993

Delivery Method

Design-build

Initial Contract Value

\$6,170,739 (design value)
\$89,900,000 (construction value)

Final Contract Value

\$6,732,791 (design value)
\$98,900,000 (construction value)

Contract Value Difference

Incentives earned for early completion, quality, and owner added scope.

Initial Completion Date

September 30, 2015

Final Completion Date

November 20, 2015

Completion Date Difference

Client requested added scope near the end of the schedule including full freeway milling and asphalt overlay replacement. Contract scope was completed on schedule.

As the lead designer for the Kiewit-led joint venture design-build project, Parsons designed and supported construction of 60 miles of HOV lane widening for the Arizona Department of Transportation (ADOT). The project consisted of a combination of inside and outside widening along the heavily-congested SR 101L freeway through the cities of Glendale, Peoria and Phoenix. **The project was bid with an aggressive 257 calendar day duration which was 14 months ahead of ADOT's original schedule and required more than 1.4 lane miles of freeway to be designed and constructed on average per week.** Major components of work included 288,837 CY of excavation and embankment, 8,669 LF of storm drainage pipe, 242 catch basins, 672,289 SY of PCCP, 56,434 SF of retaining walls, 30 miles of roadway barrier, five cast-in-place box girder bridge widenings, new ITS systems, signs, lighting, compaction grouting and pavement

replacement at Camelback Road, as well as ramp improvements at Bell and Bethany Home Roads and Glendale Avenue. During construction, the team averaged one mile of concrete paving per night.

This schedule required the project to be divided into two segments and to be managed as if it were two independent projects with segment managers, discipline leads and dedicated design resources for each segment. This approach not only reduced the schedule, but allowed the team to substantially lower the price, which came in \$12M under ADOT's estimate.

This project required coordination with the cities as well as minimizing any disruptions to the University of Phoenix Stadium, Jobing.com Arena, Glendale and Peoria Spring Training, Luke Air Force Days, and other special events.

Relevance to MD 404 Project

- Design-build
- Kiewit and Parsons teamed together
- 30-mile length
- Widening with new pavement and pavement rehabilitation including auxiliary lanes
- 1.4 lane miles designed and constructed per week
- Designed and constructed in two segments
- Highly phased construction
- Heavy seasonal traffic volumes
- Maintained full business access during construction
- Maintained roadway traffic during construction
- Early partnering resulted in a smooth permitting and coordination effort
- 288,837 CY of earthwork
- 5 new cast-in-place box girder bridges
- 672,289 SY of concrete paving
- 8,669 LF of storm drainage and 242 catch basins
- 30 miles of new traffic barrier
- Erosion and sediment control
- Coordinated several utilities and managed utility conflicts
- Coordination with adjacent projects, including a pedestrian bridge and asphalt paving
- Construction of ITS and corridor lighting
- Signing and markings
- Environmental permit acquisition
- Landscaping
- Stormwater management

SR 101L HOV LANES DESIGN-BUILD

SUCCESSFUL METHODS/APPROACHES

Through cost savings and partnering, Parsons, Kiewit and ADOT were able to add enhancements throughout the corridor that were not included in the original scope. These developments included extending the project limits to the south, adding an additional lane at Glendale off-ramp, milling and replacing deficient existing rubberized asphalt, adding auxiliary lanes in both directions from the SR 51 to Cave Creek Road, modifying the down drains at the Interstate-17 interchange to eliminate existing erosion problems, and a variety of smaller enhancements. By delivering the overall program under budget, our team was able to work with ADOT to enhance the overall corridor with much needed improvements and on the MD 404 project, you have our commitment to be stewards of SHA's overall budget.

A major challenge that was encountered was unsuitable subgrade. This was a large issue that had the potential to severely affect the project schedule. However, through a great partnering relationship and utilizing multiple remediation processes, the project minimized impacts. Despite this, the original scope was completed ahead of schedule and under budget. On fast paced projects, it is critical to identify challenges, develop solutions, and implement the recovery plan quickly to keep the project on track. On MD 404, we overcome challenges quickly to ensure we meet the schedule goals.

INNOVATIONS

Through the ATC process, Kiewit proposed several innovations that were incorporated into future ADOT specifications. The first innovation that greatly aided in meeting the schedule was the use of wireless paving. This meant that 3D design was required from Parsons, which improved the final pavement product and ensured better cross slope consistency with the design. Due to the elimination of wire operations, there were significant man-hour reductions on the PCCP operations. Access was improved for the trucks hauling concrete, because they could pull in front of the paver at any location instead of contending with access points from the wire. Paver productions were increased by 25% versus the traditional wire method and the overall smoothness was improved.

The team also utilized intelligent compaction on all grading operations. Intelligent compaction was used in conjunction with traditional compaction tests for verification to verify compaction was achieved across the entire project, and not just in random sampling locations. These are ideal innovations for the MD-404 project, which allows the team to increase overall production and reduce schedule.

AWARDS

- 2012, Build America Merit Award, Associated General Contractors of America (AGC) (National)
- 2012, Arizona Transportation Partnering Excellence
- 2012, National Design-Build Honor, Design-Build Institute of America (DBIA)
- 2012, DBIA Western Pacific Region Excellence Award
- 2012, Southwest States Best Projects, Engineering News-Record
- 2011, Build Arizona Award, AGC-Arizona Chapter



SR 114 GENEVA ROAD DESIGN-BUILD Orem, Utah



Owner/Client

Utah Department of Transportation (UDOT)
Chris Memmott, Project Manager
801.227.8000, cmemmott@utah.gov

Delivery Method

Design-build

Initial Contract Value

\$37,400,000 (construction value)
\$3,208,643 (design value)

Final Contract Value

\$39,900,000 (construction value)
\$3,208,643 (design value)

Contract Value Difference

The city requested betterments which were added to the scope, and there were changes in site conditions.

Initial Completion Date

July 10, 2012

Final Completion Date

May 8, 2012

Completion Date Difference

Completed ahead of schedule

The Kiewit/Parsons project team transformed Geneva Road from an industrial road into a high-capacity, beautifully landscaped and pedestrian-friendly corridor. As the lead designer, Parsons developed the design to widen four miles of the existing 2-lane roadway to a 5-lane roadway with new intersections, and added 60% more sidewalk, making it a safe and multi-modal transportation system. A 260-foot overpass structure on a 62-degree skew was constructed at Geneva Road and the Utah Transit Authority and Union Pacific Railroad crossing. The new bridge allows traffic to move safely unimpeded over the railroad tracks as opposed to being queued and delayed when trains pass through the corridor.

Geneva Road serves as a critical transportation link for Utah County. It is one of three north-south corridors serving hundreds of thousands of people. The design and reconstruction of Geneva Road was timed specifically to meet the transportation demand during the reconstruction of a major freeway through Utah County. UDOT planned to use the

widened Geneva Road corridor as a critical detour route during the final stages of the I-15 reconstruction during the summer of 2012. It was vital that the Geneva Road project be completed on time. The team accepted the challenge and exceeded expectations by designing and building Geneva Road in just 15 months, a similar duration to the MD 404 project. Through dedication to partnering and hard work, the team successfully delivered a project that will serve the community for years to come.

This transformation benefits residents and businesses alike and provides ample opportunities for additional economic development in the area. The Town of Vineyard and other developers intend to develop the area including a long-anticipated 1,800-acre master planned commercial and residential development along with an extension of the Utah Valley University (UVU) campus. UVU also received the benefit of a new parking lot and PCCP roadway to UTA's new FrontRunner rail line giving ease and convenience to their stakeholders and students.

Relevance to MD 404 Project

- Design-build
- Kiewit and Parsons teamed together
- Geneva Road is approximately the same size as the individual sections that make up the Route 404 project
- A widening job with new pavement and pavement rehabilitation
- Minimized construction phases through an innovative asphalt paving design
- Maintained full business access during construction
- Maintained roadway traffic during construction
- Early partnering resulted in a smooth permitting and coordination effort
- 105,000 CY of earthwork
- A new single-span steel overpass structure over the railroad
- Concrete traffic barrier
- Coordinated over 800 utilities and managed 520 utility conflicts
- Drainage facilities with detention ponds, tied offsite drainage into our project
- Large culvert construction
- Street lighting at all intersections
- Coordination with adjacent projects including I-15 CORE construction
- Obtained environmental permits
- Protected adjacent wetlands
- Erosion and sediment control
- Construction of six new signals and corridor lighting
- Reconstructed 11 intersections
- Reduced right of way needs through retaining walls, grading revisions and optimized drainage
- Signing and markings

SR 114 GENEVA ROAD DESIGN-BUILD

The project included significant public and third-party outreach and coordination such as provided budget for aesthetics. The team coordinated with the City of Orem and the Town of Vineyard to determine how to apply these funds to aesthetic and landscaping treatments throughout the corridor in lighting, structural treatments and landscaping.

SUCCESSFUL METHODS/APPROACHES

Due to the large number and close proximity of businesses and residents along the corridor, the project also featured an extensive public and business outreach program. Our team coordinated on a daily basis with nearly 100 businesses that lined the Geneva Road corridor. A combination of email alerts regarding traffic pattern changes and regular face-to-face contact kept each business owner informed and ensured the project continued to run smoothly. Additionally, Geneva Road is surrounded by several large residential developments. Partnering with the Utah Department of Transportation's (UDOT) public outreach team, we kept residents informed of traffic pattern changes, road closures, detours and planned utility outages. Through email alerts and door-to-door flier distribution, all residents were given advance notification of new construction activities so they could plan accordingly.

Constant communication with impacted travelers and the community were paramount. Safety assemblies were held at the local elementary school prior to construction commencing to educate the children on construction safety. Design activities were tailored specifically to the needs of stakeholders impacted, maintaining a level of constant contact, which was well-received by the community. Our team, supported by Assedo Consulting, will implement similar best practices on the MD 404 project to ensure high customer and local business satisfaction throughout the life of the project.

The Kiewit/Parsons team took advantage of the task force approach to coordination, problem solving and developing of a open, honest, partnering type atmosphere. The task forces included design, construction and owner personnel who aided in the development of an approach to eliminate right-of-way impacts through retaining walls, revised grading, and drainage optimization. This process will benefit the owner, users and adjacent property and business owners both in the short and long term.

Through this collaborative approach, the team worked with UDOT, the City of Orem and the Town of Vineyard and adjacent projects to ensure there were accommodations for future connections at each end of the project. This included lane balancing and modifying the conceptual plans to best fit these other phases and projects. The bridge span was designed to accommodate one additional Union Pacific Railroad and one additional Utah Transit Authority track, allowing for future expansion of each of those systems. In addition, the railroad at-grade crossing at the street adjacent to the overpass was designed to accommodate future widening of the roadway without disruption of operations.

INNOVATIONS

During the design development, the team discovered an extensive amount of poor soil conditions underneath the proposed roadway. Our team designed and constructed subsurface improvements through the use of timber wood piles to mitigate the poor soil conditions. This innovation saved extensive time and budget, and allowed the team to finish the project ahead of schedule. Through innovative traffic planning, our team developed a detour at 575 South in the Town of Vineyard that maintained all directional traffic movements throughout 100% of the project. This approach greatly benefited the traveling public, along with local residents and businesses.

One of the key elements in the success of the project and meeting the accelerated schedule was an innovative paving design for temporary and permanent pavement that reduced the number of construction phases and impacts to the traveling public. In addition, the primary critical path element of the project was a bridge structure in the center of the project, much like Norwich Creek's structure is to Route 404. Through innovative design and construction of the structure, the Kiewit/Parsons team was able to accelerate schedule and complete the project earlier than planned. On the MD 404 project, our team will provide a variety of scheduling concepts and tools to ensure the optimal plan is executed in the field. Our team has a long history of delivering aggressive projects ahead of schedule.

AWARDS

- 2013, Marvin M. Black Excellence in Partnering Award, Association of General Contractors (AGC)
- 2012, Project of the Year (category: \$10 million+), Utah AGC
- 2012, Mountain States Best Projects, Engineering News-Record
- 2011, Best Partnering Award, Utah AGC and UDOT





B. Lead Construction Firm Experience/Qualifications, and Past Performance

DESIGN-BUILD PROJECT MANAGER: FRANK DIGILIO

Experience includes serving as a senior manager on several fast-paced alternative delivery projects including high profile projects consisting of roadway widening, bridges, and storm drain installation in highly environmentally sensitive areas. Ranging in value from \$7M to \$360M, the projects involve elements such as tight timetables and extensive permitting. Additional experience includes working on several high profile Maryland projects for SHA, USACE, and the Baltimore-Washington International Airport

26 years experience | B.S., Civil Engineering, Drexel University

I-95 Widening and Rehabilitation (Cocoa) Design-Build | FDOT | Cocoa Beach, FL | \$176M

Operations Manager. Responsible for reviewing all work plans and operations, managed overall safety and quality, managed deck pours and concrete paving, and coordinated craft and equipment resources. Project included the widening and reconstruction of 10 miles of the existing I-95 from four- to six-lanes of interstate with bridges widened along the mainline and on the intersecting roadway. Aggressive schedule required the design and construction of the entire project in 28 months, which equaled one lane mile every two weeks. All work was constructed with adjacent live traffic and required extensive MOT efforts finishing the project 107 days early.

Relevant items of work similar to the MD 404 project:

Design-build, ATCs, aggressive schedule, 4 bridge widenings, 585,000 CY of embankment, 390,000 SY of 13-inch PCCP, 203,000 tons of asphalt paving, retaining walls, sound walls, pedestrian & bicycle accessibility, MOT, seasonal traffic, auxiliary lanes, on/off ramps, wet land protection, landscaping, box culverts extension, SWM & ESC, bridge demolition, signing, traffic barrier, striping, water line mitigation, utilities (gas, sewer, fiber and water), natural resource mitigation, design coordination, estimating, stakeholder coordination, endangered species, coastal environment with sandy soils.

Bear Cut and West Bridges Rehabilitation Design-Build | Miami-Dade County Public Works Department | Miami, FL | \$33M

Design-Build Project Manager. Managed this fast-track project, which involved removing, rehabilitating and replacing sections of the Bear Cut and West bridges on Rickenbacker Causeway in Miami and widening the Bear Cut Bridge. Located in the highly environmentally sensitive Biscayne Bay, the design, permitting, and construction was completed in just under 12 months. Responsibilities included managing the entire project including the design development, permitting, planning, scheduling, and field execution. Located in a high traffic area, the project was highly political, which required close coordination with the Village of Key Biscayne and the City of Miami to keep the public informed.

Relevant items of work similar to the MD 404 project:

Design-build, aggressive schedule two bridge rehabs and widening totaling 2,900 LF designed and constructed in less than one year, maintained existing traffic, work was done over the Biscayne Bay, which is extremely environmentally sensitive in a resource protection area. Segmented and phased construction, heavy seasonal traffic volumes, milling and resurfacing, drainage, storm water management, E&S controls, signing and marking, utility coordination including installation of new 18" waterline while maintaining existing service, traffic barrier, coastal environment with sandy soils, protection of waterway, protection of endangered species including Manatees and Seagrass, acquired USACE, FDEP ERP, DRER, SFWMD, Department of Health, and City of Miami permits.

SR 90 Tamiami Trail | United States Army Corps of Engineers | Miami, FL | \$108M

Project Manager. Managed this environmentally sensitive project to revive over 63,000 acres of land and natural habitat in the Florida Everglades. Responsibilities included providing oversight of the project and ensured the project was built according to the strict USACE and FDOT specifications and in full compliance with all regulatory and environmental requirements. Scope included demolition of one mile of existing roadway and the construction of a new, two lane one mile bridge, and the rehabilitation of a nine-mile segment of existing two lane roadway, all while maintaining existing traffic. Project consisted of a multi-phased and the majority of roadway work was modified to be constructed on a 24/7 schedule in order to minimize work during peak travel times and also shorten the overall construction duration.

Relevant items of work similar to the MD 404 project:

Aggressive schedule including 24/7 work, highly environmentally sensitive through the everglades, environmental windows for Woodstorks and Snail Kites, 11 mile length including one mile of bridge and ten miles of roadway, constructed in segments and phases, maintained traffic through heavily traveled roadway, 300,000 CY of earthwork, new pavement, milling and resurfacing, drainage, storm water management, 13,000 LF of drainage pipe, specialty ESD devices, 275,000 LF of E&S controls, signing and marking, large culvert extensions, utility coordination with AT&T and Bell South, traffic barrier, protection of wetlands, landscaping, 130,000 tons of asphalt paving.

CONSTRUCTION MANAGER: MICHAEL GRAHAM

Served as construction manager on a wide-range of high profile alternative delivery projects throughout his career. Responsibilities have included working in Maryland, which allows understanding the critical environmental and permitting requirements that ensure project success. Additional assignments include working on major transportation infrastructure and power projects. Additional responsibilities include managing 500 craft at the current Cove Point project in Lusby, Maryland, located in southern Maryland. Duties include overall planning, scheduling, coordination, craft and equipment resources, regulatory and environmental compliance, and participating in the design development.

16 years of experience | B.S., Construction Management, Georgia Southern University

Inter-County Connector (ICC) Contract B | SHA | Montgomery County, MD | \$560M

Construction manager. Involved in the design phase to develop the extremely environmentally sensitive design, overall project sequencing, and helped procure key project permits. Managed field operations, to ensure the project was built in full compliance, ahead of schedule, and under budget during construction. Project consisted of extending from approximately 1,600 ft. east of MD 97 to approximately 2,000 ft. west of US 29. Project also consists of approximately seven miles of new, controlled access, six-lane, tolled roadway; with two interchanges at MD 182 and MD 650.

Relevant items of work similar to the MD 404 project:

Design-build, SHA project, ATC's, highly environmentally sensitive, aggressive schedule, pavement design, new pavement, utility relocations, bridges, retaining walls, drainage facilities, storm water management, E&S controls, ESD type facilities, reforestation, in stream work restrictions, floodplain protections and restrictions, protection of wetlands, ROW acquisitions, ITS devices, landscaping, signing, signals, lighting and pavement markings, permitting, coordination with third parties, design coordination, GPI as environmental consultant, reforestation, relocation of streams, earthwork, roadway work, grading work, public outreach, maintenance of traffic and partnership with SHA and local stakeholders.

Midtown Tunnel DB Phase 3, MLK | VDOT, District 7 | Norfolk, VA | \$210M (Phase 3 only)

Construction manager. Responsible for overseeing all aspects of the MLK segment, overall planning of the project, all field operations for the MLK segment once construction began. Duties also included participating in design development and constructability reviews. Project consists of connecting I-264 to the MLK Expressway through a network of complex roadway and bridge construction. Project includes approximately one mile of highly phased roadway and steel girder flyover bridge construction, MOT phasing major intersection construction and coordination with various stakeholders.

Relevant items of work similar to the MD 404 project:

Design-Build, interstate widening, 140,000 SF of MSE walls, bridge widening, MOT, 14,000 LF of barrier walls, 50,000 SF of noisewalls, 7,500 LF of drainage, 40,000 tons of asphalt, 32 steel spans, 525,000 SF of bridge decks, on/off ramps, landscaping, SWM & ESC, pedestrian and bicycle accessibility, box culverts extension, natural resource mitigation, bridge demolition, striping, utilities, design coordination, estimating, signing, traffic barrier, water line mitigation, coastal area with similar soils.

US27 Underpass Design-Build | FDOT | Miami, FL | \$35M

Construction Manager. Responsible for leading job planning, scheduling, safety, quality, project engineering, administration, material procurement, and equipment maintenance. Project included a cast-in-place concrete lined depressed roadway with added lanes and improved access to and from US-27 by eliminating the existing at-grade Florida East Coast Railway line. Project consisted of a six-lane depressed roadway, extensive cofferdam and dewatering, drainage system, pump house, lighting, Intelligent Transportation System (ITS), conduits, relocation of an existing water main for the City of Hialeah and roadway work.

Relevant items of work similar to the MD 404 project:

Design-Build, extremely technically challenging, aggressive schedule, designed and constructed in 19 months, highly phased construction, 100,000 CY of excavation, 16,000 CY of structural concrete, extensive dewatering, stormwater ponds, bridge construction, work performed in protected waterways, relocation of existing water main, ITS system.

INTER-COUNTY CONNECTOR, CONTRACT B Montgomery County, Maryland



Owner/Client

Maryland State Highway Administration
Mark Coblentz
301.586.9267

Delivery Method

Design-Build

Initial Contract Value

\$545,092,000 (construction value)
\$41,255,263 (design value)

Final Contract Value

\$560,740,488 (construction value)
\$42,966,685 (design value)

Contract Value Difference

Due to Owner-directed scope increase

Initial Completion Date

January 2012

Final Completion Date

November 2011

Completion Date Difference

Completed ahead of schedule.

Kiewit was the lead constructor for the joint venture and Parsons was the lead designer for the design-build Inter-County Connector, Contract B (ICC-B), which consisted of the middle segment of the ICC automated toll way. The work included more than seven miles of new six-lane highway design and constructed through some of the most environmentally sensitive and heavily populated areas in the Baltimore/Washington corridor. Construction began in January 2009 and was open to traffic in November of 2011, resulting in approximately 1.2 lane miles designed and constructed every month. Key elements included a diamond interchange at MD 182, a single point urban interchange (SPUI) at MD 650, and 10 new bridges.

Environmental mitigation included wildlife monitoring, management of mammal passage, turtle and trout relocation programs, reforestation efforts, and pre and post-construction water quality monitoring. The team utilized an extensive sediment and erosion control system and minimized equipment idle time to reduce emissions.

Relevance to MD 404 Project

- Design-Build
- Kiewit and Parsons teamed together.
- Majority of key staff proposed served in similar roles.
- 7 Mile Length
- 1.2 lane miles designed and constructed per month.
- Maintained adjacent roadway traffic during construction.
- Early partnering resulted in a smooth permitting and coordination effort.
- 2.4 million CY of earthwork
- A diamond interchange at MD 182, a single point urban interchange (SPUI) at MD 650, and 10 new bridges
- 500,000 tons of asphalt paving
- 54,000 LF of storm drainage
- Erosion and sediment control.
- Coordinated several utilities and managed utility conflicts
- Coordinated with adjacent ICC contracts A and C
- Construction of ITS, traffic signals and corridor lighting.
- Signing and markings
- Environmental permit acquisition
- 325 acres of clearing
- 80 acres of reforestation
- Constructed 8 storm water management ponds and two underground storage containment structures
- 12,938 LF of hiker and biker trails
- Coordinated with Maryland State Highway Authority; Multitude of project stakeholders including Montgomery County, MDE, USFWS, M-NCPPC, MDNR, USACE, EPA, utility companies, environmental agencies, county agencies, adjacent landowners, and community organizations.

INTER-COUNTY CONNECTOR, CONTRACT B

SUCCESSFUL METHODS/APPROACHES

There was no live traffic on the ICC, however the corridor intersected five major roadways which could not be closed during construction. MOT at four of these locations included a temporary detour around the ICC site, during which time our team elevated the intersecting roadway over the ICC and switched traffic back on to the roadway and new bridge before continuing construction of the ICC underneath. The ICC spans over one intersecting roadway. During beam setting and overhead work at this location, traffic was detoured to avoid lane closures.

The project required a full-time public outreach team that proactively addressed the upcoming concerns and issues that arose to ensure the community was informed and satisfied with the project.

The ICC project experienced a 6-month delay to start-up due to proposal protest procedures and experienced numerous delays after start-up, in the approval and issuance of grading permits by the Maryland Department of the Environment (MDE). Delays in start-up were overcome by a couple of key steps. Kiewit began design, mobilization and procurement activities “at risk” to ensure a rapid start-up when available. The other was overcoming the start-up delay by working with the owner to develop a Limited Notice to Proceed, which allowed a limited number of critical activities to begin that were beneficial to the project regardless of the protest outcome. The tightly scheduled project was completed on time and SHA was able to open to traffic as planned. Grading permit issues were overcome by breaking the project into select areas that allowed work to begin in some as issues in other areas were addressed as the design advanced.

INNOVATIONS

The project requirements called for numerous environmental protections, mitigations, and construction methods. One example involved early clearing and grubbing packages prior to commencing construction, allowing the relocation of wildlife. A turtle exclusion fence was installed along the limit of disturbance to prevent the Eastern Box Turtle from migrating back into the work area. After the fence installation, multiple field sweeps were performed to capture and relocate more than 520 turtles. Specially trained dogs were used to locate and retrieve the turtles. All rescued turtles were relocated to a suitable habitat outside of the project’s right-of-way. Fish were also removed and blocked from returning to areas of instream work.

To fully address potential impacts during the proposal phase, our environmental and design teams worked closely to design ICC-B with a comprehensive set of avoidance, minimization and mitigation to protect the environment to the utmost extent. Environmental design functions included environmental studies and documentation required for design modifications; preconstruction baseline environmental monitoring; environmental reviews during design for additional avoidance and minimization; validation, verification of existing environmental features; environmental design for wetland, streams, fish passage, vernal pools and reforestation similar to Norwich Creek and the associated floodplains; and training construction field staff on environmental issues. This experience will serve us well on the MD 404 project.

For Contract B, bridges over parks and streams were built longer than normal to lessen the amount of environmental impact in these sensitive areas and allowed greater clearance for wildlife and vegetation. The path of the ICC roadway was also lowered into the ground near existing communities to reduce noise and visual impacts.



AWARDS

- The project received an “A” (Excellent) cumulative rating from the Maryland Department of the Environment on more than 150 inspections
- Design, construction, and program management were assessed by SHA and contract conformance was scored using a quality oversight database. The project ended with the project team earning a 95% conformance rating and meeting all key project goals
- 2013, ENR Northeast Region Best Project
- 2012, ARTBA 2012 GLOBE Award for Major Highway, Project Greater than \$100M
- 2012 Maryland Quality Initiative Silver Partnering Award
- 2012 National Design-Build Award, Transportation

Key Staff Includes:

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Glenn Christensen, Design Coordinator
Odessa Phillips, Public Outreach
Bill Park, Environmental Manager



SR 101L HOV LANES DESIGN-BUILD

Phoenix, Arizona



Owner/Client

Arizona Department of Transportation
Steve Mishler, PE, 520.429.4993

Delivery Method

Design-Build

Initial Contract Value

\$89,900,000 (construction value)
\$6,170,739 (design value)

Final Contract Value

\$98,900,000 (construction value)
\$6,732,791 (design value)

Contract Value Difference

Incentives earned for early completion, quality, and owner added scope.

Initial Completion Date

September 30, 2015

Final Completion Date

November 20, 2015

Completion Date Difference

Client requested added scope near the end of the schedule including full freeway milling and asphalt overlay replacement. Contract scope was completed on schedule.

As the lead designer for the \$98.9M SR 101L, a Kiewit led joint venture design-build project, Parsons designed and supported construction of 60 miles of HOV lane widening for the Arizona Department of Transportation. The project consisted of a combination of inside and outside widening along the heavily-congested SR 101L freeway through the cities of Glendale, Peoria and Phoenix. **The project was bid with an aggressive 257 calendar day duration which was 14 months ahead of ADOT's original schedule and required more than 1.4 lane miles of freeway to be designed and constructed on average per week.** Major components of work included 288,837 CY of excavation and embankment, 8,669 LF of storm drainage pipe, 242 EA catch basins, 672,289 SY of PCCP, 56,434 SF of retaining walls, 30 miles of roadway barrier, five cast in place box girder bridge widenings, new ITS systems, signs, lighting, compaction

grouting and pavement replacement at Camelback Road, as well as ramp improvements at Bell Road, Bethany Home Road, and Glendale Avenue. During construction, the team averaged of one mile of concrete paving per night.

This schedule required the project to be divided into two segments and to be managed as if it were two independent projects with segment managers, discipline leads and dedicated design resources for each segment. This approach not only reduced the schedule, but allowed the team to substantially lower the price, which came in \$12M under ADOT's estimate.

This project required coordination with the cities as well as minimizing any disruptions to the University of Phoenix Stadium, Jobing.com Arena, Glendale and Peoria Spring Training, Luke Air Force Days, and other special events.

Relevance to MD 404 Project

- Design-Build.
- Kiewit and Parsons teamed together.
- 30 Mile length
- A widening job with new pavement and pavement rehabilitation including auxiliary lanes.
- 1.4 lane miles designed and constructed per week.
- Designed and constructed in two segments.
- Highly phased construction.
- Heavy seasonal traffic volumes.
- Maintained full business access during construction.
- Maintained roadway traffic during construction.
- Early partnering resulted in a smooth permitting and coordination effort.
- 288,837 CY of earthwork
- 5 new cast in place box girder bridges
- 672,289 SY of concrete paving.
- 8,669 LF of storm drainage and 242 ea catch basins
- 30 miles of new traffic barrier.
- Erosion and sediment control.
- Coordinated several utilities and managed utility conflicts
- Coordination with adjacent projects including a pedestrian bridge and asphalt paving.
- Construction of ITS and corridor lighting.
- Signing and markings
- Environmental permit acquisition
- Landscaping
- Stormwater Management

SR 101L HOV LANES DESIGN-BUILD

SUCCESSFUL METHODS/APPROACHES

Through cost savings and partnering, Parsons, Kiewit and ADOT were able to partner together to add enhancements throughout the corridor that were not included in the original scope. These developments included: extending the project limits to the south, adding an additional lane at Glendale off-ramp, milling and replacing deficient existing rubberized asphalt, adding auxiliary lanes in both directions from the SR 51 to Cave Creek Road, modifying the down drains at the Interstate-17 interchange to eliminate existing erosion problems, and a variety of smaller enhancements.

A major challenge that was encountered was unsuitable subgrade. This was a large issue that had the potential to severely affect the project schedule. However, through a great partnering relationship and utilizing multiple remediation processes, the project minimized impacts. Despite this, the original scope was completed ahead of schedule and under budget.

INNOVATIONS

Through the ATC process, Kiewit proposed several innovations that were incorporated into future ADOT specifications. The first innovation that greatly aided in meeting the schedule was the use of wireless paving. This meant that 3D design was required from Parsons and improved the final pavement product and ensured better cross slope consistency with the design. Due to the elimination of wire operations, there were significant man-hour reductions on the PCCP operations. Access was improved for the trucks hauling concrete, because they could pull in front of the paver at any location instead of contending with access points from the wire. Paver productions were increased by 25% vs. the traditional wire method and the overall smoothness was improved.

Next, the team proposed and utilized intelligent compaction and all grading operations. Intelligent compaction was used in conjunction with traditional compaction tests for verification, but the intelligent compaction verified compaction was achieved across the entire project, and not just in random sampling locations.

AWARDS

- 2012, Build America Merit Award, Associated General Contractors of America (AGC) (National)
- 2012, Arizona Transportation Partnering Excellence
- 2012, National Design-Build Honor, Design-Build Institute of America (DBIA)
- 2012, DBIA Western Pacific Region Excellence Award
- 2012, Southwest States Best Projects, Engineering News-Record
- 2011, Build Arizona Award, AGC–Arizona Chapter



I-95 COCOA WIDENING AND REHABILITATION Cocoa Beach, Florida



Owner/Client

Florida Department of Transportation,
Frank O'Dea
386.943.5476
frank.odea@dot.state.fl.us

Delivery Method

Design-Build

Initial Contract Value

\$148,000,000

Final Contract Value

\$175,706,569

Contract Value Difference

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

Initial Completion Date

October 6, 2009

Final Completion Date

June 21, 2009

Completion Date Difference

Finished 107 days ahead of schedule

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

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

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

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

Relevance to MD 404 Project

- Design-build
- Highway widening
- 10 Mile length
- Highly phased construction.
- Heavy seasonal traffic volumes.
- Coastal environment with sandy soils
- Maintained roadway traffic during construction.
- Early partnering resulted in a smooth permitting and coordination effort.
- 585,000 CY of embankment
- 435,000 SY or subgrade finishing
- 375,000 SY of 13" PCCP
- 203,000 tons of Asphalt
- Storm water management
- 10 miles of new traffic barrier.
- 106,000 SF of sound and retaining walls
- Erosion and sediment control.
- Coordinated several utilities and managed utility conflicts
- Construction of ITS and intersection lighting
- Signing and markings
- Environmental permit acquisition
- Landscaping
- Forest mitigation
- Natural resource mitigation
- Protection of wetlands

I-95 COCOA WIDENING AND REHABILITATION

SUCCESSFUL METHODS/APPROACHES

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

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

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

Our project manager and the owner's project manager would drive the entire job route every week and discuss the project status and issues, ranging from safety and quality to traffic control. These field tours increased collaboration and partnership between the PMs. Our team will utilize similar methods and innovations on the MD 404 project including 3D designs, collaborative software, and creative scheduling tools to maximize production, improve efficiency and streamline communication.

INNOVATIONS

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

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

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

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

AWARDS

- 2009, Best in Design-Build Construction Project, Florida Transportation Builders Association, Inc.





C. Project Understanding and Design-Build Approach

C.i. PROJECT GOALS AND SCOPE

Provide a narrative describing the Design-Builder's understanding of the Project Goals and scope. List and briefly describe the significant issues and risks facing the selected Proposer and the Administration.

The goals identified in the RFP for the MD 404 project and our understanding of the scope are listed below:

- **Schedule. Fully open four lanes to traffic and substantially complete construction by Thanksgiving 2017—a “No Excuses” schedule.** The scope of work includes fully opening two individual segments of four lane roadway including a new bridge over Norwich Creek by Thanksgiving 2017. Other major work items include procuring critical permits, installing stormwater management systems and other instream crossings along with new intersections, utility relocation and right-of-way (ROW). The work must all be performed with active traffic and several time of year restrictions.
- **Cost. Deliver a cost efficient project at or below budget. It is the utmost importance to design and construct this project through SHA's allotted budget.** In order to accomplish this goal, our team will fully use the principals of Practical Design, the ATC process and optimized pavement sections. During design and construction, our team will manage the overall scope by developing target quantities and tracking them throughout the life of the project. We will also identify and mitigate potential risks during preconstruction to avoid changes during construction.
- **Safety. Safe roadway with zero fatalities and serious injuries during and after construction.** Roadway safety is critical to the Kiewit/Parsons team. We will ensure safety compliance and strive for zero hurts by reducing conflict points, minimizing impacts to nearby business including farming operations, improving overall levels of service, building the road safely without long-term lane closures, minimize construction phases and maximize long-term construction work zones. We will also follow our proven processes during construction to ensure “Nobody Gets Hurt.”
- **Customer Satisfaction. Receive 100% satisfaction from travelers along MD 404.** Property owner coordination and public outreach will include education on the alternative intersection configurations and the overall project. This effort will continue during construction phasing. Our team will begin this work prior to any shovels in the ground to help manage the community's and seasonal travelers' expectations.
- **Mobility. Minimize delay during and after construction.** During construction, mobility includes constructing the project without any long-term lane closures, impacts to nearby business operations and seasonal traffic.

Following are the significant issues and risks on the project, and our plan to successfully meet the project goals outlined above.

Schedule

The schedule for the MD 404 project is very aggressive, and will require a high level of communication, planning, and execution to meet this goal. Our overall approach to this project is to design and construct the work in a non-linear fashion. With the various restrictions including the Feb 15 – June 15 in-stream restriction and the July 1 – Nov 15 time frame for the Norwich Creek construction, our plan is to tackle work in any area as it comes, and not wait for it in a linear fashion.

- **Storm Water Management and Erosion Control.** With NTP anticipated in May 2016, the critical first step is to begin the design on the stormwater management concept and erosion and sediment control plans to obtain the required permits as soon as possible. We anticipate shovels in the ground by September 2016 to meet the aggressive project schedule.
- **Segmented Construction** Our plan is to construct the project in two segments concurrently, and treat them as independent projects. We will have a West segment from US 50 to West of MD 309, and an East segment from East of MD 480 to East of Holly Road. Significant coordination with adjacent contracts occurring in the center of the project is anticipated. We will begin construction on the storm drainage system, box culverts, and other in-stream activities.
- **Construction Plan.** Starting the stream diversions wherever possible will provide full access to the storm drainage crossings. This work needs to be completed before the February 15 in-stream restriction. Next, we will begin the roadway work as it is available throughout the corridor, including embankment, roadway grading, and paving. Work in the Norwich Creek area will begin July 1, 2017, which includes the bridge and box culvert construction. Once the major structures are completed, the roadway in this area will be completed toward the latter end of the project schedule, ahead of the November 2017 completion date.
- **Permitting.** The first major risk associated with the schedule is obtaining the permits (stormwater management, Erosion Control, USACE, MDE, Maryland Reforestation Law Approval, and Department of the Environment Water Appropriation) to allow the start of construction by September 2016. Our full time permit coordinator will work with SHA and coordinate with each agency to understand their needs to expedite approval, recommend phased design packages, perform joint reviews and track the permits on an integrated schedule. We will also use MDE-certified reviewers during the design phase as well as QC prior to package submittals to expedite the review and acceptance process for permitting. Additionally, our environmental manager, Bill Park, will be involved during constructability and interdisciplinary reviews ensuring environmental compliance. The Kiewit/Parsons team learned on the ICC-B project that this approach substantially improved overall permit acquisition and resulted in high quality designs.
- **Utilities.** There are several utility relocations, which must be coordinated with Choptank Electric, Delmarva Power, Verizon, Comcast, and Maryland Broadband Cooperative. Our plan is to use a full time utility coordinator, hold a utility workshop with all utility owners immediately upon NTP, and construct the project concurrently with relocations. We are currently performing similar tasks on the MD 97 CMAR project, and will use our existing relationships to expedite the necessary relocations.

- **Design Schedule** - The next major risk is keeping the design on schedule. Upon award, our team will start design work at risk, prior to NTP, in an effort to expedite the design and support the critical path permitting. We will keep the design on schedule by setting milestones on day one, performing over the shoulder reviews with each discipline, hold weekly comment resolution meetings, and expedite the turnaround time of each package. On the SR-101 design-build project, our average turnaround time for each design package was 4 days, and using the same best practices, we can achieve the same success on this project.
- **Labor Resources.** Due to the rural project location, and adjacent projects, such as the Delaware US 301, hiring a capable labor force to perform the fast-paced project schedule is a risk. We have strategically added Michael Graham as our Construction Manager who is currently working with 500 employees on our Cove Point project in Lusby, Maryland. Michael's team works out the local Baltimore and Washington, D.C., metropolitan area unions, and are well suited to construct the MD 404. Michael's relationship with the local workers and community will ensure that we bring Kiewit-trained manpower to support the project schedule. In addition, Kiewit owns an extensive equipment fleet located in the Mid-Atlantic region. Instead of waiting weeks and months for specialty equipment, we are able to mobilize equipment usually within a few days. Our ability to mobilize grading, paving, and structure related equipment will support the project schedule and ensure high productivity in all operations.
- **ROW.** Acquiring all of the required ROW by October 2016 will be a key factor in meeting the schedule. To overcome this challenge, our team will construct the project in a non-linear approach and begin construction in a phased process, to work around the ROW clearing schedule and ROW availability.

Cost

The largest potential cost impact is unnecessary scope. The principles of Practical Design, originally championed by Parsons' Dave Nichols, former MoDOT Director and Chief Engineer will help guide design decisions and ensure scope is strictly limited to meeting the projects purpose and need. Our team, advised by Dave, will utilize Practical Design approaches to meet all of the goals previously outlined without going beyond what is needed.

In order to deliver a cost efficient project, our plan is to use the ATC process to its full potential, to find the best solutions to meet the project's needs. We have successfully utilized this process on several design-build projects, and we bring the same group of experts to the MD 404 project. For example, on the ICC-B project and SR-101 project, our team developed 25 approved ATC's that improved the project budget.

Our team will also perform a pavement life-cycle analysis to determine the optimal pavement section. Parsons nationally recognized pavement expert, Sohila Bemanian, PE, has performed pavement life-cycle analyses for multiple DOTs resulting in millions of dollars saved. We have supplemented her expertise by including the local knowledge (ICC-A, ICC-B, 1-95 Widening, MD 30) of Schnabel Engineering as an exclusive member of our team. Sohila, working together with Schnabel, who recently performed the geophysical investigation for Phase 1 on Rt 404, will deliver a pavement design that optimizes local conditions and

material availability to maximize the life expectancy and reduce the Administration's long-term maintenance costs.

The largest cost risk is the costs that are associated with delays. In order to mitigate this risk, it is critical that the entire team work together to meet every milestone on the project. On the SR-101 project, the team encountered unsuitable subgrade conditions throughout the corridor during initial grading operations. Working together with ADOT, the Kiewit/Parsons team acted quickly to incorporate lime into the subgrade or over excavate and add geogrid to other areas. The project team pushed the project forward, and still met the aggressive 257-day schedule for the 30 miles of widening. As listed above in the schedule section, our plan is to use full time permit and utility coordinators, construct the project in a non-linear fashion to allow for ROW acquisition and utility relocations, and utilize best management practices (BMP) to expedite the design.

An often overlooked cost is the ancillary impact to the State of lost time sitting in traffic. Every minute lost in traffic is less money spent at the beaches, less time working in the fields, and more time discouraging return business. Our approach will keep the traveling public moving, and will minimize these delays.

Safety

Everything we do is focused on the most important goal, "Nobody Gets Hurt". When we mean nobody, we mean every craft worker, traveling family, staff employee, subcontractor, Administration staff and everyone else involved in the project.

We coordinate public safety primarily through our MOT task force. Our team will sequence the construction operations and traffic flow to maximize the safety of the traveling public and the construction personnel assigned to the project through minimizing construction phases and maximizing long-term barrier-protected work zones. We will assist SHA in the preparation of press releases, which will include alerts to the relevant state and municipal agencies, including the Department of Public Safety and municipal emergency responders. Work zones will be clearly marked with vehicle lane locations, and we will use warning signs to advise travelers of lane shifts and detours. All work zones will be inspected daily for compliance and necessary modifications to maintain the highest levels of public safety.

There are new intersection concepts on this project, and we will utilize and extensive public information outreach program to alert the motorists to the changes after construction. We will also focus on the optimization of the locations of these intersections by working with the local community and by studying current traffic patterns.

Customer Satisfaction

The majority of customer dissatisfaction occurs during construction, so in order to keep the public 100% satisfied, a significant public information campaign must occur between June 2016 and January 2017. We have included Odessa Philip from Assedo Consulting as part of our team to support this effort. Odessa has achieved a high level of customer satisfaction on projects including ICC-A and B, and has a long relationship with SHA and the Kiewit team. We will develop a robust outreach plan in order to communicate with the various roadway users, which will include our plan for construction, discuss major project events and changes, and ensure all community concerns are address in design and construction.

Mobility

In order to keep the traffic flowing throughout the 15 month schedule, our team will monitor traffic during construction, and adjust the work zone to meet the Administration's requirements. The MD 404 is a major roadway providing critical beach access, especially during the summer months. If the traveling public is significantly delayed, they will be discouraged from visiting the local beaches and businesses that are a major part of the Eastern Shore's economy, and they may never return. There are also several small businesses along the corridor that rely on the mobility of the public to access their services. Seasonal traffic will be incorporated into our MOT plan, to ensure minimal travel time impact and that access is maintained to properties, businesses and for farm access. We will work with the farmers to coordinate and accommodate the movement of large farm equipment when required, and we will evaluate the location of the J-turns during final design and work with the Administration to determine the optimum locations. We will also research community events such as the nearby Queen Anne's County Fair to ensure accommodations are made to provide customers with a high quality experience.

A critical piece of work that can affect mobility is the construction of the storm drainage system across the entire roadway. Our initial plan is to construct the widening portions of the system, complete the grading, and construct a temporary bypass at each pipe crossing location. This plan will allow the team to complete the storm drainage under the existing roadway, while still maintaining traffic. Once complete, we can immediately proceed with the final pavement construction, which will aid the overall schedule.

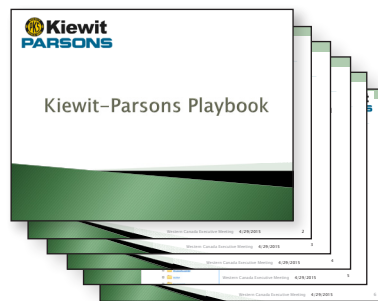
C.ii. DESIGN-BUILDER APPROACH

Provide a narrative description of the Design-Builder's approach to Design-Build contracting including how you will build a professional, collaborative, and integrated project team.

Our proposed project team have worked together on similar projects in Maryland and across the United States, have extensive design-build experience and have beat aggressive schedules on projects. Our team has developed and implemented BMPs required for design-build on past projects including the ICC-B project. **As a result of the partnering efforts, the Kiewit/Parsons team earned the MdQI Silver Partnering Award for our team efforts on the ICC-B project.**

Approach to Design-Build Contracting

Our strength as a team is managing projects that are extremely fast-paced, technically complex, highly phased, and logistically challenging, and we can provide tremendous value to the Administration on these types of projects. When selecting a design partner, we look at firms that have a history of delivering projects on time and under budget, with a similar design-build approach and culture, and long term relationships. The Kiewit/Parson's team has constructed 35 successful design-build projects totaling \$12 billion in total revenue—so many that we have developed the *Kiewit/Parsons Design-Build Playbook*, a proprietary tool that has set an industry standard for design-build construction.



To be effective, our approach is to start the project off by developing a highly optimized design, identify and mitigate potential issues, develop a strong plan, and execute the work safely, on schedule, and with exceptional quality. In order to make this all happen, we start off with a strong design management approach.

Design Phase

Integrated Project Schedule

From the onset of the project, we will have a fully integrated design and construction schedule. Due to the fast track nature of this project, hitting every date will be critically important to meet the November 2017 deadline. While this is a linear project, our approach will focus on tackling available work throughout the corridor in a non-linear fashion. There are several environmental and floodplain restrictions, and adverse weather conditions that could factor into the overall schedule. Our team will construct any work that is available outside of these windows as it becomes available.

Design Management

Design management on a design-build project is a unique process and very different from managing a conventional project. Design-build projects are schedule and communication intensive and the management team is responsible for clearly defining the design-build design process and ensuring the entire team understands and follows the established procedures. Key elements of our design-build BMPs include:

- Apply partnering principles to integrate the entire team and establish common project goals
- Use the Task Force concept with experienced leads to:
 - Design-in contractor, SHA, and stakeholder requirements
 - Establish a bridge between SHA and our design and construction teams
 - Provide a conduit to disseminate information between disciplines, segments, and teams
 - Facilitate interdisciplinary coordination
- Implement an established and proven Design Quality Management Plan (DQMP)
- Use a rigorous project controls system to manage the design schedule
- Dedicate an experienced design-build coordinator to facilitate communication between design and construction

Our proposed project design manager, Josh Wade, will manage the design efforts of the project. He has a deep understanding of Kiewit and our approach to design-build through his many projects for which he served as project design manager or deputy design manager for Kiewit including the ICC-B, Goethals Bridge Replacement and WMATA Silver Line Phase 2 projects.

Weekly Meetings

Task Force Meetings are an extremely effective project collaboration tool. Each task force will be composed of experienced project design discipline leads, environmental staff, construction staff, SHA representatives, and project stakeholders. The purpose of these meetings is to review overall design status, discuss technical issues, jointly review design comments, and discuss designs being developed (over-the-shoulder reviews).

These meetings offer SHA, other stakeholders, and the contractor direct input into the design process. This forum is intended to be a collaborative environment that benefits the project by having the requirements “designed-in” rather than “reviewed-in.” This approach will eliminate surprises, reduce review time, minimize comments, and eliminate design rework.

All of our Task Force Leads participate in the **Weekly Progress Meeting** to discuss the status of their portions of the design. Each lead will report on upcoming submittals, relay schedules, items that affect other disciplines, issues impacting their progress and status of design submittals and packages under review, and identify and address critical packages. The construction management team will attend and communicate any concerns with the design progress while helping identify any changes to the established priorities. The meeting will present an opportunity to discuss concerns or significant issues with the design development.

Management Review Meetings will be facilitated by SHA project director and the design-build project manager and conducted on a weekly basis. These meetings will allow for overall management review of the project and quick resolution of conflict.

Design Team Organization

Our construction organization includes two construction segment managers who will directly interact with our two design segment managers. In addition to having design and construction segment managers working together, we will establish a direct relationship between the design and construction teams organized by discipline, such as roadway, drainage, environmental, structures, and MOT. This parallel organization structure based on disciplines will result in a design that is timely, cost effective, and constructible.

The construction staff will be assigned to the project immediately upon NTP, and will be the same staff that will construct the project. By including staff from start to finish, our team will be highly invested in meeting deadlines, producing a highly constructible design, and will understand every detail of the project.

Our proposed design-build coordinator, Glenn Christensen will ensure complete design coordination on this fast track design-build delivery. While Project Manager, Frank DiGilio’s responsibilities hit all aspects of the project, Glenn will be solely focused on design management from start to finish. Glenn will be the key link between the design, environmental, utilities, and construction teams, during design development. Through mutual working experience, Glenn and Josh will work closely with Frank to establish priorities and schedules, and to resolve issues escalated from the task forces. Glenn and Josh have a long term relationship and worked together on ICC-B.

Quality

We will develop a DQMP for the project that will incorporate lessons learned and build upon procedures used on previous design-build projects. Our plan will provide the team with a road map for design processes, positions, responsibilities, and quality assurance procedures that will be followed during plan development.

This important aspect of our quality program is independent when reviewing design packages. As part of our team we have included KCI to perform the design audit process. KCI has held multiple contracts with SHA’s District 1 office including the 18B Streetscape Project in Queen Anne’s County. KCI reviewers will include an independent MDE-certified reviewer to ensure we meet all MDE design expectations. All design packages will be audited for compliance prior to startup construction.

Construction Phase

We have structured our management organization to establish clear responsibilities and reporting at all levels. The organizational structure that we will implement will result in all team members working effectively as one team. Our design-build experience has shown that on a project of this scope, the management team must tackle a wide variety of responsibilities, including:

- Safety
- Quality
- Compliance/environmental
- Subcontractors
- Schedule
- Project costs
- Design
- Equipment
- Personnel
- Contract administration
- Public outreach

While similar to traditional bid build projects, managing a design-build project’s construction requires specialized skills to ensure success. Our superintendents and other construction staff will participate in the entire design process to ensure our decades of building experience is incorporated into the plans, and to minimize field design changes once work begins. They will also plan the work in collaboration with the design team to develop optimized work plans that provide the utmost efficiency, safety, and quality. Our team will embrace a phased construction approach and identify early work packages to get the work started while less critical packages are still being designed. Safety management is critical on an active highway that is faced paced. Our EMR of a 0.54 is a testament to our ability to keep our people safe in the most challenging conditions.

Subcontractor Management

Our team understands the importance of holding the entire design and construction team, including subcontractors, to SHA’s high standards. Subcontractors will be integrated into the entire design-build process, and will participate in weekly task force meetings, constructability reviews, and our safety, quality, and compliance programs. The local subcontracting community will have a strong investment in the project prior to construction, and will have a thorough understanding of the project scope and requirements. During construction, all of our subcontractors are fully integrated into the team and participate in indoctrination, construction schedule meetings, work planning, and our safety and quality programs.

We will perform extensive DBE outreach during the bid preparation phase to ensure all of the goals are met or exceeded on the project. A best practice we will utilize is to break large packages into smaller packages to allow more opportunity for local subcontractors.

Quality

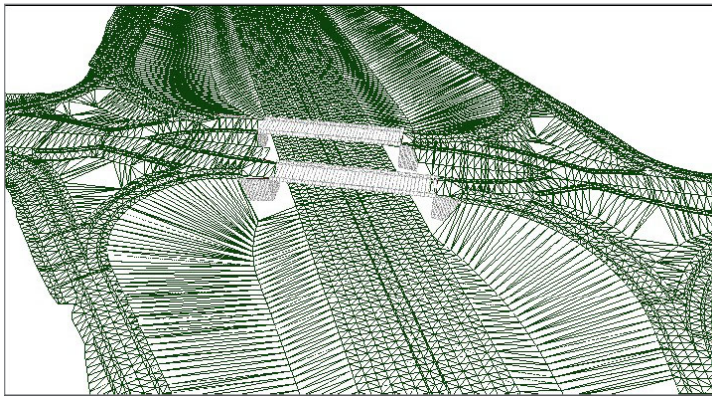
Once plans are released for construction, our superintendents and engineers will work with our craft to develop a plan for each operation. One of the major risks found on a design-build project is building work from outdated plan sheets, resulting in rework and schedule delays. Our team has developed the following BMPs on past projects that have resulted in zero rework or schedule delays due to using outdated plan sheets:

- A Plan Revision Log identifies the latest plan sheet for every drawing.
- A drawing database connects each operation work plan to the plan sheets used. This allows for quick updates to work plans.
- Our quality inspection teams will use the Plan Revision Log on their daily inspections to verify that the crews are using the most current plan sheets.
- Each foreman is required to turn in their current work plan every two weeks to the Construction Quality Manager, who will also verify that work plans are based on current plan sheets.

3-D Paving and Grading

Our team has effectively utilized 3D paving and grading technology to build several design-build projects. After creating the 3D model, we are able to input this information into our equipment and automate the construction. These innovations have increased production, improved smoothness, and eliminated unneeded tasks and human error. We plan to use this technology on the MD 404 project.

Example of a 3D model



Schedule Management

Our team will use specific scheduling tools to manage all aspects of the project including the following:

- **Computer Generated CPM Summary Schedule (P6).** This computer-generated CPM will include activities for all design elements, permitting, submittals, material procurement and fabrication, and construction. This schedule will be created by expanding upon the CPM submitted in this proposal.
- **90-Day Schedules.** This schedule will include activities that will occur over the next 3 months. The construction manager will lead the creation of this schedule, but it will be each team member's responsibility to schedule his or her respective portions of work.
- **Five-Week Look Ahead Schedules.** This schedule includes each field task and activity. This schedule gives the team a four-week look-ahead and one week of as-built progress to determine if the project is staying on schedule. This schedule will be distributed and reviewed at the owner's meeting.
- **Play of the Day Schedule.** Shows the crew and equipment resources in the Play of the Day Room. The team will determine any schedule conflicts, and schedule necessary inspections and deliveries for the following day.
- **Linear Schedule.** Depicts work activities in terms of space and time. Assists project staff to identify potential scheduling conflicts including the overlapping of resources.

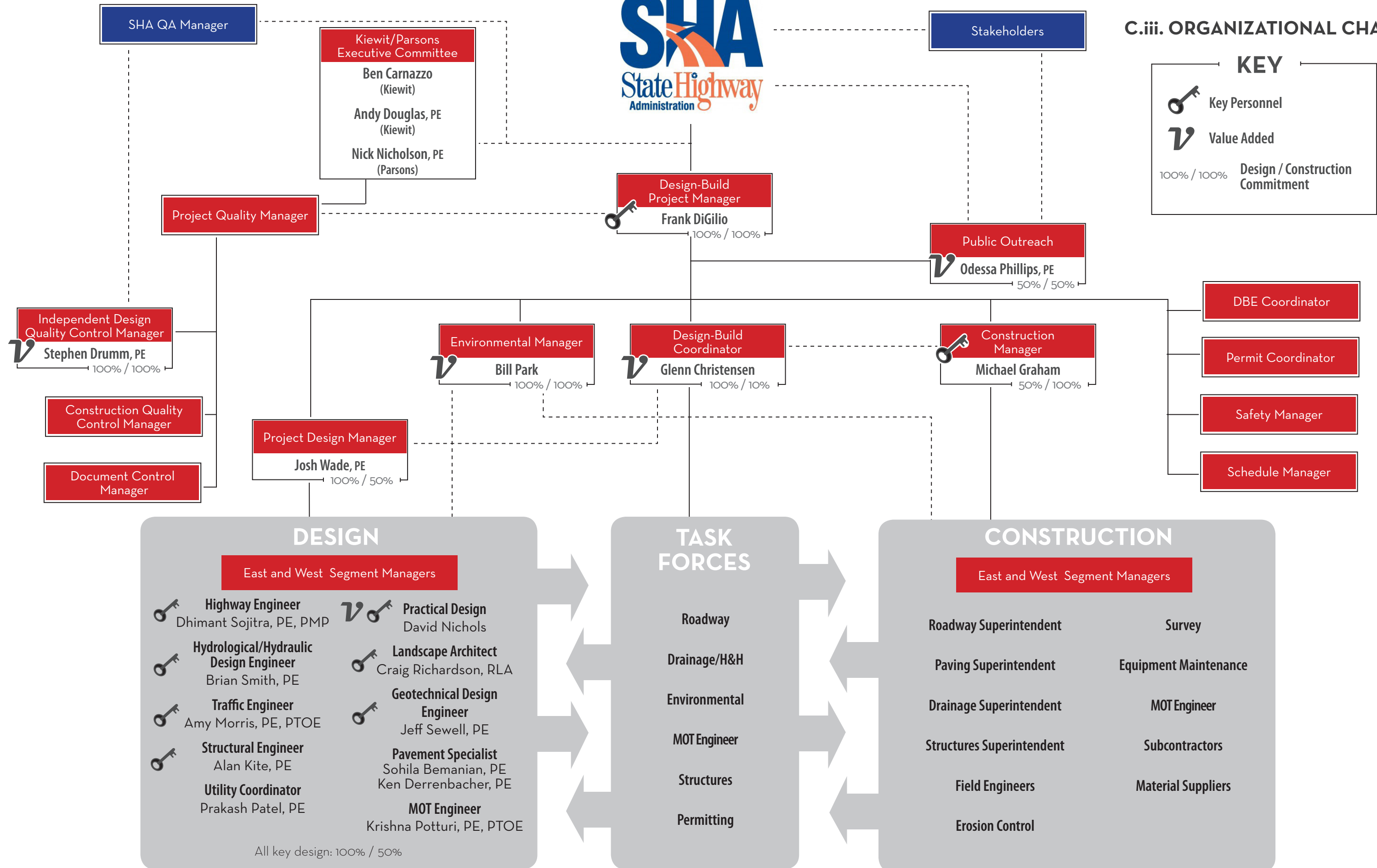
Building an Integrated Project Team

Kiewit and Parsons have a long history of successfully delivering complex, high profile projects. Our single team approach will carry down from design through the construction, and each team member will work side-by-side in all aspects of the project and in close collaboration with SHA. Our approach includes:

- Locating construction and design coordination staff in our design office. This approach eliminates office setup time and allows us to hit the ground running.
- Use of collaboration tools such as ShareFile, SharePoint and Project Wise to collaborate between offices and maintain consistency and standards across the project.
- Familiar team experience including ICC-B eliminating learning curves.
- Dedicated quality management team that will set up, teach and monitor quality on the job
- Internal and external partnering in an open and honest atmosphere. This helps to resolve to issues before they become challenges and optimize solutions.
- Matrix organization for design including segment managers who will manage their segments and individual projects with discipline leads maintaining consistency and quality across the entire project.
- Constructability, interdisciplinary and environmental reviews at set milestones and throughout project development by participating in over-the-shoulder reviews.



C.iii. ORGANIZATIONAL CHART



KEY

- Key Personnel
- Value Added
- 100% / 100% Design / Construction Commitment