Offeror Team Organization and Key Personnel (10 Points Max)

The Offeror shall provide sufficient information to enable the Department to understand and evaluate the Offeror's team.

1. Organization – The Offeror Team's organization will be evaluated based on the extent to which such organization:
    1. Demonstrates and effective organization to deliver a progressive design-build delivery;
    2. Demonstrates an efficient structure that is capable of effective internal coordination and collaboration with the Department, its consultants, and Stakeholders;
    3. Identifies appropriate personnel to perform the Work; and
    4. Is likely to facilitate successful delivery of the Project.

Kokosing/MB	MBC/Tetra Tech	Geddis/HDR		

• Kokosing and MB teamed on 14 projects with a value of $700M.
• $20B worth of Alternative Delivery
• Opportunity Corridor Section 3 Project
• Dedicated Design-Build Coordinator (Unidentified, but has a box)
  ○ May not add value. Could be a model manager. Not named.
• Prioritizing communication and collaboration
• Engaging MB's national BIM resources (Kirsten Bowen)
• Bentley ORD Model
• Suggested a "Model Coordinator" from ODOT.
• Involving field training sessions.
• Worked together a lot, not just firm-wide, but specific personnel.
• PMP – is there a value there?
• OTS Reviews
• Supplemental Exhibits – not sure we want them to create a whole bunch of exhibits.
• Discussed the extra layer between the Project PM and the Model Managers. Effective communication? People in the roles seem solid.
• Don't like having the DBC, want to communicate directly with the model coordinators.
• A little confusing org chart. Trying to determine who ODOT will be in contact on a routine basis.
• Have the right type of people for the project.
• They have the personnel to complete the project.
	• Although not a formal team member, our team worked closely with Bentley Systems during the proposal phase in determining the best digital delivery approach to the project. Should we be selected, we plan to further engage Bentley by leveraging our elevated E365 Bentley Program membership, which provides our team heightened strategic support and program training.
	• Included additional personnel experience. Includes substantial roundabout experience. Some DB experience, one CM/GC project (Tetra Tech Phase 1 of Glass City Riverwalk).
	• Simple Org Chart
	• Everything is going through Dan. How will ODOT interact with the model managers? No direct lines of communication between ODOT and the model managers. How much experience does Dan have with BIM? 50% availability for each phase, can he be the direct line with that availability?
	• Appears to marginalize design team, no direct connection.
	• Lacks details and added personnel.
	• Seems to rely a lot on Bentley resources. Might be difficult to deal with Bentley.
	• Very little narrative.
		• Layering ODOT within the Org Chart
		• Complex and detailed org chart with the attempt to try and show all communications necessary between the members. Touchpoints are appropriate, but may have some ramp up to fully incorporate the team into ODOT process.
		• Contained dotted line to Model Manager form the national resources.
		• Didn't include an estimator. No discussion of pricing component.
		• The ODOT Project Manager and DBT Project Manager serve as the linchpins, and will oversee the careful and deliberate development of design and construction while managing the overall coordination of activities. To foster effective collaboration, the DBT Project Manager establishes regular communication channels, conducts progress meetings, and sees that the project stays aligned with ODOT's goals and specifications.
		• Lots of interaction discussion between the Key Personnel. Specific ideas:
		  ○ The Model Managers, from Design and Construction, will be involved throughout the project but both play a crucial role in the project's BIM Proof-of-Concept phase.
		  ○ During the Project Development phase, the DBT Model Design Manager will lead the design team, meeting ODOT's requirements for project design development. Their responsibilities include overseeing the creation of detailed models, conducting design reviews, and coordinating with relevant stakeholders to integrate feedback. Continuous collaboration between the DBT Model Design Manager and DBT Model Construction Manager is vital to maintain project coherence and responsiveness to ODOT's evolving needs throughout		

		design and construction and to incorporate construction needs into the design model. ○ The DBT Model Construction Manager takes charge of the project's physical implementation during the Construction phase. They are responsible for translating the design into reality, managing construction teams, and seeing the project stays within budget and timeline constraints. Design will shift into the construction phase with a dedicated Construction Service lead, who will still report to the Design Manager, while working collaboratively with the Construction Superintendent to manage RFI's, Change Orders and will have a team of resources from design phase to maintain the BIM model and create the as-built model. Close coordination between the DBT Model Construction Manager and the DBT Model Design Manager will continue to address changes in conditions and to develop an accurate as-built model. The DBT Model Construction Manager coordination with the DBT Project Manager is maintained through regular progress updates, budget reviews, and issue resolution sessions. • To enhance team integration, we will implement various techniques, including: ○ cross-functional training sessions, ○ joint planning workshops, and ○ regular team-building activities, throughout the phases of the project.		
2. Key Personnel - The Offeror will be evaluated on the background, experience, and past performance of its required and Offeror-identified Key Personnel on projects of similar size, scope, and complexity. Key Personnel will be evaluated based on the extent to which: 1. The required Key Personnel meet or exceed minimum requirements for qualifications and experience and provide experience that is likely to facilitate and improve successful delivery of the Project; and 2. The Offeror-identified additional Key Personnel provide value and have experience that is likely to facilitate and improve successful delivery of the Project.				
<u>DBT Project Manager</u> - The DBT Project Manager is responsible for all aspects of the Project, including, but not limited to, overall design, environmental compliance, construction, quality management, and contract administration. Preferences include at least 10 years' experience as a Project Manager, experience with Design-Build Project Delivery, and experience with BIM.				
Kokosing/MB	**MBC/Tetra Tech**	**Geddis/HDR**		
• Craig Wing ○ Overview - 30 years' experience, alternative delivery, prior work with MB, 3D model management and control ○ Time commitment – 40% Preconstruction, 50% Construction ○ Previous Projects	• Dan Meyer ○ Overview – 41 years experience, 29 years at ODOT D2. Resident Engineer on Veterans Glass City Bridge. ○ Time Commitment – 50% Preconstruction, 50% Construction ○ Previous Projects	• Richard Crace ○ Overview – 17 years experience, 15 ODOT Projects, P6 experience. ○ Time Commitment – 50% Preconstruction, 50% construction ○ Previous Projects ▪ ODOT 150299 SR 25 Reconstruct, Toledo, OH, ODOT District 2: The reconstruction of SR 25 /		

▪ PM I-75 Downtown Toledo reconstruction Project B – 7 roundabouts, 2.5 miles urban interstate, interchange upgrades, 12 bridges. VE concepts and 3D modeling. 132.2M Value ▪ PM Glass City Riverwalk – PM on CMGC Project, Open Book Pricing, $50M Value ▪ Shoreline Drive Design-Build – City of Sandusky. Complete renovation of Shoreline Drive Corridor – PM on Project 3D modeling. New roadway, new decorative sidewalks. Involved in both Preconstruction and Construction. • Notes: Strong construction experience with projects of greater size scope and complexity. DB experience with open book negotiations and modeling element experience.	▪ ODOT 190470 LUC-475 $47M I475/Dorr Street Major Reconstruction, Toledo, OH. Work included adding a new interchange, third lane to I475, and three roundabouts. ▪ ODOT 230332 OTT-53 $11M SR53/SR2 Intersection Upgrade, Port Clinton, OH. Work included adding a center turn lane to SR53 and two roundabouts. ▪ ODOT 220251 SEN-224 $1.5M SR224/SR587 Intersection, Seneca County, OH. Work included removing the at-grade intersection and replacing with a roundabout. ▪ ODOT 180408 WOO-64 $11M I75/SR64 Major Reconstruction, Bowling Green, OH. Work included replacing ramp intersection signals with roundabouts. • Notes: Has construction experience needed to lead project. Demonstrated qualifications. Limited BIM experience.	Anthony Wayne Trail was a $7 million upgrade in the pavement section and drainage along SR 25 near Downtown Toledo. The project included two major intersections that were required to be reconstructed in three phases each over a four-day weekend. ▪ SR18 UPS Turn Lane, North Baltimore, OH, Wood Co. Port Authority: As part of the SR 18 UPS Turn Lane Construction SR 18 was widened to accommodate the truck traffic entering and exiting the newly completed UPS Distribution Facility in North Baltimore. • Notes: Capable of delivering roundabout, no DB/progressive contracting experience, no 3D Modeling experience.		
DBT Model Design Manager - The DBT Model Design Manager is responsible for creating, managing, and updating BIM models to depict digital representations of the physical and functional characteristics of the project. The DBT Model Design Manager will utilize CADD tools to create 3D Models to be utilized by the Contractor to build the project. Preferences include at least a bachelor's degree in architecture or engineering and at least five years of experience in an architect, engineering, or construction role.				
Kokosing/MB	**MBC/Tetra Tech**	**Geddis/HDR**		
• Joe Brenner ○ 3D Delivery Pilots for Michigan and Pennsylvania ○ Pennsylvania PE, Bentley Scholar, AASHTO Joint Technical Committee on Electronic Engineering Standards ○ Time Commitment – 75% Preconstruction, 20% Construction ○ Previous Projects ▪ I-696 Digital Delivery Pilot Project | Michigan DOT, Macomb County, Michigan – Digital Delivery Specialist and Outreach Coordinator. Developed asset information. Updated BIM through as-builts ▪ Engineering and Training to Implement OpenBridge Software and Digital Delivery Pilot Project Support | PennDOT – Harrisburg, PA – BIM Lead. Assessed alternative software solutions, aligning them with PennDOT standards to enhance and optimize Digital Delivery processes. contributed to the evolution of the Digital Delivery Directive 2025 by embedding	• Steven Reschke, PE ○ 3D Model reviewer for Michigan DOT, 17 years' experience. Indicated CM/GC experience but didn't list any in the projects. ○ Time Commitment – 50% Preconstruction, 30% Construction ○ Previous Projects ▪ Winans Lake Road at Rickett Road Roundabout, Livingston County, MI. Lead Road Engineer. Design of a modern roundabout at an existing three leg intersection with stop control on one approach. The roundabout was needed to service a recent increase in local development, including a large sports complex. A study was performed that included confidence level analyses, fastest path determinations, truck simulations, and review of bypass lanes. Ultimately a modern roundabout was designed to accommodate current and future traffic which has improved safety and capacity. 3D	• Michael Lorenz, PE ○ 17 years experience, mostly roadway. 3D modeling experience, Bentley & Lumen certified. ○ Time Commitment – 75% Preconstruction, 25% Construction ○ Previous Projects ▪ FRA-161-15.80, ODOT D6, Columbus, OH: Michael served as the project roadway engineering lead over a multi-consultant design team for the widening of IR-270 and SR 161. This project worked closely with ODOT district and central office staff to expedite deliverable reviews and utilized alternative plan sizes to improve project development efficiency. The project was developed from conceptual line and grade plans to final letting in 8 months. Michael oversaw the development of the project CADD manual and internal modeling guidelines for development of models, production of plans, and using ProjectWise for project information exchanges.		

specific content into guidance documents, thereby reinforcing PennDOT's commitment to a digitally driven future. • Notes: Strong experience not only with BIM and modeling, but also with FHWA and MALD, pilot projects. Premier Scholar. Strong national presence in BIM.	design models were utilized by the Contractor, using AMG to complete all earthwork, paving, and grading activities without construction staking. ▪ MI DOT As-Needed RID Review. Lead RID Reviewer. Led Reference Information Documents (RID) Reviews assigned by MDOT which are electronic non-contractual deliverables provided from design to construction. The Tetra Tech team was the only team that was selected for both as-needed contracts and is responsible for the RID review of over 150 projects, designed by both MDOT and its consultants. Work included reviewing DGN base files, corridor models, proposed 3D linestring and terrain files (XML and DGN formats), and survey deliverables. Participated in MDOT discussions regarding best practices, common mistakes, alternative deliverables, and provided input to further shape MDOT's RID process. ▪ I-696 Dequindre to Nieman, MI DOT, Macomb County, MI. 3D Model QA/QC. Design of eight (8) miles of depressed interstate freeway including 8 urban interchanges including ramps. The project design consisted of concrete inlay construction including a recently developed specification for cement treated open graded drainage course (OGDC). The project utilized several innovative concepts including a corridor wide project pdf, contractual 3D line strings, and utilized the PQS spreadsheet in lieu of breakdown displays of quantities. Design was on an accelerated schedule and completed in less than 4 months. The project also included significant public engagement. This project won the ACEC Michigan 2020 Eminent Conceptor Award. • Notes: Very good RID experience, unsure of exact responsibilities of RID review for MDOT. Meets minimum qualifications.	▪ ROS 207-0.00 Roadway Extension, Rural Roundabouts, ODOT D9, Chillicothe, OH: Michael served as Roadway engineer and modeling lead on this new roadway including two roundabouts. His responsibilities included geometric design, 3D modeling and detailing of the initial and preferred alternatives. ▪ HAN 75/CR99 DDI, ODOT D4, Hancock County, OH: Michael served as Roadway engineer responsible for the 3D models for evaluation of the alternatives for the feasibility study and the public involvement for this divergent diamond interchange. ▪ HAM-275/42, ODOT D8, Cincinnati, OH: Michael served as roadway engineer for this interchange improvement project. This project was a pilot project for OpenRoad Designer. Michael was instrumental in advancing the use of ORD in District 8. ▪ HAM 71-3.81 MLK Interchange DB, ODOT D8, Cincinnati, OH: Michael served as roadway engineer on the first two-step design-build in District 8. Michael coordinated model and plan development between multiple design teams and worked with the contractor and District 8 construction staff to provide plan updates during construction services and develop the project record plan documentation. • Good project delivery experience on projects similar/higher size and scope. Good 3D modeling experience. Bentley Premier Scholar, current on modeling standards. • Additional personnel: Named folks but didn't provide any background. Kevin Martin, Jake Stremmel, Dan Prokop (National Leader) • Notes: Strong design experience showcases the capability of delivering BIM and Model information to meet the scope of the Project.		

DBT Model Construction Manager – The DBT Model Construction Manager is responsible for implementing, managing, and updating BIM models during construction to ensure prompt and accurate construction and record retention. The DBT Model Construction Manager will ensure that the BIM can be utilized by the Contractor to build the project. Preferences include at least a bachelor's degree in architecture or engineering and at least five years of experience in an architect, engineering, or construction role.

Kokosing/MB	MBC/Tetra Tech	Geddis/HDR		

• Rick Chafin
  ○ 20 years BIM/Modeling experience
  ○ Surveyor
  ○ Time Commitment – 25% Preconstruction, 40% Construction
  ○ Previous Projects
  ▪ CUY/SUM I-271/I-480 (160218) | ODOT District 12 $135.8M Survey/Model Manager. $2.3M in VE Changes. 3D construction modeling and field delivery.
  ▪ Opportunity Corridor 3 (173000) | ODOT District 12 $159.4M – Survey/Model Manager. Lead Model Construction Manager and Survey Engineer responsible for creating virtual construction models from 2D plan sets and coordinating field delivery and model integration.
  ▪ LUC 475/20A Parts 1-3 | ODOT District 2 | $101.9M – Survey/Model Manager. responsible for the creation, communication, and ultimate integration of the 3D Modeling on the project.
• Notes: Solid experience in projects of greater scope and complexity. DB delivery with 3D modeling for contractor purpose, not the owner. Didn't mention record retention elements.
• Additional Personnel Notes: Sean, Kirsten were good resources.
	• Michael Damschroder, EI, SI
	  ○ 11 Years experience
	  ○ Surveyor
	  ○ Time Commitment – 20% Preconstruction, 50% Construction
	  ○ ODOT 220251, Roundabout Build at Intersection of US-224 and SR-587, Seneca County, OH. Included extensive modeling of the roundabout and collection of assets post construction in support of ODOT's Collector Program. Also coordinated with Ohio UAS center for SS1132 approval to fly project to create digital twin of as-built condition.
	  ○ ODOT 190470, Dorr Street and I-475 Interchange Improvements, Toledo, OH. Modeling of three roundabouts, ramps, and interstate for use with GPS systems.
	  ○ MDOT 129661, Interchange Reconstruction of I-75 and LaPlaisance Road, Monroe, MI. Modeling of two roundabouts, ramps, and associated interstate pavement. Model was used in contractor GPS equipment as well as owner GPS equipment for the purposes of tracking progress, quality control, and pay estimates.
	  ○ ODOT 170567, Waterville Bridge Construction and SR-64 Relocation, Waterville, OH. Modeling of roundabout, bridge features, and roadway for use in contractor GPS equipment and contractor quality control;
	  ○ ODOT 230332, roundabout construction at SR 2 and SR 53 near Port Clinton, OH. Modeling of roundabout, roadway, and interchange for use in contractor GPS equipment and quality control. Work will also include collection of department assets in support of ODOT's Collector Program;
	  ○ ODOT 210577, Bridge Replacement at SR-184 and Enterprise Boulevard, Lucas County, OH. Modeling of bridge surface and tieins. Bridge deck and intersection was laser scanned to create a digital twin post-construction.
		• Kyle Reinhart
		  ○ 14 years experience, 7 years GPS guided equipment & models. Trimble business center.
		  ○ Time Commitment – 40% Preconstruction, 60% Construction
		  ○ Previous Projects
		  ▪ Secor Metropark, Sylvania, OH, Lucas County Metroparks: Kyle expanded the boundary of Secor Metropark for Metroparks Toledo's Prairie Ditch Restoration project . The Secor Metropark expansion project began in 2020 when Metroparks Toledo purchased two former golf courses. The goals of the project included restoration of 183 acres of globally rare Oak Openings plant communities, re-establishing over 160 acres of Category 3 wetlands, and the protection of upland oak savannas on the property. The restoration project addressed BUI 6 (Degradation of Benthos) and BUI 14a (Loss of Fish Habitat) within the Maumee AOC. Stream improvements along approximately 4,800 linear feet of Prairie Ditch included 8.71 acres of expanded floodplain, creation of 1.34 acres of streamside wetlands within the floodplain, riffle construction, and selective planting of native trees, shrubs, and other plants. Management practices included restoring natural curves to the waterway while creating shallower streambanks to promote bank stabilization and reconnection to the floodplain. The project was constructed for $683,000, which was $267,000 under the estimated cost thanks to the use of machine control and Kyle's efforts to reduce costs and build the project more efficiently using the construction model.
		  ▪ Crossroads and Bass Pro BLVD Roundabout, Rossford, OH, City of Rossford: Kyle worked hand-in-hand with Todd Audet from the City Rossford engineering to overcome numerous unforeseen utility issues and still was able		

	• Notes: Solid experience. Roundabout experience. Modeling experience for contractor purposes. Known to be responsive, reactive, and responsible. • Additional Personnel: Estimator, Roundabout Design, Alternative Contracting methods.	complete the project well ahead of schedule. The project was slated for a 120-day closure. By using machine control, establishing a sound partnership with Rossford, and consistently communicating with all stakeholders, Kyle and his team were able to open the roundabout in 63 days. • Capable of delivering roundabout, lacks DB experience and BIM.		
Offeror's Capabilities and Experience (8 Points Max) Describe the general experience of the Offeror Team. Focus on specific firm experience that relates to carrying out the proposed project and how the experience will ensure success of the Offeror's general approach to the Project.				
1. The Offeror's experience demonstrates experience designing and constructing projects of similar scope				
Kokosing/MB • Kokosing Significant D2 experience, 7 Toledo highway projects, $500M. 7 roundabout projects • MB ID'd Utah, Minnesota, and Michigan Digital Delivery Pilot Projects • Good general discussion of capabilities specific to the needs and requirements of this project • Presented projects were of an equivalent or higher complexity • Good demonstration of open book pricing/negotiation experience (CMAR/CM/GC) • Designer demonstrates good to excellent capabilities in digital delivery for design.	**MBC/Tetra Tech** • Substantial list of roundabout projects. • Demonstrated roundabout experience in construction. • Design demonstrated capability to design with 3D components. • Key Personnel represented in the relevant projects. • Contained relevant projects.	**Geddis/HDR** • Geddis - 7 Roundabout Projects • HDR – Limited detail, high level, discussed digital deliver in the writeup. • Some of the projects listed had 3D modeling components. • LPA Project • Geddis Projects did not reference BIM, did represent capability to do a roundabout projects. • Projects listed did not demonstrate the engagement of Key Personnel. Relevant projects listed for DBT Design Manager were same as in DBT Design Model Manager resume. • Very little Open Book pricing discussion.		**1.** **2.**
2. The Offeror's experience demonstrates experience collaborating with owners to determine cost effective solutions and resulting projects.				
Kokosing/MB • Owns aggregate quarry and asphalt plant within 5 miles, resulting in cost savings.	**MBC/Tetra Tech**	**Geddis/HDR** • The Integrated approach to project delivery is best illustrated by the Fern Hollow Bridge replacement project completed for PennDOT. The Fern Hollow Bridge is located in the City of Pittsburgh's Frick Park and carries Forbes Avenue (an NHS route with an ADT of 21,000) over Frick Park, Tranquil Trail, and Fern Hollow Creek. The previous structure collapsed on January 28, 2022 and an emergency declaration was used to engage the design-build (D-B) team sole sourced by PennDOT, the City of Pittsburgh, and FHWA with HDR chosen as		

		the lead designer. To assist with the construction schedule, the DBT proposed partial submissions in a preferred sequence so material could be procured and construction activities could begin as soon as possible. The agencies committed to expedited submittal reviews that enhanced the D-B speed of the project. This collaborative process continued throughout design and construction with collective decision making used to quickly resolve questions and gain concurrence as needed to meet the emergency requirements.		
3. The Offeror's experience demonstrates experience and capability with open book pricing processes used in progressive design-build and CMGC delivery methods.				

Kokosing/MB
• Previous Projects:
  ○ Brent Spence, 16 Tech Bridge Project, Glass City, Parkersburg Memorial Bridge
• Extensive ICE experience
• Glass City achieved GMP
	MBC/Tetra Tech	**Geddis/HDR**
		• HDR (nationally)
		  ○ LA World Airports Airfield, Alabama Mobile Bay, West Alabama Highway, De Soto Kansas, Toronto.
		  ○ Will have national staff tutor locals.		

4. The Offeror's experience demonstrates relevant experience that will improve the likelihood of a successful project. Experience on completed projects will be given more weight than projects in progress.				

Kokosing/MB
• DBT Model Construction Manager involved with digital delivery.
• Developed Trimble model to construct the Toledo B project.
	MBC/Tetra Tech	**Geddis/HDR**
		• HDR has created digital delivery strategic plans and/or performing agency-wide digital delivery implementation for Pennsylvania, North Carolina, Iowa, Nebraska, Oklahoma, Utah, and Arizona. We are delivering digital delivery projects in Utah, Florida, Alabama, Pennsylvania, Iowa, New York, Virginia, Michigan, Illinois, California, and Ontario. HDR is actively participating with ACEC national, establishing foundational principles and key concerns.
		• Our teams across the country work with State DOTs to determine what level of BIM is desired and whether plan sheets will be omitted or produced directly from the model. Some examples include:
		  ○ West Alabama Highway PDB project, where Dan Prokop is serving as the Digital Delivery
		  ○ Principal in Charge, all parties are embracing the collaborative nature of PDB combined with digital delivery.		

- Ontario Line Project as Technical Advisors, HDR has been able to bring significant value to our client by deploying a multitude of BIM uses from Drawing Production and Quantity Takeoffs from 3D models, to 3D clash detection and Design Review, to 4D Construction Phasing.
- For Utah DOT, HDR has delivered at least four re-construction projects with Model as the Legal Document (MALD) requirements, in many cases with little to no plan sheets.
- We have designed and delivered a bridge project with MALD requirements in Iowa.

Sample Projects

- I-75 DOWNTOWN TOLEDO RECONSTRUCTION PROJECT B
  - Kokosing
  - Prime Contractor
  - $132M
  - DBB
  - 2014-2019
  - The Toledo B project was constructed as 1 of 5 adjacent projects awarded to Kokosing located through the I-75 Corridor. This project included the construction of an access parkway that included 7 different roundabouts, reconstruction of 2.5 miles of urban interstate, complex interchange upgrades, and finally the reconstruction of 12 different bridge structures.
  - $41M VE
  - Timely Completion
  - Key Personnel: Craig Wing (PM) & Rick Chaffin (3D Models)
- Notes: Project of greater size scope and complexity with one key personnel that demonstrates roundabout construction capability, different procurement with no contractual BIM model.
- DUBLIN SCIOTO PEDESTRIAN BRIDGE
  - Kokosing
  - CM/GC
  - $23.1M
  - MB Owners Rep
  - 2016-2019

- MDOT I-696 Freeway Design
  - Tetra Tech
  - Prime Designer
  - $3.7M
  - DBB
  - 2017-2018
  - Tetra Tech's original design contract called for a 2-year service completion date. Meeting the immediate needs of providing a safe corridor for the traveling public and using I-696 as an alternate route for an adjacent interstate project required an accelerated timeframe. The design of a $90M construction project needed to be completed in about 4 months. To meet the required timeframe, Tetra Tech brainstormed ways to provide high-quality deliverables outside the conventional approaches. We proposed the use of the Project PDF concept to simplify plan preparation. The Project PDF captured the entire project in continuous, corridor-long electronic files. We also prepared contractual 3D line strings to make use of electronic information in lieu of conventional displays of plan data. This was the first time these concepts were used on a project of this magnitude in Michigan. The I-696 project won the American Council of Engineering Companies (ACEC) Michigan Eminent Conceptor Award for the top project in the state. The project also

- LUC -DETROIT AVENUE, ODOT LPA PROJECT PID 97266, COMPETITIVE BID PROJECT, CITY OF TOLEDO, OHIO
  - Geddis (?? Unclear)
  - Prime Contractor
  - $5.4M
  - 2014-2015
  - This project included the reconstruction of roughly 0.91 miles of urban roadway including the installation of two modern roundabouts and the realignment of Winfield Road. The project also included improvements of the roadway connectors between these intersections, the installation of multiuse paths and sidewalks, improvements to drainage, new curb and gutter, and maintenance of traffic work and traffic control work. Located in the heart of the City of Toledo, this project serves as an example of a roundabout project that is likely as difficult of a roundabout that could be built. Multiple subcontractors, utility interferences and relocations during construction, pedestrian traffic, multi-year / multi-phase construction, contaminated waste / underground tank disposal, and design changes particularly made the project challenging.
  - Key Personnel: None listed
- ANTHONY WAYNE TRAIL RECONSTRUCT LUC SR 25 3.00 MJR RECONSTRUCT, ODOT LPA PROJECT, PID 103508, COMPETITIVE BID PROJECT, CITY OF TOLEDO, OHIO

- In December 2016, Kokosing was selected by the City of Dublin as the Construction Manager/General Contractor (CMGC) to review the constructability of the 760 feet long double curve pedestrian bridge as the project plans were finalized and to provide preconstruction scheduling and estimating. After the review and contract coordination was complete, Kokosing provided a GMP that was reviewed by an independent consultant as stipulated in the CMGC contract. Kokosing was awarded the $22,126,000 construction contract. Kokosing self-performed the construction of all bridge foundations, bridge piers, the construction of the 172- feet-tall main pylon that supports the suspension cables, and the bridge deck.
- Open Book Pricing
- Timely Completion
- Key Personnel: Rick Chafin (3D Modeling Bridge Deck)
- Project of greater size, scope, and complexity with one Key Personnel that demonstrates roundabout construction capability and of differing yet similar procurement with Model elements.

- OPPORTUNITY CORRIDOR, PHASE 3
  - Kokosing
  - DB Contractor
  - $159.6M
  - DB
  - MB Lead Designer
  - 2018-2023
  - Kokosing completed this new five lane, urban boulevard stretching from East 93rd Street to I-490 that improved the roadway network within a historically underserved area of Cleveland and enhance access to Cleveland's cultural hub, healthcare, and educational facilities. Michael Baker served as Lead Designer on the three-mile boulevard that included seven signalized intersections, seven bridges, and 12 retaining walls. The work required significant coordination with and adjustments to utilities, railroads, and transit infrastructure.
  - 18 of 32 ATCs approved
  - received the ACEC National Grand Award and was a national finalist for the National Eminent Conceptor Award (in the top 16 projects in the nation).
  - PROJECT RELEVANCE
    - ACEC Michigan Eminent Conceptor Award for top project in the state
    - Accelerated project design into a 4-month timeframe
    - Eliminated the need for hundreds of plan sheets
    - Contractual 3D linestrings provided flexibility for contractor to use automated machine grading
    - Through 3D modeling, reduced replacement costs by maintaining some infrastructure
  - Key Personnel: Steven Reschke (3D Model Viewer)
  - Project of greater complexity but different procurement method and scope with one Key Personnel.
- MDOT 2nd Avenue Bridge over I-94
  - Tetra Tech
  - Prime Designer
  - $2.8M
  - DBB
  - 2018
  - The road work included design of I-94 widening including complex grading of depressed freeway sections involving retaining walls, bridge abutments, and single face barrier. The work also included development of bridge profiles taking into account vertical clearance, future freeway widening, sight distance, and utility impacts. Drainage improvements, municipal utility work, ADA modifications, signing, pavement markings, and traffic signals were also part of the design effort. 3D models were developed for earthwork quantity calculations, utility location, and public meeting visualizations. As a design and constructability check, the bridge was modeled in 3D using MicroStation. Updated 3D models were developed to match construction changes, and
  - Geddis
  - Prime Contractor
  - $11.5M
  - DBB
  - Anthony Wayne Reconstruct is a multi-year project that began in 2022. This project consisted of reconstructing 2.24 miles of pavement on the Anthony Wayne Trail, from Detroit Ave to Glendale Ave. This project included removing and replacing the pavement, curb, and drainage structures, while narrowing the road to two lanes in each direction. The project included a Maintenance of Traffic plan designed by the contractor, coordination with a major adjoining project, and coordination with ongoing utility relocations within the project limits. Geddis Paving and Excavating, Inc; worked with the City of Toledo to seek cost saving opportunities throughout the project, implement time saving scheduling opportunities, and completed the roadway work four months ahead of schedule. All interim completion dates were met on the project. The work is currently under engineer-ordered suspension due to right-of-way legal issues with an adjacent property and the proposed bike path. Geddis Paving & Excavating, Inc., has worked with the city to hold the contract and established the extra costs associated with the delay and intends to complete the work if so directed.
  - Key Personnel: None listed
- FRA-161 WIDENING, PID 116322, ODOT DISTRICT 6, D-B-B, COLUMBUS TO NEW ALBANY, OHIO
  - HDR
  - Final Design? (Not clear HDR's role)
  - $8M Design, $64M Construction
  - HDR leads a large team chosen to develop construction plans for widening I-275 and SR 161 to US 62 in Franklin County. ODOT's commitment to finishing construction by 2025, just in time for the plant's opening, condenses the HDR team's design time. HDR managed 8 sub consultants in a compressed 9-month schedule to effectively staff the project. The schedule we proposed in the LOI met ODOT's

- Key Personnel: Rick Chafin (2D Plans + 3D Terrain Model)
- Project of greater size, scope, and complexity with one Key Personnel that demonstrates construction capability but of differing procurement with no contractual BIM/Model elements.

- I-696 OVER ROUGE RIVER DIGITAL DELIVERY PILOT PROJECT MDOT | Macomb County, MI | DBB
  - MB
  - Designer
  - $19M (Digital Delivery) 1.5M Design Fee
  - 2020-2022
  - DBB
  - Michael Baker provided design and engineering services for the complete replacement of the eastbound and westbound I-696 bridges. Each structure carries three lanes of mainline traffic. The eastbound bridge is also flared, carrying an on-ramp from northbound Telegraph Road. The delivery method for this project consisted of a 3D model rather than traditional 2D plans. As a pilot project, there was significant stakeholder engagement to develop a consensus around the delivery method, development of training materials, and development of best practices and lessons learned to help guide future workflows on Michigan Department of Transportation projects.
  - BIM Modeling
  - Key Personnel: Joe Brenner (Model Development)
  - The delivery method for this project consists of a 3D model as a contract document rather than traditional 2D plans. This was a pilot project for MDOT and included extensive stakeholder engagement to develop consensus around the delivery method, development of training materials, and development of best practices and lessons learned to help guide future workflows on MDOT projects.
  - Strong project of greater size and complexity with Modeling and BIM elements but of differing procurement method.

links to shop drawings were added to individual elements of the bridge to create a full BIM model.
  - Project Relevance
    - Received 2024 ACEC Michigan Honorable Conceptor Award
    - Received 2023 Roads & Bridges #4 Top Bridge Award
    - BIM model of bridge, roadway, and utilities created in design
    - Managed BIM model in construction, incorporating construction documents like shop drawings and reports for asset management.
  - Key Personnel: Steven Reschke (Lead Roadway Engineer)
  - Project of more complexity and Scope similarities but of differing procurement with one Key Personnel.
- ODOT OTT-163-33.85 Roundabout
  - Tetra Tech
  - Prime Designer
  - $166k
  - 2021-2022
  - DBB
  - Tetra Tech designed a rural modern roundabout at the SR-163 intersection with Northshore Boulevard and Englebeck Road, the first in Ottawa County. ODOT District 2 developed the horizontal geometry and layout of the roundabout, and Tetra Tech completed the Stage 1 design through Final Tracings. The project is in an area with heavy tourist traffic in the summer, so the project was constructed during the off-peak period in the fall, with traffic on SR 163 maintained during construction. The work included roadway, drainage, BMP, lighting and maintenance of traffic design. One challenge was to accommodate the tractortrailers that haul large boats to and from Lake Erie. The permit loads are long, wide and have a low clearance. Low height curbs and outside truck aprons were utilized and Tetra Tech completed 3D truck movement modeling to ensure the permit vehicles would have proper

aggressive schedule which allowed construction to start in summer 2023 and complete the project in 2025. HDR's large team, led by Ken Fertal, used technology to coordinate the design and reviews across many firms and offices. For example, all quality reviews were completed by discipline leaders from HDR and subs using BlueBeam Sessions which provided real-time comment and resolution. The client, ODOT, and key stakeholders, were able to work seamlessly using MS Teams, ProjectWise, and BlueBeam Sessions to convey review comments and quickly address designer questions. This facilitated team collaboration and enhanced communication.
  - Key Personnel: Ken Fertal (Not a Key personnel but listed on Org Chart)
- ROS-207 RURAL ROUNDABOUTS, PID 91935, ODOT DISTRICT 9, D-B-B, CHILLICOTHE, OHIO
  - HDR
  - Prime Designer
  - $1.5M Design, $7M Construction
  - 2015-2020
  - HDR completed an alternative analysis, feasibility study, and the development of the final construction and right of way plans for an approximate 1-mile extension of SR 207 from US 23 to SR 159. The project analyzed multiple alternatives, signalized intersections, and roundabouts on various alignments to enhance travel to US 23 and reduce crashes. The single lane rural roundabouts were designed to improve safety at the existing intersection of SR 159 and SR 180 by eliminating the skewed intersection and consolidating multiple existing driveways. The SR 158 and SR 180 roundabout was also located to avoid impacting an existing structure over Kinnikinnick Creek, and partially relocated the intersection to allow for MOT to utilize the existing intersection during construction. The roundabouts were designed to accommodate heavy truck movements from a nearby quarry and were graded to allow large farm vehicle movements.
  - Key Personnel: None listed

- ENGINEERING AND TRAINING TO IMPLEMENT OPENBRIDGE SOFTWARE (E04005) PennDOT | Bureau of Design and Technology, PA
  - MB
  - Owner-End Task Order
  - $500k
  - 2021-2022
  - Michael Baker provided a variety of design, technology evaluation, standards development, and training in support of the Digital Delivery Directive 2025. Specific activities and tasks include:
    - Create PennDOT's OpenBridge Modeler (OBM) workspace and templates for in-house and consultant use
    - Build two high Level of Development bridge models to test the OBM workspace, evaluate modeling workflows, and compare LEAP analysis software to PennDOT in-house software results
    - Develop several customized User's Manuals for use of OBM and LEAP structural analysis products
    - Evaluate other software products and select PennDOT standards for potential revisions to streamline Digital Delivery processes
    - Create multiple training courses for PennDOT's internal use, consultants, contractors, and suppliers.
    - Guide and support Pilot Project teams in the workflows developed including contractor support for several active projects in construction.
    - Develop Digital Delivery-specific content for use directly in their guidance documents to support PennDOT's Digital Delivery Directive 2025 initiative.
  - Key Personnel: Joe Brenner (BIM Team Lead)
  - Project of relevance in regard to BIM and Modeling with Key Personnel but of differing procurement.

clearance through the roundabout and would not damage the curbs.
  - Project Relevance
    - Design and OpenRoads modeling of a rural roundabout
    - Proposed design key personnel worked on this project
  - Key Personnel: David Charville (PM) Jeff Hoeft (Roadway) (NOTE: Jeff not listed as a Key Personnel)
  - Project of similar construction scope but of differing procurement method with no BIM, Model, and no Key Personnel
- ODOT/Lucas County TID I-475 Widening & Dorr Street Interchange
  - Tetra Tech & MBC
  - ~$50M
  - DBB
  - 2020-2022
  - Tetra Tech led the design for a new teardrop roundabout interchange to provide access to Dorr Street from I-475. The project included widening, from two to five lanes, a one-mile section on Dorr Street (McCord Road to Holland-Sylvania Road). Project included IJS, pavement and roadway design (concrete and asphalt pavement), traffic analysis, traffic control, MOT, drainage improvements, lighting, bioswales, detention ponds, BMPs, one mile of new water main, sanitary sewer, right-of-way acquisition, and utility coordination and relocations. This project (Part 2) was packaged with the LUC-Dorr/McCord Roundabout (Part 3) and (Part 1) of the I-475 widening. The Part 3 LUC-Dorr/McCord Roundabout was also designed by the Tetra Tech team.
  - In 2019, MBC was awarded a $45.3M contract for construction: widening approximately 2 miles of I-475 from two lanes to three; a new interchange at I-475/US23 and Dorr Street with two roundabouts; widening of Dorr Street from two lanes to five; and a new roundabout at Dorr Street and McCord Road. The roadway work included construction of embankment for new ramps, asphalt paving, installation of a new

- HAN-75/CR 99 DIVERGING DIAMOND INTERCHANGE, PID 102375, ODOT DISTRICT 1, D-B-B, HANCOCK COUNTY, OHIO
  - HDR
  - $3.1M Design, $28M Construction
  - DBB
  - 2021-2026
  - The construction of Diverging Diamond Interchange (DDI) at the County Route 99 and Interstate 75 interchange in Hancock County. During the AER, HDR evaluated two alternatives, one to widen and reuse the existing bridge and the other to build an adjacent bridge to the south. Building an adjacent bridge became the preferred alternative to simplify construction by having construction not impacting the existing for almost the first year of construction. Major utilities, both underground and overhead needed to be coordinated for relocation, including development of a schedule showing the critical path items.
  - Key Personnel: None listed
- HAM-71-3.71 MLK INTERCHANGE, PID 77628, ODOT DISTRICT 8, D-B, CINCINNATI, OHIO
  - HDR
  - $6.7M Design, $80M Construction
  - DB
  - 2014-2018
  - The I-71 MLK interchange is a comprehensive improvement to the local street network and the I-71 corridor in Cincinnati. Seeking to improve access at MLK Drive, ODOT turned to the DB team, with HDR as lead designer. With four new entrance/exit ramp locations, an expanded MLK Drive bridge, nearly two miles of reconstructed I-71 and eight new or rehabilitated bridges and ramps; the new I-71 interchange at MLK Drive provides an innovative design, and user-friendly driving experience. Alternative Technical Concepts (ATCs) approved by ODOT included geometric improvements, pavement optimizations and structural innovations, such as precast wall panels. The Lincoln Ave Bridge ATC shifted a pier to accommodate a ramp. The I-71 to MLK ramp

- I-80 Blackrock Structures Replacement (MP 101 and 99) UDOT | F-I80-3(186)102 / 13323 | Salt Lake County, Utah | CM/GC
  - $41.7M Project, $2.9M Design Fee
  - CMGC
  - 2017-2022
  - Michael Baker provided roadway, structures, maintenance of traffic, and utility design for a bridge and roadway replacement at two locations: I-80 over the Union Pacific Railroad (UPRR) at Blackrock and S.R. 172 over I-80. I-80 Blackrock was the first UDOT project to include all disciplines in the Model Based Design Construction (MBDC) delivery initiative and successfully showed that all disciplines can work together in the same 3D environment, while still submitting model-centric documents for review and construction. Using the Construction Manager/General Contractor process, all team members collaborated to build the future UDOT design process and improve the quality and precision in which design documents are submitted for construction.
  - 3D Model
  - Key Personnel: Joe Brenner – No direct involvement, did a case study for FHWA.
  - Project of relevance regarding BIM and Modeling with Key Personnel but of differing procurement.

water main, construction of new drainage facilities, installation of new lighting, and construction of new sidewalks. Dan Meyer was the MBC project manager responsible for P6 scheduling, contract administration, and effective communication with all parties. Michael Damschroder performed surveying and model building.

  - Key Personnel: Dan Meyer (PM) Michael Damschroder (Surveying/Model Building) Andy Langenderfer (PM for Design)
  - Project of greater complexity with two Key Personnel but of differing procurement method. Some overlap between DBT in Design and Construction
- ODOT I-75 Major Reconstruction & Widening
  - MBC
  - $67M
  - DB
  - 2014-2018
  - $65.5M Design-Build Project to reconstruct and widen 8.39 miles of I-75 in ODOT Districts 1 and 2, Northern Hancock and Southern Wood Counties. This project included the widening of I-75 from two lanes to three, as well as rehabilitation and replacement of four pairs of structures.
  - Through partnering efforts with ODOT, the project team preemptively identified potential hazards to the traveling public due to the possibility of pavement failures on the existing shoulders that were needed to maintain traffic. Once the corrective action plan was developed, MBC performed approximately 60,000 SY of pavement repairs prior to placing traffic on the shoulders. This partnering effort helped enhance public safety, minimize the project's impact to the ADT of 52,870 vehicles per day, and reduce the number of damage claims submitted to ODOT. Due to the size and complexity of this project, communication and cooperation were paramount in ensuring the success of the project. MBC provided continual updates to stakeholders, including members from ODOT Districts 1 & 2, first responders, utility owners,

geometry optimization developed by HDR in a CADD 3D model, resulted in a more intuitive exit for drivers and reduced the overall wall quantities required. The 10 Buildable Units (BUs) allowed us to move progressively from BU to BU while the previous was in review, and complete the final design in 12 months. The team met the contractual requirement to break ground within 3months of NTP.

  - Key Personnel: None listed

	and the project team for the adjacent I-75 construction project. ○ Key Personnel: Ryan Bernath (PM) ○ Project of greater complexity and same procurement method but of differing designer, scope. • ODOT SEN-224-3.64 Roundabout ○ MBC ○ $1.5M ○ DBB ○ 2022-2023 ○ The project consisted of constructing a roundabout to replace a dangerous at-grade intersection at US224 and SR587 in Seneca County. MBC performed erosion control, pavement removals, roadway removals, excavation, embankment, drainage, subgrade compaction, and aggregate base in coordination with all the subcontractors. The project teams successfully negotiated pricing for extra work items for 878 Compaction Testing and Curb and Gutter Removal. ○ The project was delayed to 10/7/2022 due to Spectrum not finishing their utility relocation plan on time. The project was delayed to 10/13/2022 due to weather. The project was delayed to 10/21/2022 due to a nationwide shortage of cement. The project was delayed to 7/25/2023 due to material shortage for the manufacture of the light poles. Temporary lighting had to be installed and the road was opened on 9/19/2022. There were no liquidated damages or penalties. ○ Key Personnel: Dan Meyer (PM Construction), Michael Damschroder (Surveying/Modeling)			
Offeror's Project Approach (22 Points Max)				
1. Overall Approach – Describe the Offeror's overall approach to deliver the Work described in the RFP, specifically including: a. Offeror's understanding of the Project Goals set forth in Section 1.3 (Project Goals), methods expected to meet project specific objectives, and the approach to help the Department achieve the Project Goals; b. An understanding of BIM including the necessary quality management processes to verify the design and construction, and how it can improve productivity and quality throughout the design, construction, and maintenance operations of the Project and its assets; c. Offeror's approach to developing an Opinion of Probable Cost for the entire project during Sub-Phase 1B for Phase 2 Work; and d. Offeror's approach to documenting the Project development process including lessons learned, best practices, and administrative efficiencies in a way that can be reproduced by the Department in future BIM projects. 2. This Section will be evaluated based on the extent the Offeror demonstrates: a. An understanding of the Project, Project Objectives, and Project Goals;				

b. An understanding of BIM and how it can improve productivity and quality throughout the design, construction, and maintenance operations of the project's assets; and
c. An effective approach to developing reliable and consistent OPCs

Kokosing/MB	MBC/Tetra Tech	Geddis/HDR		

• Notes: Pointed out the project goals, but little discussion regarding how the department will achieve those goals. Software approaches are reasonable. Liked having multiple approaches for the department to choose from. Didn't bring in the department into the OPC process.
• Combined, our team has submitted over 75 approved ATCs during the bid phase on recent projects, resulting in millions of dollars of savings while reducing project risks. Additionally, Kokosing has reached GMP on 100% of our PDB and CMGC projects. We will perform this process in an open book environment, allowing ODOT to be a full participant with transparency in the decision-making process
• Michael Baker has developed checklists and instructions for these design tasks for BIM and Digital Delivery projects that can be customized for specific project situations and requirements.
• The process and completion for model checking will be shared with the Department for proof of QA/QC processes and for potential use in development of templates for future BIM projects. These checks will be completed in the native software environments to streamline checks and sharing of data between disciplines.
• A key quality management process for this project will be a review by both the DBT Design Model Manager and the DBT Construction Model Manager, to ensure that the model and supplemental data is developed in alignment with the BIM Execution Plan for direct use in the construction and asset management phases of the project.
• We recommend a cloud-based platform, such as Bentley ProjectWise 365/Synchro or Trimble Quadri, to serve as the "single source of truth" which reviews, other software and hardware will be verified against.
• The Opinion of Probable Cost (OPC) estimate will be developed progressively during Phase 1B. This estimate will be at an increasing level of detail as design advances through Phase 1B. The initial OPC will be based on estimated construction quantities and historical data for
	• Notes: Acknowledged difficulty in transitioning to digital delivery and the required education for all parties. Suggested design review approach was perceived to be challenging. Recommendations in the proposal for model software. Hit on all of the project goals in a concise manner, albeit somewhat topical discussion on each. BIM discussion was also topical and stated why we need to use it. Good discussion about OPC process and using BIM for the cost modeling. Good discussion about document management and method for discussing lessons learned.
	• In developing this proposal, our team leveraged our relationship with Bentley Systems in determining the best digital delivery approach to the project. To address the current requirements of the RFP, Tetra Tech, MBC, and Bentley Systems propose using SYNCHRO software as a key technological solution, which will allow the federation, visualization, interaction, and consummation of the various data needed for successful digital delivery and to build a functional Digital Twin.
	• Specifically listed the Project Goals:
	  ○ Improving Traffic Flow: Currently, the intersection of US 23 and SR 105 is skewed, being stop controlled along SR 105. Based on current traffic data, there is significant truck traffic with SR 105 overall traffic being about a third of US 23 traffic. It is assumed that this intersection may see substantial queuing along SR 105 at peak times, especially as larger vehicles wait for gaps in traffic to turn or cross. A roundabout will address this issue and improve traffic flow through the intersection as it would provide continuous vehicular movement and efficiently distribute traffic entering and circulating within the intersection, thereby improving congestion.
	  ○ Improving Safety: There is evidence of existing safety issues, given the advanced and dual/flashing stop signs currently present. Based on ODOT TIMS data, the intersection also has a history of injury crashes and a growing trend of overall crashes. Given the rural nature of the intersection, it is very likely that traffic speeds can
		• Notes: Simply restated the Project goals. Checked the box regarding project goals and approach. Topical BIM discussion. Marketing-like approach. OPC discussion was lacking, this isn't a typical process. Project Development Process was appreciated. Likes the use of CDE because we're trying to figure out the best value to the department.
		• To meet these objectives, we propose a methodical approach involving rigorous traffic and geometric analysis, implementing safety protocols, and utilizing BIM technology for seamless collaboration.
		• The DBT agrees construction of a rural single lane roundabout at the intersection of US-23 and SR-105 will provide improved safety and traffic flow at this location through the elimination of the skewed two way stop controlled intersection. The design of the roundabout and associated signing, lighting, and drainage improvements will consider current geometric design practices to provide appropriate intersection speed control and visibility while also providing access accommodations for oversize vehicles including farm equipment, and semis. The location of the roundabout relative to the existing intersection will balance these geometric requirements, while also working to minimize exiting utility, right of way, and environmental impacts and maintenance of traffic phasing.
		• HDR is a national leader in applying BIM workflows and digital technologies to streamline the delivery and management of infrastructure projects. HDR provides strategic planning and implementation services for DOTs and agencies that manage infrastructure. HDR has adopted a culture of 3D first, and uses BIM workflows at the project level around North America as our standard operating procedure for roadway projects.
		• HDR will leverage this industry leading experience and expertise in strategic BIM planning and implementation services and project execution of Models as legal documents, to craft a detailed BIM Execution Plan for the WOO-23 project, outlining how information will be created, transmitted, validated, reviewed, and documented for the as-built condition, as well as how		

unit prices, material plugs, and subcontractor plugs. As further design is developed, our team will build an activity-based estimate along with obtaining actual quotes for material and subcontractor pricing. Being a digitally delivered job, our estimators will receive a CAD model and will work with Rick Chaffin to perform quantity takeoffs and measurements within the model. This model will be shared with subs and suppliers as best fits within their digital delivery skillset.

- Lessons learned will be a standing agenda item at Model Coordination meetings to capture them in a continuous way. This document then becomes the basis for a best practice guide as a deliverable in Phase 2 which will allow for information compiled from every phase of the project. This includes a breakdown of the best practices by typical design phase and discipline and includes general administrative efficiencies captured in this project. This document will serve as the BIM Guide for future ODOT projects and allows for our team to bring knowledge from the other Digital Delivery Projects and BIM Program Support directly to ODOT to accelerate BIM implementation.

often be above design speeds and sight lines could be restricted by crop growth. A roundabout would slow all legs of traffic, provide visual cues of an upcoming intersection, reduce crash severity, eliminate potential site distance issues, and ultimately reduce conflict points for potential collisions.

- Utilization & Understanding of BIM: Although BIM technology on transportation projects is relatively new, our team is experienced in digital delivery and BIM, utilizing it in transportation projects in other states and across other industries, such as building design. We plan to work in the ProjectWise environment, allowing for real-time coordination between design, construction, and owner. Our intent would be to retain all files created during the life of the project to remain on ProjectWise for long-term record retention and asset management. This would allow for seamless transferring of information, predictable file structure, cloud access from anywhere, and information security.
- Advancing ODOT's Implementation of BIM Technology for Future Use: Our team plans to leverage our relationship with Bentley to facilitate direct engagement with Bentley subject matter experts, ensuring the incorporation of industry best practices in the creation of digital twins and BIM technology for future asset management. We also plan on harnessing the expertise within Tetra Tech's pool of 27,000 employees to gain an understanding of best practices on other successful asset management/digital twin projects within the building and water/ wastewater industries.
- Maximizing Project Scope: Our team intends to fully-leverage the power of BIM models from initial design to the end of construction. Models created in design will replace the need for plan production, reducing plan preparation efforts and eliminate potential plan errors when translating 3D model information to 2D plans. Automated Machine Guidance (AMG) will use these models in construction, eliminating the need for construction staking and provide more the information will be exchanged with ODOT inspection staff during construction of the project.

- Incorporating rigorous QA/QC protocols in the design and construction phases checks elements align with the specified design and construction standards, specifications, and requirements. BIM technology will be instrumental in real-time conflict detection and resolution, to address issues during design before going to construction. Connecting all parties to the live design BIM models will increase design transparency between the DBT and ODOT staff to make informed engineering decisions and to vet construction methodologies virtually before a shovel hits the ground.
- By fully integrating BIM, Digital Delivery, and the PDB processes into our design and construction workflows, we anticipate significant productivity improvements. The collaborative nature of BIM promotes seamless communication and enhances coordination among project teams, resulting in streamlined workflows and accelerated decision-making. Interactive design capabilities using BIM work practices facilitate rapid adjustments and modifications, reducing project timelines by reducing time spent on traditional plan production, while simultaneously improving quality by using the model as a single source of truth for project information.
- 3D design and modeling provide a true digital representation of the project, facilitating a comprehensive and clear understanding of design intent. Using clash detection tools through a BIM enabled process, we mitigate potential conflicts through early identification and resolution, lessening rework and improving the overall quality of final deliverables. The BIM Execution Plan will include the identification and establishment of a Common Data Environment (CDE) as a central repository for project information. Using a CDE will contribute to a heightened standard of quality in design and construction, and enhance information exchange protocols
- As outlined by the contract, the contractor in partnership with ODOT will establish a chain of communication to develop baselines for cost modeling and methods of communicating changes in scope, quantity, and risk throughout the life cycle of the design and project. The contractor intends to establish

efficient construction, especially for earthwork and paving activities. Quantities will be obtained from the model, including volumetric earthwork, as opposed to cutting cross sections and using the endarea method for calculations. Potential risks will be identified as early as possible and mitigation strategies identified to maximize project scope.

- Achieving Effective Project Delivery: Our team has a vested interest in advancing this technology, not only for this project, but other projects. Being accessible to and transparent with ODOT cannot be understated to the success of this project. Even with prior experience and knowledge, we recognize that unforeseen challenges will be encountered with digital delivery and it is important to remain flexible and open to new ideas.
- Outlined BIM – Very topical. Nothing Project Specific
- OPCC - Together with ODOT, we will establish a cost model, an estimating methodology report, and a training program. We will partner with ODOT on an open-book basis during development of OPC's by providing details on how costs are computed and by supplying backup information. Furthermore, our team would invite ODOT into team discussions so they can see the effects – both good and bad – that digital delivery has on construction bidding. Ultimately Bentley's SYNCHRO software will be used to convey design and project related information to subcontractors for the purpose of collecting competitive quotes. The subcontractor will have the option of doing a quantity takeoff within the BIM model on SYNCHRO or download the raw files to perform a takeoff in their preferred software. General overview plan sheets and quantities can also be provided as necessary, recognizing that not all contractors will be able to utilize BIM models. Our team will gather input and feedback from team members and the subcontracting community during this process and report this information to ODOT for consideration in future projects.

estimated costs by using competitive bidding methods and standard commercial estimating software designed for heavy highway construction. The inputs for construction related costs such as labor, equipment, and materials will be standardized and shared with ODOT. The typical methods of estimating a competitively bid project will be used.

- Our commitment to transparency and accountability extends to documenting the project development process comprehensively. We will capture lessons learned, best practices, and administrative efficiencies throughout the project lifecycle. This documentation will not only serve as a valuable resource for the Department in the current project but will also be structured in a way that facilitates reproducibility in future BIM projects. Our aim is to contribute to the Department's institutional knowledge base, enabling continuous improvement and efficiency gains in subsequent Progressive Design-Build and Digital Delivery projects.

	○ Documenting Project Development Process - Throughout the project's lifecycle, regular reviews will be conducted to identify successes, challenges, and areas for improvement. By creating a comprehensive repository of knowledge and experiences, this approach ensures that valuable insights are preserved and can be readily applied to reproduce successful project outcomes in the future. We will use an Excel workbook for the weekly progress meetings. Three separate sections will be established within the meeting minutes for lessons learned, best practices, and administrative efficiencies. These areas will be discussed weekly and documented in the minutes. Minutes from each section will be copied into a separate worksheet within the workbook and a cumulative list of all the notes will be retained. At the end of the project, these worksheets will be copied into a separate workbook and summarized and edited as necessary. The final summary will be provided to ODOT.			
1. Sub-Phase 1A Approach – Describe Offeror's specific Sub-Phase 1A (BIM Proof-of-Concept) approach, specifically including: a. A description of Offeror's plan for coordination and collaboration with the Department; b. Offeror's approach to managing and delivering the BIM Execution Plan; and c. Offeror's overall approach to early engagement of modeling and personnel to further define the scope. 2. This Section will be evaluated based on the extent the Offeror demonstrates: a. An alignment with Project Goals and the concepts of progressive design-build delivery; b. An approach that effectively engages Key Personnel and other project personnel; c. An efficient and effective approach for internal coordination and collaboration and external coordination with, the Department, third parties, and stakeholders in connection with the Project, with emphasis on BIM collaboration; d. An understanding of the scope of work, schedule for the work, and effective processes to advance and manage the Project in a manner that is cost-effective and ensures quality while maintaining the schedule; e. Implementation of Building Information Modeling (BIM) and related technologies to improve digital delivery, data availability, workflow, and 3D model delivery with an emphasis on long-term utilization of the model information by the Department; f. An approach to developing an effective BIM Execution Plan and model element breakdown structure; g. An effective approach to identify innovation; and h. An approach to developing Work Packages, pricing, subcontracting, and risk pricing that drives innovation and cost savings.			
Kokosing/MB • Notes: Included discussion regarding collaboration, although flowchart was somewhat confusing. Identified Key Personnel and how they fit into the process. Included the file formats and how they would work through that process. Thoughtful section. Jointly develop customized	**MBC/Tetra Tech** • Notes: Topical discussion regarding collaboration with ODOT. Claimed Tetra Tech did BIM Execution Plans for previous projects. Process focused, not model focused. Leveraging relationship with Bentley. No discussion regarding early engagement of ODOT CADD Mapping. Did	**Geddis/HDR** • Notes: Somewhat generalized activities. Questioning why Phase 1B activities included. Liked seeing ODOT in all of the diagram boxes, liked seeing revisions to the BIMXP. Diagram was generally appreciated but also complicated. Shoed they are thinking about the steps		

approach, getting both the design and construction folks in this phase. Described an update procedure for the BEP, demonstrating that it is a living document. Draft info first to ensure compatibility. Appreciated the thought of an ODOT model coordinator. Model as a legal document

- Our team recommends the establishment of an "ODOT Model Coordinator" as described in Section B.
- DBT Design and Construction Model Managers will jointly develop a customized approach for delivering the BEP which will serve as the guiding document for this project and template for future ODOT BIM projects. The approach incorporates components and templates used in BIM for Infrastructure projects for Michigan DOT, Utah DOT, and PennDOT, incorporating our previous lessons learned.
- The DBT Design Manager will be responsible for the management of the BEP document throughout Phase 1A&B with the DBT Construction Manager taking over the responsibility in Phase 2. Though no major updates to the BEP are expected, our team will propose specific procedures for approving updates to the BEP as part of this phase.
- For example, test files will be used and exchanged to ensure that the design models are developed within a valid framework such that the data produced can be used directly in the field for activities including Automated Machine Guidance (AMG). Our team will leverage our experience in similar projects and investigate test files to verify suggested exchange formats (dgn, xml, ifc, etc.) will work within the software/hardware systems used by the team members, including Department personnel and sub-contractors.
- Our team understands this transition period for our industry and the first BIM project for ODOT, so we will work with the Department to provide usable digital data wherever possible, with the realization that some processes, policies, or groups within the organization will be able to consume that digital data and more traditional deliverables may be required for certain aspects of the project. This will establish subsequent phase scope and expectations for supplemental activities to support BIM for this project and future projects including scope of BIM guidance document development and establishment of approach for digital as-built collection (updated design

not discuss engagement of Key Personnel during this Phase. Model as a legal document discussion.

- As stated in the RFP our team will conduct weekly meetings. We would additionally invite ODOT to internal meetings, communications, and even workshops to provide unfettered access to our team. Our core team size is small to provide streamlined communication. Transparency is vital to the success of the project, and we want ODOT to see what we see during the process, as hiding problems or challenges is not beneficial to the project and its goals.
- The BIM Execution Plan is a key deliverable during Sub-Phase 1A. The plan will identify the intended process and procedures to be followed in the creation, review, Department review, validation, and updates for the BIM model throughout the project duration. It will also address long-term retention of the design for incorporation into ODOT's record system and include a Design Quality Management Plan that describes our team's internal quality control and quality assurance procedures. A comprehensive plan will be developed by collaborating with all project stakeholders, including potential stakeholders outside the confines of ODOT and our core team, such as utilities and subcontractors. Responsibilities will be assigned to set clear expectations and performance will be monitored and evaluated. Tetra Tech has created BIM Execution Plans for other projects that can be used as a starting point for this task.
- We plan to hit the ground running by using a previously designed project for developing a feasible BIM Execution Plan and to refine the scope of the project. We believe the focus should be on the BIM process, rather than model development, in this phase. Ensuring the project scope and plan provides a holistic project solution for all stakeholders is important. We also intend to leverage our relationship with Bentley in testing technology solutions, like SYNCHRO, to ensure this happens.

necessary in the Model. Activities described are generally acceptable. Identified activities in the BIMXP. No general format established. Liked that they would work with ODOT to figure out what we need. Liked the reference to L&D 3 Section 1600. Liked the distinction between LOD and LOIN.

- The DBT will begin the coordination effort at the project-preconstruction meeting involving ODOT and appropriate stakeholders. The initial project scope, schedule, and partnering expectations and responsibilities will be established. Communication protocols between the DBT PM, ODOT PM, and project Key Personnel will be established to provide clear and efficient communication channels. A schedule of regular progress meetings, status update protocols and a centralized platform for pre-construction document sharing will be established. During phase 1A, a buildable unit (BU) schedule will be developed to help guide the schedule of the project coordination meetings.
- The DBT anticipates the following major BIM activities will be required during sub-Phase 1B:
  - 3D Existing Conditions Modeling
  - 3D Design Authoring/Proposed Model Generation
  - 3D Design QC/QA Review
  - 3D Coordination and Clash Detection
  - 3D Control and Planning
  - Project Design and Analysis
- These activities will be further defined by ODOT and the DBT as part of the initial project scoping during Phase 1A and are briefly discussed below:
  - 3D Existing Conditions Modeling will use the existing terrain and planimetric survey provided by ODOT and supplement these models with field survey checks and Subsurface utility exploration as needed.
  - 3D Design Authoring is the physical development of the design models using current ODOT Open Roads Design (ORD) software and CADD Standards.
  - 3D Design QC/QA Review will be the process of using the 3D design model to review and validate the structure of the proposed model against current ODOT L&D design standards.

models, drone/terrestrial laser scanning and photogrammetry, or a combination of both).		○ 3D Coordination and Clash Detection is the process of comparing model elements to resolve potential field conflicts during the design process. ○ 3D Control and Planning is the process of developing the 3D design model with the necessary information required for construction activities such as automated machine guidance and quantity and pay item development. ○ Project design and analysis is a holistic review of the project design intended to balance project objectives such as project cost, environmental footprint, and constructability. • During Sub-phase 1A, the DBT and HDR BIM strategic advisers will work with ODOT to review and evaluate existing digital delivery protocols. Through this process, we will establish the project specific scope of these activities, develop Quality Management procedures, identify appropriate software tools for project activities, and address potential ODOT project staff development and training needs. During this phase the model Level of Development (LOD) and Level of Information Needed (LOIN) standards will be established by the DBT. These LOD standards will use existing industry standards to guide the level of model physical details including accuracy, geolocation, and elevation. The LOIN will establish necessary digital embedment of information attached to model elements. This will be a collaborative effort between the DBT and ODOT. • Included a detailed flow diagram for Phase 1A Activities.		

1. Sub-Phase 1B Approach – Describe the Offeror's specific Sub-Phase 1B (Project Development) approach, specifically including:
    a. A description of Offeror's plan for coordination and collaboration with the Department;
    b. Offeror's approach to scheduling and quality management;
    c. Offeror's approach to ensure that the Department receives a fair price for construction, including:
        i. a description of the major cost components (i.e., cost drivers) for the Project and Offeror's approach to obtaining a fair price for these major cost drivers;
        ii. a description of Offeror's approach to competitively soliciting subcontractor quotes and how subcontracting packages will be developed and advertised to the subcontracting community, a description of Offeror's approach to obtaining reasonable proposals from qualified subcontractors, and
        iii. a description of Offeror's approach to openness and transparency in the subcontracting solicitation and selection process;
    d. Offeror's approach to risk identification and mitigation during the Project Development Phase of the Project, identifying at least two key risks for this Project and proposing at least one mitigation strategy for each identified risk, to be performed during the Project Development Phase, to eliminate or minimize the impact of the risk to the Project; and
    e. Offeror's approach to the BIM Execution Plan, including:
        i. A projected level of detail;
        ii. How changes/modifications will be incorporated and tracked within the model; and

iii. Assurances that the end product will be reproducible and compatible with the Department's record retention requirements.

2. This Section will be evaluated based on the extent the Offeror demonstrates:
   a. An alignment with Project Goals and the concepts of progressive design-build delivery;
   b. An approach that effectively engages Key Personnel and other project personnel;
   c. An efficient and effective approach for internal coordination and collaboration and external coordination with, the Department, third parties, and stakeholders in connection with the Project, with emphasis on BIM collaboration;
   d. An understanding of the scope of work, schedule for the work, and effective processes to advance and manage the Project in a manner that is cost-effective and ensures quality while maintaining the schedule;
   e. Implementation of Building Information Modeling (BIM) and related technologies to improve digital delivery, data availability, workflow, and 3D model delivery with an emphasis on long-term utilization of the model information by the Department;
   f. An approach to developing an effective BIM Execution Plan and model element breakdown structure;
   g. An effective approach to identify innovation; and
   h. An approach to developing Work Packages, pricing, subcontracting, and risk pricing that drives innovation and cost savings.

Kokosing/MB	MBC/Tetra Tech	Geddis/HDR		
• Notes: Answered the question regarding collaboration. Suggestion to start ROW process in Phase 1a well received. Subcontractor discussion meets requirements but didn't add value. Fair pricing discussion was topical. Great example of a BEP • As standard process on any of our design build jobs, Kokosing will assign a project Design Build Coordinator (DBC) to lead this Phase 1B effort. Working for the project manager, this DBC will be the primary point of contact for the Michael Baker design team, the Kokosing construction management, the model managers, and the ODOT review team. The DBC will be responsible for hosting regularly scheduled design task force meetings, to allow real time feedback and frequent over the shoulder review of ongoing design. • Michael Baker's commitment to quality is achieved through company-wide implementation of a Project Management Plan (PMP), tailored to each project. The PMP standardizes the successful execution of the project, resulting in improved communication within the DBT and with the client, and incorporating lessons learned. The PMP identifies specific resources and actions necessary for project deliverables to meet the client's requirements and applicable professional standards for technical quality. Topics for this project would include the QC and QA procedures related to model file data, including field condition verification, confirming dimensions/information derived from the model, internal QC for supplemental data produced from the model, checking content such as working drawings from subcontractors, and ensuring all staff are working from latest version of the model.	• Notes: Large plans sheets are not a project goal. Concerns about OpenRoads designer software. Demonstrating coordination. Good discussion of open pricing concepts and considerations. Training subs on the use of the model. Good scheduling discussion. Open and transparent process. Risk identification is adequate, but doesn't capture the intent of the risk register. Level of detail discussion is adequate. Tracking section meets project requirements. Some of the suggested tracking methodologies may be changed. Feasible approach for record retention. May be beyond the scope of the project. Discussed maintain flexibility in the approach. • This phase will continue to build on the progress made during Sub-Phase 1A, including further development of the Phase 2 project scope, risk register, and digital delivery methods. This phase will see typical project design progress, including roadway design, ROW plans, utility coordination, and BIM model creation. A BIM model will be created for the proposed roadway and will include 3D elements for non-traditional model features, such as signing, markings, underdrains, and lighting for ODOT's asset management purposes. • Our team will continue to meet weekly with ODOT and stakeholders throughout this phase. ODOT will also be invited to any other meetings or work sessions if it is beneficial to their understanding of the process. We plan to design directly on ODOT's ProjectWise datasource, so ODOT has full-access to our design files and can be viewed at any time. Our team will work with ODOT reviewers to ensure the design can be properly reviewed. Plan sheets can be created as needed to assist with review. Based on past experience in other states and to	• Notes: Buildable Unit discussion may not align with ODOT goals. Good collaboration discussion. Identified collaboration. Liked reference to existing ODOT policy. • DBT recommends developing the project through BU work packages in parallel with project development schedules to begin project development reviews early in the project. The first BU will be a geometric review of the single-lane rural roundabout design, as this will establish a baseline for model development. This will serve as the first collaborative review between the DBT and ODOT design staff. Leveraging the agreed-upon design review software, a test of model review and design validation procedures as defined in the Quality Management Plan will be conducted. On going reviews and comment resolution with subsequent BUs, including major grading and pavement design, drainage design, signing and traffic control, and maintenance of traffic design will build upon each preceding review as the model is developed toward the constructable deliverables as defined in the BIMXP. As reviews are completed a record of comments and resolutions will be generated, reported, and stored in the project files as agreed upon in the BIMXP Quality Management Procedures. • During Phase 1B the DBT will collaborate with the department to develop the approach to project cost estimating. As the model is intended to be the single source of truth for this project, the design model elements will be generated to a level of development required to provide quantity estimates where applicable.		

- Some major cost drivers on this project will be Earthwork, Aggregates and Paving.
- We will work to obtain multiple proposals for each subcontract package, using our existing local relationships, our internal database of industry contacts, as well as ODOT's list of qualified subcontractors. We will also perform outreach to the local DBE community to inform them of opportunities available. We will advertise our bid package opportunities and can host pre-bid meetings and site tours.
- Throughout the process, the owner will have transparency into the bid packages being advertised, participation in the pre-bid meetings, and visibility in the review of the quotes received. This allows multiple parties to evaluate the quote, identify scope gaps, and understand the risk/contingencies carried. The DBT will then make a recommendation of a subcontractor to move forward with based on concurrence with ODOT.
- One risk item already identified is the duration to acquire the proposed Right-of-Way. The durations provided from NTP to survey to research to development and approval of Right-of-Way plans are not adequate to be able to meet the RFP construction schedule. As a mitigation strategy, we propose starting the survey and research for Right-of-Way work with the Phase 1A NTP and accelerating the Right-of-Way process by developing preliminary project construction limits prior to Phase 1B. The Right-of-Way plans could then run in parallel with the BIM project design.
- ODOT's first BIM Project is a risk. Mitigate by incorporating lessons learned from prior digital delivery pilot projects and engaging ODOT in development of the BIM Execution Plan (BEP).
- Produced an outline of a BEP.
- A Model Change Management procedure will be established as part of the BEP and tested in Phase 1A and early Phase 1B. Our team's approach includes establishment of model versions to use version comparisons to automatically highlight elements and items that have changed and documenting model updates (from comments, RFIs, etc.) as well as the ability to create an export of this documentation as needed for an additional auditable "paper trail."
- Digital model content will be used to the extent possible in design, construction, as-built, and asset management. avoid unneeded plan preparation efforts, large PDFs of the entire project can be created relatively quickly for reviewing purposes. This would provide an opportunity for commenting by reviewers. Depending on the comfort level of reviewers, native labeling and saved views could be used for commenting on the BIM model directly within OpenRoads Designer software.
- Development of the project schedule will start soon after project award and will closely follow the requirements in Exhibit T. ODOT will have the opportunity to add any activities that will be helpful to the process. In addition to standard CPM and Primavera construction scheduling, MBC will use SYNCHRO for the purpose of creating a 4D BIM model. This means a fourth dimension, time, will be added to the 3D BIM model. This will allow ODOT and the project to plan the sequence of events and the resources that will be expended over time. In phased construction, it can also serve as a tool for showing the planned condition at different points, to assist with maintenance of traffic plan development.
- In addition to regular QA/QC reviews typical of traditional design projects, this project provides the opportunity for direct input from the contractor performing construction. Tetra Tech and MBC will work together in developing a design that most benefits construction, whether it be developing staging plans or addressing constructability issues. Intermittent testing of the model with construction equipment will be performed to ensure a seamless transition to construction. There is typically a considerable amount of resources that goes into getting construction plans turned into a model that is ready for machine control. Through the process of generating the model, design errors are usually found, resulting in revised plan sheets, revised quantities, and change orders. We aim to provide a construction-ready BIM model that is error-free, recognizing the closer we get as an industry to generating construction ready models during design, the better the designs will be, and the fewer design related change orders will be required. Our team is well-equipped to ensure this is possible, having performed the task of reviewing BIM models for over 150 projects for the Michigan Department of Transportation (MDOT).
- BIM Execution Plan
- The contractor will utilize Primavera P6 CPM scheduling throughout the design and construction portions of the project to communicate the status of the project to appropriate stakeholders. This will help keep the project on task and identify issues as early as possible. The contractor will solicit as many subcontractors as possible as early as possible through all stages of design. The contractor will openly share quotes with ODOT for their input in the best practice for implementing cost savings while balancing DBE goals on the project.
- Through the life of the project, the design and construction model managers will work internally to verify project design files are interoperable between design software and construction software platforms. Model revisions encountered during construction will be collected and incorporated into the design model creating an active construction model. This final as-built construction model will be provided to ODOT at the end of construction. The DBT will collaborate with ODOT offices of CADD and Mapping, Construction, and Data Governance to provide final as built deliverable files meeting the records retention requirements of ODOT. These collaborative discussions will be ongoing throughout the project and will use the current L&D 3 section 1600 guidance as a starting point. This effort will be included as part of maintaining and updating the BIMXP.
- Identified risks, although not in the context of the Risk Register.

We will work with the Department to integrate the digital content into their existing systems wherever possible and also establish a plan to provide additional content (pdf plans, etc.) in cases where ODOT does not feel comfortable with the provided digital content as it relates to the Department record retention requirements.	• Level of Detail: The BIM Execution Plan will outline the expected level of detail (LOD) for BIM deliverables at different stages of the project life-cycle. For early design stages, such as conceptual and schematic design, the LOD will be lower, focusing basic geometric representations and grading impacts. As the project progresses through design development and construction documentation phases, the LOD will increase to include more detailed information such as materials, detailed grading, and specific product selections. Upon final design completion, it is expected to have a LOD 300-350, which is to say that the model will provide full project coverage with 100% accuracy three-dimensionally. Clear communication and alignment among project participants are essential to ensure that the projected LOD meets project requirements and facilitates effective BIM implementation. It is also important to identify LOD for items such as survey and existing terrain creation, as survey methods and spacing can impact modeling and quantities or underground utilities that may be based on assumed depths. • Tracking Changes: Design changes will be relayed through ProjectWise during the design phase and through SYNCHRO during the construction phase. The previous and current models can be compared to help capture what the changes are and any costs that are associated with them. A spreadsheet, screenshots, or native commenting/saved views can be used to log changes. Additionally, changes can be automated through Bentley's ecosystem to notify downstream users of changes. • Record Retention: With the help of ODOT, as-built information will be collected during construction to help create a timeline of construction for the purposes of generating a 4D BIM model. MBC will also collect as-built data during and after construction using GPS, laser scanning, and UAV technology to create a digital twin of the project. Our initial idea is that this data will be stored in Bentley SYNCHRO and be available for download by ODOT for record retention, or rolled into Bentley AssetWise if ODOT wishes to implement it for maintenance and inspection operations post construction. We will work with ODOT in evaluating retention options the provide suitable flexibility, sustainability, and security measures. We will maintain			

	flexibility in our record retention approach and pivot as needed to meet the needs of ODOT.			
1. Phase 2 Approach – Describe the Offeror's specific Phase 2 (Final Engineering and Construction) approach, specifically including: a. A description of Offeror's plan for coordination and collaboration with the Department; b. Offeror's overall construction management approach, including project controls methods and approach to quality assurance and control; c. The scope of work Offeror intends to self-perform, and the scopes of work that Offeror intends to subcontract, and Offeror's approach to development of Work Packages that would optimize project delivery; and d. A description of the Offeror's construction approach using the BIM model to construct the Project and update the model throughout construction to reflect as-built conditions. 2. This Section will be evaluated based on the extent the Offeror demonstrates: a. An alignment with Project Goals and the concepts of progressive design-build delivery; b. An approach that effectively engages Key Personnel and other project personnel; c. An efficient and effective approach for internal coordination and collaboration and external coordination with, the Department, third parties, and stakeholders in connection with the Project, with emphasis on BIM collaboration; d. An understanding of the scope of work, schedule for the work, and effective processes to advance and manage the Project in a manner that is cost-effective and ensures quality while maintaining the schedule; e. Implementation of Building Information Modeling (BIM) and related technologies to improve digital delivery, data availability, workflow, and 3D model delivery with an emphasis on long-term utilization of the model information by the Department; f. An approach to developing an effective BIM Execution Plan and model element breakdown structure; g. An effective approach to identify innovation; and h. An approach to developing Work Packages, pricing, subcontracting, and risk pricing that drives innovation and cost savings.			
Kokosing/MB • Notes: No training discussion. No mention of ODOT inspectors. No training of subcontractors on BIM technology. Generally good discussion otherwise. Liked points about updating model based on field conditions. • Quality assurance in this Phase consists of calibrating the model information with survey control in the field, along with insuring that all KCC personnel and subcontractors are operating with the current version of the BIM data. This will be accomplished through the utilization of cloud-based software that will enable everyone to have access to the most up to date information at all times. • Kokosing is one of the largest self-performing contractors in the Midwest and prides itself on managing costs, schedule, and quality on our projects. We anticipate self-performing the majority of the work. Where possible, we will solicit quotes and compare them against the self-performed cost and schedule. A selection will be made with the owner's best interest in mind, maximizing the value of the Progressive Design Build concept. • If changes are required to the model based on field conditions or decisions made in construction, the DBT Model Construction Manager will follow the agreed upon approach in the BEP for notification, approval, and verification. Rick and Joe will be jointly responsible for	**MBC/Tetra Tech** • Notes: Good training workshops. Could be better tools that exist. Our team will partner with ODOT to integrate SYNCHRO into ODOT's inspection documentation workflow. Inspectors will need to use some kind of software. Minor questions about the self-performance items, but within reason. Using the model in machine control. • Our team will continue to regularly meet with ODOT and stakeholders throughout this phase, including construction staff, inspectors, and maintenance personnel. Training workshops and meetings can be hosted ensuring all those involved with this phase are capable of using BIM models in construction and addressing any potential problems with model use prior to actual construction. Information from the BIM model will be made available to all stakeholders. • MBC will manage project construction the same as other ODOT projects, but using the digital delivery tools, including SYNCHRO software, being developed for this project. We envision that file access will be provided to all parties using ProjectWise Webview access. The model will be used by construction personnel in the use of machine control system and GPS rovers to check and log grade as necessary. Likewise, the model will also be	**Geddis/HDR** • Notes: Well done collaboration plan, included environmental and PI involvement, QA Plan. Liked the increased communication during this phase. Good discussion about the post-construction evaluation. Liked the use of simulation. Real time updates to the model, using sensors, liked to post-construction whitepaper. After action. • Construction Phase 2 begins with a comprehensive pre-construction meeting involving appropriate stakeholders. Discussions will include project scope, timelines, responsibilities, and expectations. This meeting sets standards for safety protocols, quality controls, and environmental considerations. The communications protocols will establish clear and efficient communication channels between the contractor and ODOT and designate primary points of contact for both parties. The DBT will then implement regular progress meetings, status updates, and a centralized platform for document sharing. • P6 Scheduling • The DBT will develop a comprehensive quality assurance plan aligned with ODOT standards and regularly review and update the plan, allowing for construction activities to comply with relevant regulations and specifications. Working with ODOT the DBT will collaborate on safety		

updating the construction model using the native software. Joe will train Rick in the authoring software, support the updates and review all changes and as-built information, as this approach is more desirable to provide sustainable workflows for ODOT. In most BIM and Digital Delivery Pilots, the designers have been responsible for updating the model in construction; however, our team and key personnel is structured to provide the Department with a true verification of the ideal workflow for model use and updates throughout construction, including:

- Updates for significant changes similar to that required in a traditional project delivery.
- Develop point cloud models to overlay on the design/construction model of important features at key stages for verification and accurate digital record for future use and comparison.
- Document required changes or additional details/workflow enhancements that arise in construction as revisions to the BEP to ensure ODOT's functional model use.
- Document as-built information through the agreed upon approaches in the BEP which may include the traditional methods, new digital methods, or a combination of both.

available to Department inspectors for use in Department GPS rovers to check and log grade.

- MBC acknowledges the requirement to perform at least 50% of the Phase 2 construction. The work that MBC plans to perform includes survey support for BIM, MOT, erosion control, pavement removals, roadway removals, excavation, embankment, drainage, subgrade compaction, aggregate base, and coordination with all the subcontractors. Subcontractors will perform construction layout staking, SWPPP inspections, lighting, subgrade stabilization, rigid paving, asphalt paving, pipe inspection, guardrail, signing, pavement marking, RPM's, and seeding. We acknowledge that ODOT will have a DBE goal established for the Phase 2 work and MBC will develop a DBE Performance Plan per contract requirements. For a project of this size, we envision the development and submittal of a single Work Package for ODOT review and approval, encompassing the entire project apart from possibly expediting a work package for items with long lead times, such as light poles or precast culvert structures. Early coordination during design will occur with fabricators in assessing risks and the need for advanced work packages.
- Key aspects of our construction approach include:
  - MBC and Tetra Tech will equip and mentor subcontractors with the knowledge and understanding of how to use BIM models.
  - Design changes will be relayed through ProjectWise during the design phase and through SYNCHRO during the construction phase. The previous and current models can be compared to help capture what the changes are and any costs that are associated with them.
  - MBC will pull model files from SYNCHRO and push them out through Trimble Works Manager for machine control.
  - At a minimum, it is the intent of the project to incorporate staff from ODOT, the designer, and the contractor into the BIM process through the use of Bentley SYNCHRO. As RFIs or other project issues arise, they can be noted in SYNCHRO and submitted to the responsible party. This also allows for the RFI status to be monitored and tied to the BIM model. As-built information will be collected during construction using GPS, laser measures and protocols. Implementation of a proactive approach will identify and mitigate safety risks. The Change Management Process will be a transparent process to address modifications to the project scope, design changes, or unexpected challenges. ODOT will be promptly informed of changes and work collaboratively to find solutions.
- Will also address Environmental Permits and public outreach.
- Since this is a pilot project for digital delivery, more frequent and detailed project documentation is required throughout construction. The DBT will work with ODOT to include daily reports, progress photos, and as-builts in the model, leading to increased transparency.
- With projects that have disputes, the DBT will diligently follow the contract provisions and processes of the dispute resolution process in order to circumvent escalation of claims and eliminate delays. The DBT commits to maintaining a spirit of partnering with ODOT in these aspects of the contract.
- Finally, the DBT will conduct a joint post-construction evaluation with ODOT to assess project outcomes, identify lessons learned, and discuss opportunities for improvement in future collaborations particularly with the Digital delivery of the as-built model. By implementing this comprehensive plan, the DBT aims to foster a strong partnership with ODOT, while delivering the project successfully and timely.
- The DBT intends to self-perform maintenance of traffic items and erosion control protection installation, perform removals, waterline and sanitary relocation as needed, storm drainage facilities, excavating the dirt to grade and installing embankment, undercutting as necessary, and install and compact the 304 aggregate base. Required cement stabilization, concrete work, asphalt paving, electrical, and landscaping will be subcontracted to obtain the services of competitive contractors in these scopes of work and present meaningful work opportunities for DBE contractors.
- Use of the BIM model begins in the preconstruction phase. The DBT will operate as follows:
  - Virtual Construction Simulation: Use the BIM model to simulate the construction process virtually. This helps identify potential clashes,

		scanning, and UAV technology to create a digital twin of the project. Our initial idea is that this data will be stored in Bentley SYNCHRO and be available for download by ODOT for record retention, or rolled into Bentley AssetWise if ODOT wishes to implement it for maintenance and inspection operations post construction. ○ ODOT District Utility Coordinators can be given access to ProjectWise and SYNCHRO to be able to view design data to mitigate utility conflicts. Utility stakeholders can also be given limited access to be able to view design information. During utility relocation, coordination should be made with Department to record as-built locations of relocated utilities with survey grade GPS and incorporate the data into the BIM model for record retention.	optimize construction sequences, and enhance overall project planning. ○ Logistical Planning: Incorporate logistics and construction sequencing into the BIM model to streamline material deliveries, equipment placement, and workforce allocation. • Construction Execution: ○ Real-time Updates: Throughout the construction phase, the DBT updates the BIM model in real-time to reflect any changes or deviations from the original plan. ○ Collaboration: Facilitate collaboration among project stakeholders by providing access to the updated BIM model. This allows parties to work with the latest information. • As-Built Modeling: ○ Recording Changes: Document any changes made during construction in the BIM model. This includes modifications, as-built conditions, and any deviations from the initial design. ○ Data Integration: Integrate data from various sources, such as sensors and on-site measurements, to accurately capture the as-built conditions of the project • Post-Construction Phase: ○ Facility Management Integration: The final as-built BIM model can be handed over to facility management for ongoing maintenance and operations. ○ Documentation: Provide comprehensive documentation, including the final BIM model, to the project owner for future reference. ○ After Action Evaluation: At the conclusion of Phase 2 the DBT team will perform an after action evaluation of the overall BIM digital delivery process and project specific requirements used during Phase 1A through Phase 2 and the HDR BIM strategic advisors will prepare a report (whitepaper) of recommendations that will be provided to help guide ODOT's future development of BIM and Digital Delivery standards and practices.		
INTERVIEW: Offerors will be evaluated on their interview performance and based on the extent the Offeror demonstrates:					

A. An experienced team and personnel that can successfully deliver the Project; B. Project understanding and approach; an understanding of Progressive Design-Build delivery method, including understanding of Offeror's role at each Phase of the Project; C. Recognition of key points and ideas, including the Offeror's role in Project advancement at each Project Phase, risks at each Project Phase, understanding of the GMP process and pricing transparency, and ideas and ability necessary to effectively collaborate with the Department and other stakeholders to achieve Project Goals; and D. Offeror's approach to utilizing BIM technologies including development of a BIM Execution Plan and model element breakdown structure to advance the Department's implementation of this technology beyond this Project.				
Kokosing/MB • Working relationship with MB. Recent Conaway award. PDB experience. Design Team with Digital Delivery. • Project Understanding and approach. One collaborative team. Full transparency, pros and cons of the decisions. Successfully delivered PDB. Highlighted digital delivery experience. Open Book pricing, GMP achieved. • Overall timeline, each phase. Phase 1A – Craft BEP, agree on the scope of the BEP. Phase 1B generate GMP and agree • Phase 2 complete the design, BIM Best Practice Guide. • Phase 1A – Joe Brenner. Digital Delivery experience. Collaboration and coordination are very important. Define roles and responsibilities. Test the developing workflows using a department project. Make sure we can utilize the data. Culminating in approval of the BEP. • Phase 1B – Craig focus on the construction team activities. DBC assigned. Main Point of contact for the MB Team and model managers. Develop full project schedule for Phase 1B and Construction. Make sure critical path. Tool to identify risks for the project. Risk Identification key in Phase 1B. Open Book Pricing. Real time constructability reviews. Quantities and unit prices. Further developed during design. Glass City Riverwalk. 2 items to reduce risk, self-perform and asphalt plan. Sub packages developed, DBE outreach. Sub material and contractor quotes will be shared. Risks. Obtain ODOT concurrence on award. • Design elements. Left of center roundabout, wanted to see what District has experience with. Island aesthetics. Work with the department. Risks are ROW. Start survey at NTP. Develop construction limits early. New process for ODOT. How do you review, how to do quantity takeoffs. • Roundabout models have been done for years. Leverage model utilization and reviews for the department. How to use the models for use in construction. Implementing	**MBC/Tetra Tech** • Phase 1A lays the groundwork. Collaborate. BIM Proof of concept, use a previously designed ODOT project. Weekly progress meetings. Want to make sure BIM will work in Phase 2. Use a roundabout model form a previous project. Focus on the process, not the project. Bentley Synchro. Users can use the BIM model. Not just the contractor, but inspectors. Anticipate future problems. How do design reviewers make comments? How will designers know something gets placed. Tetra Tech has experience, just not in Transportation. LOD, element breakdown structure. 3D modeling, roadway grading straightforward. Ancillary roadway materials will need to be discussed. • Phase 1B – 2 Roundabout projects. Phase 1B develop a layout. Showing a projected design. Developing the footprint early. ROW footprint. Agricultural equipment and impacts to the residents. MOT – maintaining some traffic on 23. Collaborate with the contractor to get input on MOT. Take quantities directly from the model to develop GMP. • Pricing – Cost model, estimator discussed. Core Values? OPC and Schedule of Values. Collaborating with the Department. Discussed Exhibit G specifically. Knowledge of bidding and building roundabouts. Use previous experience. They use HCSS. Advanced knowledge of this software. Structure the estimate based what's on the screen. Keeping a transparent process. Not sure ODOT Estimating can utilize this. Ability to see the cost drivers for each element. Allow everyone to view the bid together. Share and work with the department. Material and sub quotes approved by the department. Ensure subs are comfortable with the pricing model as well. Work with ODOT Estimating. • Phase 2 – Machine control surveying. Little experience with BIM. SYNCHRO, view the BIM. Place as many resources as possible in front of project management.	**Geddis/HDR** • Focus of reviewability of the model. Bringing in construction early. Quality approach, roundabout reviews, look at the design. Constructability. • Construction Phase Chart – Design team still involved, seamless transition. EEO, DBE, certified payrolls. Design side – bringing in a construction service lead from the designer. Manage as-built information. • Implement the BIM Workflows. Living Document. Update with lessons learned. • BIM Execution Plan vs BIM Implementation Plan. BIM Execution Plan should be very specific. Establishing known parameters. Quick process for Phase 1A. • Referenced Model as Legal Document. • Progressive DB transparent and collaborative. BIM specific, customize the model to specific contractor. Honed in on Geddis specific model. • Model quality control. How to do design reviews. HDR has experience in digital deliverables and quality control. Model integrity reviews, quantity takeoffs. Very focused on the interaction between HDR and Geddis. • Phase 1B – working through the coordination efforts. Testing the procedures early and often as a means to verify the BIMXP. Managing risks during 1B. Actually building a roundabout. New Process for design validation. Training plans that will need to be developed. Dealing with external parties, 3rd party reviewers (utility owners) may not be able to accept a model legally. Working as a PDB team. Diagnose problems quickly. • Phase 2 – Developing GMP during Phase 1A? Incorporating communication during the estimating process. They haven't shown estimating. Crew assemblies and production rates. Develop a process for estimating. Our estimates could get better. • GPS modeling during construction. Every crew has GPS equipment. Shoot manholes, waterlines. Use GPS to		

BIM in the future. Past experience with BIM. Did one for Michigan. Won't use a vertical BIM execution plan. Included a table of contents. Model element breakdown. How those elements are applied. Custom element descriptions and visuals and what level of development. Ensure consumers can understand. AASHTO Draft. Transparency and see the data exchanges. What data will be required, verified and vetted in Phase 1A. Communication and collaboration. Include test models and files. NOT ODOT projects. • Ensure all models match. TRIMBLE usage. Throwing the talk back and forth. • Phase 1B – Project specific content. Prepare DOT reviewers with guidance documents and training. Live training and library of videos. JIT training. Train to utilize the software. Recommended clous based software, no software downloads. MB hosts. Version comparison capabilities. Verify what information has been updated. Highlight components. Generate quantities. Generate single source of truth for the project. Accurate pricing and scope of work. Generate quantities. Mentioned training. • Phase 2 – All files vetted through the design team. Runs through Rick and into the machines. Field surveyors will have access. Risk working with the appropriate team members. Tablet view of the cloud model. Asbuilts will be handled using traditional survey methods in the field. Scanning and sent back to MB for verification. Make sure the information is correct before turning back over to the department. Work with the department to ensure records are usable. Model files, abbreviated PDF. Lessons learned, guidance documents. Best Practice Guide for the next project. • Highlighted Key Personnel roles. Field training for subs and ODOT field personnel. Construction of roundabout is secondary. Records of safety and quality of work. Best Practices guide to the department. Documented each progress meeting. Closing. 700M. Experience in bidding and administration alternative delivery projects.	Field based app available. Potential issue – how to deliver the design intent to those in the field. Build workflows into SYNCHRO and ID design and constructability issues as they come up. Subs using SYNCHRO. Training elements for all parties including Subs. MBC to provide survey support. Digital twin built. • Setting the framework for future project delivery. Advance the department's implementation of BIM technology. Living document. Customized BIM execution plan. Showed a BIM for Michigan. ProjectWise. Customized. What works for Michigan may not work for Ohio. Flexible approach. Collaboration approach. Shift in current standard practice. Its about the process. Document the process and lessons learned. Figure out what doesn't work. Record retention and management. Protected, accessible and reliable. • 4D BIM Model. Showed a video of 4D modeling. Automated cost estimating, pushing into 5D modeling technology. It's not in the scope but could be value additive.	shoot subgrades, pavement. Currently have the ability to turn that back over to ODOT as an as-built. • Risks during construction: communication, contingencies. Utilities (lighting). Begin coordination early. Kevin Martin will do an after action review.		
INTERVIEW QUESTIONS: A. Project understanding and approach; an understanding of Progressive Design-Build delivery method, including understanding of Offeror's role at each Phase of the Project; B. Recognition of key points and ideas, including the Offeror's role in Project advancement at each Project Phase, risks at each Project Phase, understanding of the GMP process and pricing transparency, and ideas and ability necessary to effectively collaborate with the Department and other stakeholders to achieve Project Goals.				

Question 1 - Describe the process your team will follow to align your pricing methodologies and facilitate effective collaboration with the ODOT Project Management and the ODOT Office of Estimating so as to provide assurance to the public that progressive contracting is a value to the taxpayers.				
Kokosing/MB • Talked about past experience. Cost models aligned. Bid items. Labor rates, equipment rates in the region. Focus on clean comparisons. ICE, structured so Estimating can do their estimate. Reconciliation meeting. Apples to Apples comparison. When they sit down, having the field office and materials in the same category. Won't have sub packages at 50%. Build a list of plug prices for materials and sub plugs. Ensure plus rates are the same. GMP, sub packages and material solicitation quotes. ODOT gets buyoff before sending out solicitations. As quotes come back in, labor rates are established, but getting material quotes back and putting numbers instead of plugs. Reconciliation meetings aren't that bad. 20 items out of the list where they weren't looking at the same thing. Alignment on the front end.	**MBC/Tetra Tech** • Collaboration in the question. Throughout the process. HCSS software. Ability to go into each item. Equipment, pieces of equipment, materials, subitems. Sitting side by side and going through each of those items. Having cost history to assure taxpayers they're getting a fair value. Man hours per unit. Costs change from year to year. What is actual production rates.	**Geddis/HDR** • Getting with an estimating kickoff meeting. Early on. Discuss how Geddis estimates (crew assemblies and production). Discuss risks involved. Separate risks out. Can get a risk free approach. Quantity takeoffs. Discrepancies between designer and contractor takeoffs. Can more accurately estimate quantities. Determine cost variables, shared with ODOT. Use throughout the project. Prior to finalizing everything, risks are incorporated into the final costs.		
Question 2 - How will you ensure all parties involved in the project will be trained to utilize the BIM Model during design development and construction?				
Kokosing/MB • Was giving a training this morning to PennDOT. Phase 1A, share screens. Limited training for model review software, making sure test files can be used. Making sure the information can be used. Training Plan for each Phase. Model based reviews. Training needs to be customized based on the user role. Live sessions with DOT personnel and other stakeholders. On demand videos with shorter actions. Training for DBT and estimators so they can get what they need out of the model. Quantities for unit based prices. Can save levels and views in the software. Get specific items. • Construction Phase, dealing with field folks, ODOT inspectors. Rover on site for GPS. End of the project, work with the team on how to use it for maintenance. Training at the end even after construction is over. Developed training for MDOT and PennDOT. Can use that.	**MBC/Tetra Tech** • Design – Collaboration. Partnership. Weekly progress meeting. Making sure everyone is capable of using the model. Workshops for construction and design staff. Previous experience in Michigan. Hurdle for the Department design reviewers in Michigan. Supplement the model to ensure design reviewers can do their job. • Construction – Facilitate training and workshops. Bentley is going to be new for everyone. Leverage relationship with Bentley. Cloudbased system lets anyone with a browser access the model. Don't know the level of membership with Bentley. Bentley will be a key partner.	**Geddis/HDR** • Design side – Leverage Bentley cloud review platform. Working with the Bentley team, specialized tools. Suits the needs of the design elements. Bentley can't do model as a legal document. Heavy focus on Bentley. Assign comments to different parties. Designed for people who aren't used to working in CADD. HDR is equipped to perform training. BIM Strategic team. Working with 8 different agencies. Currently doing training. Work with ODOT to determine what is needed. What are the tools needed. • Construction – HDR is an industrial leader in BIM. Geddis got with HDR because of that. Working with the engineers and inspection team on how to use the modeling on how to track materials. Implement the right equipment. Work as a team. No talk about subs.		
Question 3 - How do you propose to address electronically signing and sealing the Model and treating the Model as a Legal Document.				
Kokosing/MB • Different ways they've done it in other states. PDF plan set listing the electronic files and taking responsibility for	**MBC/Tetra Tech** • They don't have all of the answers. Willing to work through the answers. In Michigan they did Excel	**Geddis/HDR** • Allows digital signature in plans. HDR has done that on the FRA-161 project. 8 subs. Embrace digital signatures.		

each of the files. PennDOT to develop a model certification memo. Excel sheet, interactive form. List the electronic files. Signatures directly involved. Files will be locked down. Software that generates a unique code to verify if it changed. • Quality assurance checklist, digital signature filed for design reviews. Stamp applications. Title sheets for submissions. Additional technology – blockchain technology. Making sure specifications are in alignment with the specs. Wrote some special provisions to modify standard specs to modify the definition of plans.	spreadsheets. What works best for ODOT. Going to take a lot of collaboration. Version tracking.	Meet the standards. Take that process to the next level. Managing the current information to ensure Stakeholders have access. A lot of agencies have made up things as they go along. Some agencies have a spec that dictates the process. Identifying actual deliverables. Compare what was originally there vs what was in the field. Implementing blockchain to secure the files. Owner hosts the model.		
Question 4 - Strict adherence to standard design and construction requirements may constrain some schedule and cost-savings solutions. How will you approach coordination with ODOT to facilitate innovation while balancing the Project goals and other variables?				
Kokosing/MB • 2 aspects of this job – PDB and digital delivery. Two of the best measures. Phase 1B – facilitating real time ATC conversations. Innovative solutions to ODOT much quicker. Digital Delivery further benefits the process. Fully within the models, designer and ODOT has access quickly identify and update the model. Prompt feedback, schedule on time. • Experience with the Riverwalk. Work through constructability analysis and working with the design team. Schedule doesn't become an issue. Schedule Phase 1B as well so as to not lose sight of the project. Mention Project Goals. Speculate on the project goals. Come to us with a menu approach. Balancing options and present options for ODOT. Evaluate from a lifecycle perspective.	**MBC/Tetra Tech** • Weekly meetings with ODOT. Include this topic in the meeting minutes. Track those minutes throughout. Collaboration. Open Partnership. • Design – Success is dependent on the least capable user. Making sure everyone can use the model. Doing design live on ProjectWise. ODOT can view models in real time. Raise issues in Progress meetings.	**Geddis/HDR** • Design – Meeting the design criteria. Straightforward design for a roundabout. Don't see a need for a design exception. Innovation constant contact, OTS reviews. Initial usage of Bentley and learning process. Right sizing the model for the Project. Identifying what really needs to be modeled. What tag information. Figuring out what Geddis needs to construct the project. LOD Specs. Striping/Lighting plans being delivered in a 2D model. Not blowing the cost of the project. Environmental issues. • Construction – ODOT standards aren't cumbersome. Engineers use solid judgement to overcome grey areas. Open communication. How 611 is applied. Designer working with Geddis and having an inspector on site.		
Question 5 - What are some of the key project decisions that your team will address in the first 45 days following award?				
Kokosing/MB • Developing a BEP. Brought the Michigan document. Use the test files to ensure the decisions we're making are comfortable. Making sure the stakeholders are comfortable with the documentation. Documenting the key roles and stakeholders for the project. Decisions regarding as-builts could evolve as the project progresses. Roles and responsibilities for the BEP. Workflows among the groups. Training Plans get established early on in the project. Including model sharing procedures, what digital files, frequency of sharing information model coordination meetings. Beginning with the end in mind. Understand what ODOT	**MBC/Tetra Tech** • Phase 1A – Just went back to their proposal. Collaboration. Approve Technology. What are the solutions going to be. Identify • BIM Execution Plan may be the most important document. Managing expectations and goals for the project. What will be included in the model. • Schedule will start right away. Risk Register, get meetings started. Collaboration.	**Geddis/HDR** • How Phase 1A will get started. Getting everyone in the room. HDR has everyone on it. Local folks. ORD. Getting the contractor in the room as well. Getting stakeholders involved early. Inspectors. Kickoff meetings. Identifying the leader of each entity. Get the decision makers. This should be project specific. Those folks will also be training others. Establishing authority among that group. • Pilot Project. Don't have the benefit of a larger program implementation. Focus on what they've been engaged to do. Coming to the understanding of what's important. Build that understanding into the project. Getting started on the right foot. Moving this into an asset management		

wants in the end. What does ODOT want for a future BIM manual, as built, hand back process. End goals, working backwards.

- Start with framework from other states, don't want to just throw something at ODOT. LOD and model element breakdown. Aligning with what ODOT wants to see.

program. Get that set up from Day 1. Information ODOT needs to be comfortable with the model, as well as what Geddis needs to construct the project. Coming to consensus. Training that they'll need to do. LOD of models. Visualizations? Make sure the model fits the use cases down the road. Maing sure the software supports those goals. Kevin Martin doing a whitepaper.

Proposal Evaluation Notes

I hereby certify that the above ratings were agreed upon by the TET review team.

Signatures: _____ _____

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