REQUEST FOR PROPOSALS

to Design and Build the

I-65/I-70 North Split Project

through a Public Private Agreement

VOLUME II

TECHNICAL PROVISIONS

a Project of the

INDIANA DEPARTMENT OF TRANSPORTATION

ISSUED OCTOBER 11, 2019

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Indiana Department of Transportation
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1 GENERAL SCOPE OF WORK

1.1 General

Design-Build Contractor shall perform the Work in accordance with the PPA Documents, including Project Standards, this Section 1 and its attachments; Governmental Approvals; and Governmental Rules.

1.2 Project Identification and Description

1.2.1 Project Identification

Contract No.:	B-36910
Project No.:	1600808
Roadway Des. No.:	1600808
Safety Des. No.:	190136
ITS Des. No.:	190135
Structure Des. No.:	See table below. Specific Work is described in Section 14 (Structures).
Route No.:	Interstate 65 & Interstate 70
Counties:	Marion
District:	Greenfield
Federal Oversight:	Yes
Project Limits:	The Project limits are described in Section 1.2.2 below.

1.2.2 Project Description

The Planned ROW Limits are shown in Attachment 1-2 (Planned ROW Limits) and include any other real property for permanent improvements that INDOT acquires in connection with an INDOT-Directed Change or Necessary Basic Configuration Change. The Planned ROW Limits depicted do not include temporary traffic control devices or local street detours.

The I-65/I-70 North Split interchange is generally located in the northeast corner of downtown Indianapolis. The western Project limit on I-65 is located approximately at the east bridge approach of the I-65 bridge spanning over Senate, Capital, Illinois, Meridian, Pennsylvania, Delaware, and Alabama Streets (approximately sta. 25+75, line “P_ALG_I65”). The eastern Project limit on I-70 is located approximately at the east bridge approach of the I-70 bridge over Valley Avenue (approximately sta. 41+90 “P_ALG_I70”). The southern Project limit on I-65/I-70 is located just south of the I-65/I-70 bridge over Washington Street (approximately sta. 113+00, line “P_ALG_I65/I70”).

The approximate limit of the I-65/I-70 SB CD exit ramp to WB Ohio Street is the east approach of the intersection of Ohio Street and College Avenue. The approximate limit of the I-65/I-70 SB CD exit ramp to Michigan Street is the north approach of the Michigan and Davidson Street intersection and includes the west approach of the intersection of Davidson and North Streets.

The approximate limit of the northbound Pine Street entrance ramp to I-65 NB and I-70 EB is the north approach of the Pine and Michigan Street intersection.

The approximate limit of the 11th Street entrance ramp to I-70 EB is the east approach of the Pennsylvania and 11th Street intersection.

The approximate limit of the NB I-65 to 12th Street exit ramp is the east approach of the 12th and Pennsylvania Street intersection.

The following local street improvements represent the minimum limits of Work for local streets in the Project, including temporary and incidental construction, except temporary traffic control devices, and detour routes for local street closures. The local street Project limits are defined below:

Table 1-1: Local Street Improvements

Description	Limits
Washington Street	New signals, sidewalk/path, pavement markings, underpass lighting
Market Street	New sidewalk/path, underpass lighting
Ohio Street (EB)	Pavement replacement, underpass lighting
New York Street	New sidewalk/path, underpass lighting
Vermont Street	New sidewalk/path, underpass lighting
Michigan Street	New sidewalk/path, underpass lighting
Pine Street ramp to I-70 EB	Underpass lighting
St. Clair Street	New sidewalk/path, underpass lighting
10th Street	New sidewalk/path, underpass lighting
Alabama Street	New sidewalk/path, underpass lighting
Central Avenue	New sidewalk/path, underpass lighting
College Avenue	New sidewalk/path, underpass lighting
Delaware Street	New underpass lighting
Lewis Street/Monon Trail	New underpass lighting, Monon trail widening
Commerce Avenue	Underpass lighting, non-routine maintenance
Valley Avenue	Underpass lighting, non-routine maintenance

Additional requirements for local street improvements are provided in Attachment 6-1 (North Split Aesthetic Design Guidelines) and Section 8.3.2.3 (Bicycle and Pedestrian Accommodations).

Structures within the Planned ROW Limits include those shown in Table 1-2.

Table 1-2: Structures within Planned ROW Limits

Bridge No.	Des. No.	Existing Structure Number	Proposed Structure Number	Description	Anticipated Work Type
1	1901847	I-65-111-05725 A	I65-111-10601 NBL	I-65/I-70 NB over Washington Street	New or Replacement Bridge
2	1901848	I-65-111-05725 A	I65-111-10602 SBL	I-65/I-70 SB over Washington Street	New or Replacement Bridge
3	1901849	I-65-111-05725 A	I65-111-10603 CD	I-65/I-70 SB CD over Washington Street	New or Replacement Bridge
4	1901850	I65-111-05728 A	I65-111-10604 NBL	I-65/I-70 NB over Market Street	New or Replacement Bridge
5	1901851	I65-111-05728 A	I65-111-10605 SBL	I-65/I-70 SB over Market Street	New or Replacement Bridge
6	1901852	I65-111-05728 A	I65-111-10606 CD	I-65/I-70 SB CD over Market Street	New or Replacement Bridge
7	1901853	I65-111-02431 A	I65-111-02830 NBL	I-65/I-70 NB over CSX Railroad & Ohio Street	New or Replacement Bridge
8	1901854	I65-111-02431 A	I65-111-02831 SBL	I-65/I-70 SB over CSX Railroad & Ohio Street	New or Replacement Bridge
9	1901855	I65-111-02431 A	I65-111-02832 CD	I-65/I-70 SB CD over CSX Railroad & Ohio Street	New or Replacement Bridge
10	1901856	I65-111-05730 B	I65-111-10607 NBL	I-65/I-70 NB over New York Street	New or Replacement Bridge
11	1901857	I65-111-05730 B	I65-111-10608 SBL	I-65/I-70 SB over New York Street	New or Replacement Bridge
12	1901858	I65-111-05730 B	I65-111-10609 CD	I-65/I-70 SB CD over New York Street	New or Replacement Bridge
13A	1902179	I65-111-05731 B	I65-111-10656 NBL	I-65 NB/I-70 EB over Vermont Street	New or Replacement Bridge
13B	1902180	I65-111-05731 B	I65-111-10657 SBL	I-65 SB/I-70 WB over Vermont Street	New or Replacement Bridge
13C	1901861	I65-111-05731 B	I65-111-10610 CD	I-65/I-70 SB CD over Vermont Street	New or Replacement Bridge
14	1901862	I65-111-05732 BNB	I65-111-10611 NBL	I-65 NB/I-70 EB over Michigan Street	New or Replacement Bridge
15	1901863	I65-111-05733 ASB	I65-111-10612 SBL	I-65 SB/I-70 WB over Michigan Street	New or Replacement Bridge
16	1901864	I65-111-05733 ASB	I65-111-10613 CD	I-65/I-70 SB CD over Michigan Street	New or Replacement Bridge

Bridge No.	Des. No.	Existing Structure Number	Proposed Structure Number	Description	Anticipated Work Type
17	1901865	I65-111-05734 ANB	I65-111-10614 NBL	I-65 NB over I-70 EB Entrance Ramp	New or Replacement Bridge
18	1901881	I65-111-05735 ANB	I65-111-10615 NBL	I-65 NB over St. Clair Street	New or Replacement Bridge
19	1901889	N/A	I70-111-10616 EBL	I-70 EB over St. Clair Street	New or Replacement Bridge
20	1901892	I65-111-05736 ASB	I65-111-10617 SBL	I-65 SB/I-70 WB over St. Clair Street	New or Replacement Bridge
21	1901896	N/A	I65-111-10618 CD	SB CD over St. Clair Street	New or Replacement Bridge
22	1901897	(I65)I70-079-05737 ANBL	(I65)I70-079-10619 NBL	I-65 NB over East 10th Street	New or Replacement Bridge
23	1901899	N/A	I70-083-10620 EBL	I-70 EB over East 10th Street	New or Replacement Bridge
24	1901901	I65-112-05738 BSB	I65-112-10621 SBL	I-65 SB over East 10th Street	New or Replacement Bridge
25	1901903	I70-083-05739 BWBL	I70-083-10622 WBL	I-70 WB over East 10th Street	New or Replacement Bridge
26	1901905	N/A	I70-083-10623 CD	SB CD & Ramp over East 10th Street	New or Replacement Bridge
27	1901906	N/A	I65-112-10624 CD	I-65 NB CD Exit Ramp over Central Avenue	New or Replacement Bridge
28	1901907	I65-112-05666 A	I65-112-10625 NBL	I-65 NB over Central Avenue	New or Replacement Bridge
29	1901908	I65-112-05666 A	I65-112-10626 SBL	I-65 SB over Central Avenue	New or Replacement Bridge
30	1901909	N/A	I65-112-10627 CD	I-65 SB CD Entrance Ramp over Central Avenue	New or Replacement Bridge
31	1901914	I65-112-05749 A	I65-112-10628 NBL	I-70 WB to I-65 NB over College Ave	New or Replacement Bridge
32	1901915	I65-112-05748 ANB	I65-112-10629 NBL	I-65 NB & Pennsylvania Exit Ramp over College Avenue	New or Replacement Bridge
33	1901917	I65-112-05745 A	I65-112-10630 SBL	I-65 SB & CD Ramp over College Ave	New or Replacement Bridge
34	1901918	I65-112-05746 A & (I70)I65-112-05741 BEBL	I65-112-10631 SBL	I-65 SB & Delaware Entrance Ramp to I-70 EB over College Ave & five ramps	New or Replacement Bridge

Bridge No.	Des. No.	Existing Structure Number	Proposed Structure Number	Description	Anticipated Work Type
35	1901919	I65-112-05747 CNBL	I65-112-10632 NBL	I-65 NB over I-70 WB & Ramp	New or Replacement Bridge
36	1901920	I65-112-05743 B	I65-112-10633 NBL	I-70 WB to I-65 NB over three ramps	New or Replacement Bridge
37	1901921	I65-112-05744 BSB	I65-112-10634 SBL	I-65 SB over I-70 WB & SB CD Ramp	New or Replacement Bridge
38	1901922	N/A	I65-112-10635 NBL	I-65 NB over I-70 EB	New or Replacement Bridge
39	1901923	I70-083-02434 DWBL	I70-083-10636 WBL	I-70 WB, CD, and Ramp 3E-W over Lewis Street & Monon Trail	New or Replacement Bridge
40	1901925	N/A	I70-083-10637 WBL	I-70 WB to I-65 NB over Lewis Street & Monon Trail	New or Replacement Bridge
41	1901927	N/A	I65-112-10638 SBL	I-65 SB to I-70 EB over Lewis Street & Monon Trail	New or Replacement Bridge
42	1901928	I70-083-02432 CEBL	I70-083-10639 EBL	I-70 EB over Lewis Street & Monon Trail	New or Replacement Bridge
43	1901929	I70-083-05701 DWBL	I70-083-05701 JEWB	I-70 WB over Roosevelt Ave @ Comm Ave	Bridge Preventative Maintenance - Overlay
44	1901930	I70-083-05701 DEBL	I70-083-05701 EEBL	I-70 EB over Roosevelt Ave @ Comm Ave	Bridge Rehabilitation – Deck Replacement and Widening
45	1901931	I70-80-05702 CWBL	I70-84-05702 EWBL	I-70 WB over Valley Avenue	Bridge Preventative Maintenance - Overlay
46	1901932	I70-80-05702 DEBL	I70-84-05702 JEWB	I-70 EB over Valley Avenue	Bridge Preventative Maintenance - Overlay
47	1901933	I65-112-02419 C	I65-112-02419 DWBL	I-65 over 7 Streets, Access Rd, Monorail (aka "Monster Bridge") - Pennsylvania Exit Ramp	Bridge Rehabilitation – Widening and Deck Overlay
48	1901934	I65-112-02419 C	I65-112-02419 DEBL	I-65 over 7 Streets, Access Rd, Monorail (aka "Monster Bridge") - Delaware Entrance Ramp	Bridge Rehabilitation – Widening and Deck Overlay

1.2.3 Coordination with Other Projects

Design-Build Contractor shall coordinate Work with other projects, including those identified in Attachment 1-1 (USP: General Scope of Work).

1.3 Project Management

1.3.1 Personnel

1.3.1.1 Key Personnel

Design-Build Contractor shall provide Key Personnel in accordance with Section 7.3 of the PPA. The following describes the roles and responsibilities of the Key Personnel:

1. Project Manager: The Project Manager shall be responsible for all aspects of the Project, including, but not limited to, overall design, environmental compliance, construction, quality management, and contract administration. Targeted/desired experience for the Project Manager includes 10 years of design-build experience managing the design and construction of major highways, interstate-to-interstate interchanges and bridge structures. The Project Manager shall be assigned to the Project full time and shall be required to be on-Site for the term of the PPA.

2. Design Manager: The Design Manager shall be responsible for ensuring the overall Project design is completed and all design requirements are met. Targeted/desired experience for the Design Manager includes at least 10 years of recent experience (design-build experience preferred) managing the design of major highways, interstate-to-interstate interchanges and bridge structures. They must be a Registered Professional Engineer or be able to obtain licensure by award of the PPA. The Design Manager shall be assigned to the Project full time and be on-Site when design activities are being performed. During construction, the Design Manager shall be readily available for on-Site consultation and to coordinate designer-initiated and contractor-initiated plan, design, specification, and quantity revisions.

3. Structural Design Lead Engineer: The Structural Design Lead Engineer shall be responsible for ensuring all structural components on the Project are completed and all design requirements are met. Targeted/desired experience for the Structural Design Lead Engineer includes at least 10 years of recent experience (design-build experience preferred) designing major highway bridge structures, interstate-to-interstate interchange bridge structures and having been Engineer of Record for at least one completed interchange and bridge project similar in scope, budget, schedule and environmental conditions. The individual must be a Registered Professional Engineer or be able to obtain licensure by award of the PPA. Targeted/desired experience also includes complex bridge design in accordance with INDOT Design Memorandum No. 17-20. In addition to the criteria listed in the memorandum, complex bridges shall also include: accelerated bridge construction (ABC), concrete straddle bents or integral pier caps requiring post-tensioning, spans over 200 feet, and curved with a radius less than 1,000 feet. The Structural Design Lead Engineer shall be available for weekly meetings at the field offices.

4. Construction Manager: The Construction Manager shall be responsible for managing all aspects of the construction of the Project. Targeted/desired experience for the Construction Manager includes at least 10 years of recent management experience,

design-build experience preferred, major highways, interstate-to-interstate interchanges and bridge structure construction with complex maintenance of traffic challenges. The Construction Manager shall be assigned to the Project full time and shall be on Site for the term.

5. Design-Build Coordinator: The Design-Build Coordinator shall be responsible for providing overall coordination between design and construction of the Project. The Design-Build Coordinator shall provide oversight and supervision over the technical work of the design team and work to resolve issues, including review of plans and designer submittals to ensure Project and constructability standards are met. The Design-Build Coordinator shall have a strong understanding of the technical and contractual requirements of the Project. Targeted/desired experience includes at least 10 years of recent experience (design-build experience preferred) with construction of major highways, interstate to interstate interchanges and bridge structures. The Design-Build Coordinator shall be assigned to the Project full-time and be on-Site when Design Work and Construction Work is being performed. During Construction Work, the Design-Build Coordinator shall be readily available for on-Site consultation and to coordinate designer initiated and Contractor initiated plan, design, specification, and quantity revisions.

6. Design Quality Manager: The Design Quality Manager shall be responsible for QA/QC for all Design Work that is performed for the Project, including any design changes during construction and the production of Record Drawings. The Design Quality Manager shall include a certification with each design Submittal that all necessary Design QC checks have been completed and that any design changes resulting from such checks are incorporated in the Submittal. The Design Quality Manager shall report directly to Design-Build Contractor's executives or Authorized Representative.

7. Maintenance of Traffic (MOT) Manager: See Section 12.2.1 for roles and responsibilities. Targeted/desired experience for the MOT Manager includes 10 years of recent experience (design-build experience preferred) managing maintenance of traffic activities of major highways, interstate-to-interstate interchanges and bridge structure construction with complex maintenance of traffic challenges. They must be a Registered Professional Engineer or be able to obtain licensure by award of the PPA. The MOT Manager shall be readily available for the term. The MOT Manager shall be different from and report to the Construction Manager.

8. Environmental Compliance Manager (ECM) shall be responsible for implementation of all the environmental design and construction commitments and conditions identified in the Environmental Determination and Environmental Approvals. The ECM shall be a full-time, on-Site staff member and report to the Design-Build Contractor's Project Manager. The ECM shall have a minimum of five years of experience with a demonstrated expertise with construction management, permitting compliance and overall environmental compliance with transportation projects. The ECM shall have the authority to stop or redirect construction work as needed at any time to maintain environmental compliance for the project. The ECM would be primary liaison with INDOT for any environmental issues.

9. Construction Quality Manager: The Construction Quality Manager shall be responsible for the overall management and supervision of Design-Build Contractor's construction quality programs and quality assurance. Targeted/desired experience for the Construction Quality Manager includes at least 10 years of recent experience, design-build experience preferred, on major highways, interstate-to-interstate interchanges and bridge structure construction. The Construction Quality Manager shall report directly to

the Design-Build Contractor's executives or Authorized Representative. The Construction Quality Manager shall be delegated the authority to make needed improvements to the quality of Work, including the suspension of the Work, if required.

10. Utility Coordination Manager: The Utility Coordination Manager shall be responsible for organizing and leading utility coordination activities. The Utility Coordination Manager shall be certified through INDOT's Utility Coordinator Certification Training and shall have a minimum of five years of experience with demonstrated expertise in a similar role. The Utility Coordination Manager shall be responsible for completing the utility coordination process as defined in the *Indiana Design Manual* Chapter 104, 105 IAC 13, and the INDOT Utility Accommodation Policy.

11. Safety Manager: Design-Build Contractor's Safety Manager shall be responsible for developing, implementing, and managing the safety program. The Safety Manager shall report directly to the Project Manager. The Safety Manager shall be assigned to the Project full time and on-Site for the duration of the Project. Targeted/preferred experience for the Safety Manager includes at least 10 years of recent experience (design-build experience preferred) managing complex infrastructure projects as well as five years of construction safety management experience in implementing and managing safety programs and maintaining compliance with health, safety, and environmental regulations during construction activities on major urban freeways. The Safety Manager should have certification from a recognized organization of industry standard such as the Board of Certified Safety Professionals (BCSP), The National Examination Board in Occupational Safety and Health (NEBOSH), or a similar recognized Professional Health, Safety and Environmental (HSE) organization. The Safety Manager must have authority to stop work and experience in authorizing to stop work The Safety manager must be familiar with FHWA work zone safety regulations and must have targeted/preferred 10 years of experience working with roadway work zone safety and OSHA regulation.

12. Project Scheduler: The Project Scheduler shall be responsible for developing and maintaining the Project Schedule and associated submittals, including but not limited to: Project Baseline Schedule, Project Status Schedule, Final Schedule, and time extension requests, if approved. Project Scheduler shall be responsible for schedule change management, incorporating contract revisions, and providing what-if scenarios to assist Design-Build Contractor and INDOT. Project Scheduler shall report directly to the Project Manager. Project Scheduler shall be on-Site for attendance of Project meetings and responsible for reporting schedule related progress and potential completion date impacts. Targeted/desired experience for the Project Scheduler includes 10 years of scheduling experience (design-build experience preferred) with procurement and construction of major highways, interstate-to-interstate interchanges and bridge structures. Project Scheduler shall be proficient in the use of Primavera Project Management software.

1.3.1.2 Additional Personnel

Design-Build Contractor shall provide additional personnel with the following roles and responsibilities:

1. Design-Build Contractor shall provide a DBE Compliance Manager responsible for overseeing DBE compliance in accordance with the requirements in Section 7.1 of the PPA. The DBE Compliance Manager shall have experience in a similar role and be familiar with INDOT-certified DBE firms. Responsibilities shall include promotion of DBE contract opportunities and participation, administration of DBE contracts, prompt

payment and resolution of any payment issues, and reporting of monthly DBE participation goals to INDOT.

2. Public Information Coordinator: The Public Information Coordinator is responsible for identifying public information issues related to the Design-Build Contractor's Work, and for formulating and implementing strategies to address those issues. The Public Information Coordinator shall work with INDOT to maintain public satisfaction. The Public Information Coordinator shall be available at the field offices full-time to respond to the communications needs of the Work and shall be readily available by telephone during all business hours with immediate computer and email access. Targeted/desired experience for the Public Information Coordinator includes at least three years of recent experience coordinating information on public projects, preferably on large highway improvement projects.

3. Construction Superintendent(s): The Construction Superintendent(s) shall be responsible for supervision and oversight of all field activities and construction operations. This person(s) shall be responsible for daily scheduling, supervising all construction activities and tasks, and ensuring the safety and compliance of the Site. The Construction Superintendent(s) shall report directly to the Construction Manager.

1.3.2 Project Administration

1.3.2.1 Project Baseline Schedule

Design-Build Contractor shall provide the Project Baseline Schedule in accordance with Attachment 1-1 (USP: Critical Path Method Schedule). Design-Build Contractor shall submit the Project Baseline Schedule for approval by INDOT in accordance with Section 4.7 of the PPA. INDOT will review the Project Baseline Schedule in accordance with Attachment 1-1 (USP: Critical Path Method Schedule).

1.3.2.2 Project Status Schedule

Design-Build Contractor shall submit to INDOT Project Status Schedule updates to reflect the current status of the Project and the Work, including recovery schedules and schedule revisions due to Change Requests and approved Change Orders.

The Project Status Schedule shall be submitted to INDOT for approval in accordance with Attachment 1-1 (USP: Critical Path Method Schedule).

1.3.2.3 Final Schedule

Design-Build Contractor shall submit the final schedule to INDOT for approval in accordance with Attachment 1-1 (USP: Critical Path Method Schedule).

1.3.2.4 Schedule Revisions

If it becomes necessary to add, combine, eliminate, or modify schedule Activities to reflect modifications to the Work, as approved by INDOT, it shall be reflected in the revised Project Schedule. Revisions to the Project Schedule and consequent realignment of funds between payment activities may be requested by Design-Build Contractor in accordance with, and subject to, Section 13 of the PPA.

1.3.2.5 Time Impact Analysis

1. As part of a Change Request as set forth in Section 13 of the PPA, Design-Build Contractor shall submit to INDOT a written time impact analysis illustrating the influence of each claimed delay. Each time impact analysis shall include a fragmentary network demonstrating how Design-Build Contractor proposes to incorporate the change, delay, or Design-Build Contractor request into the current Project Status Schedule. The time impact analysis shall demonstrate the time impact to each and every affected schedule Activity in the most recent Project Status Schedule at the time of the occurrence.
2. The time impact analysis Submittal shall include the details of the change, including added, changed or deleted data for schedule Activities and logic. If the current Project Status Schedule is revised subsequent to submittal of a time impact analysis but prior to its approval, Design-Build Contractor shall promptly indicate in writing to INDOT the need for any modification to its time impact analysis.
3. Design-Build Contractor shall submit one printed Gantt chart including all schedule Activities affected by the time impact analysis, grouped and sorted by WBS and compared to the current Project Baseline Schedule. In addition, Design-Build Contractor shall provide one electronic backup of the Project Baseline Schedule with the time impact analysis and a comprehensive narrative for each Change Request. Design-Build Contractor shall incorporate the results of the Change Request from INDOT into the Project Status Schedule for the next Progress Report.

1.3.2.6 Recovery Schedule

Design-Build Contractor shall prepare and deliver Recovery Schedules as required in accordance with Section 4.6 of the PPA.

1.3.3 Project Management Plan

Design-Build Contractor shall prepare a PMP, which is an umbrella document that describes Design-Build Contractor's managerial approach, strategy, and quality procedures to design and build the Project and achieve all requirements of the PPA Documents.

INDOT will audit and monitor the activities described in the PMP to assess Design-Build Contractor performance. All commitments and requirements contained in the PMP shall be verifiable.

The PMP shall be submitted for INDOT approval in accordance with Section 2.1.1 of the PPA. The general outline and minimum content of the PMP is described in Section 1.3.3.1 through Section 1.3.3.5:

1.3.3.1 Project Administration Plan

1. Organizational diagram, with all Key Personnel clearly identified
2. Management structure and personnel names and contact details, titles, and job roles
3. Design-Build Contractor's contracting plan
4. Design-Build Contractor's main contractual arrangements with Subcontractors

5. Quality control procedures to establish and encourage continuous improvement
6. Procedures to facilitate review and audit by INDOT
7. Auditing and management review of Design-Build Contractor's own activities under the PMP
8. Revisions to PMP - Procedures for preparation of amendments and submission of amendments to any part of the PMP in accordance with Section 1.3.3.6
9. Internal organization systems:
    a. A description of Design-Build Contractor's team decision-making process, how internal disputes between team members will be resolved, and how Design-Build Contractor will avoid adverse impacts to the Project (cost, schedule, or quality) in the event of such disputes;
    b. A description of the methods to be used to establish lines of communication and documentation within Design-Build Contractor's team, including communication among the sub-organizations and management personnel;
    c. A description of how Design-Build Contractor intends to interface with INDOT, its consultants, applicable third parties, and relevant federal, state, and local agencies, including the Stakeholders; and local police and fire departments, on all matters including planned transportation and utility infrastructure in the Project area; and
    d. Document management - The manner in which records will be maintained in compliance with the Technical Provisions, including any specific systems Design-Build Contractor will use. A description of the Design-Build Contractor's approach to store and retain Project-related documents and information, including (i) in what medium (digital or otherwise) the documents will be maintained; (ii) If electronic, what format will be used; and (iii) the Design-Build Contractor's approach for security and backup of the project documentation.

1.3.3.2 Quality Management Plan

1. Organizational structure covering the activities to be performed in accordance with the PPA Documents
2. Personnel - Resource plan for Design-Build Contractor and its Subcontractors
3. Arrangements for coordinating and managing staff interaction with INDOT and its consultants, including Key Personnel and description of approach to coordinating Work of off-Site personnel
4. Names and contact details, titles, job roles and specific experience required for the Key Personnel and for other principal personnel during design
5. Names and contact details, titles, job roles of principal personnel of Design-Build Contractor and any third party with which Design-Build Contractor will coordinate activities
6. Design Quality Management Plan

a. Arrangements for coordinating and managing staff interaction with INDOT and its consultants, including Key Personnel and description of approach to coordinating Work of off-Site personnel

b. Responsibility of Design-Build Contractor and Affiliates, including conducting constructability reviews

c. Steps taken to ensure Design-Build Contractor and its Subcontractors meet the obligations imposed by their respective subcontracts

d. Interfaces between Design-Build Contractor, Subcontractors, and independent certifiers during design, including interfaces between the structural design auditor, the safety auditor, and quality reviewers

e. Coordination with Utility Owners

f. Procedures describing how the principal activities will be performed during the design stage: to include geotechnical Site investigation, surveys and mapping, environmental management, safety audit, structural audit, and checking

g. QA/QC procedures, including a resource table for monitoring and auditing all design services, design review and certification, verification of Plans and Working Drawings; NDCs, FDCs; and Witness Points and Hold Points in Section 2 (Quality Management)

h. Procedures to establish Hold Points in design process where checking and review will take place

i. Procedures to ensure accuracy, completion, and quality in Submittals to INDOT and Governmental Entities, including conformance with federal oversight requirements

j. Procedures to spot Errors, including procedures for corrective and preventive action

7. Construction Quality Management Plan

a. Complete procedures for preparing for and complying with Hold Points during Construction Work in Section 2 (Quality Management)

b. Project specific construction procedures

c. Steps taken to ensure Design-Build Contractor and its Subcontractors meet the obligations imposed by their respective subcontracts

d. Construction monitoring plan, including testing and inspection for which Design-Build Contractor is responsible for QA/QC

e. Pre-activity meetings

f. Control and traceability of materials

g. Reporting procedures, methodologies, and corrective action relating to nonconforming Work, including how INDOT will be involved

h. Training, mentoring, and audits

1.3.3.3 Environmental Management Plan

1. Organizational structure covering the activities to be performed in accordance with the PPA Documents consistent with that in the Proposal
2. Environmental contact tree
3. Personnel - Resource plan for Design-Build Contractor and its Subcontractors
    a. Arrangements for coordinating and managing staff interaction with INDOT and its consultants, including Key Personnel and description of approach to coordinating Work of off-Site personnel
    b. Names and contact details, titles, job roles and specific experience required for Key Personnel and for other environmental personnel
4. Subcontractors - Overall control procedures for Subcontractors
5. Environmental Compliance and Mitigation Plan (ECMP) (refer to Section 7 of these Technical Provisions)
6. Spill Prevention Plan
7. Environmental compliance and mitigation training program (refer to Section 7.4.2 of these Technical Provisions)
8. Describe methods for ensuring adequate installation, maintenance, and repair of erosion and sediment control devices
9. Identify potential environmental risk and describe the approach to mitigate, eliminate, or reduce those risks
10. Describe methods and procedures for monitoring environmental commitments and ensuring those have been implemented in the design and construction

1.3.3.4 Safety Plan

1. Organization – Personnel, policies, plans, training programs, work Site controls, and Incident management and response plans to ensure the health and safety of personnel involved in the Project and the general public affected by the Project.
2. Procedures for immediately notifying INDOT of all Incidents arising out of or in connection with the performance of the Work.

1.3.3.5 Public Information Plan

1. The manner in which Design-Build Contractor's organization will respond to requests for information, communicate changes or revisions to relevant Design-Build Contractor personnel, and notify affected stakeholders before and after changes are made, as outlined in Section 5 (INDOT Public Involvement Plan).
2. Processes and procedures for communication of Project information between Design-Build Contractor's organization, INDOT, Governmental Entities (e.g., permitting agencies), Utility Owners, other third parties, and the public, as outlined in Section 5.3.1 (INDOT Public Involvement Plan).

1.3.3.6 Revisions to the PMP

Design-Build Contractor shall provide a revised PMP to INDOT for approval in INDOT's sole discretion and in accordance with the deliverable schedule in Section 1.4 in the event of the following:

- The occurrence of any changes to Key Personnel, Quality Plan, Safety Plan, Project Schedule, project administration policies and procedures
- The occurrence of other changes necessitating revision to the PMP, including as a result of any Change order or Directive Letter
- As otherwise directed by INDOT

1.3.4 Document Management System

Design-Build Contractor shall provide a document management plan and system that satisfies the following requirements:

1. Uses data protocols, standards, and procedures compatible with those employed by INDOT and implement any new operating practices required as a result of INDOT's amendments to any of its systems, standards, and procedures.
2. Provides a secure location for any interface, as may be required by INDOT, such that only authorized INDOT users have access and that such secure location is protected from loss, theft, damage, or unauthorized use.
3. Employs appropriate standards and procedures, and train Design-Build Contractor personnel to operate any INDOT data management system that INDOT may require in connection with the Project.
4. Design-Build Contractor shall train identified INDOT personnel to operate any Design-Build Contractor data management system approved by INDOT for Design-Build Contractor use in connection with the Project.
5. Provides a mechanism for the electronic transfer of meta-data along with the associated PDF images for uploading into an Electronic Document Management System (EDMS).
6. Provides INDOT with procedures and software for accessing all Books and Records as a component of Design-Build Contractor's obligations under Section 21 of the PPA.

Design-Build Contractor shall train identified INDOT personnel to operate any Design-Build Contractor data management system approved by INDOT for Design-Build Contractor use in connection with the Project.

Design-Build Contractor shall provide all Books and Records to INDOT in a legible and searchable electronic format in as small a file size as possible without loss of legibility.

Design-Build Contractor shall provide a detailed description of:

1. Methods by which all Books and Records will be uniquely coded, including the use of drawing numbers (Dwg. Nos.) for Plan sheets, and retrievable in a user-friendly format.
2. The routing, filing, control, and retrieval methods for all Books and Records.

3. Methods to facilitate sharing of data, including procedures and software for accessing all Books and Records as a component of Design-Build Contractor's obligations under Section 21 of the PPA.

4. All documents and data elements that will support records. These documents and data elements shall include, as a minimum: document class, document type/subtype, document name, form number, INDOT records series item number, INDOT agency item number, INDOT records series title, INDOT retention period, turnover media, turnover frequency, submission type, special requirements, and remarks.

To allow for disaster recovery, Design-Build Contractor shall back-up and store all Books and Records in a secure off-Site area no less than on a weekly basis.

1.3.5 Facilities

1.3.5.1 Field Office

Design-Build Contractor shall provide for INDOT's use, one modified type C field office meeting the following requirements immediately adjacent to or collocated with Design-Build Contractor's field offices, within one mile of the Project Site, and outside the Project Right of Way. Unless and until an approved environmental document is issued, INDOT's field office shall be used for preliminary design and other activities relating to preparation of environmental documents only. INDOT's field office must be fully operational within 30 days after Notice to Proceed. The field office shall be established with a short-term lease (with a maximum initial term of one-year) with the option to extend for the term of the Project in the event that the build option is selected when the Environmental Determination is made. If the no-build option is selected, or if an EIS or additional environmental work is required, the short term lease shall be allowed to expire or shall be terminated. INDOT's field office shall meet all of the requirements of Section 628.02 of the Standard Specifications, except:

1. INDOT's field office and all equipment and supplies shall be maintained and replenished in a satisfactory manner during the term of the PPA documents and for six months after Final Acceptance or until released by INDOT.

2. Field office must meet all local zoning requirements.

3. Field office shall be a permanent structure with a minimum size of 4,000 square feet, with a minimum width of 30 feet, and a minimum of 10 private offices. Each private office shall have at least 120 square feet of area, one desk, office chair, folding table, bookcase, and two side chairs.

4. INDOT's field office shall have a conference room suitable for conducting meetings with seating for up to 40 participants.

5. Field office shall have one kitchen/common area.

6. Field office shall have indoor toilet facilities for up to 30 staff with separate facilities for men and women.

7. Field office shall have secure 1Gbps ("Gigabit internet") broadband internet service and wi-fi connectivity, capable of providing simultaneous service to at least 30 staff.

8. Adequate parking for up to 50 vehicles, including appropriate amount of handicap accessible spots (per local zoning requirements), shall be provided.

9. Bi-weekly cleaning service shall be provided (floors, toilet facilities, kitchen/common area, and trash).

10. Regular exterior maintenance service shall be provided (lawn care, landscaping upkeep, snow removal, and general exterior maintenance) with a monthly trash service dumpster (at least 5 cubic yards).

11. All of the field office equipment and supplies listed in Section 628.02(b) of the Standard Specifications for a type C field office are required, except the requirements for the following items shall be modified as follows:

    a. Calculators (6)

    b. Folding Office Chairs (10)

    c. 40 conference room chairs

    d. Conference room tables for 30 people with additional seating room for up to 10 people

    e. Large conference room high-quality wideband speaker phone with control panel and dial pad and two wired expansion microphones (1)

    f. Drafting stools (2)

    g. Drafting tables (2)

    h. Four-drawer file cabinets (20)

    i. Folding office tables (20)

    j. Office desks and office chairs (20)

    k. Shelving (120 linear feet)

    l. Refrigerator/freezer with minimum capacity of 20 cubic feet (2)

    m. Microwave with minimum capacity of 1.9 cubic feet (1)

    n. Wastepaper baskets (20)

    o. 3-foot by 5-foot dry-erase boards (10)

    p. 4-foot by 8-foot dry-erase boards (2)

    q. Multiple colored dry-erase markers (required for the entire term of the PPA Documents) and erasers

    r. GPS Rovers (3) per Attachment 1-3 (GPS Rover RSP)

    s. High-end color, multifunctional copier with 11-inch by 17-inch printing capabilities (2)

    t. Wi-fi hotspot for field connectivity (5)

u. 75-inch or larger with minimum 4K HDR TV with wireless computer mirroring capability (1)

1.3.5.2 Field Laboratory

Design-Build Contractor shall provide for INDOT's use, one Type C field laboratory as specified in Section 628.02(f) of the Standard Specifications, immediately adjacent to or collocated with Design-Build Contractor's field office and within one mile of the Project Site. In addition to the provisions of Section 628.02(f) of the Standard Specifications, Design-Build Contractor shall provide hot and cold running water (potable), two portable cook stoves for drying samples, and propane in containers of suitable size to be transported to the Site and with continuingly sufficient quantities for INDOT to use during the term of the PPA Documents.

Design-Build Contractor does not need to include telephone lines or telephones in the field laboratory. Design-Build Contractor shall provide for INDOT's use in accordance with applicable ITMs and AASHTO T 23, concrete test beam forms and lime bath cure tanks required for INDOT quality assurance testing of QA/QC PCCP and CRCP. The quantity of equipment shall be sufficient to meet the production schedule of Design-Build Contractor.

1.3.6 INDOT Contacts

INDOT Project Manager:

Indiana Department of Transportation
100 North Senate Avenue
Indianapolis, IN 46204
Attention: Runfa Shi
Telephone: (317) 234-4912
E-mail: rshi@indot.in.gov

INDOT Area Engineer:

Indiana Department of Transportation
32 South Broadway Street
Greenfield, IN 46140
Attention: Scott Sipes
Telephone: (317) 315-0213
E-mail: ssipes@indot.in.gov

Existing plans and as-built drawings:

Submit on-line request to:
Plans Information Request Form
(https://entapps.indot.in.gov/OPSM/Dashboard/UserRequest)

1.4 Deliverables

Deliverables under this Section 1, a non-exhaustive list of which is set forth in Table 1-3, shall be submitted in electronic format in accordance with the schedule set forth below. Acceptable electronic formats include PDF and current versions of Microsoft Word and Microsoft Excel, unless otherwise indicated.

Table 1-3: Deliverables

Deliverable	Deliverable Schedule	TP Section
Project Baseline Schedule	Initial submission a condition to commencement of design per Attachment 1-1	1.3.2.1
Project Status Schedule	Initial and periodic Submittal schedule per Attachment 1-1 (USP: Critical Path Method Schedule)	1.3.2.2
Final Schedule	Submittal schedule per Attachment 1-1 (USP: Critical Path Method Schedule)	1.3.2.3
Schedule Revisions	Included with next Project Status Schedule following occurrence	1.3.2.4
Time Impact Analysis	Included with next Project Status Schedule following occurrence	1.3.2.5
Recovery Schedule	Included with next Project Status Schedule following occurrence	1.3.2.6
Project Management Plan	No later than 30 days following NTP	1.3.3
Revisions to the PMP	No later than 14 days after the occurrence of the change triggering the need for revision to the PMP	1.3.3.6
Document Management Plan	No later than 30 days following NTP	1.3.4

2 QUALITY MANAGEMENT

2.1 General

Design-Build Contractor shall conduct all Work necessary to meet the quality requirements for the Project in accordance with the PPA Documents, including Project Standards and this Section 2; Governmental Approvals; and Governmental Rules.

2.2 Schedule Management

Design-Build Contractor shall be responsible for scheduling its Work to meet review time periods described elsewhere in the PPA Documents for Witness Points and Hold Points.

2.2.1 Witness Points

At each Witness Point, Design-Build Contractor shall submit the identified items to INDOT for review. Work may proceed beyond a Witness Point, at Design-Build Contractor's risk.

Witness Points for design are as follows:

1. Plan sheets not defined as Hold Points
2. Preliminary layout, typical sections, and design computations, not included with the Stage 1 Review Submission
3. Supplemental geotechnical subsurface exploration and testing program described in Section 13 (Geotechnical)
4. Finalized cross sections
5. Level 1 and 2 FDCs, including red-line mark-ups of RFC plans
6. Concept Drainage Report described in Section 10 (Drainage)

In its reasonable discretion, INDOT reserves the right to add Witness Points to any aspect of the Project.

INDOT will maintain the right to review and comment if it is determined that revisions and Level 1 and Level 2 FDCs are not in conformance with the PPA, TPs, and applicable Project Standards.

2.2.2 Hold Points

At each Hold Point, Design-Build Contractor shall submit the information required to INDOT for review and comment. No Work relating to a Hold Point shall proceed beyond that Hold Point until Written Release is given by INDOT.

Hold Points shall occur for all construction activities that require inspection by INDOT as described in the Standard Specifications, RSPs, USPs, or these Technical Provisions.

Hold Points for construction are as follows:

1. Vibration and noise abatement management plans
2. QC plan approval for grading and borrow sources
3. QC plan approval for CRCP, PCCP, JPCP, HMA and temporary HMA paving
4. QC plan approval for storm water management
5. QC plan approval for structural steel painting or metallizing
6. Pre-paving conference for roadway
7. Pre-pour conference for bridge decks
8. Fabrication plant inspections
9. Working Drawings
10. Pre-phase site construction meeting
11. After reinforcing bar placement and prior to structural concrete placement
12. Structural concrete placement
13. Falsework Plan approvals
14. Post tensioning technical data and details
15. Erection plan approval for overhead structural members
16. Removal plan approval for existing structures
17. Superstructure installation slide or roll-in plans
18. Sound barrier Working Drawings and calculations
19. Work area access plan approval
20. ITS Submittals
21. Approval of Rule 5 Permit NOI

Hold Points for design are as follows:

1. Provide required analysis and documentation for NEPA noise re-analysis (if required)
2. Sound barrier design and Plans
3. Hydraulic report Submittal
4. Storage facility Submittal
5. Marion County Surveyor’s Office plan review of regulated drains
6. Construction sequencing, MOT, and temporary traffic control Plans
7. MOT Level One design criteria checklist for each major traffic phase
8. Level One design criteria checklist and calculations for design items

9. Level One and Level Two Design Exceptions
10. Level Two design criteria calculations for design items
11. Finalized typical sections
12. Finalized plan and profile grade
13. Clearances and geometrics for structures
14. Foundation review
15. Foundation design of overhead sign structures and high mast light towers
16. Roadside barrier design
17. Load ratings for bridges
18. Geotechnical Design Report
19. Retaining wall design and details
20. Signing Plans
21. Lighting Plans
22. ITS Plans
23. Signalization Plans
24. Requirements under USPs
25. Governmental Approval revisions
26. NEPA Document modifications
27. IAD modifications
28. Preliminary Plans for bridge preservation with calculations
29. Final Plans for bridge preservation with calculations
30. Stage 1 Review Submission
31. Stage 3 Review Submission, RFC Plans with calculations
32. Working Drawings
33. NDCs
34. Level 3 FDCs

In its reasonable discretion, INDOT reserves the right to add Hold Points to any aspect of the Project. Stage 1 Review Submission and Stage 3 Review Submission may be submitted to INDOT for review prior to the Environmental Determination. Design-Build Contractor shall not submit RFC documents prior to the Environmental Determination.

NDC and Level 3 FDC revised Plans and engineering analysis and calculations shall be submitted for review and acceptance by INDOT prior to proceeding with Construction Work.

2.3 Submittal and Electronic Posting Requirements

Design-Build Contractor will be provided access to the Project's dedicated website or file sharing system. All Submittals shall be made electronically in PDF, Microsoft Word, and Microsoft Excel format through INDOT's designated Project website or file sharing system. Access and use will be described by INDOT during the Project Kickoff.

For each Submittal, Design-Build Contractor shall send an e-mail notification to INDOT's Project Manager, INDOT's consultant document control manager, and carbon copy (CC) the following personnel:

- INDOT's project engineer/project supervisor
- INDOT's area engineer
- INDOT's consultant project manager
- INDOT's consultant design manager

Design-Build Contractor shall also send an email notification to other individual persons as identified by INDOT.

The date of a Submittal and timeframe by which it is submitted shall be in accordance with Section 3.4 (Design Submittal Package Requirements) and Section 24.12 of the PPA. Submittals will not be considered complete until the required email notification is sent and all required files are posted to INDOT's Project website or file sharing system.

All Submittals shall include a transmittal letter signed by the Project Manager or Design-Build Contractor's Authorized Representative. At a minimum, the transmittal letter shall include the date, purpose, contents, and any special handling requirements.

Design-Build Contractor shall respond to all comments and questions from reviews of Witness Point and Hold Point Submittals. INDOT will provide all review comments in a comment tracking form, and Design-Build Contractor shall respond to the comments in this form. This shall be part of the process by which comments are resolved.

Witness Point and Hold Point Submittals are subject to all Submittal and electronic posting requirements of this Section 2.

Design-Build Contractor shall maintain a complete and conformed set of current Released for Construction Documents on the designated INDOT Project website or file sharing system at all times. The Plans shall be updated in accordance with the approved Quality Management Plan procedures as revisions are made. In addition, a file containing only the revised plan sheets shall be posted to the Project website when revisions are made. Current copies of all supporting Design Documents, correspondence, and other related materials shall be maintained on the designated INDOT Project website or file sharing system in a similar fashion.

Design-Build Contractor shall provide two full-size and ten 11-by-17-inch bound hardcopy RFC Plan sets at INDOT's field office for INDOT's use. Design-Build Contractor shall update the hardcopies when revisions are made and shall replace and insert the new revised sheets.

2.4 Working Drawings

Working Drawing development, review, and approval shall be in accordance with the Standard Specifications and other Project Standards and shall be the responsibility of Design-Build Contractor and Designer. INDOT will review the Design-Build Contractor approved Working Drawings and design calculations for conformance with Project Standards.

2.5 Items List

Design-Build Contractor shall submit a complete list of items representative of the Work to be performed under the Contract Price. The list shall be from the pay item list on INDOT's website (https://www.in.gov/dot/div/contracts/pay/index.html), shall include any unique items as necessary, and shall be the list current as of the Setting Date. The list shall include the item code, the item description, and the unit of measure for each item. Each item shall include a quantity and a unit price of $0.00. Contract line numbers shall not be assigned to items on the list.

An initial items list shall be submitted according to instructions provided by INDOT at the Project Kickoff, broken out by each "Des. No." Design-Build Contractor shall submit an updated items list throughout the life of the Project as new items of Work are added and previous items of Work are revised. Updated items lists shall be submitted according to instructions provided by INDOT at the Project Kickoff and shall highlight those items added and revised since the previous submittal.

Design Plans shall include the list of pay items and quantities throughout each Plan set in accordance with the IDM requirements. Reducing redundancy of quantities and tables within a Plan set may be proposed by Design-Build Contractor for consideration, review, and approval at INDOT's sole discretion.

2.6 Correspondence

Except as may be required under Section 24.11 of the PPA, all correspondence shall be posted and routed through the Project website or file sharing system and addressed to INDOT's Project Manager, with copies to INDOT's area engineer, INDOT's project engineer/project supervisor, INDOT's consultant project manager, INDOT's consultant design manager, and INDOT's consultant document control manager.

2.7 Record Drawings

Design-Build Contractor shall prepare complete conformed full-size sets of Record Drawings based on the submittal packages developed in accordance with Section 3.4 (Design Package Submittal Requirements). The drawings shall conform to INDOT plan development and preparation guidelines for a Final Tracings Submission, including incorporation of construction changes. Record Drawings shall be signed and stamped by a Registered Professional Engineer. Design-Build Contractor must include a transmittal letter with a comprehensive list of what is included with every Submittal. File naming convention must follow INDOT requirements

unless approved by INDOT. Record Drawings and design calculations shall be submitted to INDOT in electronic PDF format files. Record Drawings and design calculations shall be posted to the Project website or file sharing system for INDOT review and comment. Accepted documents shall be submitted on ERMS by the Designer.

2.8 Final Documents

Design-Build Contractor shall furnish INDOT final electronic copy documentation in PDF format, which shall include Record Drawings, engineering reports, design calculations, and Working Drawings. The final documentation shall include a final items list with final as-built quantities. The final items list shall be submitted according to instructions provided by INDOT at the Project Kickoff, by Designation Number, with quantity calculations for each item.

Design-Build Contractor shall submit final documentation for completed Work to INDOT for review and acceptance as the Work progresses. The final electronic copy documentation shall be submitted as one complete package and shall be signed and stamped by a Registered Professional Engineer. All information requested shall be submitted on a flash drive or hard drive to the INDOT Central Office and INDOT Greenfield District.

INDOT will prepare the Final Construction Record, which will incorporate the above information along with inspection and test results collected by INDOT.

2.9 3D Modeling

Design-Build Contractor shall capture the as-built coordinates of all new assets listed in Table 2-1 (As-Built Data List), including those new assets placed within existing conduits. Design-Build Contractor shall collect coordinates of existing assets if they are modified or connected to any new assets (e.g., storm sewers, traffic barriers, or other features). Design-Build Contractor shall notify INDOT at least 24 hours prior to collecting data.

All x, y coordinates shall be sub-foot accurate. All z coordinates shall be 0.1-foot accurate. Coordinates and data shall be collected using the coordinate system used for the location route survey plat in the Reference Plans, unless otherwise specified.

Design-Build Contractor shall submit the data in (format to be provided) using the template provided at (to be provided). All data shall be accessible by INDOT at all times on the Document Management System and shall be updated daily after each data collection.

Prior to backfilling any trenches, Design-Build Contractor shall obtain x, y, and z location of underground facilities.

The person(s) collecting data shall coordinate with the facility installer(s) to exchange information on placement changes or the addition of any items, and on the timing of the Work.

Table 2-1: As-Built Data List

Data No.	Asset
1	Drainage/Stormwater
2	Traffic Management Systems

3	Lighting
4	Signing
5	Traffic Signals
6	Traffic Barrier
7	Retaining Walls
8	Sound Barriers
9	Hazardous Material Management

2.10 Deliverables

Deliverables under this Section 2, a non-exhaustive list of which is set forth in Table 2-2, shall be submitted in electronic format in accordance with the schedule set forth below. Acceptable electronic formats include PDF and current versions of Microsoft Word and Microsoft Excel, unless otherwise indicated.

Table 2-2: Deliverables

Deliverable	**Deliverable Schedule**	**TP Section**
Items List	Prior to the start of Work, but in no case later than 30 days after NTP	2.5
Updated Items List	Monthly, as needed for item list updates	2.5
Record Drawings	On or before Final Acceptance	2.7
Final Documents	Within 60 days after Final Acceptance	2.8
3D Modeling	Monthly	2.9

3 DESIGN REQUIREMENTS

3.1 General Design Requirements

Design-Build Contractor shall design the Work in accordance with the PPA Documents, including Project Standards, this Section 3 and its attachments; Governmental Approvals; and Governmental Rules.

Only design firms that are prequalified with INDOT for the work types specified, and that are sufficiently staffed and capable of performing the required Work, shall provide professional services for each related work type on the Project's Design-Build Contractor team. Multiple design firms may work on Design-Build Contractor team; however, one design firm shall be designated as the prime design firm (Designer). Design-Build Contractor shall assign Registered Professional Engineers and Registered Professional Land Surveyors to be in direct responsible charge of all engineering and surveying Work, respectively. If services are required that are predominantly oriented toward other disciplines, such as environmental, landscaping, transportation planning, or architectural applications, Design-Build Contractor shall assign other professionally competent personnel registered or licensed in the State of Indiana to be in charge of the applicable Work. Design-Build Contactor, in the aggregate (including Subcontractors) shall be prequalified in the following Prequalification Work Type Certifications:

- 5.1 Environmental Documentation Preparation – EA/EIS
- 5.6 Waterway Permits
- 5.8 Noise Analysis and Abatement Design
- 5.10 Historical/Architectural Investigations
- 5.14 Phase II ESA and Further Site Investigation/Corrective Action
- 6.1 Topographic Survey Data Collection
- 7.1 Geotechnical Engineering Services
- 8.2 Complex Roadway Design
- 9.2 Level 2 Bridge Design
- 10.1 Traffic Signal Design
- 10.2 Traffic Signal System Design
- 10.3 Complex Roadway Sign Design
- 10.4 Lighting Design
- 10.5 Intelligent Transportation System Design
- 10.6 Intelligent Transportation System Integration
- 16.1 Utility Coordination
- 17.2 Small Structure and Pipe Hydraulic Design

- 17.3 Storm Sewer and Detention Design

Plans shall be developed in accordance with Chapter 14 of the Indiana Design Manual. Except as expressly stated otherwise in these Technical Provisions, only Stage 1 Review Submission, Stage 3 Review Submission, and Released for Construction Documents will be required for submission to INDOT. Preliminary Plans for bridge preservation and traffic Work will be considered synonymous with Stage 1 Review Submission. Final Plans for bridge preservation Work will be considered synonymous with Stage 3 Review Submission. Design-Build Contractor must include a transmittal letter with a comprehensive list of what is included with every Submittal. Design-Build Contractor's file naming convention must follow INDOT requirements (https://www.in.gov/dot/div/contracts/design/dmforms/EdDoc103-02-02NamingConventions.pdf) or as modified and approved by INDOT.

In addition to the Submittal requirements of Section 2 (Quality Management) and this Section 3, Design-Build Contractor shall submit Released for Construction Documents packages developed in accordance with Section 3.4 (Design Package Submittal Requirements), conforming to INDOT plan development and preparation guidelines for a Final Tracings Submission, on ERMS in electronic PDF format files after review and resolution of all comments from INDOT. Design-Build Contractor shall send ERMS confirmation e-mails to the appropriate INDOT coordinator in accordance with Chapter 14-1.02(02) of the IDM, carbon copying the INDOT personnel listed in Section 2.3 (Submittal and Electronic Posting Requirements).

3.2 Specific Design Requirements

Design-Build Contractor shall:

1. Use English units for preparation of Plans and Submittals.
2. Prepare plan sheets in 22-inch x 34-inch format.
3. Provide Utility Adjustments, geotechnical investigations, engineering, design, Rule 5 Permit NOI, necessary permits or permit revisions, Record Drawings, and any other necessary items to design and construct the Project complete and in place.
4. Maintain and make available to INDOT, upon request, a Project record that includes a history of significant events, decisions, and correspondence, including changes and comments that influenced the development of the Project.
5. Perform additional surveys required for the Project and provide any design updates related to the changes in the topographic survey related to the Project.
6. Perform additional exploratory field work, laboratory testing, and appropriate analysis and engineering calculations to produce the proposed design.
7. Provide video documentation of the existing condition of all routes being used as a result of the Transportation Management Plan.

3.3 Design Criteria

The Project shall comply with the Project Standards shown in Attachment 3-1 (Applicable Standards), unless otherwise noted in the PPA Documents. Some USPs have been provided as attachments to the Technical Provisions. Other USPs required to complete the Work shall be

the responsibility of the Design-Build Contractor, subject to INDOT review and approval in its good faith discretion.

For erosion control measures, the IDEM Indiana Stormwater Quality Manual shall control in case of conflict.

3.4 Design Package Submittal Requirements

All Design Documents and other related documents for the Design Work shall be assembled into separate construction packages based on logical groupings and constructible units starting with each Designation Number (Des. No.), as shown in Section 1 (General Scope of Work). A design Submittal shall not include more than one Designation Number. Road, drainage, and traffic design Submittals must be separated into construction packages for each discipline. Each design Submittal package shall consist of similar and coherent parts of the Project that can be checked and reviewed as a self-contained package with due consideration for accommodating interfaces with other Project components. A Submittal report identifying each construction package shall be submitted to INDOT for review and comment.

The Submittal report shall include:

1. Package description, including the scope of the Design Work within each package, including limits and interface points;
2. Planned review stages and dates, including specific information to be reviewed, review dates (measured from commencement of design) specified in the PPA Documents, and percent complete represented by each review; and,
3. Engineer of record

The monthly Progress Report described in Attachment 1-1 of the Technical Provisions shall include any revisions to the design Submittal report previously provided at the Project Kickoff and in the previous month's Progress Report.

3.5 Project Kickoff

Design-Build Contractor shall plan, schedule, and hold a Project Kickoff with INDOT before Design Work commences. A draft design package submittal schedule and agenda shall be submitted to INDOT for review and comment three days prior to the Project Kickoff. The goal of the Project Kickoff is to familiarize the Design-Build Contractor's design personnel and INDOT review personnel with the design concepts, issues, status, and review procedures, with the intent of making the subsequent design reviews more effective and efficient for all parties. The agenda of the Project Kickoff and how it is organized (e.g., by Submittal and engineering discipline) shall be jointly developed by INDOT and Design-Build Contractor.

The agenda shall include time for a discussion of the necessary Governmental Approvals, permitting processes, review times, and strategy for the mitigation of potential delays. These issues and specified review times shall be included within the Project Baseline Schedule.

All agreements, schedules, and understandings reached during the Project Kickoff shall be documented and submitted for approval by Design-Build Contractor's Project Manager and INDOT.

3.6 Design Exceptions

Except for Design Exceptions listed in Sections 8.4 (INDOT-Provided Design Exceptions) and 14.8 (Level One Design Exceptions), Design-Build Contractor may propose Design Exceptions and follow INDOT's Design Exception process described in IDM Chapter 40; however, INDOT reserves the right to reject, in its sole discretion, any proposed change that requires a Design Exception or does not otherwise conform to the requirements of the PPA Documents. All adjustments to the Project shall conform to Governmental Rules and Governmental Approvals. Delays due to approvals for Design Exceptions shall not be considered eligible for a Change Order. All Level Two Design Exceptions, except for the Design Exceptions set forth in Section 8.4.2 (Level Two Design Exceptions), shall be approved, in advance, by INDOT in writing. Design-Build Contractor may propose a combined Design Exception by element (e.g., shoulder width) for INDOT review and approval.

3.7 Deliverables

Deliverables under this Section 3, a non-exhaustive list of which is set forth in Table 3-1, shall be submitted in electronic format in accordance with the schedule set forth below. Acceptable electronic formats include PDF and current versions of Microsoft Word and Microsoft Excel, unless otherwise indicated.

Table 3-1: Deliverables

Deliverable	Deliverable Schedule	TP Section
Stage 1 Review Submission	As required	3.1
Stage 3 Review Submission	As required	3.1
Released for Construction Documents	As required	3.1
Design Package Submittal report	At Project Kickoff and revisions with the Progress Report	3.4
Draft schedule and agenda for Project Kickoff	Three days prior to Project Kickoff	3.5
Design Exception documentation	As needed	3.6

4 CONSTRUCTION REQUIREMENTS

4.1 General Construction Requirements

Design-Build Contractor shall construct the Work in accordance with the PPA Documents, including Project Standards, this Section 4 and its attachments; Governmental Approvals; and applicable Governmental Rules.

4.2 Qualification and Prequalification

Design-Build Contractor and its Subcontractors must have certain INDOT Certificates of Qualification and INDOT Prequalification Work Type Certifications as set forth below (https://www.in.gov/indot/2740.htm):

1. Design-Build Contractor (or its Equity Members) must have an INDOT Certificate of Qualification for at least $250 million in the aggregate/$Unlimited by INDOT.

   Subcontractors will not be counted toward this prequalification requirement.

2. Design-Build Contractor (or its Equity Members) must have an INDOT Prequalification Work Type Certification for at least $50 million in the aggregate in one of the following INDOT construction prequalification work types:

   a. A (a) Concrete Pavement – General

   b. D (b) Highway or Railroad Bridge over Highway

Subcontractors will not be counted toward this INDOT Prequalification Work Type Certification requirement.

3. Design-Build Contractor, in the aggregate (including Subcontractors), must have INDOT Prequalification Work Type Certification in the following INDOT contractor prequalification work types:

   a. B (a) Asphalt Pavement – with INDOT Certified Hot Mix Asphalt (HMA) Plant

   b. C (a) Heavy Grading

   c. D (c) Bridge Involving Protection of Railroad Tracks

   d. E (a) Traffic Control: Signal Installation

   e. E (d) Traffic Control: Sign Installation

   f. E (g) Traffic Control: Pavement Markings

   g. E (i) Permanent Seeding, Sodding, and Top Soil

   h. E (k) Guardrail, Cable Barrier, Crash Attenuators, and Fence

Subcontractors will be counted toward this INDOT Prequalification Work Type Certification requirement.

4. Design-Build Contractor, in the aggregate (including Subcontractors), must have INDOT Prequalification Work Type Certification in the following INDOT consultant prequalification work types:

    a. 5.1 Environmental Documentation Preparation – EA/EIS

    b. 5.6 Waterway Permits

    c. 5.8 Noise Analysis and Abatement Design

    d. 5.10 Historical/Architectural Investigations

    e. 5.14 Phase II ESA and Further Site Investigation/Corrective Action

    f. 6.1 Topographic Survey Data Collection

    g. 7.1 Geotechnical Engineering Services

    h. 8.2 Complex Roadway Design

    i. 9.2 Level Two Bridge Design

    j. 10.1 Traffic Signal Design

    k. 10.2 Traffic Signal System Design

    l. 10.4 Lighting Design

    m. 10.5 Intelligent Transportation System Design

    n. 10.6 Intelligent Transportation System Integration

    o. 16.1 Utility Coordination

    p. 17.2 Small Structure and Pipe Hydraulic Design

    q. 17.3 Storm Sewer and Detention Design

Subcontractors will be counted toward this INDOT Prequalification Work Type Certification requirement.

In addition to the above, other members of Design-Build Contractor that will be undertaking work on the Project that requires INDOT Prequalification Work Type Certification must have the INDOT Prequalification Work Type Certification prior to performing the applicable work assigned to such member.

For any Utility Adjustments that Design-Build Contractor undertakes in connection with the Project, Design-Build Contractor shall use Subcontractors that are approved by the applicable Utility Owner to perform the Work.

4.3 Specific Construction Requirements

Design-Build Contractor shall comply with the following requirements:

1. Design-Build Contractor may work 24 hours per day, 7 days per week, except during the following Holiday periods unless prior written approval is received from INDOT. Design-

Build Contractor shall not receive time extensions for Movement Closures, Substantial Completion or Final Acceptance during these Holiday periods.

a. New Year's Day. If New Year's Day falls on a Sunday, work shall be suspended from noon December 31 until sunrise January 3. If New Year's Day falls on a Monday through Saturday, work shall be suspended from noon December 31 until sunrise January 2.

b. Good Friday. Work shall be suspended from noon on Good Friday until sunrise Monday.

c. Memorial Day. Work shall be suspended from noon the Friday before Memorial Day until sunrise Tuesday, the day after Memorial Day.

d. Independence Day. If Independence Day falls on a:

   1) Sunday - Work shall be suspended from noon Friday, July 2, until sunrise Tuesday, July 6.

   2) Monday - Work shall be suspended from noon Friday, July 1, until sunrise Tuesday, July 5.

   3) Tuesday - Work shall be suspended from noon Friday, June 30, until sunrise Wednesday, July 5.

   4) Wednesday - Work shall be suspended from sunset on Tuesday, July 3, until sunrise Thursday, July 5.

   5) Thursday - Work shall be suspended from noon Wednesday, July 3, until sunrise Monday, July 8.

   6) Friday - Work shall be suspended from noon Thursday, July 3, until sunrise Monday, July 7.

   7) Saturday - Work shall be suspended from noon Thursday, July 2, until sunrise Monday, July 6.

e. Labor Day. Work shall be suspended from noon the Friday before Labor Day until sunrise Tuesday, the day after Labor Day.

f. Thanksgiving Day. Work shall be suspended from noon the Wednesday before Thanksgiving Day until sunrise the Monday after Thanksgiving Day.

2. Christmas Day. Work shall be suspended from noon December 24 until sunrise December 27.

3. Design-Build Contractor shall use an inertial profiler in accordance with Attachment 4-1 (USP: Inertial Profiler for PCCP) as applicable.

4. Design-Build Contractor shall install monuments in accordance with Chapter 17-4.09 of the IDM, the Standard Specifications, Standard Drawings, and Section 18 (Right of Way).

5. Design-Build Contractor shall maintain positive drainage on all active travel lanes during construction and shall meet spread requirements to prevent ponding of water on active travel lanes. Design-Build Contractor shall verify to the satisfaction of INDOT that all

existing drainage is functioning prior to construction to ensure it is providing its intended purpose and is free of obstructions.

6. Design-Build Contractor shall perform all maintenance during construction for the Project, including maintaining INDOT's field office and laboratory area(s). Required maintenance shall include four cycles of mowing per year, Pothole repair, roadway debris clean-up (dead animals, litter, motor vehicle crashes, Incidents, hazards that disrupt normal traffic condition and flow), signing repair, lighting repair, guardrail repair, and other items required to maintain safe driving conditions. Any deviations to these requirements for maintenance require INDOT approval prior to implementation.

7. Construction Memorandum 09-02, Potholes in Work Zones, does not apply. Design-Build Contractor shall assess and document pavement condition and repair existing Potholes and any other Potholes or pavement failures that develop during construction after the conditions in Section 4.5.1 of the PPA have been satisfied. Design-Build Contractor shall submit the pavement condition documentation to INDOT within 30 days after issuance of commencement of construction. At any point during the Project, INDOT may, in its sole discretion, identify Potholes to be repaired by Design-Build Contractor within 24 hours of notification, subject to Section 12.1.3.2 of the PPA.

8. INDOT and the Indianapolis Department of Public Works are responsible for snow removal of active travel lanes within the Planned ROW Limits during winter months. Design-Build Contractor shall perform snow removal in areas of the field offices, laboratory areas and other construction access points.

9. An IMSA certified Level II technician shall be available 24 hours per day to respond within two hours for the maintenance of traffic signal equipment within Project ROW.

10. Design-Build Contractor shall comply with Attachment 4-2 (QC/QA, Soil Embankment and Subgrade) in conjunction with Attachment 13-2 (Embankment) and Attachment 13-3 (Strength, Stiffness, and Density Tests). The quality control plan shall be in accordance with Attachment 4-2 (QC/QA, Soil Embankment and Subgrade), but shall be modified to incorporate the requirements of Attachment 13-2 (Embankment) and Attachment 13-3 (Strength, Stiffness, and Density Tests).

11. Design-Build Contractor shall perform non-routine maintenance of sidewalks, including cleaning of all existing sidewalks at Commerce/Roosevelt and Valley Street crossings, removing all debris, and maintaining the sidewalk area until Substantial Completion.

4.4 Clearing Project Right of Way

No tree clearing shall be performed from April 1 through September 30 on trees suitable for Indiana bat and northern long-eared bat roosting (trees greater than 3 inches diameter at breast height) unless approved in advance and in writing by U.S. Fish and Wildlife Service. Design-Build Contractor shall be responsible for obtaining any such approval.

Tree clearing shall be limited to the construction limits and include no more than is necessary to construct the Work. Trees within the "Do Not Disturb" zones per Section 7.9 (Environmentally Restricted and "Do Not Disturb" Zones) shall not be disturbed and shall be delineated with silt fence.

4.5 Scheduling and Notification

An updated Construction Work activity schedule shall be submitted to INDOT by 12:00 noon (Eastern Time) on Friday each week during Construction Work. The Construction Work activity schedule shall include all planned Construction Work activities, including fabrication, for the upcoming two weeks. This two-week schedule of planned Construction Work activities shall also be discussed at the progress meeting described in Attachment 1-1 (USP: General Scope of Work) in order to allow timely coordination of inspection activities.

4.6 Construction Documentation

Documentation of progress and observed construction performance shall be prepared, collected, and preserved during Design-Build Contractor's performance of the Construction Work. The documentation shall be in a digital format acceptable to INDOT and shall include:

1. Critical Path Method (CPM) construction schedule
2. Final construction record drawings
3. GPS coordinates of all completed underdrain outlets and cleanouts and all pipes and culverts. GPS coordinates shall be incorporated into the underdrain and structure data tables of the Record Drawings
4. Secure databases, such as spreadsheets, and computation books
5. Field Design Change sheets for design and construction changes

Design-Build Contractor shall prepare and submit an aerial drone photography implementation Plan to INDOT for review and approval. In this plan, Design-Build Contractor shall describe the following at a minimum:

1. Drone planning and operations, including any necessary notice to Project neighbors
2. Drone photography safety plan
3. Details of drone photography acquisition and delivery schedule
4. Proposed format of flight logs and records to be retained for the term
5. Documentation of FAA qualifications for commercial drone photography companies to be used on the Project
6. Copy of any approved permits as applicable to aerial drone photography
7. Technical details of proposed ortho-mosaic photography, including proposed scale, resolution, photograph locations/perspectives based on the Project limits, and continuous coverage for the Project limits
8. Process for distributing the data and interfacing with INDOT, including the number of photographs for each Project-specific location

Design-Build Contractor shall perform aerial drone photography on a bi-weekly basis for the duration of the Project, beginning at the commencement of Construction Work and ending at Final Acceptance. Design-Build Contractor shall submit high resolution, high quality digital aerial drone photography to INDOT on a bi-weekly basis for its review and use. Potential uses on the

Project include the following:

1. Supporting communications and public involvement coordination efforts
2. Documenting construction progress
3. Estimating quantities
4. Monitoring the location of construction workers and equipment
5. Evaluating and reviewing MOT within the Work zone
6. Assisting in Change Requests, Change Orders, and Dispute Resolution

Design-Build Contractor shall perform and submit high resolution, high quality digital aerial drone photography prior to the commencement of Construction Work and at Final Acceptance for the following:

1. Develop existing asset condition documentation prior to commencement of Construction Work, including LiDAR level 3D imagery and models
2. Document existing pavement conditions on official detour routes
3. Develop as-built asset condition documentation for post-Project retention, including LiDAR level 3D imagery and models

A comprehensive daily log for Construction Work activities shall be prepared and maintained by the Project Manager or his or her designee(s). The daily log shall include all significant occurrences in a narrative form, including unusual weather, asserted occurrences, events, and conditions causing or threatening to cause any significant delay, disruption, or interference with the progress of any of the Work; significant injuries to person or property; and a listing of each Critical Path activity depicted on the current monthly schedule update being actively prosecuted. The log shall also include traffic crashes and Movement Closures in effect at the time of the crash. Design-Build Contractor shall submit a copy of the crash report from Indiana State Police (ISP) and a report with locations and setup of the traffic control at the time of the crash to INDOT.

For Utility-related activities, such data shall be maintained separately in a log for each Utility facility.

For Hazardous Materials Management, such data shall be maintained separately in a log for each site.

Documentation shall be completed and submitted weekly. Submit records, including progress photographs, that include factual evidence that required activities have been performed, including the following:

1. Nonconforming Work status
2. Proposed corrective actions
3. Corrective actions completed

4.7 Material Certifications

Design-Build Contractor shall present information regarding prestressed/precast structural members and the fabricators of any structural steel and other metal structural members to INDOT as soon as it is available. Copies of documentation for all sources of supply shall be provided as soon as the sources are known, but no less than 30 days prior to delivery to the Site.

Design-Build Contractor shall use INDOT's current list of qualified manufacturers, producers, suppliers, and fabricators for the specified materials (https://www.in.gov/indot/2736.htm), unless otherwise approved by INDOT at its sole discretion.

When Design-Build Contractor purchases materials from Suppliers shown on INDOT's approved materials list, Design-Build Contractor shall be provided a materials certification, or a certificate of delivery, certificate of analysis, or certificate of compliance, as required, from the Supplier, that covers the materials and the source. All documentary evidence that materials conform to the procurement requirements shall be submitted to INDOT or its representative at the same time Design-Build Contractor receives such documentary evidence. If Design-Build Contractor wishes to purchase materials from a Supplier not shown on INDOT's approved materials list, Design-Build Contractor must submit a request to INDOT for approval in its sole discretion. Design-Build Contractor shall obtain approval from INDOT prior to use.

Documentary evidence that materials and equipment conform to the procurement requirements shall be available at the Site no less than 24 hours prior to installation or the use of such materials and equipment. This documentary evidence shall be retained at the Site and be sufficient to identify that the specific requirements, such as Construction Documents, Project Standards, and Governmental Rules, are fulfilled by the purchased materials and equipment. The substitution of materials for specified materials is not to occur without prior approval by Design-Build Contractor's Design Manager and INDOT. Failure to acquire prior substitution approval prior to use constitutes as Nonconforming Work.

4.8 Deliverables

Deliverables under this Section 4, a non-exhaustive list of which is set forth in Table 4-1, shall be submitted in both hardcopy and electronic format in accordance with the schedule set forth below. Acceptable electronic formats include PDF and current versions of Microsoft Word and Microsoft Excel, unless otherwise indicated.

Table 4-1: Deliverables

Deliverable	Deliverable Schedule	TP Section
Construction Work activity schedule	By noon on Friday each week during Construction Work	4.5
Construction documentation	Weekly, monthly, and Final Acceptance	4.6
Sources of supply of fabricated structural steel and prestressed/precast structural members and copies of documentation	As soon as known, but no less than 30 days prior to delivery	4.7
Material certifications	Upon receipt from Suppliers	4.7

5 PUBLIC INVOLVEMENT

5.1 General

Design-Build Contractor shall perform the public involvement Work in accordance with the PPA Documents, including Project Standards and this Section 5; Governmental Approvals; and Governmental Rules.

Design-Build Contractor shall assist INDOT in identifying and implementing ways of informing the public, individual property owners, stakeholders, media and other broader communities about Design Work and Construction Work that directly affects them. INDOT will be responsible for responding to all public information requests, with support from Design-Build Contractor.

5.2 Public Involvement Requirements

The public involvement element is intended to advance previous dialogue from the NEPA work with residents, landowners, community groups, local officials, participating agencies and community advisory committees, and other stakeholder groups. Design-Build Contractor shall conduct public involvement tasks related to continued Project dialogue as the Project is designed and constructed.

5.3 Design-Build Contractor Public Involvement Responsibilities and Requirements

5.3.1 Public Involvement Plan

5.3.1.1 General PIP Requirements

Design-Build Contractor shall support INDOT in administering its public involvement plan (PIP), which addresses all public involvement tasks defined in this Section 5 and elsewhere in the PPA Documents.

Design-Build Contractor shall support INDOT in addressing any concerns the public may have and to consider all reasonable suggestions from the public. Design-Build Contractor shall document and submit to INDOT all concerns and requests from the public. Documentation shall be in the form of meeting minutes and correspondence, including emails.

Design-Build Contractor shall coordinate with INDOT to develop a common set of talking points and answers to address routine questions that do not require consultation with INDOT (e.g., construction schedules, anticipated closures, etc.). Beyond addressing these standard questions and requests, Design-Build Contractor shall direct all other requests it receives to INDOT and shall assist INDOT in preparing responses.

The PIP describes proposed communication tools to supplement outreach efforts, such as brochures, educational opportunities, newsletters, and preparation of press releases. The PIP also describes the process for maintaining and updating existing communication assets developed by INDOT during the NEPA process, including Project identity, Project website, and social media sites.

In support of INDOT, Design-Build Contractor shall provide assistance with regard to community participation and interaction during the development of the design and construction of the Project.

5.3.1.2 Landscaping and Aesthetics Meeting Requirements

Design-Build Contractor shall support INDOT in engaging stakeholders in the review of options for landscape and aesthetic design. Options exist within the requirements provided in Section 6 (Aesthetics and Landscape Architectural Work) for final selection of colors, font styles and texts, surface textures, plant selection, and public art features (art to be provided by others). Design-Build Contractor shall assist INDOT in identifying these options, propose approach and selection process for options, and shall prepare displays and descriptive materials for use at stakeholder meetings to be scheduled and conducted by INDOT.

Design-Build Contractor shall support INDOT in the following meetings related to landscape and aesthetic design:

- Four meetings to present the overall construction schedule for this Work and allow the stakeholders to provide input where options are proposed.
- Two meetings (one each Spring) to update the stakeholders on general Construction Work and schedules for the upcoming construction season.
- Meetings as required to coordinate the aesthetic design of sound barriers with affected communities, in accordance with Section 7.5.1 (Sound Barrier and Noise Attenuation). Design-Build Contractor shall propose approach and selection process for patterns and color options for the neighborhood side of sound barriers.

5.3.2 Public Involvement Coordinator and Staff

Design-Build Contractor shall provide a Public Involvement Coordinator to lead all Design-Build Contractor public information tasks. The Public Involvement Coordinator is responsible for identifying public information issues related to the Design-Build Contractor's Work, and for formulating and implementing strategies to address those issues. The Public Involvement Coordinator shall work with INDOT to maintain public satisfaction with a strong emphasis on communication of restrictions and impacts. The Public Involvement Coordinator shall have at least three years of recent experience coordinating information on similar highway improvement projects, including the following:

1. Writing for the public, news media, and the Internet
2. Providing and presenting information to the public, news reporters, community groups, and others
3. Developing, implementing, and measuring the results of strategic communication plans and strategic messaging
4. Developing and producing maps, charts, graphs, diagrams, and other visual images
5. Developing and implementing public involvement and community relations programs

The Public Involvement Coordinator shall have a designated assistant to serve as a back-up if the Public Involvement Coordinator is unavailable and to assist in the performance of the functions described in this Section 5. The designated assistant shall also serve as the technical

assistant to the Public Involvement Coordinator and shall have the ability to read and interpret plans and be able to communicate Construction Work to the public, news reporters, community groups and other interested stakeholders.

The Public Involvement Coordinator shall have full access to all Design-Build Contractor's Project details and schedules that may be relevant to the public, public agencies, emergency service providers, businesses, media, schools, and other interested parties. The Public Involvement Coordinator shall share information with the INDOT PIP Program Manager continually throughout the Project.

Design-Build Contractor shall provide INDOT with a prioritized after-hours call list within 30 days after NTP. The call list shall include the contact information for Design-Build Contractor's public information staff, including home and mobile phone numbers and email addresses.

5.3.2.1 Construction Schedule

One month prior to commencement of construction in any area of the Project, the Public Involvement Coordinator shall notify the INDOT PIP Program Manager of general construction schedules. The Public Involvement Coordinator shall provide construction updates to the INDOT PIP Program Manager on a weekly basis. The Public Involvement Coordinator shall deliver additional updates if construction and traffic impacts change, or if INDOT requests additional updates. These updates shall include the upcoming six weeks' planned closures, detours, Project status, and other information relevant to the public.

5.3.2.2 Meetings

The Public Involvement Coordinator shall meet with INDOT bi-weekly and/or as needed to maintain coordination and communication with INDOT on all public information goals and activities. Either INDOT or Design-Build Contractor may request a meeting. Meetings may include staff from INDOT and other key constituencies and key stakeholders.

The Public Involvement Coordinator shall meet with INDOT staff more frequently, as directed by INDOT, in the initial months of the Project to discuss and coordinate Project specifics and expectations.

When requested by INDOT, the Public Involvement Coordinator shall also participate in conference call meetings to assist in the development and implementation of communications plans related to critical Construction Work.

5.3.3 Design-Build Contractor's Response to Inquiries and Comments

Questions or comments from residents, businesses, or other members of the public shall be referred to the INDOT PIP Program Manager within half a Business Day. Design-Build Contractor shall take the necessary steps to facilitate such contact.

If Design-Build Contractor receives a complaint regarding its conduct of Work, Design-Build Contractor shall notify the INDOT PIP Program Manager within half a Business Day. Design-Build Contractor shall provide the necessary information, staff support, and representation to assist in resolving the complaint.

On occasions specified by INDOT, Design-Build Contractor shall commit its Project Manager to serve as a spokesperson for the Project for technical, safety, and other issues with certain designated audiences.

5.3.4 Public Notifications

Design-Build Contractor shall facilitate INDOT's notification of the public and affected businesses and residents. As directed by INDOT, this may include direct contact with affected parties for updates on upcoming events. Design-Build Contractor shall obtain approval from INDOT of any information to be provided to the public prior to release.

Design-Build Contractor shall provide the specific notifications listed in Table 5-1 to the INDOT PIP Program Manager.

Table 5-1: Notifications

Notice	Requirement
Written notification	All written notifications shall be sent on standard North Split Project letterhead to be provided by INDOT.
Movement Closures	In accordance with notification requirements in Table 12-2 (Movement Closure Notification Periods).
Critical Utility Shut-off/Diversion	Written notice at least as agreed to in Utility Agreement or 48 hours, whichever is less, in advance of shut-off and, as applicable, diversions. Copy of notice to the INDOT PIP Program Manager.
Business/Commercial Utility Shutdown	Written notification of Utility shutdown or diversion for businesses and commercial property at least 48 hours, or as agreed to in Utility Agreement, in advance of shutdown. Copy of notice to the INDOT PIP Program Manager. Notice shall be coordinated in advance with INDOT.
Residential Utility Shutdown	Written notification of Utility shutdown or diversion for residential property 48 hours, or as agreed to in Utility Agreement, in advance of shutdown. Copy of notice to the INDOT PIP Program Manager. Notice shall be coordinated in advance with INDOT.
Weekly Construction Updates	Construction updates shall be provided weekly and shall identify all planned traffic shifts, Movement Closures, and Utility shut-downs and activities. Updates shall cover at a minimum the prior week and projected out the next six weeks.
Property Access Notification	Non-emergency and emergency access may be required on private properties outside the Project Right of Way. Contact information for some private properties is available through the INDOT PIP Program Manager. Design-Build Contractor shall be responsible for securing permission to access private property from property owner. Design-Build Contractor shall supply information to the INDOT PIP Program Manager documenting access approval from the property owner prior to accessing the property.
Driveway Closures	Written notice and personal contact in advance of closure, as specified in the TMP, haul routes, and Section 12.4 of the Technical Provisions. Copy of notice to the INDOT PIP Program Manager.

Notice	Requirement
Movement Closures impacting School Access	Changes in roads used by school bus routes shall be discussed with the school systems a minimum of 28 days prior to when the changes actually take place so the school systems can adjust routes in a timely manner. Where roads are severed, provisions for turnarounds will be included during the final design phase of the project.
Movement Closures impacting transit system operations	For routes with transit system operations, written notice shall be sent to the transit system operator 28 days prior to when a route will be affected.

5.3.5 Public Contact Records

Design-Build Contractor shall maintain a consistent system for documenting all Design-Build Contractor contact with business owners, residents, the media, and property owners. Unless otherwise directed, Design-Build Contractor shall direct all requests for comment to the INDOT PIP Program Manager. Design-Build Contractor shall provide the INDOT PIP Program Manager with an updated electronic version of all public contact records monthly. Design-Build Contractor shall submit the file to the INDOT PIP Program Manager by the 1st of each month and shall include all contacts made prior to the 25th of the previous month.

5.3.6 Project Identification Signage

Design-Build Contractor shall install ground-mounted Project identification signs within 30 days after Environmental Determination, to be placed at the start and end of the Project and at all field offices. The Project identification signs shall identify INDOT with its official logo and show the name of the Project, the Project hotline number per Section 5.3.9.3 (Telephone Hotline), the Project website address, and the Project logo. A sample of the Project identification sign shall be submitted to INDOT for review and approval 30 days prior to installation. Signs and lettering shall be sized appropriately for the speed limit in the area, using Manual on Uniform Traffic Control Devices size guidelines.

5.3.7 Public Forums and Meetings

At the request of INDOT, Design-Build Contractor shall participate in INDOT-organized public forums and meetings.

The Public Involvement Coordinator shall assist with outreach to community groups, including local jurisdictions, neighborhoods, businesses, truckers, shippers, transit agencies, employee transportation coordinators, and environmental groups. The Public Involvement Coordinator shall be available to attend public and community meetings or to make presentations at INDOT's request for the duration of the PPA.

5.3.8 Coordination with TMP

Design-Build Contractor Public Involvement Coordinator shall coordinate with the MOT Manager, Incident Management Liaison and other Project staff and assist INDOT to communicate construction traffic information to the public and other affected parties. In addition, Design-Build Contractor shall assist INDOT in coordinating traffic communications with neighboring construction projects, as part of an established coordinated communications plan.

5.3.8.1 Maintenance of Traffic and Access

Design-Build Contractor shall assist INDOT in providing maintenance of traffic and access information for the Project to affected commuters, residents, and businesses prior to any revision to access in the area affected. Notifications shall be in accordance with Table 12-2 (Movement Closure Notification Periods) and shall include the following:

- Purpose of the change
- Area affected and dates of impact
- Alternate routes and detours
- A contact person for further information (the contact person shall be coordinated in advance with INDOT)

5.3.8.2 Traffic Conditions

Design-Build Contractor shall inform INDOT Project personnel of any Incidents or unexpected traffic conditions, such as road obstructions, within 15 minutes of detection.

5.3.8.3 Commercial Vehicle Access and Restriction Information

Fourteen days prior to any activity taking place that may restrict or impede the movement of commercial vehicles due to reduced lane widths, reduced height clearances, or lower weight limits, Design-Build Contractor shall coordinate with and assist INDOT in providing the following agencies with a description, start date, and end date of the event:

1. Indiana State Police
2. Indianapolis Police Department
3. Indianapolis DPW
4. INDOT Greenfield District
5. Other – Indianapolis Fire Department, hospitals, school transportation offices, Indiana Motor Truck Association (IMTA), IndyGo, etc., as deemed by INDOT to be appropriate

5.3.8.4 Emergency Vehicle Access

Design-Build Contractor shall assist INDOT in developing a protocol for communicating information to the emergency service providers regarding access to and through the Project area for emergency vehicles.

5.3.9 Methods and Tools for Disseminating Information

The methods and tools listed in this Section 5.3.9 will be employed by INDOT to disseminate information to the public in a timely fashion. In addition, INDOT will use social media (e.g., Facebook and Twitter) to enhance the ability to quickly notify the public of Incident alerts or other construction change alerts. Design-Build Contractor shall provide Project information as requested by INDOT promptly to expedite these efforts.

5.3.9.1 Not Used

5.3.9.2 Variable Message Signs (VMS) Messaging

Design-Build Contractor shall provide timely and accurate information daily or as requested by INDOT for VMS messages. Design-Build Contractor shall prepare draft messages 14 days in advance of traffic restrictions due to planned construction activities for INDOT to review.

5.3.9.3 Telephone Hotline

INDOT will establish and manage a telephone hotline for the Project. Design-Build Contractor shall provide information requested by INDOT for response to inquiries from the hotline within 24 hours of INDOT's request.

5.3.9.4 Collateral Materials

In addition to the dissemination of construction information discussed in this Section 5, Design-Build Contractor shall, upon request from INDOT, assist INDOT with producing written materials regarding construction issues specific to the Project, which may include schedule, noise, lights, and fugitive dust. INDOT will determine when materials shall be distributed to businesses and neighborhoods, the size of the distribution area, and the content of the materials.

5.3.9.5 Correspondence and E-Mail

Design-Build Contractor shall forward to INDOT all requests Design-Build Contractor receives for Project-related information via telephone, email, and letters to and from the public within five Business Days of the request. Project-related correspondence shall include communications from the public, businesses, community groups, and government entities affected by the Project. Design-Build Contractor shall assist INDOT in preparing responses to correspondence as requested by INDOT.

5.3.10 Construction Progress Reports

Design-Build Contractor shall provide a brief weekly progress report to INDOT. The report shall summarize progress made the previous week and include high-resolution photographs in electronic format and/or other media of the previous week's Construction Work. Design-Build Contractor shall submit the report by email every Monday to the designated INDOT PIP Program Manager.

In addition, Design-Build Contractor shall facilitate requests and make arrangements for INDOT to take additional photos on an as-requested basis. Distinct from progress documentation photos, the purpose of photos identified in this Section 5 is to facilitate public information via Project website, newsletters, and other such materials.

5.4 Other Design-Build Contractor Activities

Design-Build Contractor shall assist INDOT in maintaining a partnering relationship with the community at large and include appropriate outreach efforts. Design-Build Contractor shall assist INDOT in keeping local affected stakeholders informed on a regular basis.

5.5 Media Relations

Media relations will be handled by INDOT with assistance from Design-Build Contractor unless otherwise specified in this Section 5.

Design-Build Contractor shall participate in media interviews or other media information support activities at INDOT's request. When participating in media inquiries and interviews, Design-Build Contractor shall provide information that complies with INDOT messaging and other standards, including requirements for advance Project information, Project progress and accountability, and timely response to media inquiries.

Design-Build Contractor shall coordinate all media requests with INDOT prior to interviews. INDOT will be the media spokesperson. Design-Build Contractor shall provide INDOT with information and access to key Project staff for press interviews, as requested.

Design-Build Contractor shall provide information and materials that meet local broadcast and print media requirements and deadlines. All information released to the news media must first be reviewed and approved by INDOT prior to release.

Design-Build Contractor shall not interface with the media without the expressed consent of INDOT, and as specifically directed by INDOT. Design-Build Contractor shall immediately notify INDOT of any situations, including Incidents and emergencies, which may attract media attention.

At INDOT's request, Design-Build Contractor shall conduct tours of the Project for media, local or state government officials, or INDOT management.

In addition to those developed under Section 5.3.1 (Public Involvement Plan), Design-Build Contractor shall maintain a common set of talking points and standby questions and answers that is updated monthly with changing media inquiries and Project activities.

Design-Build Contractor shall assist in preparing news releases and other publications necessary to inform the public of design, construction, and maintenance activities and the activities' impacts to traffic.

Design-Build Contractor representatives shall participate in bi-weekly communications coordination meetings or teleconferences through the completion of the Construction Work for the Project.

5.6 Summary of Roles and Responsibilities

Table 5-2 provides a non-exhaustive summary of the responsibilities of Design-Build Contractor on certain Project information tasks. It also identifies the TP Section and describes the general timeframe for these activities.

Table 5-2: Roles and Responsibilities

Task	TP Section	Timeframe	Responsibility
Respond to public information requests, correspondence, and email	5.1 5.4.9.5	NTP to Final Acceptance	INDOT PIP Program Manager with support from Design-Build Contractor
Function as official Project spokesperson	5.3	NTP to Final Acceptance	INDOT PIP Program Manager with support from Design-Build Contractor
Coordinate News Media Inquiries	5.3	NTP to Final Acceptance	INDOT PIP Program Manager with support from Design-Build Contractor
Respond to property owner and public questions and complaints	5.3	NTP to Final Acceptance	INDOT PIP Program Manager with support from Design-Build Contractor
Maintain customer service database	5.3.5	NTP to Final Acceptance	INDOT PIP Program Manager with support from Design-Build Contractor
Forward public questions and complaints	5.3.3	Within half of a Business Day of receipt	Design-Build Contractor to provide to INDOT PIP Program Manager
Participate in public forums and meetings	5.3.7	NTP to Final Acceptance	INDOT PIP Program Manager with participation from Design-Build Contractor, including appropriate technical staff
Respond to telephone hotline calls	5.3.9.3	Within 24 hours of call	INDOT PIP Program Manager with support from Design-Build Contractor
Prepare written materials regarding construction issues	5.4.9.4	NTP to Final Acceptance	INDOT PIP Program Manager with participation from Design-Build Contractor, including appropriate technical staff
Print collateral information materials	5.3.9.4	NTP to Final Acceptance	INDOT PIP Program Manager with support from Design-Build Contractor
Forward general information requests via telephone, email, and letters to INDOT	5.3.9.5	Within 5 Business Days of request	Design-Build Contractor to provide to INDOT PIP Program Manager
Participate in media interviews	5.5	As requested by INDOT PIP Program Manager	Design-Build Contractor with oversight from INDOT PIP Program Manager

Participate in bi-weekly communications coordination meetings or teleconferences	5.5	NTP to Final Acceptance	Design-Build Contractor Public Involvement Coordinator

5.7 Deliverables

Deliverables under this Section 5, a non-exhaustive list of which is set forth in Table 5-3, shall be submitted in both hardcopy and electronic format in accordance with the schedule set forth below. Acceptable electronic formats include PDF and current versions of Microsoft Word and Microsoft Excel, unless otherwise indicated.

Table 5-3: Deliverables

Deliverable	Deliverable Schedule	TP Section
Prioritized after-hours call list	Within 30 days after NTP	5.3.2
General construction schedule	One month prior to construction in any area of Project	5.3.2.1
Updates to general construction schedule	Weekly	5.3.2.1
Documentation of public contacts	Monthly, NTP to Final Acceptance	5.3.5
Project identification signage	Within 30 days of Environmental Determination	5.3.6
Maintenance of traffic and access change notifications	14 days prior to access revision	5.3.8.1
Notification to INDOT of Incidents of unexpected traffic conditions	Within 15 minutes of detection	5.3.8.2
Notification to INDOT of restrictions to movement of commercial vehicles	14 days prior to restrictions	5.3.8.3
Weekly Progress Report with photos	Weekly, NTP to Final Acceptance	5.3.10

6 AESTHETICS AND LANDSCAPE ARCHITECTURAL WORK

6.1 General

Design-Build Contractor shall perform the Aesthetics and Landscape Architectural Work in accordance with the PPA Documents, including Project Standards, this Section 6 and its attachments; Governmental Approvals; and Governmental Rules.

6.1.1 Aesthetics and Landscape Architectural Work Items

The Aesthetics and Landscape Architectural Work shall include the following, as outlined in Attachment 6-1 (North Split Aesthetics Design Guidelines), within the Project Right of Way:

1. Abutment Walls

Abutment wall treatments shall include aesthetic treatments, including color, patterns, and textures to be applied to abutment walls and accompanying bridge monuments, where required by bridge opening type.

2. Retaining Walls

Retaining wall treatments shall include aesthetic treatments, including color, patterns, and textures to be applied to retaining walls.

3. Piers

Pier treatments shall include aesthetic treatments to column and cap surfaces, including color, patterns, and textures to be applied to all piers.

4. Surfacing

Surfacing treatments shall include pavement treatments on local streets and underpasses (EB Ohio Street only), sidewalks, shared-use paths, and other paved pedestrian surfaces.

5. Lighting

Lighting treatments shall include pedestrian and vehicular down-lighting for underpasses, up-lighting for corner monuments, the down-lighting of pier columns within the interchange, and other aesthetic treatments along local streets and pedestrian facilities.

6. Signage

Signage treatments shall include aesthetic base treatments for standard INDOT signage and posts constructed along local streets.

7. Traffic Barriers

Traffic barrier treatments shall include the application of color, local street lettering where required, and architectural treatments to all traffic barriers.

8. Sound Barriers

Sound barrier treatments shall include the application of color, patterns, and textures to sound barriers used.

9. Fencing

Fencing treatments shall include specialty right of way fencing for fenced areas and along the Monon Trail.

10. Bridge Openings

Aesthetic treatments vary by the type of bridge openings identified in Attachment 6-1 (North Split Aesthetic Design Guidelines). The bridge openings section provides information about aesthetic treatments that shall be applied to different types of bridges.

11. Plant Establishment Work

Plant Establishment Work shall include all plantings and other vegetation to be planted.

12. Public Art Space

Construction Work identified in Attachment 6-1 (North Split Aesthetic Design Guidelines) shall accommodate future public art by the community. Design-Build Contractor is not responsible for the identification, facilitation, fabrication, or creation of the public artwork.

13. Additional Enhancements: Monon Trail Reconstruction

The existing Monon Trail shall be removed and replaced.

6.2 Administrative Requirements

6.2.1 Landscape Architect Requirements

The Landscape Architecture Firm shall address the functional and aesthetic needs of the Project. The Landscape Architectural Firm shall be responsible for developing the design and complying with the requirements of this Section 6, Attachment 6-1, and the Aesthetics and Enhancement Implementation Plan (AEIP). The Landscape Architecture Firm shall be led by a Registered Landscape Architect with, at a minimum, 10 years of landscape architectural design experience related to highway corridor design and construction. The lead landscape architect shall have a working knowledge and experience with the implementation process of context-sensitive designs/solutions, native vegetation, and stormwater management/bioretention planting.

6.2.2 Public Involvement Requirements

As part of the AEIP process, Design-Build Contractor shall support INDOT with Public Involvement, as described in Section 5 (Public Involvement).

6.3 Design Requirements

The Aesthetics and Landscape Architectural Work shall include the following, as outlined in Attachment 6-1 (North Split Aesthetic Design Guidelines), within the Project Right of Way:

6.3.1 Aesthetic and Enhancement Implementation Plan

Design-Build Contractor shall prepare and submit an AEIP in compliance with Attachment 6-1 (North Split Aesthetic Design Guidelines), addressing Design-Build Contractor's plan to incorporate the Aesthetics and Landscape Architectural Work in the Project using context sensitive solutions. The AEIP shall elaborate on how Design-Build Contractor will comply with the requirements included in this Section 6 and Attachment 6-1. Design-Build Contractor shall obtain INDOT approval of the AEIP before commencing design of any Aesthetics and Landscape Architectural Work.

The AEIP shall include adjacent natural and man-made features, conceptual design elements, limits of construction phasing, and clear labels or a legend to identify these elements.

The AEIP shall include both written and scaled graphic renderings that illustrate the proposed enhancements and how they will be applied in the design. Elevations and/or three-dimensional renderings shall be required for each bridge opening that show basic dimensions, materials, colors, shapes, and textures of enhancement applications. Renderings shall include all aesthetic treatments to both the interstate infrastructure as well as enhancements to the local streets, pedestrian areas, and adjacent areas within the Project Right of Way.

For landscape treatments, the AEIP shall include scaled diagrammatic plans indicating general planting zones and landscape treatments to be applied in each zone. The AEIP shall include a species list for each planting type and the limits for each treatment. In addition, the landscape drawings within the AEIP shall be formatted as a roll plan or series of drawings at a minimum scale of 1 inch = 100 feet.

6.3.2 Colors, Forms, and Patterns

Final color, forms, and pattern selections for enhancements shall be included in the AEIP for review and approval by INDOT.

6.3.3 Abutment Walls

Design-Build Contractor shall provide treatments to abutment walls and other structural elements required for abutment walls. Aesthetic structural treatments shall be designed to appear integral to the overall construction but shall not interfere with the structural integrity of walls.

6.3.4 Retaining Walls

Design-Build Contractor shall provide retaining wall treatments to all retaining walls. Aesthetic wall treatments shall be included on all exposed walls. Wall treatments shall be designed to appear integral to the overall construction but shall not interfere with the structural integrity of the walls.

6.3.5 Piers

Design-Build Contractor shall provide aesthetic treatments to bridge piers in the locations indicated in Attachment 6-1 (North Split Aesthetic Design Guidelines). Bridge pier cap and column aesthetic treatments shall be designed to appear integral to the overall construction but shall not interfere with the structural integrity of the piers.

6.3.6 Surfacing

Design-Build Contractor shall provide surfacing treatments at underpasses, sidewalks, shared-use paths, and other paved pedestrian areas.

6.3.7 Lighting

Design-Build Contractor shall provide pedestrian and vehicular lighting, down-lighting, and up-lighting in accordance with Section 11 (Traffic and Lighting).

Underpass lighting shall be coordinated with the design and construction of bridges and wall structures.

6.3.8 Signage

Design-Build Contractor shall provide aesthetic surface treatments to INDOT signage located along the local streets within the Project Right of Way. Aesthetic treatment for signage is limited to concrete sign bases. Bases shall be designed to provide aesthetic elements, but shall not interfere with the structural integrity of sign posts and/or sign structures.

6.3.9 Traffic Barriers

Design-Build Contractor shall provide surface treatments, architectural details, and architectural finishes for all traffic barriers and additional treatments (architectural lettering) for traffic barriers that are visible from local streets or neighborhoods at the bridge underpasses. Traffic barriers shall be designed to have appropriate widths to accommodate lettering where indicated. Aesthetic treatments shall not interfere with the structural integrity of the traffic barriers. Consistent color shall be used on all traffic barriers throughout the Project.

6.3.10 Sound Barriers

Design-Build Contractor shall provide sound barrier wall treatments, including color and patterns, for all sound barrier wall treatments within the Project Right of Way. Aesthetic sound barrier treatments shall be included on all sound barrier walls. Aesthetic treatments shall be designed to appear to integrate with other elements of the Project, but shall not interfere with the structural integrity or noise absorbing qualities of the sound barrier. Consistent color shall be used on all sound barriers in the Project.

6.3.11 Fencing

Design-Build Contractor shall provide fencing treatments for fencing installed as part of the Project. A 4-foot-high fence shall be used where right of way fence is required to demarcate the INDOT Limited Access ROW. A 6-foot height shall be used along the Monon Trail. Where possible, the fence along the Monon shall be 8 feet from the edge of pavement, but shall never be closer than 2 feet from the edge of trail pavement in any location.

6.3.12 Bridge Openings

The bridge openings section of Attachment 6-1 (North Split Aesthetic Design Guidelines) provides guidance on the placement of aesthetic treatments at each bridge. Bridge opening dimensions shall be in accordance with Attachment 14-6 (Minimal Local Street Bridge Span

Lengths). Aesthetic treatment of bridges shall be confined to bridges within the Project Right of Way. Aesthetic treatments at the bridge openings shall be designed to integrate with other elements of the Project, but shall not interfere with the structural integrity or function of roadways, slopes, bridges, or other infrastructure.

6.3.13 Plant Establishment Work

6.3.13.1 Landscape Plans

Design-Build Contractor shall prepare landscape Plans for the Aesthetics and Landscape Architectural Work, based on the AEIP, and include these landscape plans in the Design Documents. The landscape Plans shall be developed to reflect the typologies and plant pallets indicated to revegetate disturbed areas within the Project Right of Way to the fullest extent possible. Design-Build Contractor shall coordinate the landscape Plans with all other elements of the Work, including final grading; BMP facilities; highway clear zones and sight distances; storm drain, and cross-culvert outfalls; Utilities; signing/lighting; and earth reinforcement.

Design-Build Contractor shall provide temporary measures to stabilize soils in rough-graded areas in accordance with applicable Project Standards. If Design-Build Contractor determines the existence of a conflict from one or more of these elements, Design-Build Contractor shall notify and request concurrence from INDOT for any modifications to the landscape Plans

6.3.13.2 Plant Species

All plant species used shall be in accordance with Attachment 6-1 (North Split Aesthetic Design Guidelines). The plant typologies identified in Attachment 6-1 include some plant species that are not currently listed on INDOT's approved plant list. A final plant species list, including those species not currently on INDOT's approved list, shall be submitted to INDOT for approval prior to planting. The current approved plant species, minimum acceptable sizes, and maximum spacing is included in Attachment 6-1. Design-Build Contractor may suggest a plant species mix for specific circumstances. Requests for substitution of other plant species shall be submitted in writing for approval by INDOT. Design-Build Contractor shall not plant non-native, invasive species.

6.3.13.3 Landscape Treatments

All landscape areas within the Project ROW shall include landscape treatments to address permanent erosion control and aesthetics. Design-Build Contractor shall design landscape treatments in accordance with the typologies listed in Attachment 6-1 (North Split Aesthetic Design Guidelines) and employ contour grading, slope rounding, and other design/construction methods to help emphasize the natural concept of the corridor. Design-Build Contractor shall integrate drainage design, especially for surface channels and detention basins/water quality basins, into the design of the Aesthetics and Landscape Architectural Work.

6.3.13.4 Sound Barrier Areas

Design-Build Contractor shall include areas for plantings adjacent to the sound barriers. A minimum 10-foot zone with no plantings except turf grass shall be provided for maintenance access on the side facing away from the roadway corridor. Design-Build Contractor shall provide landscape treatment on all sloped areas behind the walls. Deciduous, ornamental, and evergreen trees shall not be planted closer than 15 feet to the sound barrier/retaining wall face.

6.3.13.5 Stormwater Management Areas

All stormwater treatment facilities shall be coordinated with the landscape to create a seamless aesthetic design and be compatible with the landscape typologies identified for specific areas in Attachment 6-1 (North Split Aesthetic Design Guidelines).

6.3.14 Public Art Space

Areas for potential installation of future public art have been identified for certain portions of the interchange. Physical elements intended to support future art shall be designed in a manner that accommodates the aesthetics of such spaces as shown in Attachment 6-1 (North Split Aesthetic Design Guidelines) without prohibiting future placement of art after construction. Areas for future artwork include:

6.3.14.1 Major Monument Abutments

Design-Build Contractor shall be responsible for constructing the panel as part of the construction of the major monument abutment described in Attachment 6-1 (North Split Aesthetic Design Guidelines). Design-Build Contractor is not responsible for the identification, facilitation, fabrication, or creation of the public artwork associated with the major monument abutments.

6.3.14.2 Fences

Fencing shall be constructed in accordance with Attachment 6-1 (North Split Aesthetic Design Guidelines) and Section 18.2 (Fencing Requirements). Design-Build Contractor shall not be responsible for the identification, facilitation, fabrication, or creation of any part of the future public artwork associated with the fencing.

6.3.15 Additional Enhancements: Monon Trail Reconstruction

The existing Monon Trail shall be widened and resurfaced between the proposed detour connection and 10th Street. Design-Build Contractor shall widen and resurface the existing 12-foot wide asphalt path to a new width of 14 feet. Resurfacing shall be a minimum 1.5 inches and a new crown shall be provided based on the new trail centerline. The proposed cross slopes from the new centerline crown shall match existing. New construction shall be asphalt with the cross section complying with the Indy Greenways Design Standards (Chapter 4 of the Full Circle Master Plan, adopted 2014). Existing signage shall be replaced with new signs that also meet the Indy Greenways Design Standards. The Indy Greenways Design Standards can be found at the following link: https://indygreenwaysmasterplan.files.wordpress.com/2014/03/ch4-indygreenways-designstandards.pdf

As part of the AEIP, Design-Build Contractor shall present scaled design drawings, including plans, cross sections, alignments, and additional support renderings, that provide an accurate representation of the final design for the Monon Trail widening and resurfacing for review and approval by INDOT. Additional support renderings shall include trail signage.

6.3.16 Design Coordination

The Landscape Architecture Firm shall coordinate with other design disciplines on the location of proposed underground facilities, such as Utilities and drainage facilities, so the landscape installation does not damage other facilities.

6.4 Plant Establishment Period

Design-Build Contractor shall notify INDOT when all Plant Establishment Work has been completed so INDOT can perform an initial inspection. INDOT will provide its initial approval for Plant Establishment Work only after all plant materials have been planted, are true to species and minimum size, and are in a healthy and thriving condition. In addition, each plant pit or bed shall be properly filled, mulched, pruned, and staked.

Upon initial approval of the Plant Establishment Work, Design-Build Contractor shall maintain all landscape plantings provided by Design-Build Contractor until expiration of the Plant Establishment Period as part of the Warranty described in Section 11 of the PPA.

During the Plant Establishment Period, Design-Build Contractor shall replace any plant materials that have (i) died, (ii) failed to establish a root system reasonably expected for landscaping of a similar type, nature and maturity or (iii) failed to show a growth habit reasonably expected for the landscaping of a similar type, nature, and maturity and in accordance with the Standard Specifications.

6.4.1 End of the Plant Establishment Period

One year after initial approval of the Plant Establishment Work, Design-Build Contractor shall request that INDOT perform the final inspection of the Plant Establishment Work. Design-Build Contractor shall provide a minimum of three weeks advance Notice for INDOT to perform the final inspection. Concurrent with Design-Build Contractor's request for a final inspection, Design-Build Contractor shall submit a plant and turf establishment certification package to INDOT that consists of field photographs, completed turf inspection checklists and completed planting checklists, and Project landscape plans and details for review and comment. Upon acceptance, INDOT will issue a Certificate of Plant Establishment.

6.4.2 Plant and Turf Establishment Inspections

Prior to INDOT's final inspection of any landscape areas, Design-Build Contractor shall inspect plants at the end of Plant Establishment Period for species, size, quantity, health, and location. Plants that measure smaller than the installed size shall be considered dead and shall be replaced. Plant and turf establishment inspections shall be conducted in accordance with the Standard Specifications.

All planting and turf shall be inspected and documented to meet the following requirements:

- All plantings shall be in thriving condition.
- All groundcover areas shall have a 95 percent cover of the specified groundcover, with no bare areas greater than 144 square inches.
- Infiltration Trenches: Turf establishment with 95 percent coverage of INDOT permanent seed mix inspected in conveyances, filter strips, and other features draining to the trench that are within the Project ROW and within the limits of disturbance. Off-site areas shall be visually observed and the location of off-Site eroded or bare areas included in the report and photographed.
- Infiltration Basins: Plant, turf, or native meadow establishment inspected at basin bottom and side slopes. Establish turf with 95 percent coverage on all conveyances draining to

the facility within the Project ROW and within the limits of disturbance. Off-Site areas shall be visually observed, and the location of off-Site eroded or bare areas included in the report and photographed.

- Filtering Systems: Establishment of turf with 95 percent coverage on weir, bottom, and sides of facility, and all conveyances draining to the facility. At bioretention facilities, verify a plant survival rate of at least 90 percent. The mulch bed shall be inspected and replenished to constructed depth and condition.
- Open Channel Systems: For dry swales, inspect the establishment of turf with 95 percent coverage on weir, bottom, side slopes, and conveyances draining to the facility. For wet swales, inspect the establishment of turf with 95 percent coverage on weirs, sides, and all conveyances draining to the facility. Inspect planting at the bottom of the facility for a 50 percent survival rate.

6.5 Construction Requirements

Design-Build Contractor will be responsible for preparing design drawings and plans that illustrate how they will comply with the aesthetic guidelines outlined in this Section 6 and Attachment 6-1 (North Split Aesthetic Design Guidelines).

6.5.1 Aesthetics and Enhancements Mock-ups and Samples

Design-Build Contractor shall provide mock-ups or samples of aesthetic elements outlined in Attachment 6-1 (North Split Aesthetic Design Guidelines) for approval by INDOT prior to construction. The following mock ups and/or samples will be required:

1. Piers: Mock-up of bridge pier cap and column demonstrating colors, patterns, textures, sealants, joint materials, frames, or other support materials as required. All mock-ups and test panels for piers shall be in accordance with Attachment 14-1 (USP: Formliner for Piers and MSE Walls).
2. Sound Barriers: Full-size mock-up of sound barriers, including panels and frames, demonstrating colors, patterns, textures, sealants, joint materials, frames, or other support materials is required for the retaining walls.
3. Traffic Barrier Sign Barrier Lettering: Full-size sample of anodized aluminum lettering with LED demonstrating colors and other support materials as required.
4. Lighting: Samples of pedestrian lights, underpass lights, and other lights proposed for pedestrian areas are required.
5. Fencing: Full-size mock-up of fencing including posts and fence material as required.

6.6 Deliverables

Deliverables under this Section 6, a non-exhaustive list of which is set forth in Table 6-1 below, shall be submitted in both hardcopy and electronic format in accordance with the schedule set forth below. Acceptable electronic formats include PDF and current versions of Microsoft Word and Microsoft Excel, unless otherwise indicated.

Table 6-1: Deliverables

Deliverable	Deliverable Schedule	TP Section
Aesthetics and Enhancement Implementation Plan	Prior to construction of aesthetic enhancements	6.3.1
Final Plant Species List	Prior to planting	6.3.13
Landscape Plans	Prior to construction of aesthetic enhancements	6.3.16.1
Aesthetic Enhancements Mock-ups and Samples	Prior to construction of aesthetic enhancements and in accordance with Attachment 14-1 (USP: Formliner for Pier and MSE Walls)	6.5.1

7 ENVIRONMENTAL

Design-Build Contractor shall design and conduct the Work in accordance with the PPA Documents, including Project Standards, this Section 7 and its attachments; Governmental Approvals; and Governmental Rules.

7.1 Environmental Personnel

The Environmental Compliance Manager (ECM) designated by Design-Build Contractor pursuant to Section 1.3.1.1 (Key Personnel) shall report directly to the Design-Build Contractor's Project Manager.

Design-Build Contractor shall designate a Level 2 Stormwater Quality Manager (SWQM). The SWQM may also be the ECM. The SWQM must be one of the following: Certified Erosion Sediment and Storm Water Inspector (CESSWI) or a CESSWI In-Training, a Certified Inspector of Sediment and Erosion Control (CISEC) or CISEC In-Training, or a Certified Professional in Erosion and Sediment Control (CPESC) or CPESC In-Training.

7.2 Permits and Approvals

Design-Build Contractor shall be responsible for submitting complete draft applications to INDOT for conducting environmental studies and re-evaluations caused by actions not identified in the Environmental Determination. Design-Build Contractor shall be responsible for all environmental investigations, permits, and studies for Environmental Approvals necessary for any proposed Work outside the Planned ROW Limits.

If any Work results in additional impacts to streams, lakes, rivers, wetlands, or other waters beyond the permitted impacts, then Design-Build Contractor shall submit complete draft applications to INDOT for any necessary Environmental Approval or modification to existing Environmental Approval.

Design-Build Contractor shall coordinate with the INDOT Ecology and Waterway Permitting Office (EWPO) and develop and submit Section 404, Section 401, or State Isolated Wetlands permit revision packages to INDOT EWPO.

Design-Build Contractor shall be responsible for and pay without recourse to INDOT, any fines, penalties, or other charges levied by any Governmental Entity arising out of or resulting from Design-Build Contractor's Construction Work or non-compliance with any condition in any Governmental Approval.

7.2.1 Governmental Approvals

Table 7-1 lists the INDOT-Provided Approvals and the anticipated date for such INDOT-Provided Approvals. Table 7-2 includes Governmental Approvals Design-Build Contractor is expected to submit complete draft applications to INDOT in order to complete the Work. The list in Table 7-2 is not exhaustive, and other Governmental Approvals may be required based on Design-Build Contractor's final design. Design-Build Contractor shall be responsible for identifying all Governmental Approvals required to complete the Work, and shall submit complete applications to INDOT for all necessary Governmental Approvals unless Table 7-1 and the PPA Documents expressly state that INDOT is responsible for that Governmental Approval.

For all Governmental Approvals and/or modifications of Governmental Approvals that are Design-Build Contractor's responsibility, Design-Build Contractor shall submit complete draft applications to INDOT for review and approval.

Table 7-1 – INDOT-Provided Approvals

Governmental Entity	Governmental Approval	Responsible Party	Anticipated Date
Federal Highway Administration (FHWA)	Environmental Determination	INDOT	October 15, 2020
Federal Highway Administration (FHWA)	Interstate Access Document	INDOT	December 15, 2020
US Army Corps of Engineers (USACE)	Section 404 of the Clean Water Act (if required)	INDOT	October 15, 2020
Indiana Department of Environmental Management (IDEM)	Section 401 Water Quality Certification (if required)	INDOT	October 15, 2020
Indiana Department of Environmental Management (IDEM)	Isolated Wetland Permit (if required)	INDOT	October 15, 2020
INDOT	IHCP Exception	INDOT	February 6, 2020
INDOT	Interstate Closure Request	INDOT	December 4, 2019

Notes: INDOT will file Section 404, Section 401, and Isolated Wetland Permit applications with the respective Governmental Entities if these permits are determined to be necessary. Design-Build Contractor shall comply with the requirements of these Governmental Approvals. Design-Build Contractor will be responsible for securing any additional required permit modifications and performing such additional mitigation measures due to Design-Build Contractor's design or prosecution of the Work.

Table 7-2 – Governmental Approvals Provided by Design-Build Contractor

Governmental Entity	Governmental Approval	Responsible Party	Anticipated Date
Indiana Department of Environmental Management (IDEM)	Rule 5 Permit	Design-Build Contractor	Prior to Construction Work

Governmental Entity	Governmental Approval	Responsible Party	Anticipated Date
Federal Aviation Administration (FAA) Form 7460	Notice of Proposed Construction or Alteration (if required)	Design-Build Contractor	Prior to Construction Work
Indiana Department of Transportation (INDOT) Office of Aviation	Indiana Tall Structure Permit (if required)	Design-Build Contractor	Prior to Construction Work
Indianapolis Historic Preservation Commission	Certificate of Appropriateness (if required)	Design-Build Contractor	Prior to Construction Work
City of Indianapolis Right of Way Permit	City of Indianapolis Right of Way Permit	Design-Build Contractor	Prior to Construction Work
City of Indianapolis Flora Permit	City of Indianapolis Flora Permit	Design-Build Contractor	Prior to Construction Work

7.2.2 Permit Specifics

1. IDEM Rule 5 Permit

Design-Build Contractor shall obtain and maintain the Rule 5 Permit before the start of any land disturbing activities. Obtaining multiple Rule 5 Permits for distinct phases of the Work is acceptable. Erosion control measures shall be in accordance with Chapter 205 of the Indiana Design Manual, Standard Specifications, INDOT Storm Water Management Recurring Special Provision (RSP 205–R–636), and Environmental Approvals. Design-Build Contractor shall coordinate with INDOT EWPO and develop and submit the Rule 5 Permit package(s) to INDOT EWPO for review and approval for each permit package. INDOT EWPO will be responsible for submittal of any permit package to IDEM.

2. FAA Form 7460

Design-Build Contractor shall obtain and maintain FAA Form 7460 (Notice of Proposed Construction or Alteration) if any permanent structures or equipment used for the Project penetrate the conditions that require FAA Form 7460. Design-Build Contractor shall coordinate with the INDOT Office of Aviation and develop and submit the FAA Form 7460 to INDOT Office of Aviation for review and approval. Design-Build Contractor will be responsible for submittal of any application to the FAA (https://oeaaa.faa.gov/oeaaa/external/portal.jsp).

3. Indiana Tall Structures Permit

Design-Build Contractor shall obtain and maintain an Indiana Tall Structure Permit if any temporary or permanent structures or equipment used for the Project require that Design-Build Contractor obtain such Governmental Approval from the INDOT Office of Aviation (https://www.in.gov/indot/files/IN%20Tall%20Structure%20Permit%20Exhibit.pdf).

4. City of Indianapolis Right of Way Permit

Design-Build Contractor shall obtain and maintain a City of Indianapolis Right of Way Permit if there will be any Construction Work, use, restriction or excavation of the City of Indianapolis public right of way, such as streets, alleys, and sidewalk areas.

5. City of Indianapolis Flora Permit

Design-Build Contractor shall obtain and maintain a City of Indianapolis Flora Permit if there will be any tree planting, landscaping, spraying, bracing, removal, or pruning work in the City of Indianapolis public right of way.

6. Certificate of Appropriateness

Design-Build Contractor shall obtain and maintain an Indianapolis Historic Preservation Commission (IHPC) Certificate of Appropriateness (COA) if Design-Build Contractor intends to make exterior changes to, build, or demolish a structure; need a zoning variance; rezone a property in an IHPC historic district; or propose any other activity that would require issuance of a COA. Design-Build Contractor shall coordinate with the INDOT Cultural Resources Office (CRO) and develop and submit the COA application to INDOT CRO. INDOT CRO will review the application for approval. Design-Build Contractor shall perform, as part of the Work, all other requirements relating to obtaining the COA, including coordination with IHPC staff, developing supporting information, and attending/presenting at the IHPC hearing.

7. Wetland Mitigation

If the Work results in additional wetland impacts beyond the permitted impacts, mitigation costs shall be the responsibility of the Design-Build Contractor. Design-Build Contractor shall prepare and submit the additional wetland impact documentation to INDOT to obtain the necessary Governmental Approvals. Additional wetland mitigation could be through purchase of credits from the Indiana Stream and Wetland Mitigation Program (IN SWMP).

7.3 Hazardous Materials

Design-Build Contractor shall work with INDOT Site Assessment & Management (SAM) and appropriate Governmental Entities to develop plans for the management, excavation, and/or disposal of any Hazardous Materials or Recognized Environmental Conditions encountered on the Site. Design-Build Contractor shall obtain all Governmental Approvals required for the management and/or disposal of Hazardous Materials and Recognized Environmental Conditions encountered on the Site. Design-Build Contractor shall obtain final documentation and required Governmental Approvals for Hazardous Materials Management Work performed on the Site. Applicable deed restrictions required shall be drafted by the Design-Build Contractor for review and approval by INDOT SAM and INDOT Real Estate Division as applicable. INDOT will secure the required internal signatures and file deed restrictions and/or environmental covenants in the land records as required by Governmental Rules.

Design-Build Contractor shall be responsible for the development and submission to appropriate Governmental Entities of all required reports and documentation for Hazardous Materials Management and underground storage tanks (USTs) encountered during performance of the Work. Design-Build Contractor is to make assessments of the soil and groundwater conditions as soon as practicable, in no case later than as may be required under Governmental Rules or

Governmental Approvals (or both), and submit the plan to INDOT SAM so as to eliminate any delay time due to review and approval.

7.3.1 Release of Hazardous Materials

Design-Build Contractor shall comply with the following provisions regarding Design-Build Contractor Releases of Hazardous Materials on the Site:

1. Release of Hazardous Materials, shall be reported to the IDEM Office of Emergency Response (OER), Spill Line at (888) 233-7745. This shall occur as soon as action has been taken to either contain/control the extent of the release, or protect persons, animals, or fish from harm or further harm. The contact must be made no later than within 24 hours of a release from a UST and within two hours of discovery of a spill.
2. Design-Build Contractor shall take appropriate response actions for Design-Build Contractor Releases of Hazardous Materials occurring on the Site as follows:
    a. Identify the spilled material from a safe distance.
    b. Contain the spilled material or block/restrict its flow using absorbent booms/pillows, dirt, sand, or by other available means.
    c. Cordon off the area of the spill.
    d. Deny entry to the cordoned off area to all but response personnel.
    e. Contact IDEM OER Spill Line at (888) 233-7745.
    f. Contact INDOT Operations Support.

7.3.2 Hazardous Materials Management Plan

Design-Build Contractor shall prepare, implement, and maintain a Hazardous Materials Management Plan (HMMP), for the handling, storage, management, transportation and/or disposal of Hazardous Materials, and the closure and removal of USTs or aboveground storage tanks (ASTs), whether encountered on or brought onto the Project Site by the Design-Build Contractor, encountered or brought onto the Project site by a third party, or otherwise, during the term of the PPA. Design-Build Contractor shall submit the final HMMP to INDOT for review and approval in its good faith discretion within 60 days of NTP; approval of the Plan by INDOT shall be a condition of commencement of Construction Work. The HMMP shall comply with all applicable Environmental Laws, including the Occupational Health and Safety Act (OSHA), the Resource Conservation and Recovery Act (RCRA), including provisions pertaining to the removal and closure of USTs, the Comprehensive Environmental Response Compensation and Liability Act (CERCLA), and state and local counterparts or equivalent Governmental Rules.

The HMMP shall include provisions for notifying all on-Site workers, including Subcontractors, of the potential exposure to Hazardous Materials on the Project, and for exposure to Hazardous Materials by personnel who enter the Site regardless of their affiliation in accordance with Governmental Rules. The HMMP shall require that all personnel handling Hazardous Materials or Recognized Environmental Conditions be trained and certified at least to the minimum requirements established in accordance with Governmental Rules.

The HMMP shall include procedures for ensuring that all applicable certifications, licenses, authorizations and Governmental Approvals for Design-Build Contractor and Subcontractor personnel handling Hazardous Materials are current and valid through the duration of the Work.

The HMMP shall include the following contents at a minimum:

1. Responsible personnel
2. Site information
3. Site map
4. Procedures for handling any Hazardous Materials or Recognized Environmental Conditions encountered on Site
5. Spill Prevention Plan, including:
    a. Potential spill sources
    b. Spill reporting
    c. Spill prevention and response training
    d. Spill containment
    e. Spill prevention
    f. Spill response report form(s)
    g. Bulk storage containment
6. Procedural plan for unanticipated hazmat discoveries
7. Procedural plan for the excavation and disposal of any Hazardous Materials and Recognized Environmental Conditions in accordance with the requirements of the Environmental Approvals

7.3.3 Lead-Based Paint

Design-Build Contractor shall evaluate paint on bridges, regardless of surface (i.e., metal, concrete, etc.), to determine if lead is present. Design-Build Contractor shall collect paint samples using qualified environmental professionals. Design-Build Contractor shall analyze paint samples for both total lead and toxicity characteristic leaching procedure (TCLP) lead using United States Environmental Protective Agency (U.S. EPA) SW Method 6010 to determine proper removal and disposal methods. In general, a TCLP lead result less than 5 ppm (mg/L) indicates the material can be disposed at an RCRA Subtitle C solid waste landfill, and a TCLP lead result at or above 5 ppm (mg/L) is considered a hazardous waste. Design-Build Contractor shall submit copies of the laboratory analytical results to INDOT to confirm handling, transport, and disposal methods. If the paint must be disposed of as a hazardous waste, coordination for handling, transportation, and disposal of the waste shall be incorporated into the HMMP.

Design-Build Contractor shall make all efforts to minimize human and environmental exposure to lead-based and lead containing paint chips and dust.

7.4 Environmental Compliance

Design-Build Contractor shall comply with the commitments described in Attachment 7-5 (Draft Environmental Commitments).

7.4.1 Environmental Compliance and Mitigation Plan

Pursuant to Section 1.3.3.3 (Environmental Management Plan), Design-Build Contractor shall submit an ECMP with its submission of the PMP for INDOT review and approval. The ECMP shall include all environmental commitments and required mitigation listed in the Technical Provisions.

Design-Build Contractor shall prepare a checklist that documents all impacts and anticipated impacts to environmental resources identified in the PPA Documents and Environmental Approvals. The checklist shall be submitted with the ECMP for INDOT approval. Design-Build Contractor shall submit an updated checklist to INDOT for approval within one week after the end of each quarter of the year.

The ECMP shall describe the appropriate controls applicable during the management, design, construction/installation, and documentation of environmental compliance and mitigation efforts. The ECMP shall include procedures designed to ensure that requirements of Environmental Law and Environmental Approvals are satisfied.

The ECMP shall include:

1. A description of how full compliance is achieved with regard to Project commitments, conditions of Environmental Approvals, Environmental Laws, and INDOT review procedures during Design Work and Construction Work.
2. A description of how new environmental commitments will be incorporated into the Project and addressed.
3. Design-Build Contractor’s environmental compliance process, structure, organization location, level of documentation, forms of communication, and QA and QC processes and procedures.
4. A response plan that will include procedures to follow if unanticipated discoveries are encountered during Project development (e.g., threatened or endangered species, archaeological, paleontological, biological, or cultural resources or artifacts). The response plan shall be prepared so as to keep the Project in compliance with Environmental Approvals and Environmental Laws at all times.
5. A corrective action plan that will include procedures to follow if it is discovered the Project is not in compliance with Environmental Approvals or Environmental Laws.

7.4.2 Environmental Compliance and Mitigation Training Program

Design-Build Contractor shall develop and implement a mandatory environmental compliance and mitigation training program that will be presented to Design-Build Contractor’s supervisory personnel, equipment operators, construction personnel, and any Subcontractor personnel who will perform Work within the Project ROW. The training shall provide an understanding of the necessary environmental compliance requirements, any environmentally sensitive areas, and any "Do Not Disturb" zones of the Project.

The training program shall be focused on the specific environmental concerns for laborers and contractors who are working in specific locations. Concerns for one location may differ from those in another location. The training program shall be submitted to INDOT for review and approval and cover at a minimum the following elements:

1. Erosion and sediment control measures – sequencing, implementation, installation, and maintenance
2. Maintaining approved limits of disturbance
3. Tree and shrub protection
4. Avoidance and minimization of impacts to environmentally sensitive locations, including trees, wetland areas, and activities that would require modifications to waterway permits (if required)
5. Identification and locations of “Do Not Disturb” zones
6. Education regarding wildlife in the vicinity of the Project, including awareness of threatened and endangered species and what to do if one is found
7. Seasonal work restrictions
8. Pumping and dewatering operations
9. Aquatic invasive species decontamination and removal
10. Discovery of archaeological, paleontological, biological or cultural resources or artifacts, or human remains
11. Impacts and consequences for departure from approved operating procedures
12. Encountering Unknown Hazardous Materials

The environmental compliance and mitigation training program is a component part of the PMP. Design-Build Contractor shall not allow personnel to enter the Planned ROW Limits without completing the required training and documenting the training for INDOT. Design-Build Contractor shall provide updates to this training program to INDOT as necessary to meet current requirements and new commitments and to ensure the training is implemented by the appropriate personnel. Contractor shall maintain a list of trained individuals including name, company, type and date of training and make the information available for INDOT review.

7.5 Noise Analysis and Mitigation

7.5.1 Sound Barrier and Noise Attenuation

Design-Build Contractor shall, as part of the Work, and without additional time or increase in the Contract Price, design and construct all required sound barriers within the Project ROW. In accordance with INDOT’s Traffic Noise Analysis Procedure, the design shall be feasible, reasonable, and incorporate input from the affected communities. Design modifications that result in adjustments of more than 5 feet for a horizontal change and more than 4 feet for a vertical change, as compared with the alignments and profiles included in the noise analysis within the interchange, will require Design-Build Contractor to submit complete draft analysis and applications to INDOT to complete noise re-analysis, and such documentation must comply with INDOT’s Traffic Noise Analysis Procedure.

The structural design of sound barriers shall conform to Section 14 (Structures).

7.5.2 Construction Noise

Design-Build Contractor shall not use or operate any construction equipment, between the hours of 11:00 p.m. and 6:00 a.m., that produces or reproduces noise if the sound therefrom generated, made, caused or otherwise emitted is at a level of more than 70 decibels for any period of time, when measured on a dB(A) scale from a distance of not less than 50 feet from any business or residence, in the direction of the Construction Work. Notwithstanding the foregoing, Design-Build Contractor shall cease operation of any construction equipment if INDOT, in its sole discretion, determines that the operation of such equipment exceeds the restrictions stated above and any such determination shall not be the basis for any Claim under the PPA Documents.

Design-Build Contractor shall document how it shall address construction noise mitigation in a Construction Noise Abatement Plan. The Construction Noise Abatement Plan shall be submitted to INDOT for review and approval as a condition to commencement of Construction Work.

Outside of restrictions stated above, and to the extent permitted by Governmental Rules, Design-Build Contractor will be allowed to operate all other construction equipment at all times during performance of Construction Work.

7.6 Construction Vibration and Monitoring

Design-Build Contractor shall develop, implement, and maintain a Vibration Monitoring and Control Plan. The Vibration Monitoring and Control Plan shall be submitted to INDOT for review and approval as a condition to commencement of Construction Work. Once INDOT has approved the Vibration Monitoring and Control Plan, Design-Build Contractor shall submit to Section 106 consulting parties for a 30-day review and comment period. Design-Build Contractor shall revise the plan per consulting party comments and provide a written response to consulting parties explaining how the comment was addressed or if it could not be addressed.

The principal components of the Vibration Monitoring and Control Plan are as follows:

1. Susceptibility Study, to include an assessment of the potential for damage to buildings and impacts to sensitive operations and equipment near the Project due to vibration-producing activities
2. Pre-construction Survey, to include a pre-construction condition survey of buildings and structures within a distance at which vibrations of 0.1 inch per second or greater will occur from construction activities and/or contributing structures within historic districts or individually listed historic properties listed in or eligible for the National Register of Historic Places within 140 feet of proposed Construction Work to document such buildings' or structures' conditions prior to Construction Work in the vicinity
3. Sewer Condition Reports
4. Structures and Pavement Reports
5. Building Condition Reports

6. Vibration Monitoring Approach, to include locations of vibration monitors, number of monitors, maximum vibration limits, and communication and reporting processes to control excessive vibration levels and to respond to community complaints. See Attachment 7-3 (Vibration Monitoring Criteria)

Design-Build Contractor shall use the results of the Susceptibility Study, Pre-construction Survey, Sewer Condition Reports, and Structures and Pavement Reports and other applicable studies to develop the Vibration Monitoring Approach.

Design-Build Contractor shall address the potential impacts to nearby receptors due to construction or demolition activities associated with this Project in the Vibration Monitoring and Control Plan. The term “receptor” as used in this Section 7.6 includes buildings, structures, Utilities, Utility service connections, sensitive operations/processes, and occupants. Design-Build Contractor shall include plans to phase Construction Work that creates vibration so that multiple sources of vibration do not occur at the same time, to prohibit or limit certain activities that create higher levels during specific night-time hours (10:00 p.m. to 6:00 a.m.) within 300 feet of residential areas, and to keep the public informed of proposed construction schedules.

Vibration-producing activities on the Project are not allowed until monitoring equipment is successfully installed per the approved Vibration Monitoring and Control Plan and the Pre-Construction Building Condition Report(s), Sewer Condition Report(s), and Structures and Pavement Report(s) are submitted and approved by to INDOT. Design-Build Contractor shall submit the Vibration Monitoring and Control Plan, an electronic copy of each notification letter issued, and vibration monitoring records to INDOT. Design-Build Contractor shall report to INDOT immediately any violation of vibration limits established in the approved Vibration Monitoring Approach.

7.6.1 Susceptibility Study

Design-Build Contractor shall develop a list of all anticipated vibration-producing activities and where the activities are expected to occur. Design-Build Contractor shall develop a list and map all potentially impacted receptors per Attachment 7-1 (Susceptibility Study) and make structure determinations and submit to INDOT CRO for review prior to the occurrence of any vibration-causing activities.

7.6.1.1 Pre-Construction Survey

Design-Build Contractor shall perform a Preconstruction Survey to document the existing condition of each receptor defined in Attachment 7-1 (Susceptibility Study) per the requirements of Attachment 7-2 (Pre-Construction Survey).

Design-Build Contractor shall have a structural engineer evaluate the condition of all structures prior to the occurrence of any vibration-causing activities and engage a qualified professional from the SHPO’s Qualified Professional Roster in architecture as a Subcontractor (QP is for historic structures only) to participate in these evaluations. Design-Build Contractor shall request permission from each applicable property owner to access the interior of the structure.

7.6.1.2 Monitoring During Construction

Design-Build Contractor shall control vibrations due to the Work in accordance with Table 1 in Attachment 7-1 (Susceptibility Study) to avoid damage to structures or other property, including historic structures, Utilities, Railroads, roadways, structures, and monitoring systems for

Hazardous Materials and Recognized Environmental Conditions, and to avoid interruption of any Work.

Design-Build Contractor shall not damage adjacent infrastructure or property and shall show no damage has occurred from Design-Build Contractor operations, such as dewatering operations, temporary excavations, temporary sheeting or shoring, or use of vibratory equipment, by providing Pre-Construction and Post-Construction Surveys.

7.6.1.3 Post-Construction Survey

Design-Build Contractor shall produce a Post-Construction Survey for the properties and receptors included in the Pre-Construction Survey and shall submit to INDOT for review.

Design-Build Contractor's structural engineer and QP for historic structures described in Section 7.6.1.1 (Pre-Construction Survey) shall make the determination whether damage has occurred to structures or other property as a result of vibrations caused by the Work. Design-Build Contractor shall provide a written report based on its structural engineer and QP's recommendations and submit to INDOT for review. The report shall provide information on whether the specific structures and properties have been damaged due to Construction Work and shall detail the extent of damage to each impacted structure.

Design-Build Contractor shall be responsible for the cost and repair of all damage to structures and other property caused by the Work. Design-Build Contractor shall repair any damaged historic structure in accordance with the Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings. Design-Build Contractor shall be responsible for coordinating with the owner of the structure for any needed surveys or repair work.

Damage, other than to structures, identified in the Post-Construction Survey that was not present in the Pre-Construction Survey shall be repaired by Design-Build Contractor to a condition approved by INDOT and the property owner.

7.7 Cultural Resources

If Design-Build Contractor encounters any Differing Site Condition consisting of an archaeological, paleontological, biological, or cultural resource or artefact, Design-Build Contractor shall proceed in accordance with Section 5.3 of the PPA, INDOT Construction Memorandum 13-14, and the Standard Specifications. Design-Build Contractor shall ensure an on-Site evaluation is conducted and a treatment plan is developed, as needed. If the archaeological or cultural resource is determined not to be eligible for inclusion on the National Register of Historic Places (NRHP) by INDOT CRO, ground-disturbing Work may continue.

Design-Build Contractor shall have a QP archaeologist on-call, who can respond and report to the Site within four hours in case of discovery of any such Differing Site Condition. The QP archaeologist shall have experience with documentation, excavation, and mitigation of historic urban archaeological sites.

In the event that human remains, or other indications of burials are discovered during construction, Design-Build Contractor shall immediately cease all ground-disturbing activities in and near the area where such conditions are discovered. Design-Build Contractor shall use fencing or flagging to block off the area. Design-Build Contractor shall immediately notify local law enforcement authorities and the INDOT CRO of the discovery.

Design-Build Contractor shall be responsible for any archaeology surveys and the additional mitigation for any work outside the Planned ROW Limits.

7.8 Air Quality

Design-Build Contractor shall maintain construction equipment in proper mechanical condition. Mobile Source Air Toxics (MSAT) and diesel emission reduction strategies shall be utilized to limit diesel and other emissions from construction equipment, such as limiting idling times or reducing the number of trips. Fugitive dust generated during land clearing and demolition procedures will be controlled in accordance with the Standard Specifications.

7.9 Environmentally Restricted and "Do Not Disturb" Zones

Design-Build Contractor shall perform no Work in the "Do Not Disturb" zones shown in Attachment 7-4 (1600808-RD-B-EN01.dgn), except to connect new drainage pipes to existing pipes. Design-Build Contractor shall obtain INDOT approval before performing Work in the "Do Not Disturb" zones for the purpose of installing new drainage connections. No clearing of trees 2 inches dbh or larger is allowed in the "Do Not Disturb" zones for this Work. Design-Build Contractor shall show the "Do Not Disturb" zones on all applicable Design Documents.

The Work restrictions are based upon the assumption that all necessary Governmental Approvals within the Planned ROW Limits have been received. Wetlands, streams, or other water bodies outside the Planned ROW Limits are considered restricted areas. Unless restricted by any Governmental Approval, Governmental Rule or otherwise under the PPA Documents, wetlands depicted within the Planned ROW Limits where impacts are included in the Governmental Approvals are accessible for Construction Work.

7.10 Best Management Practices for Work in Wetlands

Design-Build Contractor shall include measures to control and minimize soil erosion and water quality impacts from Construction Work. Design-Build Contractor shall follow the Best Management Practices (BMPs) listed below during construction. The Standard Specifications and the INDOT Special Provisions shall govern Construction Work related to erosion control and subsequent water pollution.

BMPs shall be used to prevent non-point source pollution, to control stormwater runoff, and to minimize sediment discharge to water quality and aquatic habitats. BMPs to be implemented include the following:

1. Design-Build Contractor shall be responsible for the installation and continued maintenance of construction fencing to protect all "Do Not Disturb" zones. See Attachment 7-4 (1600808-RD-B-EN01.dgn) levels for a graphical depiction of the "Do Not Disturb" zones. The fencing shall be installed along the limits of the disturbance, adjacent to the "Do Not Disturb" zones prior to the start of Construction Work. Design-Build Contractor shall conspicuously mark and protect all "Do Not Disturb" zones to ensure that its personnel are made aware of all of them. Regardless of the status of the Section 404 and Section 401 permits, temporary construction fencing shall be installed along the limits of all jurisdictional wetland areas within the Project ROW, prior to the start of Construction Work. After the Section 404, Section 401, and/or Isolated Wetlands permits have been secured, the wetlands identified in such permits as impacted are the only wetlands that will not require temporary construction fencing.

2. Design-Build Contractor shall not stockpile or store excess fill, construction material, equipment, or debris in wetlands, waterways, wetland buffers, or any 100-year floodplains unless expressly authorized by a Governmental Approval. Design-Build Contractor shall not place materials in a location or manner that adversely impacts surface or subsurface water flow into or out of wetlands, waterways, or any 100-year floodplains.

3. Design-Build Contractor shall not use excavated material as backfill if it contains any Hazardous Materials, Recognized Environmental Conditions, other waste metal products, unsightly debris, toxic materials, asphalt, deleterious substance or soil contaminant concentrations above IDEM criteria (https://www.in.gov/idem/files/nrpd_waste-0064.pdf) unless authorized by INDOT and Governmental Approval. If additional backfill is required, Design-Build Contractor shall use clean materials that are free of Hazardous Materials, Recognized Environmental Conditions, or other waste metal products, debris, toxic material, asphalt, deleterious substance, or contaminant concentrations above IDEM criteria (https://www.in.gov/idem/files/nrpd_waste-0064.pdf).

4. Design-Build Contractor shall not operate equipment in a manner that will damage wetlands, waterways or any 100-year floodplains unless authorized by Governmental Approvals.

5. Design-Build Contractor shall repair and maintain any serviceable structure or fill within the Planned ROW Limits so there is no permanent loss of wetlands, waterways, the 100-year floodplains, or permanent modification to any 100-year floodplains in excess of that allowed under any Governmental Approval unless expressly authorized by such.

6. Design-Build Contractor shall limit the physical disturbance of waterways and vegetation to only that which is necessary and authorized by Governmental Approval. Details shall be included in the Plans to further minimize the removal of trees and understory vegetation that fall within the required Project ROW but outside the actual limits of construction.

7. Design-Build Contractor shall permanently revegetate all bare and disturbed areas with a mixture of native grasses, sedges, wildflowers, and native shrub and hardwood tree species within the same construction season that construction in the disturbed area is completed. Any varieties of tall fescue or other non-native plants (e.g., crown-vetch) shall not be used.

8. Staging, refueling, and cleanup areas shall not be allowed within a minimum distance of 200 feet from streams, wetlands, and other waterbodies. Equipment cleaning/staging areas shall be located such that runoff from these areas shall not directly enter streams, wetlands, or other waterbodies. Equipment cleaning/staging areas shall be located such that effluent is filtered through vegetated areas and proper sediment control structures located between the staging area and receiving water bodies, thereby minimizing the potential impacts such as sedimentation and pollution. Pollutants such as fuels, lubricants, bitumen, raw sewage, Hazardous Materials, Recognized Environmental Conditions, and other harmful materials shall not be discharged into or near rivers, streams, impoundments, wetlands, or into natural or manmade channels leading to any of them. Washwater or waste from concrete mixing operations shall not be allowed to enter any streams, wetlands, or other waterbodies. Washwater disposal shall follow the Standard Specifications.

7.11 Avoidance and Minimization

Design-Build Contractor shall focus its efforts to minimize impacts to wetlands, parks, trails, and trees on the Site. Design-Build Contractor's final designs shall emphasize the avoidance and minimization of impacts.

Design-Build Contractor shall park, service, and maintain equipment in designated areas as approved by INDOT. These areas shall be located a minimum of 5 feet away from all existing streams, wetlands, other "Do Not Disturb" zones, and their immediate watersheds.

Prior to construction, parking and turning areas for heavy equipment outside the construction limits but within the Project ROW shall be identified and located to minimize soil erosion, tree clearing, and impacts to other identified resources. Stable construction entrances will be provided at the points where construction traffic will enter an existing roadway.

INDOT shall be immediately notified of any impacts to wetlands or waterways for which activities are not permitted. Inadvertent impacted areas shall be immediately restored to the full satisfaction of INDOT and the appropriate Governmental Entities. Except as specifically provided otherwise in the PPA, the costs incurred for, and any delay to the Project Schedule resulting from, restoration and, as applicable, mitigation of any inadvertent impacted areas shall be the sole responsibility of the Design-Build Contractor.

7.12 Terrestrial Wildlife Avoidance and Minimization

The Kirtland's Snake, (*Cionophis kirtlandii*), a State "endangered species," has been documented near the Site. A silt fence shall be installed and maintained around any construction areas where ground disturbance will occur.

7.13 Deliverables

Deliverables under this Section 7, a non-exhaustive list of which is set forth in Table 7-3, shall be submitted in both hardcopy and electronic format in accordance with the schedule set forth below. Acceptable electronic formats include PDF and current versions of Microsoft Word and Microsoft Excel, unless otherwise indicated.

Table 7-3: Deliverables

Deliverable	**Deliverable Schedule**	**TP Section**
Governmental Approvals	Prior to Construction Work	7.2.1
Modifications to Governmental Approvals	Prior to Construction Work	7.2.1
Hazardous Materials Management Plan (HMMP)	Within 60 days of NTP	7.3.2
Environmental Compliance and Mitigation Plan (ECMP)	Within 30 days of NTP	7.4.1

Deliverable	**Deliverable Schedule**	**TP Section**
Environmental resource impacts checklist	Quarterly	7.4.1
Environmental compliance training program materials	Within 30 days of NTP and annual updates	7.4.2
Provide required documentation for Noise re-analysis (if required)	NTP plus 90 days	7.5.1
Construction Noise Abatement Plan	Within 30 days of NTP	7.5.2
Vibration Monitoring and Control Plan	NTP plus 90 days	7.6
Notification letters (electronic format)	Prior to Construction Work	7.6
Vibration monitoring records	Prior to Construction Work	7.6
Condition Reports	Prior to Construction Work	7.6

8 ROADWAY

8.1 General

Design-Build Contractor shall design and construct the roadway Work in accordance with the PPA Documents, including Project Standards, this Section 8 and its attachments; Governmental Approvals; and Governmental Rules.

8.2 Basic Configuration

The Reference Plans provided in the RID convey the general intent of the Project, but the Reference Plans do not provide INDOT design requirements, recommendations, or INDOT-approved design solutions for the Project. The Basic Configuration includes the following elements depicted on the Reference Plans that may not be changed:

1. Number and general location of ramps, as shown on the Plan sheets
2. Number of Interstate, ramp, State road, and local street lanes as shown on the Plan sheets
3. Lane, shoulder, and ramp widths, as shown on the Plan sheets
4. Locations of underpasses of local streets

8.3 Roadway Design Requirements

Attachment 8-1A (Design Criteria) and Attachment 8-1B (Design Speed Diagrams) list the minimum requirements for the design of each roadway depicted in Attachment 8-2 (Mainline/Ramp Limits). Design-Build Contractor's design shall not provide for less than minimum requirements depicted in Attachment 8-1A (Design Criteria) and Attachment 8-1B (Design Speed Diagrams) unless prior written approval is obtained from INDOT.

8.3.1 General Design Requirements

For the purposes of this Section 8.3.1, a "restrictive condition" means a condition that would require Additional Properties or cause an impact to any wetland, stream, "Do Not Disturb" zones identified in Section 7 (Environmental), or other environmentally sensitive area that is not the subject of any INDOT-Provided Approval, or pending application of such (as of the Setting Date) and would consequently require Design-Build Contractor to seek a Governmental Approval or modification of such.

Design-Build Contractor shall comply with the following requirements:

1. Clear zones – Clear zones shall be provided per Project Standards.
2. Side slopes – Design-Build Contractor shall design slopes to avoid the need for traffic barrier whenever possible. Where a "restrictive condition" does not permit a 6:1 (H:V) or flatter slope, Design-Build Contractor may use other criteria shown below. Design-Build Contractor shall design all slopes on the Project in the order of precedence shown below, with criterion (a) being the requirement, followed by criterion (b) as the next desirable and other criteria in decreasing levels of desirability. For avoidance of doubt, Design-Build Contractor shall design all slopes to criterion (a) unless it can establish, as

to each slope and as part of INDOT's design review process, that criterion (a) is impossible, too costly, or otherwise undesirable, in which case, Design-Build Contractor shall design the slope to criterion (b), unless it can establish the same (proceeding accordingly to criterion (c), etc.). The side slope selection criteria shall be as follows:

a. Use 6:1 (H:V) or flatter slopes.

b. Use steeper slopes of 6:1 to 4:1.

c. Use a combination of recoverable slopes (between 6:1 and 4:1 within the clear zone) and non-recoverable slopes (between 4:1 and 3:1 outside the clear zone) creating a "barn roof" section.

d. Use non-recoverable slopes (3:1 or steeper) within the clear zone where shielded by traffic barrier.

e. Use reinforced soil slopes where side slopes steeper than 2:1 (between 2:1 and 1:1) are required.

f. Use retaining walls where reinforced soil slopes cannot be used, subject to maximum exposed heights defined in Section 14.4.

g. Use a combination of reinforced soil slopes and retaining walls, subject to maximum retaining walls heights defined in Section 14.4.

3. Design-Build Contractor shall submit supporting documentation and justification to INDOT, for INDOT review and approval, if it intends to vary from the side slope design criteria listed above.

4. Roadside ditches – Ditches shall have a minimum of a 4-foot bottom width.

5. Barrier/guardrail offset –The offset shall be 2 feet from the paved shoulder to the face of guardrail or barrier for shoulders less than 12 feet wide except as noted in Attachment 8-6 (Reduced Barrier Offset).

6. Graded shoulder behind guardrail – For locations where guardrail is required, 2 feet of compacted aggregate shall extend beyond the back of the guardrail post to the hinge point of the front slope.

7. Roadside barrier calculations – Design-Build Contractor shall determine the final roadside barrier length-of-need and complete all roadside barrier calculations in accordance with the applicable Project Standards. On the outside of horizontal curves with radius of 1,000 feet or less, roadside barriers shall be concrete barrier.

8. Borrow and disposal – Design-Build Contractor shall follow the requirements of Section 203.08 and 203.10 of the Standard Specifications.

9. Unused Pavement – Design-Build Contractor shall remove all unused and/or abandoned pavements, pavement subgrades and appurtenances within the Project ROW. Topsoil shall be placed over the removed pavement area in accordance with applicable Project Standards. The existing roadway embankment on the existing I-70 westbound to I-65 northbound ramp, from Lewis Street to the west side of College Avenue, and the embankment on I-65 southbound to the CD, from College Avenue to 10th Street, shall be left in place.

10. The minimum allowable grade on interstate mainline and ramps shall be 0.3 percent. Design-Build Contractor shall obtain INDOT approval of grades less than 0.3 percent except for the specific locations as shown in Attachment 08-1C (Minimum Profile Grades).

8.3.2 Specific Design Requirements

Design-Build Contractor shall design the roadways to comply with the requirements of this Section 8.3.2 for each roadway:

1. Design-Build Contractor shall use adjustment factors for superelevation runoff lengths in accordance with IDM 43-3.03(02) and IDM figure 43-3G.

2. The minimum distance from the branch connection of I-65/I-70 NB to I-65 NB, and I-70 WB to I-65 NB to the I-70 WB lane drop shall be 910 feet.

3. The minimum gore lengths for the following movements shall be as follows in Table 8-1:

Table 8-1: Minimum Gore Lengths

	Controlling Movement	**Diverging Movement**	**Min. Gore Length (ft)**
S to N	I-65/I-70 NB to I-65 NB	I-65/I-70 NB to I-70 EB	155
	Michigan Street to I-70 EB	Michigan Street to I-65 NB	90
	I-65 SB CD to I-65/I-70 SB	I-65 SB CD to Michigan Street	275
W to E	I-65 SB to I-65/I-70 SB	I-65 SB to I-70 EB	165
	I-65/I-70 NB to I-65 NB	I-65 NB to 12th St CD	300
	I-65 SB to I-65/I-70 SB	I-65 SB to I-65 SB CD	190
	I-70 WB to I-65/I-70 SB	I-70 WB to I-65 SB CD	335
	I-70 WB to I-65/I-70 SB	I-70 WB to I-65 NB	285

a.

4. Design-Build Contractor shall not exceed the maximum grades listed in IDM Figure 53-1, excluding note 20. Maximum grades for mainline and freeway-to-freeway system ramps designed to 45 mph shall not exceed 4 percent.

5. The horizontal radius of curvature for I-65 SB to I-65 SB/I-70 WB shall be at least 650 feet.

6. Shoulder widths within the interchange proper as defined in Section 8.3.2.1 shall be in accordance with IDM Chapter 48.

7. Multi-lane exit ramps with option lane shall be in accordance with IDM Figure 48-4G.

8.3.2.1 Roadway Adjustment

Horizontal and vertical adjustments to roadways shown in the Reference Plans provided in the RID are allowed without INDOT approval, provided the adjustments are consistent with the PPA Documents, Governmental Rules, Governmental Approvals, and meet the following requirements:

1. The adjustments do not result in the need to acquire Additional Properties.

2. Adjustments outside the interchange proper, which is defined as all roadways or portions of roadways within an area extending from 600 feet east of Lewis Street to the east Project terminus; from centerline of College Avenue to the west Project terminus; and from 300 feet south of 10th Street to the south Project terminus, are within the following limits:

    a. Outer limits of roadways may be adjusted horizontally up to 2 feet from those shown in the Reference Plans while complying with lane, shoulder, and ramp width requirements in Section 8.2 (Basic Configuration).

    b. Vertical elements of roadways shall not be raised by more than 2 feet from the profiles shown on the Reference Plans.

8.3.2.2 Roadway Elevation Requirements

The maximum profile grade elevation of the finished roadway pavement or bridge deck surface on any roadway in the interchange proper shall not exceed 780.00 feet.

8.3.2.3 Bicycle and Pedestrian Accommodations

Design-Build Contractor's design of bicycle and pedestrian accommodations shall provide not less than the minimum limits depicted in Attachment 8-7 (Bicycle and Pedestrian Construction Limits). Concept bicycle and pedestrian accommodation plans are provided in RID.

8.4 INDOT-Provided Design Exceptions

The non-exhaustive list of Level One Design Exceptions and Level Two Design Exceptions identified in this Section 8 shall apply only to the specific locations stated within the Design Exceptions. Variations from these locations shall require Design-Build Contractor to submit a separate request for a Design Exception.

INDOT has obtained the following Design Exceptions for the Project:

8.4.1 Level One Design Exceptions

1. Shoulder and Bridge Clear Roadway Width – See Attachment 8-3 (Level One Design Exception Table for Shoulder & Bridge Clear Roadway Width).

2. Horizontal Stopping Sight Distance – Attachment 8-4 (Advisory Speed Table) and Attachment 8-5 (Shoulder Width Overdesign).

3. Ramp Lane (Travel way) Width and Ramp Shoulder Width (Rt) for I-65 NB to 12th St. CD and 11th St. CD to I-70 EB Movements (offramp to Pennsylvania Street and onramp from Delaware Street) – Ramp widths for Pennsylvania Street and Delaware Street shall be: 4-foot left shoulder, 12-foot travel lane, and 4-foot right shoulder.

8.4.2 Level Two Design Exceptions

1. Roadside Safety Design Element – Attachment 8-6 (Reduced Barrier Offset).

8.5 Deliverables

Deliverables under this Section 8, a non-exhaustive list of which is set forth in Table 8-2, shall be submitted in electronic format in accordance with the schedule set forth below. Acceptable electronic formats include PDF and current versions of Microsoft Word and Microsoft Excel, unless otherwise indicated.

Table 8-2: Deliverables

Deliverable	Deliverable Schedule	TP Section
Design Exception documentation	As required by the PPA Documents	8.4

9 PAVEMENT

9.1 General

This Section 9 covers the design and construction of pavement. Design-Build Contractor shall provide long-lasting pavement that meets required functionality, durability, and safety requirements. Design-Build Contractor shall perform all Work in accordance with the PPA Documents, including Project Standards, this Section 9 and its attachments; Governmental Approvals, and Governmental Rules.

All field and laboratory testing for pavements and associated materials conducted by Design-Build Contractor shall be conducted in an accredited laboratory and performed by personnel who are certified by INDOT as qualified to perform INDOT test methods in accordance with Project Standards.

Unit prices to be used for pay factor adjustments according to Sections 401, 501 and Attachment 09-1 (USP-Pavement) of the Standard Specifications are defined by the following:

- 501 QC/QA CRCP Pavement Items: $85/SYS
- 501 QC/QA PCCP Pavement Items: $75/SYS
- 401 QC/QA HMA Pavement Items: $70/TON

Design-Build Contractor shall document the resolutions of issues including meeting minutes.

9.2 Design and Construction Requirements

9.2.1 General Requirements

The permanent proposed pavements for this Project shall be as prescribed below. All permanent pavement and shoulders on I-65 mainline, I-70 mainline, all collector-distributor roadways, and ramps within the paving limits shall be new pavement. The minimum paving limits are shown in Attachment 9-2 (Paving Limits).

9.2.2 Pavement Designs

For purposes of this Section 9.2.2, the word “lanes” shall mean all travel lanes, auxiliary lanes, collector-distributor lanes, ramps, acceleration/deceleration lanes, and any other pavement on which traffic may normally travel. The word “shoulders” shall mean inside and outside shoulders and gore areas. Ramps shall be considered to start at the theoretical back of gore.

Design-Build Contractor shall construct all pavements within the paving limits in accordance with Attachment 9-2 (Paving Limits).

The minimum pavement design requirements are specified below:

1. Full-depth Continuous Reinforced Concrete Pavement (CRCP) shall be constructed for all travel lanes, ramps, auxiliary lanes, and shoulders. Design-Build Contractor shall comply with CRCP Concrete Mix Design and related specifications in Attachment 9-1 (USP: Pavement) and Attachment 9-3 (CRCP Bar Reinforcement).

- QC/QA-CRCP, 13 inches with
- Reinforcing steel content = 0.8 percent of cross-sectional area at 4.5-inch cover depth. All reinforcing steel to be epoxy coated.
  - Longitudinal Bar – No. 7 Bar, 21 spaces (22 bars) at 6.5 inches for 12 feet width slab
  - Transverse Bar – No. 4 Bar, spaced at 48 inches
  - Tie bar – 30-inch-long No. 4 bar, spaced at 30 inches at mid-depth centered between longitudinal joint, on
- 440 lb/yd^2 QC/QA-HMA, 3, 64, Base, 19.0 mm, on
- 6 inches of compacted aggregate, No. 53 on
- Geotextile for subgrade, Type 2B on
- Subgrade treatment (see Section 9.2.3 below)

2. A 14-foot widened slab (lane striped at a 12-foot width) shall be constructed for the outside driving lane and tied shoulders. The 4 inches of QC/QA HMA shall extend beyond the CRCP shoulder slab edge by 3 feet.
3. I-70 East of Roosevelt Avenue Bridge Full Depth PCCP – Travel Lanes and Shoulders:
   - QC/QA PCCP, 16.5 inch with
   - D-1 Contraction Joint with a maximum spacing of 16 feet and 1.5 inch diameter dowel bars
   - Subbase for PCCP
   - Geotextile for subgrade, Type 2B on
   - Subgrade treatment (see Section 9.2.3 below)
4. I-65/I-70 South of Washington Street Bridge Full Depth PCCP – Travel Lanes and Shoulders:
   - QC/QA PCCP, 16.5 inches with
   - D-1 Contraction joint with a maximum spacing of 16 feet and 1.5 inch diameter dowel bars
   - Subbase for PCCP
   - Geotextile for subgrade, Type 2B, on
   - Subgrade treatment (see Section 9.2.3 below)

The final pavement surface for all lanes within the paving limits shall comply with the Next Generation Concrete Surface specifications in Attachment 9-1 (USP: Pavement).

9.2.2.1 Local Street Pavement Design

The minimum pavement design requirements for EB Ohio Street from east approach of the intersection with College Avenue to 130 feet south of the intersection of New York and Pine Street and Davidson Street from the north approach of the intersection with North Street to north approach of the intersection with Michigan Street are specified below:

- PCCP, 12.0 inches with

- D-1 contraction joint with a maximum spacing of 16 feet and 1.5-inch-diameter dowel bars
- 6 inches of dense graded subbase
- Geotextile for subgrade, Type 2B on
- Subgrade treatment Type II
- Underdrains are not required

9.2.3 Subgrade Treatment

Design-Build Contractor shall utilize either subgrade treatment Type 1B or Type 1C in accordance with Project Standards or subgrade treatment Type 1D as defined in Attachment 9-1 (USP: Pavement).

9.2.4 Temporary Pavement

Design-Build Contractor shall design, construct, and maintain for the term of the PPA Documents all temporary pavements within the Planned ROW Limits in compliance with the requirements of the PPA Documents and the following performance requirements. Temporary pavement is defined as pavement that is in use by vehicular traffic for 24 months or less.

The requirements for temporary pavement are as follows:

- Provide documentation describing the assumptions used to design the temporary pavement. At a minimum, the documentation shall include design life and anticipated traffic loading for each temporary pavement location within the Planned ROW Limits.
- Provide a durable, maintainable pavement system that meets the following requirements during its service life:
    - IRI of less than 120 inches/mile
    - Free of potholes, fatigue areas, duress, and rutting exceeding 0.25 inches
    - Provide adequate cross slope to drain water quickly from pavement surface

Design-Build Contractor shall analyze and prepare separate temporary pavement designs, as applicable, for the following:

- Mainline pavements
- Ramp pavements
- Local street pavements

If INDOT believes, in its sole discretion, that these requirements are not being met, INDOT will direct Design-Build Contractor to conduct pavement testing to measure the pavement properties. Both the testing and corrective actions shall be considered part of Design-Build Contractor's Work.

9.2.4.1 Temporary HMA Pavement Performance Standards

Construct and maintain temporary HMA pavements according to Project Standards and the following:

1. No occurrence of pavement shoving shall exceed 2.0 square feet in area at any location.
2. No occurrence of pavement rutting shall exceed 0.4 inches in depth for surface pavement, and no occurrence of pavement rutting shall exceed 0.5 inches in depth for surface pavement and subgrade combined. Further, the average pavement rutting for any continuous 300-foot length of pavement shall not exceed 0.25 inches in depth, as determined by averaging the rut measurements at five locations spaced at least 50 feet apart but not more than 60 feet apart.
3. No edge drop-off shall exceed 0.5 inches in depth for a continuous length of 15 feet or more.
4. No depression exceeding 0.5 inches in depth (e.g., a pothole) shall exceed 0.5 square feet in area.
5. No bump exceeding 0.5 inches in height shall exceed 0.5 square feet in area.
6. No location of delamination or raveling shall exceed 0.5 square feet in area. Furthermore, the total delamination or raveling shall not exceed 3.0 square feet for all such locations.
7. There shall be no occurrences of fatigue cracking at any location on the MOT pavement.

9.2.4.2 Temporary PCC Pavement Performance Standards

Construct and maintain temporary PCC pavement according to Project Standards and the following:

1. There shall be no occurrences of faulting at any location on the temporary pavement.
2. No pavement crack (transverse, longitudinal, or otherwise) on the temporary pavement shall exceed 0.125 inches in width.
3. There shall be no use of roller-compacted concrete as temporary pavement.

9.2.4.3 Existing HMA Shoulder Performance

If Design-Build Contractor intends for the existing shoulder pavement to be used as temporary pavement, Design-Build Contractor shall perform, as part of the Work, the following to prepare existing shoulder pavement for such use:

1. Mill the shoulder including any existing shoulder corrugations, and the portion of the shoulder shall be resurfaced prior to MOT operations.
2. No occurrence of pavement shoving shall exceed 2.0 square feet in area at any location.
3. No occurrence of pavement rutting shall exceed 0.4 inches in depth for surface pavement, and no occurrence of pavement rutting shall exceed 0.5 inches in depth for surface pavement and subgrade combined Further, the average pavement rutting for any continuous 300-foot length of pavement shall not exceed 0.25 inches in depth, as

determined by averaging the rut measurements at five locations spaced at least 50 feet apart but not more than 60 feet apart.

4. No edge drop-off shall exceed 0.5 inches in depth for a continuous length of 15 feet or more.
5. No depression exceeding 0.5 inches in depth (e.g., pothole) shall exceed 0.5 square feet in area.
6. No bump exceeding 0.5 inches in height shall exceed 0.5 square feet in area.
7. No location of delamination or raveling shall exceed 0.5 square feet in area. Furthermore, the total delamination or raveling shall not exceed 3.0 square feet for all such locations.
8. There shall be no occurrences of fatigue cracking at any location on the temporary pavement.

9.2.5 Shoulder Corrugations

Shoulder corrugations are not required for this Project.

9.2.6 Underdrains

For pavements within Planned ROW Limits, underdrains shall be installed in accordance with the Project Standards. Design-Build Contractor shall video inspect underdrains per IDM requirements.

9.3 Deliverables

Deliverables under this Section 9, a non-exhaustive list of which is set forth in Table 9-1 below, shall be submitted in electronic format in accordance with the schedule set forth below. Acceptable electronic formats include PDF and current versions of Microsoft Word and Microsoft Excel, unless otherwise indicated.

Table 9-1: Deliverables

Deliverable	Schedule	TP Section
Temporary pavement documentation	With Stage 3 Review Submission	9.2.4
Underdrain details	With Stage 3 Review Submission	9.2.6

10 DRAINAGE

10.1 General

Design-Build Contractor shall design and construct the drainage Work in accordance with the applicable requirements in the PPA Documents, including Project Standards, this Section 10; Governmental Approvals; and Governmental Rules.

Design-Build Contractor shall provide the stormwater drainage system improvements and facilities to accommodate flows generated from the Project and runoff that drains to the Project. The stormwater drainage system (consisting of, at a minimum, runoff collection systems, conveyance systems, flow control facilities, runoff storage facilities, and outfalls for the Project) shall meet the requirements of this Section 10 and the IDM.

Design-Build Contractor shall prepare a Concept Drainage Report to address all applicable items in the PPA Documents, including Project Standards, this Section 10; Governmental Approvals; and Governmental Rules with respect to, storm sewer, storage facilities, and other drainage items. At a minimum, the report shall include:

1. Map/figure(s) including aerial photography and contours, with drainage areas delineated
2. Separate maps for existing and proposed conditions
3. Existing and proposed conceptual storm sewer layout
4. Approximate location of all detention/storage facilities, including points of inlet and outlet for these detention basins
5. Drainage design criteria
6. Drainage design approach and methodology

Design-Build Contractor shall submit a draft Concept Drainage Report to INDOT Hydraulics for review and comment prior to the Stage 1 Review Submission.

10.2 Culverts

Design-Build Contractor shall be responsible for maintaining all drainage systems including culverts, storm sewer systems and cross-drain pipes within the limits of the Project from commencement of Construction Work to Final Acceptance.

10.2.1 Existing Culverts

Design-Build Contractor shall replace all existing culverts. Requirements for treatment of culverts are as follows:

1. Where undercutting or other signs of erosion is present at the inlet of an existing culvert, the Design-Build Contractor shall install riprap per Figures 203-2D and 203-2J of the IDM at the inlet of the proposed culvert.
2. For consistency of sump requirements and without more detailed soil boring information, if the soil map unit description from Web Soil Survey or other INDOT-approved source

contains the word “sand”, the required sump from IDM Figure 203-2E shall be determined by the “Sump Required for Stream Bed of Sand” column.

3. No new or replacement corrugated metal pipe (CMP) culverts will be allowed.

10.2.2 Hydraulic Capacity Evaluation

1. Design-Build Contractor shall evaluate hydraulic parameters for all culverts within the Project ROW. Design-Build Contractor shall submit hydraulic reports for all culverts, pipes, storm sewers, and detention/storage facilities to INDOT for approval with its Stage 3 Review Submission.

2. Design-Build Contractor shall use HY-8 version 7.2 for culvert analysis.

3. Reinforced concrete boxes and 3-sided structures with a span of 18 feet or less shall incorporate corner haunches as produced by the manufacturer when modeled in HY-8.

10.3 Design and Construction Requirements

1. No new or replacement CMP storm sewer drain will be allowed.

2. Design-Build Contractor shall install erosion protection measures at the outlet of new drainage structures. Outlet velocities when leaving INDOT ROW shall be restricted to 1.5 times the natural stream velocity or 6.5 ft/s, whichever is greater. Internal energy dissipaters will not be allowed.

3. New storm sewer drain shall discharge a minimum of 6 inches above the ditch flowline elevation.

4. All existing storm sewer systems, inlets, manholes, drainage pipes and small culverts shall be replaced, with the following exceptions:

    a. The existing double-elliptical storm sewer trunk line that runs along the north side of INDOT’s ROW on the west leg of the interchange may remain in place provided Project Standards are met. If additional fill or retaining wall from the existing condition is placed on this structure, the Design-Build Contractor shall either replace it to accommodate the additional load, relocate the structure, or shall provide documentation and calculations that show the existing structure can handle the additional load and submit to INDOT for approval. If a portion of this trunk line is under new pavement, it shall be replaced.

    b. Existing storm sewer systems, inlets, manholes, drainage pipes and small culverts that are under pavement to be left in place may remain, provided Project Standards are met. If additional fill or retaining wall is placed on these structures, the Design-Build Contractor shall either replace them to accommodate the additional load, relocate the structures, or shall provide documentation and calculations that show the existing structures can handle the additional load and submit to INDOT for approval.

5. All existing abandoned drainage structures that will not be used in the final drainage system shall be either:

    a. removed and backfilled with structure backfill, Type 5 or

    b. filled with structure backfill, Type 5, and left in place.

6. Slotted drain is required on high side, superelevated shoulder that is sloped toward the travel lanes.

7. Median ditches, median ditch inlet spacing, and median drain capacity computations shall be performed by the Design-Build Contractor for the 1 percent annual EP storm.

8. No surface stormwater detention storage is allowed in median ditches.

9. Ditches shall be graded to a minimum longitudinal grade of 0.5 percent unless physical constraints make the minimum grade unobtainable. Ditches with less than 0.5 percent longitudinal grade shall be paved with concrete in accordance with Project Standards. Design-Build Contractor shall obtain approval for location of paved ditches from INDOT Hydraulics.

10. No new stormwater lift stations are allowed.

11. Mountable curb and gutter, for all interstate mainline, system-to-system ramps, and ramps with a design speed of 45 mph or less, or barrier wall shall be constructed at the edge of shoulders so that no sheet flow or shallow concentrated flow from the roadway will drain onto unprotected side slopes steeper than a 3:1 ratio to prevent erosion.

12. Slotted drains shall not be placed within gore areas.

13. Design-Build Contractor shall replace all existing pipes that do not meet the minimum size as defined in IDM Figure 203-2B.

10.4 Detention Requirements

1. Stormwater management and detention shall be designed in accordance with Project Standards unless otherwise specified in this Section 10.

2. At a minimum, water quantity control shall be designed by the Design-Build Contractor so that wherever stormwater is leaving the Project Site, runoff quantity from the post-Project 1 percent annual EP storm event is equal to or less than runoff quantity from the pre-Project 1 percent annual EP storm event.

3. Design-Build Contractor shall submit for INDOT approval a detention/storage facility hydraulic evaluation report documenting that the Project meets the requirements with its Stage 3 Review Submission.

4. For storm sewer system connections to existing storm sewer systems owned by the City of Indianapolis DPW, the detention requirements will be based on storm system locations listed in Table 10-1. These flow rates shall be compared at any location where flow leaves the Project ROW and enters the DPW storm system. The storm sewer system locations and applicable criteria are listed below:

Table 10-1: Storm Sewer System Locations

Storm Sewer System Location	Connection Criteria
DPW storm sewer system running along the south side of East Washington Street and all other DPW connections to this system	The proposed 1 percent annual EP post-construction runoff from INDOT ROW shall be less than or equal to the existing 1 percent annual EP pre-construction runoff from INDOT ROW
DPW storm sewer system running along the north side of East Washington Street and all other DPW connections to this system	The proposed 1 percent annual EP post-construction runoff from INDOT ROW shall be less than or equal to the existing 2 percent annual EP pre-construction runoff from INDOT ROW
DPW storm sewer system running along the north side of East Market Street and all other DPW connections to this system	The proposed 1 percent annual EP post-construction runoff from INDOT ROW shall be less than or equal to the existing 1 percent annual EP pre-construction runoff from INDOT ROW
DPW storm sewer system running along the north side of East Vermont Street, and all other DPW connections to this system	The proposed 1 percent annual EP post-construction runoff from INDOT ROW shall be less than or equal to the existing 2 percent annual EP pre-construction runoff from INDOT ROW
DPW storm sewer system running along East 18th Street and all other DPW connections to this system	The proposed 1 percent annual EP post-construction runoff from INDOT ROW shall be less than or equal to the existing 2 percent annual EP pre-construction runoff from INDOT ROW

5. For re-connections to the INDOT owned double-elliptical trunk line that runs along 12th Street, the proposed 1 percent annual EP post-construction flow rate shall be less than or equal to the existing 1 percent annual EP pre-construction flow rate into that system.

6. For new connections to the combined storm and sanitary system(s) owned by Citizens Energy Group, the proposed 1 percent annual EP post-construction runoff from INDOT ROW shall be less than or equal to the existing 10 percent annual EP pre-construction runoff from INDOT ROW, and the proposed 4 percent annual EP post-construction runoff from INDOT ROW shall be less than or equal to 75 percent of the 10 percent annual EP pre-construction runoff from INDOT ROW, the proposed 10 percent annual EP post-construction runoff from INDOT ROW shall be less than or equal to half of the 10 percent annual EP pre-construction runoff from INDOT ROW, and the proposed 50 percent annual EP post-construction runoff from INDOT ROW shall be less than or equal to half of the 50 percent annual EP pre-construction runoff from INDOT ROW.

7. For reconnection to the combined storm and sanitary system(s) owned by Citizens Energy Group, the proposed flow rate into the system must not exceed the existing flow rate into the system. Reconnection shall be in the same location within the system as that of the existing.

8. The design pool level elevation for a detention basin outside the roadway shall not encroach on the clear zone if the depth is 2 feet or greater, unless it is protected with guardrail or concrete barrier.

10.5 Deliverables

Deliverables under this Section 10, a non-exhaustive list of which is set forth in Table 10-2 below, shall be submitted in electronic format in accordance with the schedule set forth below. Acceptable electronic formats include PDF and current versions of Microsoft Word and Microsoft Excel, unless otherwise indicated. The submittals shall also include all computer modelling software files per IDM requirements.

Table 10-2: Deliverables

Deliverable	Deliverable Schedule	TP Section
Concept drainage report	Prior to Stage 1 Review Submission	10.1
Culvert hydraulic capacity evaluation report	With Stage 3 Review Submission	10.2
Storm sewer report in accordance with IDM	With Stage 3 Review Submission	10.3
Detention/storage facility evaluation report	With Stage 3 plans	10.4

11 TRAFFIC AND LIGHTING

11.1 General

Design-Build Contractor shall design and construct the traffic Work in accordance with the PPA Documents, including Project Standards, this Section 11 and its attachments; Governmental Approvals; and Governmental Rules.

Design-Build Contractor shall be responsible for analysis and Design Work required to determine advisory speeds and the design and construction of signage, lighting, traffic signals, and pavement markings.

All technical provisions governing structure design requirements in Sections 13 (Geotechnical) and 14 (Structures) apply to this Section 11.

11.2 Signing

11.2.1 Design and Construction Requirements

Design-Build Contractor shall design and install signing for the Project in accordance with the Project Standards. Except for conduits as specified in Section 11.2.2, Design-Build Contractor is not required to provide sign lighting.

Design-Build Contractor shall remove and replace all existing signing, sign structures and foundations and construct new signing for roadways within the Project ROW in accordance with Project Standards. Signing shall include all overhead box truss structures, overhead cantilever sign structures, and ground mounted signs. Removal of existing signs and foundations shall be in accordance with Project Standards. Overhead sign messaging, sequencing, and placement shall follow the signing roll plot (RID – Proposed Signing Roll Plot). Wayfinding sign messaging, sequencing, and placement shall follow the wayfinding sign exhibit (RID – Wayfinding Signs Proposed). Deviations from the signing roll plot or wayfinding sign exhibit shall be submitted to INDOT for review and approval.

New signs and supports within the Project ROW shall meet the requirements of this Section 11.2, Section 14 (Structures), the Project Standards, and Attachment 11-7 (USP: Traffic).

Sign design shall include:

- Regulatory, warning, and guide signs for the I-65 mainline alignment, I-70 mainline alignment, system-to-system ramp alignments, local roadways, and ramp alignments within the Planned ROW Limits.
- Guide signs for streets approaching freeway entrance or exit ramps (11th Street, 12th Street, Washington Street, Market Street, Pine Street, Pennsylvania Street, and Meridian Street).
- Overhead wayfinding signs along Illinois Street, 10th Street, West Street, Pennsylvania Street, and Delaware Street.

Design-Build Contractor shall provide for the removal and replacement of existing overhead or ground mounted signs that are no longer appropriate due to the construction of the Project or

the installation of new signage outside the Planned ROW Limits. Locations of signing removal, replacement, or installation include:

1. I-65 northbound and all associated ramps from Raymond Street to Washington Street
2. I-70 eastbound and all associated ramps from Meridian Street to Washington Street
3. I-65 southbound and all associated ramps from 21st Street to Delaware Street
4. I-70 westbound and all associated ramps from Keystone Avenue to Commerce Avenue
5. I-70 and Keystone Avenue/Rural Street Interchange

Existing sign supports outside of the Planned ROW Limits may be identified for re-use by the Design-Build Contractor if the sign supports meet the structural capacity requirements for the new sign(s) in accordance with Section 14 (Structures) and Project Standards. Existing sign supports shall be removed and replaced if the proposed area of signage exceeds the existing area of signage currently in place. Design-Build Contractor shall replace existing sign supports in accordance with Section 14 (Structures).

Design-Build Contractor shall provide for the removal and replacement of existing signs along local roads outside of the Planned ROW Limits that are no longer appropriate due to construction of the Project. Removal of existing signs and foundations shall be in accordance with Project Standards. Overhead sign messaging, sequencing, and placement shall follow the signing roll plot provided in the RID – Proposed Signing Roll Plot. Deviations from the signing roll plot shall be submitted for review and approval. New signs shall meet the requirements of Section 11.2.1.2.

11.2.1.1 Design Signing Roll Plans

If the Design-Build Contractor modifies the Reference Plans, Design-Build Contractor shall prepare and submit a revised signing roll plot for review and approval prior to preparing signing Plans. The revised signing roll plot shall include proposed sign locations and messages for all guide signs, typical regulatory and warning sign applications, proposed locations for relocating existing signs located outside of the Project ROW, and proposed locations for new structures. The revised signing roll plot shall display signing for all mainlines, ramps, and interchange, as well as for the arterial streets, frontage roads, and any other signing affected by the Project. Signing modifications due to Design-Build Contractor's design shall be shown on the revised signing roll plot. The roll plot shall denote which agency is responsible for ownership and maintenance of each sign and structure (e.g., INDOT or a Local Agency). The roll plot features shall include the existing and proposed roadway alignments, Project ROW, Utility information, baseline of construction (including stationing), and existing topography at the tie-in points of the roadway limits of Work. The proposed pavement markings shall also be shown on the revised signing roll plot.

11.2.1.2 Signing Plan Requirements

Design-Build Contractor shall prepare signing Plans at a scale in accordance with the IDM. Signing Plans shall show the message, IMUTCD sign designation (if applicable), dimensions, color, border, material, and location of all proposed regulatory signs, warning signs and guide signs, including sign assemblies. Signing Plans shall also show the location, messages, and dimensions of all existing signs. Cross sections at sign structure locations shall be included for

all overhead sign structures. All existing signs to be removed or relocated shall be identified. Signing Plans shall include the location and type of pavement marking, delineators and pavement edge delineation.

Guide signs along 11th Street, 12th Street, Washington Street, Market Street, Pine Street, Pennsylvania Street, and Meridian Street shall consist of route marker shields (M1-1) and auxiliary signs (M3-1, M3-2, M3-3, M3-4, M4-5, M6-1, M6-3) shall be installed on overhead cable spans.

Overhead wayfinding signs along Illinois Street, 10th Street, West Street, Pennsylvania Street, and Delaware Street shall consist of Route Marker Shields installed on existing signal cantilever structures.

Design-Build Contractor shall also include reference markers in accordance with the IMUTCD along mainline using the D10-5 sign at tenth of a mile increments. Reference markers shall match those currently on the interstate system.

11.2.1.3 Design of Sign Locations

Design-Build Contractor shall design, fabricate, and install all overhead and ground-mounted signs at locations shown on the signing Plans. All signs shall be located in accordance with Section 2 of the IMUTCD and RID, Proposed Signing Roll Plot and Wayfinding Signs Proposed. Design-Build Contractor shall provide sight distance calculations for appropriate perception-response time for all signs along the mainline, ramps, and cross streets to INDOT for review and approval with signing Plan submissions. The interchange signing shall be consistent with the messaging, sequence, and locations shown in the signing roll plot. Design-Build Contractor shall design all details of the sign panels, as well as ground-mounted and overhead supports. Design-Build Contractor's sign design shall consider all proposed landscaping, Utility information, hydraulic, lighting, and all other roadside features to ensure proper clearances, lighting levels, and adequate sight distance.

11.2.1.4 Sign Material and Design and Construction Requirements

The messages, fonts, font sizes, arrows, shields, colors, borders, and type of supports for the overhead and ground-mounted signs shall be designed and constructed according to the IMUTCD and follow interstate interchange classifications. The sheeting material for all overhead signs shall be in accordance with Type XI Reflective Sheeting in Attachment 11-7 (USP: Traffic). The Type E font shall be used for all positive contrast guide signs. Positive contrast guide signs are signs that use white text/copy on a dark-colored background (e.g., green, blue, black, brown, etc.).

For purposes of sign design, all interchanges shall be classified as major, category A as defined in IMUTCD Section 2E.32: All signs along the mainline freeway and associated ramps shall be "freeway" size as identified in the IMUTCD, FHWA Standard Highway Signs Book and the INDOT Standard Highway Signs Book. All signs designed and installed along all other roadways shall be "standard" size as identified in the IMUTCD, FHWA Standard Highway Signs Book and the INDOT Standard Highway Signs Book.

11.2.1.5 Sign Supports and Foundations

For each sign support location, Design-Build Contractor shall indicate the sign panel(s) and the sign supports on the corresponding final cross section. The proper vertical and horizontal clearances, sign sizes and offsets, foundations, number of lanes, and lane widths shall be labeled on the cross sections. Design-Build Contractor shall check cross sections and profiles at all sign locations and make adjustments as necessary to provide adequate sight distances and proper placement of the guide signs. If a non-standard overhead sign support is proposed, Design-Build Contractor shall submit calculations to properly size the sign supports for INDOT approval with signing Plan submissions noting conspicuously on the submission that the submission is a proposed non-standard sign support. Sign supports shall be in accordance with Project Standards and Sections 13 (Geotechnical) and 14 (Structures) of the Technical Provisions.

All box truss sign supports and foundations shall be designed for a total sign area capacity of 1,200 square feet and shall be in accordance with Overhead Sign Structure in Attachment 11-8 (Sign Structure Extended Plan) for structural capacity.

Signs or sign structures shall not be mounted on the bridge overpass structures. Sign structures shall not be mounted on the median barrier except in locations where the maximum span of the INDOT standard structure is exceeded.

No signs shall be banded to Utility poles, street lighting poles, or overhead or cantilever sign structure uprights.

Traffic barriers shall be provided for protecting all non-breakaway supports within the clear zone for sign structures within the Project ROW and for new sign structures outside the Project ROW. Non-breakaway sign supports or sign structures shall be placed outside the clear zone wherever possible.

11.2.2 Sign Lighting

External sign lighting and related appurtenances, such as a sign walkway, shall not be installed for overhead signs. However, conduit shall be installed in overhead sign structure foundations for possible future lighting and shall connect to a lighting handhole placed near the base of the sign support. Conduit sizing shall be per the Project Standards. A grounding system shall be included.

11.3 Traffic Signals

11.3.1 Performance Requirements

Design-Build Contractor shall replace existing traffic signals at designated locations described below.

All traffic signals to be replaced shall be designed to provide for the efficient movement of traffic (vehicular and pedestrian) in the year of operation (2022).

Existing interconnect between signals shall be maintained between intersections listed in Section 11.3.1 and one adjacent intersection, if signalized, in each direction.

Each signal installation shall include new foundations, traffic signal poles, cabinet and controller, signal heads, ADA compliant push buttons and pedestrian signal heads, conduit system, circuitry, detection devices, associated signal equipment, and signing. The Work shall include coordinating Utility connections with the relevant Utility Owner and coordinating the signal cable connections with Local Agencies. All traffic signals at the following intersections shall be replaced:

1. Washington Street and I-65/70 Off Ramp (INDOT Signal) – Comm. No. 01-049-494
2. Washington Street and I-65/70 On Ramp (INDOT Signal) – Comm. No. 01-049-493
3. College Avenue and Ohio Street (INDOT Signal) – Comm. No. 01-049-404
4. New York Street and Davidson Street (DPW Signal)
5. New York Street and Pine Street (DPW Signal)
6. Michigan Street and Davidson Street (INDOT Signal)
7. Michigan Street and Pine Street (INDOT Signal) – Comm. No. 01-049-388
8. Delaware Street and 11th Street (INDOT Signal) – Comm. No. 01-049-342
9. Pennsylvania Street and 11th Street (DPW Signal)
10. Pennsylvania Street and 12th Street (INDOT Signal) – Comm. No. 01-049-340
11. Meridian Street and 11th Street (DPW Signal) – Comm. No. 01-049-078
12. Meridian Street and 12th Street (DPW Signal) – Comm. No. 01-049-341
13. Illinois Street and 11th Street (INDOT Signal) – Comm. No. 01-049-343
14. Illinois Street and 12th Street (INDOT Signal) – Comm. No. 01-049-344

11.3.2 Design and Construction Requirements

11.3.2.1 Traffic Signal Design

Design-Build Contractor shall prepare preliminary traffic signal Plan sheets for review and comment by INDOT with the Stage 1 Review Submission. These Plans shall include all existing signal equipment and interconnect and displays all proposed signal equipment and interconnections necessary for the Project. The Plan sheets shall also show all existing and proposed crosswalks necessary for the Project. Any required temporary maintenance of traffic signal Plan, along with the associated phasing of signal construction, shall also be submitted.

11.3.2.2 Traffic Signal Plan Requirements

Design-Build Contractor shall prepare traffic signal Plans for any new traffic signals. Traffic signal Plans shall be provided to INDOT for review and comment in accordance with Section 3 (Design Requirements).

Existing traffic signal operation and detection shall be maintained during the term of the PPA.

All permanent INDOT traffic signals shall use span, catenary, and tether support, unless otherwise approved by INDOT. All permanent DPW traffic signals shall be designed in accordance with *Indy DPW Transportation Standards Manual* included in the City of Indianapolis Public Works Specifications and Manuals referenced in Attachment 3-1 (Applicable Standards).

11.3.2.3 Interconnect Plans

Design-Build Contractor shall prepare traffic signal interconnect Plans to be included with traffic signal Plan submissions, as required. Interconnect plans shall be drawn at a scale of 1 inch = 50 feet. Design-Build Contractor shall obtain all existing interconnect information. Interconnect plans shall include controller cabinet locations, conduits, handholes, sampling stations, a wiring diagram, cables, construction details, and an equipment list that is in accordance with Design-Build Contractor's design and computer-aided design drawing (CADD) requirements.

Design-Build Contractor shall be responsible for Utility pole removals required when Adjusting existing interconnect. All interconnect shall be Adjusted prior to roadway construction to ensure that interconnect can be restored and maintained throughout construction. Design-Build Contractor shall relocate any existing fiber-optic cable impacted by construction. Splices shall not be permitted along interconnect runs. Design-Build Contractor shall obtain all Governmental Approvals and Other Approvals required for placing interconnect on Utility poles and shall be responsible for all associated costs.

11.3.2.4 Utility Requirements

Design-Build Contractor shall be responsible for locating and marking all underground Utilities prior to any signal installation work. INDOT Utility conduits for lighting and traffic signals are not included in "call before you dig" database systems.

Design-Build Contractor shall be responsible for all Work, materials, and costs associated with obtaining power and maintaining power throughout construction for all traffic signals, including coordination with the Utility Owner and obtaining power supply for all traffic signals and other electrical Work required for the Project. Design-Build Contractor shall be responsible for completing all electrical-service application materials necessary for obtaining service from the power company. All materials shall be submitted to Utility Owner and copied to INDOT.

Metered service pedestals shall only be used to service traffic signal equipment and related intersection lighting unless otherwise accepted by INDOT. Design-Build Contractor shall complete all required documentation, coordinate with the Utility Owner, pay for the cost associated with the service installation, and schedule all Utility connections.

11.3.2.5 Sight Distance Requirements

Design-Build Contractor shall ensure all traffic signal heads for temporary and permanent conditions are in accordance with IMUTCD requirements. Design-Build Contractor shall prepare and submit sightline plans for all traffic approaches with its traffic signal Plans for review and approval by INDOT.

Design-Build Contractor shall prepare and submit with its traffic signal Plans to INDOT, for review and approval, separate sightline Plans and profiles for each MOT phase that has different sightlines approaching a traffic signal.

11.3.2.6 Materials

All traffic signal equipment installed on the Project shall be new and designed and constructed in accordance with the Project Standards.

All traffic signal equipment installed at intersections within, or interconnected with, the jurisdiction of the DPW shall be compatible with the City's existing traffic management system.

All pedestrian signal indications and detectors shall meet IMUTCD standards for accessible pedestrian signals and detectors.

Any new traffic signal interconnect installed on the Project shall use wireless communications.

11.3.3 Temporary Traffic Signals

Design-Build Contractor shall design temporary traffic signals in accordance with IDM Section 503-7.04.

11.3.4 Traffic Control Device Verification – Signals

Design-Build Contractor shall schedule meetings 72 hours in advance with INDOT to verify traffic control devices Work as follows:

- At the completion of all cabling and wiring and prior to electrical Utility service connection.
- Prior to traffic control device activation.

11.4 Lighting

11.4.1 Design and Construction Requirements

Design-Build Contractor shall design and install new interchange and underpass lighting within the Planned ROW Limits in accordance with Project Standards. Design-Build Contractor shall maintain existing highway illumination levels for all open traffic movements during construction of the Project until new lighting is installed and operational.

11.4.1.1 Design Criteria

Design-Build Contractor shall submit a lighting design model and calculations for review with lighting Plan submissions. The design shall include only high mast lighting structures within the Project ROW except for the portion of the Project west of College Avenue and at ramp terminal locations at local roadways. Conventional roadway lighting may be used on such western portion of the Project to transition to the existing lighting at the western Project ROW. Design-Build Contractor shall design and install lighting structures in accordance with the Project Standards, Utility Owner requirements and with the aesthetic guidelines in Section 6 (Aesthetics and Landscape Architectural Work).

11.4.1.1.1 New Roadway Lighting

High-mast lighting is required on the Project except as noted. Conventional roadway lighting may be used on the western segment of the Project and at ramp terminal locations at local roadways. Refer to Section 7.2.2 regarding Design-Build Contractor's obligations pertaining to the FAA for structure heights. The mounting height for high-mast towers at the interchanges shall be between 60 feet and 200 feet. The mounting height of the conventional fixtures shall range from 40 feet to 50 feet.

Light trespass outside of the right of way shall be limited by shields, lighting distribution selection or other means. Design-Build Contractor shall prepare and exhibit identifying all residential areas at the outset of the photometric modelling process. Calculation point zones shall be included in the photometric model(s) for residential areas to measure light trespass. These light trespass calculation point zones shall be five feet in depth behind the Project ROW boundaries and of similar longitudinal length to the adjacent travel pavement calculation zone and illumination values shall be measured to 0.01 accuracy. The average illuminance in these light trespass calculation zones shall not exceed 10% of the average illuminance for travel pavement of the adjacent calculation zone running parallel to the Project ROW. Noise walls and privacy fences along the Project ROW that are part of the completed design shall be modelled as solid objects of the appropriate height in photometric model(s) to accurately model the light trespass.

Power supply for lighting shall be installed in separate conduits and on independently metered circuits.

All new roadway lighting shall use LED luminaires from manufacturers listed on Attachment 11-1 (INDOT Approved Materials List – Solid State Luminaires). High-Mast lighting shall be in accordance with Attachment 11-6 (High Mast Tower Design Requirements).

11.4.1.1.2 Existing Roadway Lighting

In locations where construction will impact existing lighting not owned by INDOT, the existing structures shall be relocated and replaced by Design-Build Contractor in kind. For those existing lighting facilities owned by Persons other than Utility Owners, Design-Build Contractor shall obtain Other Approval sufficient to afford it the right to enter any real property rights and effect the relocation and replacement of the lighting in kind, or otherwise to satisfy the owner's requirements. The foregoing obligations are within the Contract Price, and shall not be the basis for any Claim under the PPA Documents. Existing lighting fixtures that are impacted by construction shall not be relocated or reused on the Site. Design-Build Contractor shall design and complete the Utility Adjustment consistent with the design requirements of the property owner and INDOT.

For locations where light fixtures are attached to a Utility pole, Design-Build Contractor (as a part of the Utility relocation effort) shall contact the Utility Owner to coordinate the Adjustment of the light fixture. Design-Build Contractor is responsible for coordinating and entering into a Utility Agreement with such Utility Owner.

Design-Build Contractor shall remove existing light poles in the Project ROW that are no longer required. For light poles which are impacted by the Project, but not owned by INDOT, the Design-Build Contractor shall be responsible for coordinating the removal or relocation of the light fixture with the property owner and Local Agencies, if applicable.

Design-Build Contractor shall provide INDOT with at least two weeks advanced notification of any lighting removal.

11.4.1.1.3 Temporary Lighting

See Section 12 (Maintenance of Traffic) for temporary lighting requirements.

11.4.1.1.4 Underpass Lighting

Design-Build Contractor shall provide new underpass lighting to maintain roadway lighting continuity. The underpass lighting shall be in accordance with the criteria from the Project Standards. Pedestrian level lighting criteria shall be used to design down-lighting for existing and proposed sidewalks and shared-use paths along Delaware Street, Alabama Street, Central Avenue, College Avenue, Lewis Street/Monon Trail, Roosevelt/Commerce Avenue, Valley Avenue, 10th Street, St. Clair Street, Michigan Street, Vermont Street, New York Street, Market Street, and Washington Street. Roadway level lighting criteria shall be used within the limits of the roadway curb, including for Ohio Street. Aesthetic treatments as defined in Attachment 6-1 (North Split Aesthetic Design Guidelines) are required at the following underpass locations:

1. Central Avenue
2. College Avenue
3. Monon Trail/Lewis Street
4. 10th Street
5. St. Clair Street
6. Michigan Street
7. Vermont Street
8. New York Street
9. Market Street
10. Washington Street
11. Alabama Street

Down-lighting shall also be mounted to pier caps for bridges within the interchange for aesthetic purposes in accordance with Attachment 6-1 (North Split Aesthetic Design Guidelines).

11.4.1.1.5 Intersection Lighting

Design-Build Contractor shall combine intersection lighting plans with the traffic signal plans.

11.4.2 Lighting Roll Plots

Design-Build Contractor shall submit a lighting roll plot for INDOT review and comment. The lighting roll plot shall include proposed locations for all lights and photometric calculations supporting the light locations. Design-Build Contractor shall provide spacing computations showing the average maintained illuminance. The calculations shall include uniformity ratios and

point-by-point computations. Design-Build Contractor shall apply the light loss factor of 0.78 or manufacturer's recommended value when computing photometrics.

11.4.3 Performance Requirements

All proposed lighting equipment shall be located such that it can be easily accessed and readily maintained. Lighting placed on traffic signal equipment shall be serviced from a metered service pedestal. Each luminaire mounted on a signal structure shall be equipped with a photocell.

Design-Build Contractor shall provide voltage drop calculations for all circuits. The voltage drop for each circuit shall not exceed 10 percent for new circuits. A minimum of two branch circuits shall be used for each continuous succession of lighting structures. All lighting circuits shall have balanced lighting loads. Two conductor duct cables shall be used for all lighting circuits. Only the conductors that serve the lighting structures shall enter the foundation of the lighting structures. All other conductors shall remain unspliced and bypass the foundation.

Design-Build Contractor shall furnish and install single conductor cables in conduit under all roadway surfaces. Single conductor cables shall be used any place cables are to be installed in conduit. Design-Build Contractor shall provide electrical manholes and connector kits to splice the conductors. No in-ground splices of electrical cables shall be permitted for any reason. No electrical manholes shall be placed in drainage ditches. Design-Build Contractor shall abandon existing conductors between poles that are to be removed. Any existing lighting structure that is impacted by the construction of this Project shall be disconnected and reconnected to its original power supply by Design-Build Contractor as part of this Project unless it is being removed. All abandoned cables shall be made safe.

All light poles on INDOT owned roadways shall be installed on a breakaway transformer base complying with the Project Standards except where pedestrian facilities are present. Light poles shall not be installed in front of traffic barrier. Residential shielding shall be provided with all lighting within 75 feet of a residential structure, where necessary to achieve the 0.01 fc illuminance requirement.

11.4.3.1 Plan Sheet Requirements

Design-Build Contractor shall prepare and present lighting Plans with a scale appropriate for the Project, generally 1 inch = 50 feet. The Plans shall include all the necessary elements as specified in the Chapter 14 of the IDM.

11.4.3.2 Temporary Lighting

Design-Build Contractor shall maintain existing lighting illumination within the Project ROW for open traffic movements throughout period of Construction Work until new lighting fixtures are installed and operational. If required to maintain the existing lighting levels in the Site area, Design-Build Contractor shall install and maintain temporary lighting (e.g., luminaires attached to wood poles). Temporary overhead electrical service is acceptable for non-breakaway poles. Design-Build Contractor shall remove temporary lighting when no longer needed. Design-Build Contractor shall be responsible for the power costs of any and all temporary lighting that may be required, and it is Design-Build Contractor's responsibility to schedule, coordinate, and pay for all Utility connections.

11.4.3.3 Electrical Service for Lighting

Design-Build Contractor shall be solely responsible for all Work, materials, and costs (including coordination with the Utility Owner required to obtain power supply for all lighting and Work required for the Project. Design-Build Contractor shall be responsible for all electrical service application materials necessary for obtaining service from the appropriate power companies. All materials shall be submitted to the power company and copied to INDOT. Design-Build Contractor shall contact all Utility Owners to fulfill requirements to determine the location of all existing and proposed Utilities, obtain power company requirements for service, and obtain power company approval for feed location(s). It is the Design-Build Contractor's responsibility to complete all paperwork, coordinate with the Utility Owner, pay all costs associated with the service installation, and schedule all Utility connections so as to not adversely affect the Project Schedule.

Lighting systems owned by different jurisdictions shall have separate power sources derived from the Utility Owner. Exceptions shall require written approval and the agreement of all jurisdictions involved and shall require separate circuits.

11.4.3.4 Aesthetic Requirements

Design-Build Contractor shall provide lighting structures and luminaires that conform to the aesthetic requirements in Section 6 (Aesthetics and Landscape Architectural Work).

11.4.4 Traffic Control Device Verification – Lighting

Design-Build Contractor shall schedule meetings 72 hours in advance with INDOT to verify traffic control device work as follows:

- At the completion of all cabling and wiring and prior to electrical Utility service connection
- Prior to traffic control device activation

11.5 Pavement Markings

Design-Build Contractor shall design and install new pavement markings and delineation on all routes within the Planned ROW Limits. Design-Build Contractor shall design, install and maintain temporary pavement markings and delineation on all routes within the Project ROW until Final Acceptance.

11.5.1 Design and Construction Requirements

All retroreflective pavement marking materials shall be preformed plastic on all INDOT-owned roadways and installed in accordance with Preformed Plastic Markings and Contrast Lane Lines in Attachment 11-7 (USP: Traffic) and the Project Standards. Contrast lane lines are depicted in Attachment 11-2 (Contrast Edge Line Detail) and Attachment 11-3 (Contrast Lane Line Detail).

All retroreflective pavement marking materials on local roadways shall be in accordance with the Project Standards.

Lane indication arrow message markings shall be used at locations within the Planned ROW Limits in accordance with the Project Standards and locations depicted by Attachment 11-4 (Lane Reduction Pavement Marking Detail).

Pavement marking shields and cardinal direction message markings shall be installed to delineate lane assignments at locations in advance of multi-lane splits as depicted in Attachment 11-5 (Pavement Message Marking Detail). Pavement marking shields shall be in accordance with Attachment 11-7 (USP Traffic) and the Project Standards.

Raised pavement markers shall be used on INDOT-owned roadways within the Project ROW.

Crosswalks shall be provided at all signalized and unsignalized intersections within the Project ROW.

Design-Build Contractor shall provide delineators on the outside shoulder of I-65 and I-70 mainline and on one side of each interchange ramp in accordance with the Project Standards. The delineator color shall match the color of the edge line. Delineators shall be provided along the outside of each curve on interchange ramps. Design-Build Contractor shall provide double or vertically-elongated delineators installed along each acceleration or deceleration lane. The installation intervals of delineators shall be in accordance with the Project Standards.

Barrier-wall delineators shall be used on each traffic-facing side of all median, roadside, and bridge barrier walls.

All proposed pavement markings shall be shown in the signing Plans and included in the signing Plan submissions for INDOT approval. The Plans shall show the color, size, location, and material type for markings within the Project ROW. The final pavement marking Plans shall be indicated on the signing Plan with the same scale as the signing Plan. The lanes shall be dimensioned based on the typical sections for the Project. Dimensions shall be included for each change in the roadway typical.

11.6 Deliverables

Deliverables under this Section 11, a non-exhaustive list of which is set forth in Table 11-1 below, shall be submitted in electronic format in accordance with the schedule set forth below. Acceptable electronic formats include PDF and current versions of Microsoft Word and Microsoft Excel, unless otherwise indicated.

Table 11-1: Deliverables

Deliverable	Deliverable Schedule	TP Section
Signing roll plot	45 days prior to Stage 1 Review Submission	11.2.1.1
Signing Plans	With Stage 1 Review Submission, Stage 3 Review Submission, and Released for Construction Documents	11.2.1.2
Traffic signal Plans	With Stage 1 Review Submission, Stage 3 Review Submission, and Released for Construction Documents	11.3.2
Lighting Design Model	With Stage 1 Review Submission, Stage 3 Review Submission, and Released for Construction Documents	11.4.1.1

Lighting roll plot	With Stage 1 Review Submission, Stage 3 Review Submission, and Released for Construction Documents	11.4.2
Pavement Marking Plans	With Stage 1 Review Submission, Stage 3 Review Submission, and Released for Construction Documents	11.5.1

12 MAINTENANCE OF TRAFFIC

12.1 General

Design-Build Contractor shall conduct all Work necessary to minimize traffic impacts, vehicular delay, and the exposure to potential hazards for both motorists and highway workers in the Project ROW. This Section 12 defines specific requirements, restrictions, and allowable closure durations for travel lanes, ramps, and local streets.

Design-Build Contractor shall design and construct the temporary facilities, haul routes, and access in accordance with the PPA Documents, including Project Standards, and this Section 12; Governmental Approvals; and Governmental Rules.

Design-Build Contractor shall be responsible for coordinating with other projects within the vicinity of the Project, including scheduling of Movement Closures, detours, temporary alignments, and phasing of Construction Work.

12.2 Required Personnel

12.2.1 Maintenance of Traffic (MOT) Manager

Design-Build Contractor shall identify a MOT Manager who shall be responsible for the following:

1. Coordinate maintenance of traffic (MOT) activities with INDOT and other Governmental Entities.
2. Implement traffic management strategies.
3. Provide an MOT report to INDOT with each change in traffic phasing and MOT phase durations, including reporting of incidents.
4. Be available during construction until Substantial Completion and the elimination of all temporary traffic control, and after Substantial Completion whenever temporary traffic control is required.
5. Supervise the activities of the CWTS.
6. Oversee MOT plan design.

12.2.2 Certified Worksite Traffic Supervisor (CWTS)

Design-Build Contractor shall provide a CWTS on-Site in accordance with Section 801.03 of the Standard Specifications. The CWTS shall be under the supervision of the MOT Manager.

12.3 Performance Requirements

12.3.1 Transportation Management Plan (TMP)

Design-Build Contractor shall prepare, implement, and maintain a TMP in accordance with Project Standards. Design-Build Contractor shall obtain INDOT approval of the TMP prior to

initiation of any Construction Work. Design-Build Contractor shall provide updates to the TMP and submit to INDOT for approval no later than 14 days after the occurrence of a change or direction triggering the need for the revisions to the TMP.

The TMP shall include a Traffic Operations Plan (TOP), a Temporary Traffic Control Plan (TTCP), a Traffic Incident Management Plan (TIMP), and a coordination process with the INDOT PIP, described in Section 5 (Public Involvement). INDOT will provide Design-Build Contractor with a list of INDOT representatives for the INDOT Transportation Team to be included in Design-Build Contractor's TMP. The TMP shall be developed in coordination with emergency service providers, school transportation officials, all affected Governmental Entities and other stakeholders. The TMP shall include procedures to communicate all MOT phase installations and changes with such affected Governmental Entities and stakeholders.

The TMP shall be developed in coordination with and be consistent with the INDOT PIP and include procedures to communicate TMP information by the Public Information Coordinator of all MOT work to the public, stakeholders, and Governmental Entities prior to implementation of any MOT phase or phase change.

The TOP shall include:

1. Design-Build Contractor identification of a MOT Manager to coordinate all construction traffic impacts with INDOT's PIP Manager and TMP Team, and with Design-Build Contractor's CWTS, who is responsible for monitoring daily MOT activities.
2. Descriptions of contact methods and response times of the CWTS to address any MOT conditions needing attention during all hours.
3. Coordination with the TIMP, including identification of staging areas where equipment or vehicles needed for incident clearance response can be stored and have reasonable and safe access to the construction zones. Design-Build Contractor shall have the necessary equipment on-Site to repair temporary barrier and/or to set up temporary traffic control until the barrier can be repaired.
4. Procedures to identify and incorporate the needs of transit operators, Utility Owners, and business owners in the Project corridor, including Utility Owner access and business access signing.
5. Identification of measurable limits for the repair and replacement of traffic control devices, including pavement markings, according to Project Standards.
6. A process to identify, design, and obtain required approval for all necessary temporary traffic signals or modifications to existing traffic signals.
7. A process to determine the need for revised traffic signal timings, and if revisions are required, and detailed procedures for the development, approval, implementation, testing, and maintenance of all affected signals.
8. A work zone access management map and a construction haul route map for each construction phase.
9. Methods and frequency of inspection and maintenance of all traffic control devices throughout the Planned ROW Limits.

10. Provisions to provide continuous access to established truck routes and any hazardous material routes.

11. Procedures for modification of the TMP as needed.

12.3.2 TMP Team Meetings

Design-Build Contractor shall establish a team to execute the TMP ("TMP Team"), inviting representatives of Design-Build Contractor (including its Public Information Coordinator), INDOT, Governmental Entities, law enforcement agencies, emergency response providers, and other stakeholders and agencies whose operations affect or are affected by the Project construction or TMP.

12.3.2.1 Initial Meeting

Design-Build Contractor shall arrange and hold an initial MOT meeting with INDOT and all affected Governmental Entities at least four weeks prior to initial installation of the initial traffic control devices for beginning MOT phase.

12.3.2.2 Monthly Meetings

Design-Build Contractor shall hold monthly TMP Team meetings from commencement of construction to Substantial Completion. The meeting schedule and frequency may be adjusted upon the agreement of the TMP Team members. Design-Build Contractor shall meet the following objectives at these meetings:

1. Further refine and develop the MOT Plans.
2. Review the Contractor's MOT details, including review of MOT- and traffic-related environmental commitments.
3. Disseminate Project MOT information, including up-coming MOT phase shifts to task force meeting attendees.
4. Obtain MOT input from task force meeting attendees.
5. Develop, refine, and review the Traffic Incident Management Plan (TIMP) and its implementation.
6. Review all Incidents within the Site, and mitigation measures, if needed.

The MOT Manager shall maintain the list of TMP Team members. This list shall include, at a minimum, the following: name, affiliation, work phone, and email. The list shall be sorted in alphabetical order by affiliation and then last name. The MOT Manager shall notify members of the TMP Team of meetings at least 14 days prior to any scheduled meeting.

12.3.3 Temporary Traffic Control Plan

Design-Build Contractor shall prepare, submit for INDOT approval, and implement an approved TTCP. An approved TTCP shall be included with each applicable Released for Construction (RFC) Documents submittal. The TTCP shall become part of the appropriate TMP as amendments once the TTCP is approved by INDOT.

The TTCP defines how Design-Build Contractor is to phase construction and detail all the required MOT elements of the physical work zone. The MOT Plans shall include all major traffic shifts, Movement Closures, use of temporary roadways, temporary traffic signals, modifications to all existing signage not applicable for each MOT phase and advance construction signage in accordance with Attachment E of Attachment 12-1 (Approved IHCP Exception), access modifications to businesses and residences, and proposed mitigation measures for traffic impacts. The anticipated duration of each phase shall also be noted on the Plan.

In addition to the requirements in the IDM, the TTCP shall include the following information:

1. A cover page/title sheet sealed by a Registered Professional Engineer.
2. Standard Drawings.
3. MOT Plans: The MOT Plans shall detail phases and shall identify all Movement Closures anticipated during the Work.
4. Detour and haul routes required for the purpose of Construction Work. Design-Build Contractor shall obtain approval from applicable Governmental Entities for all proposed detour and haul routes and shall obtain, pay for, and comply with requirements of all necessary Governmental Approvals and agreements required for said routes.
5. Special Provisions that include a switching procedure between each controlled MOT phase change. The switching procedure shall consist of the methods, actions, and signing necessary to complete the switch and the number and duties of traffic personnel assigned to perform the switch.
6. Special Provisions that describe a process for transitioning from temporary signage and temporary pavement marking to permanent signing and permanent pavement marking.
7. Special Provisions that describe Design-Build Contractor coordination with the construction and maintenance projects of Governmental Entities that are adjacent to or near the Project ROW. The Special Provisions shall include a coordination clause listing other adjacent or nearby construction projects. At a minimum, this shall include the projects listed in Section 1 (General Scope of Work).
8. Special Provisions that require Design-Build Contractor to maintain existing access to all properties within the Project ROW for the duration of the Construction Work, except as provided elsewhere in the PPA Documents. Appropriate information about access modifications shall be made available to the property owners as required in the INDOT PIP.

The MOT Plans shall be prepared in accordance with Project Standards and include the following additional items for each phase of construction:

1. Ingress/egress locations and details for DB-Related Entities
2. Haul routes
3. Temporary local street closures and detour routes
4. Temporary pedestrian and bicycle detour routes

12.3.4 Traffic Incident Management

12.3.4.1 Traffic Incident Management Plan

Design-Build Contractor shall prepare and submit the Traffic Incident Management Plan as part of the TMP for review and comment by INDOT. The TIMP shall include procedures for interaction with INDOT, emergency responders, and other Governmental Entities.

Design-Build Contractor shall coordinate resources on the Site and between all the emergency services providers as required for efficient response in emergency situations.

As part of the TMP Team meetings, Design-Build Contractor shall facilitate establishing policies and procedures that specifically address the detection, verification, response, management, and clearance of incidents within or adjacent to the Site. Design-Build Contractor shall assign at a minimum the designated CWTS to participate in the TMP Team as Design-Build Contractor's Incident Management Liaison. Prior to the start of Construction Work, the Incident Management Liaison shall arrange for and conduct a one- to two-hour, Incident management training session for Design-Build Contractor's Key Personnel, superintendents, and lead foremen, with an invitation to (and sufficient prior notice of the date) INDOT. This training will familiarize Design-Build Contractor's personnel with the Incident management procedures developed by the TIMP Team that will need to be followed throughout the term of the PPA.

Design-Build Contractor's Incident Management Liaison shall coordinate all incident response requirements with:

Mischa Kachler
Incident Management Program Director
Work Zone Safety Section
INDOT Traffic Management Center
8620 East 21st Street Indianapolis, Indiana 46219
Telephone: 317-899-8604
Email: mkachler@indot.in.gov

12.3.4.2 Meeting and Notification Requirements

The Incident Management Liaison shall be present at the regularly scheduled TMP Team meetings each month.

The Incident Management Liaison shall prepare Incident management maps as part of its TIMP submission to be reviewed by INDOT and distribute such approved maps to Governmental Entities identified by the TMP Team. The Incident Management Liaison shall update maps at a minimum of once per change of phase in MOT Plan or at the request of INDOT. The maps shall be no larger than 11 inches by 17 inches, in color, to an engineering scale, and include at a minimum the following:

1. Outline of the roadway geometry
2. Open travel lanes/ramps colored in green
3. Closed travel lanes/ramps with active construction in orange
4. Closed travel lanes/ramps accessible to emergency traffic in red

5. Temporary emergency vehicle access points with identifiers
6. Rally points for emergency vehicle escorts into the work area with identifiers defined by INDOT
7. Control points, such as mile markers and block numbers
8. Emergency road closure diversion points with identifiers
9. Diversion equipment and their locations
10. All entrance and exit ramps identified and labeled

The Incident Management Liaison shall meet with local emergency responder representatives at least 10 days prior to a major change in the MOT traffic patterns and coordinate with INDOT TMC.

The Incident Management Liaison shall attend the TMP meetings and present reports on Incidents.

12.3.4.3 Incident Response

Design-Build Contractor shall designate an individual person or persons to coordinate Design-Build Contractor's resources in response to an Incident either in the Project ROW, work zone, or portions of the roadways where traffic is in queues approaching the work zone. Design-Build Contractor shall provide INDOT, 7 days prior to commencement of Construction Work, of the phone and email contact information for such designee(s). Design-Build Contractor shall cause such designees' phone and email contact information to remain current until Final Acceptance. The designee(s) shall be available and on call by INDOT 24 hours a day, seven days a week. If necessary, in the event of an Incident, the designees shall have a response time of less than 30 minutes to the Incident site to oversee the use of Design-Build Contractor's resources to help resolve the Incident.

In the event of an Incident that impacts active travel lanes while construction operations are underway, Design-Build Contractor's personnel may be required to assist in establishing Movement Closures to isolate Incident scenes in an emergency situation. Also, Design-Build Contractor's heavy equipment may be required to assist in moving wreckage or debris from the travel lanes, if requested by emergency responders and law enforcement, and realigning temporary barriers to facilitate reopening the road to normal traffic. The Incident Management Liaison shall coordinate these activities with emergency responders on the scene and INDOT.

Design-Build Contractor shall contact Indiana State Police (ISP) for disabled vehicles in active lanes and shoulders.

To facilitate with closures and provide current road conditions in an emergency situation that impacts active travel lanes, Design-Build Contractor shall supply at a minimum the following pieces of equipment to be located as directed by INDOT:

1. Flashing arrow sign for each interstate mainline approach to the work zone including ramps leading to the work zone.
2. Safety drums for every lane on the mainline where the flashing arrow sign is positioned.

12.4 MOT Design and Construction Requirements

12.4.1 Design Criteria

The information listed below shall be incorporated into the MOT Plans and the TMP.

1. Construction Zone Design Speed

    a. The construction zone design speed on I-65, I-70, and ramps shall be the existing posted speed limit on approaches to the work zone, with a maximum 10-mile-per-hour speed reduction within the work zone; all worksite speed limit signs must conform to the provisions of INDOT Construction Memo 14-06.

    b. For those existing ramps with an advisory posted speed limit, the construction zone design speed within the work zone shall be the advisory posted speed limit with a maximum 5-mile-per-hour speed reduction. The construction zone design speed on local streets shall be the existing posted speed limit.

2. Lane Widths. The minimum MOT lane width shall be 11 feet on interstate mainline and ramps. The minimum MOT lane width within lane shifts on interstate mainline and ramps shall be 13 feet. The minimum MOT lane width on local streets shall match existing lane widths.

3. Separation Between Lane and Barriers

    a. A minimum shoulder width of 2 feet between barrier and edge of travel lane shall be provided. Design-Build Contractor is responsible for preparing and submitting any MOT Design Exceptions to INDOT for review and comment. Design-Build Contractor shall obtain INDOT's written approval of Design Exceptions prior to inclusion in the TTCP.

    b. Temporary concrete barrier and approved end treatments shall be used to protect the motoring public from the work area within the Planned ROW Limits when work or equipment, including personal vehicles and trucks used for loading and unloading, are within the construction clear zone. Temporary concrete barrier or temporary guardrail shall be provided if the entire construction clear zone is not traversable or if hazards exist within the construction clear zone.

    c. Opposing traffic lanes of interstate traffic shall be separated by existing, permanent, or temporary concrete barrier if construction clear zone distance is not provided.

    d. All temporary concrete barriers shall have reflectorized barrier delineators.

4. All MOT signing and design procedures for lane shifts and Movement Closures shall be in accordance with the Project Standards.

5. Pavement Edge Drop-Offs

    a. Pavement edge drop-offs 2 inches or less shall be delineated by barrels or vertical panels, spaced (i) every 40 feet or (ii) a distance in feet equivalent to two times the speed limit in miles per hour, whichever is less.

    b. Drop-offs greater than 2 inches shall comply with the following:

1) Shall be wedged with dense graded aggregate or HMA on a 3:1 (H:V) or flatter slope if horizontal separation is less than required construction clear zone between traffic and the drop-off and if no positive protection is provided. If a horizontal separation of required construction clear zone or greater can be achieved between traffic and the drop-off, no wedging is required. Design-Build Contractor shall provide the wedge prior to the use by the public of the travel lane at that location.

2) Shall be delineated by barrels spaced (i) every 40 feet or (ii) at an interval in feet equivalent to two times the construction zone speed limit in miles per hour, whichever is less.

6. Channelizing Devices

   a. Temporary channelizing device spacing in tapers shall be a maximum of 40 feet center-to-center or a distance in feet equivalent to the speed limit in miles per hour, whichever is less. Device spacing in tangent sections of mainline and ramps (including curves) shall be a maximum of 80 feet center-to-center or a distance in feet equivalent to two times the speed limit in miles per hour, whichever is less. On local roadways, device spacing shall be a maximum of 20 feet center-to-center in tapers, 40 feet center-to center in tangent sections, and 6 feet center-to-center in radii.

   b. Design-Build Contractor shall provide, erect, and maintain channelizing devices, signs, barriers, and other traffic control devices used for MOT in acceptable condition, in accordance with the Project Standards.

7. Design-Build Contractor shall supply all flashing arrows and variable message boards necessary to maintain traffic. Upon Final Acceptance, as between INDOT and Design-Build Contractor, the flashing arrows shall remain the property of Design-Build Contractor.

8. Design-Build Contractor shall maintain positive drainage to avoid ponding of water in the active travel lanes for a two-year storm at all times during all phases of Construction Work.

9. Traffic signals, either temporary or permanent, shall remain operational from beginning of implementation to end of implementation.

10. Single lane temporary crossovers shall be per the INDOT Standard Drawings. Multi-lane temporary crossover designs shall be submitted for INDOT review and comment. Design-Build Contractor shall obtain INDOT approval of final temporary crossover locations prior to its construction.

11. Design-Build Contractor shall maintain reference markers until Final Acceptance.

12. Design-Build Contractor shall maintain access to all INDOT Intelligent Transportation System (ITS) and Automatic Traffic Recorder (ATR) equipment.

13. Barriers shall not impede snow removal operations. To facilitate snow removal operations by INDOT, from December 1 through March 31 each year, Design-Build Contractor shall maintain a minimum of 4 feet paved inside shoulder and 8 feet paved outside shoulder adjacent to active mainline and ramp travel lanes. Design-Build Contractor shall obtain INDOT approval of any shoulder width reductions prior to

implementation. Shoulders adjacent to temporary barriers on bridges are exempt from these width requirements.

14. Design-Build Contractor shall provide a patroller to inspect and maintain traffic control devices when traffic lanes are restricted. The patroller shall patrol the construction zone and shall immediately correct, maintain, and repair traffic control devices or notify the Design-Build Contractor's designated persons for immediate repair to such traffic control devices. Design-Build Contractor shall provide a full-time patroller on duty during periods when work is not in progress.

15. Design-Build Contractor shall reconfigure the Washington Street/I-65/I-70 Interchange with the following temporary improvements within existing roadway limits:

    a. Convert eastbound Washington Street left-turn lane into second left-turn lane for westbound Washington Street to I-65 SB/I-70 WB entrance ramp.

    b. Convert eastbound Washington Street right lane into a shared through/right-turn lane to I-65 SB/I-70 WB entrance ramp,

    c. Provide three left-turn lanes, one through, one through/right-turn lane, and one right-turn lane for the I-65 NB/I-70 EB exit ramp,

    d. Eliminate or cover westbound Washington Street signal at Davidson Street. Southbound Davidson Street shall be converted to a right-turn lane only with stop control.

    A concept pavement marking and temporary signal detail is provided in the Washington St Temporary Improvements plan in the RID. Design-Build Contractor shall construct the temporary improvements at the Washington Street interchange prior to any mainline or ramp Movement Closures. Design-Build Contractor shall return the temporary improvements to the existing lane configurations after completion of all interstate and mainline Movement Closures.

12.4.2 Traffic Through the Construction Zone

Access to all businesses and residences on local streets shall be maintained at all times. Design-Build Contractor shall maintain existing roads and streets within the Project ROW, except during approved closures, and, regardless, in a good, clean, safe condition at all times. Design-Build Contractor shall also maintain roads and streets used for detour routes when affected by the Work.

A Conceptual MOT Detour Route exhibit is included in the RID for each of the local roadway closures. Design-Build Contractor shall be responsible for coordination with the Indianapolis DPW and receive approval for any changes to these detour routes.

Design-Build Contractor shall have maintenance responsibility for all needed construction and haul roads used for the delivery of materials required for the Work in accordance with Project Standards and legal load restrictions. Design-Build Contractor shall obtain, pay for, and comply with the conditions of all necessary Governmental Approvals from the appropriate Governmental Entities for temporary roadways, including Construction Work and, as applicable, haul routes.

Design-Build Contractor shall coordinate the placement and operation of portable changeable message signs with INDOT. Changeable message signs shall be placed four weeks in advance of changing traffic patterns.

Design-Build Contractor shall not use local streets through residential neighborhoods for access to the Site without permission from Local Agencies. Appropriate MOT and flagging procedures shall be followed during all Construction Work, including mobilization and demobilization activities. Deliveries and hauling to and from the Site shall be confined to the Project ROW and performed via designated haul routes along the Project in accordance with the TMP.

Design-Build Contractor shall not place any ingress or egress locations to the Work area within the four interstate movements defined in Section 12.4.9.1.

Construction vehicles shall be equipped with flashing or rotating amber lights.

All construction equipment and supplies shall access the Site via a public road and remain on public roadways unless approved by INDOT.

12.4.3 Pedestrian and Bicycle Access During Construction

Design-Build Contractor shall maintain existing or detoured pedestrian and/or bicycle access on all sidewalks, trails, transit facilities and at all intersections that are open to traffic. Design-Build Contractor shall also maintain safe access and passage for all pedestrian facilities. Pedestrian sidewalks and paths shall be maintained and shall conform to ADA requirements. OSHA Governmental Rules that apply to the Project ROW shall also be considered the minimum standard for personal safety to pedestrians. If Work is performed over any pedestrian and bicycle routes, temporary lighted covered walkways shall be provided to protect pedestrians and bicyclists from overhead hazards.

If Work areas encroach upon a sidewalk or crosswalk area, and a minimum clear width per Project Standards cannot be maintained for pedestrian use, Design-Build Contractor shall provide an alternative accessible pedestrian route and obtain approval of the alternate route from the applicable agency having jurisdiction prior to implementation. Vehicular traffic shall be separated from pedestrians and/or bicycles and the construction zone.

Design-Build Contractor shall provide protective barricades, fencing, and bridges, together with warning and guidance devices and signs to protect the public. Design-Build Contractor shall provide suitable handrails whenever pedestrian walkways are provided across excavations. Foot bridges shall be safe, strong, free of bounce and sway; have a slip-resistant coating; and be free of cracks, holes, and irregularities. Design-Build Contractor shall provide ramps in accordance with Project Standards.

When the existing facility is illuminated and/or Work is required during the non-daylight hours, Design-Build Contractor shall provide temporary construction lighting. Design-Build Contractor shall provide retro reflective delineation, with or without illumination, during non-daylight hours.

Design-Build Contractor shall provide an alternate accessible pedestrian route that complies with the Project Standards where accessible pedestrian and/or bicycle routes are allowed to be closed by Design-Build Contractor during construction. The alternate accessible pedestrian route shall be in accordance with Project Standards.

Design-Build Contractor shall provide barricading or channelizing devices where it is necessary to divert pedestrians into the roadway to separate the pedestrian route from the adjacent vehicular traffic lane. Barricading or channelizing devices used to separate pedestrian and vehicular traffic shall be in accordance with Project Standards and, when struck by vehicles, present a minimum threat to pedestrians, workers, and occupants of impacting vehicles. At no time shall pedestrians be diverted into a portion of the street used concurrently by moving vehicular traffic.

Design-Build Contractor shall not park motor vehicles or construction equipment on a pedestrian sidewalk or path; use a pedestrian sidewalk or path for loading operations; stockpile materials; or allow demolished or spoil materials to be deposited on the surface of a pedestrian and/or bicycle sidewalk or path. Design-Build Contractor shall restore any surface of a pedestrian sidewalk or path affected by the Work to meet ADA standards prior to re-opening to pedestrian traffic. Sweep or wash the trail or sidewalk surface to be free of debris including, mud, gravel; grease; and excavated, spoiled, or stockpiled materials.

12.4.4 Construction Access and Haul Routes

Subject to any requirements to obtain and maintain Governmental Approvals or Other Approvals, Design-Build Contractor may use local streets for the following activities:

- Local roadway improvements
- Utility Adjustments
- Construction Work and implementation of roadway detours

12.4.5 Local Street Detour Routes

Design-Build Contractor shall maintain detour routes in a condition that is reasonably smooth and free from holes, ruts, ridges, bumps, dust, and standing water. Once the detour is removed and traffic is returned to its normal pattern, the detour route shall be restored to a condition that is equal or better than the existing condition. Design-Build Contractor shall provide video documentation to INDOT of existing condition of each local detour route upon commencement of use. All required signing and pavement markings shall meet IMUTCD standards and local requirements.

12.4.6 Portable Changeable Message Signs

Design-Build Contractor shall provide, operate, and maintain a minimum of 12 new portable changeable message signs (PCMSs) where shown on the approved TTCP or when requested by INDOT. Along with the PCMSs required for the Project as part of the approved TTCP, Design-Build Contractor shall provide a minimum of four additional PCMSs on Site or available within 24 hours and in good working condition for use in emergencies. These additional PCMS signs shall be available on Site until Substantial Completion. Upon Final Acceptance, as between INDOT and Design-Build Contractor, the PCMSs will be the property of INDOT, and Design-Build Contractor shall execute and deliver all documents necessary to demonstrate INDOT's assumption of title.

12.4.7 Public Notification

Design-Build Contractor shall furnish and install information signs that provide advance notification of interstate, ramp, and local street Movement Closures a minimum of seven days prior to the scheduled Movement Closure. Design-Build Contractor shall show sign locations, messages, letter sizes, and sign sizes in the TTCP. For ramp and local street Movement Closures, Design-Build Contractor shall use PCMSs to supplement the required signs. Design-Build Contractor shall notify all 911 offices, police departments, local fire departments, city engineering departments, public transit agencies, and the affected school districts in writing a minimum of seven days prior to scheduled Movement Closures. Design-Build Contractor shall provide written copies of these notifications to INDOT.

12.4.8 Temporary Traffic Control Devices

All temporary traffic control devices for Movement Closures shall be installed in accordance with the requirements in Section 12.4.9.1 (Movement Closures).

12.4.9 Restrictions for Construction Work

Design-Build Contractor shall suspend Work associated with deliveries and off-Site hauling operations during holiday periods stipulated in Section 4.3 and local event days listed in Attachment 12-4 (Local Event Days). Design-Build Contractor shall not change traffic patterns and shall suspend deliveries and off-Site hauling operations during local events. Design-Build Contractor shall identify any additional local events and submit to INDOT for concurrence.

12.4.9.1 Movement Closures

The requirements of this Section 12.4.9.1 apply throughout the term of the PPA.

Design-Build Contractor will be assessed Movement Charges in accordance with Section 17.3.1 of the PPA.

Outside of the single continuous occurrence Movement Closure durations in Tables 10-1, 10-2-1, and 10-3-1 of Exhibit 10 to the PPA, Design-Build Contractor will not be assessed Movement Charges for any off-peak Movement Closure for the time period indicated in Attachment 12-3 (Minimum Number of Lanes Open), provided that (a) Design-Build Contractor maintains the minimum number of lanes open to traffic during the applicable time period in Attachment 12-3 and (b) such off-peak Movement Closure is not due to in whole or in part to the acts or omissions of any DB-Related Entity or any Design-Build Contractor Fault. Furthermore, any Movement Closure from 10 p.m. to 5 a.m. that meets the temporary traffic stoppage requirements under Section 801.16(c) of the Standard Specifications will not be assessed Movement Charges, provided that Notice to INDOT is provided in accordance with Table 12-2 (Movement Closure Notification Periods).

Outside of the single or multiple occurrence maximum Movement Closure durations in Table 10-4-1 of Exhibit 10 of the PPA, Design-Build Contractor will not be assessed Movement Charges for (i) any Overnight Local Street Closure from 10 p.m. to 5 a.m., or (ii) a temporary Movement Closure that is in accordance with the temporary traffic stoppage requirements under Section 801.16(c) of the Standard Specifications or overnight local street Movement Closure, provided Notice to INDOT is provided in accordance with Section 12.4.10 (Notification and Coordination).

For Washington Street, (i) Design-Build Contractor shall maintain the existing number of lanes open to traffic throughout the term of the PPA, and (ii) during off-peak hours between 10 p.m. and 5 a.m., Design-Build Contractor shall maintain a minimum of two lanes in each direction.

No Movement Closures are allowed for Pennsylvania Street.

Notwithstanding the foregoing, a Movement Closure will be deemed a Permitted Closure if INDOT declares such closure as an emergency or urgent as described in Appendix A of the IHCP.

12.4.9.1.1 Mainline Interstate Movement Closures

I-65 NB and I-70 EB mainline movements on the south leg of the North Split interchange from Washington Street interchange are allowed to be closed to through traffic subject to the requirements of this Section 12 and the PPA. Fletcher Avenue entrance ramp to I-65NB/I-70EB shall be closed when the I-65NB/I-70EB mainline movement is closed.

Design-Build Contractor shall comply with the requirements and commitments defined in approved Interstate Closure Request (provided as Attachment 12-2) and IHCP Exception (provided as Attachment 12-1). If Design-Build Contractor deviates from the requirements of Attachment 12-1 (IHCP Exception) and/or Attachment 12-2 (Interstate Closure Request), Design-Build Contractor shall submit a revised IHCP Exception and/or Interstate Closure Request to INDOT for review and approval.

Design-Build Contractor shall provide a minimum of four travel lanes in each direction for the term of the Project on I-70, east of the interchange proper, which is defined in Section 8.3.2.1. Design-Build Contractor may be allowed to reduce the minimum number of travel lanes on I-70, with prior INDOT approval, if fewer than four lanes are entering and/or exiting I-70 east of the interchange proper.

Design-Build Contractor shall provide a minimum of three travel lanes in each direction for the term on I-65, west of the interchange proper as defined in Section 8.3.2.1. Design-Build Contractor may be allowed to reduce the minimum number of travel lanes on I-65, with prior INDOT approval, if fewer than three lanes are entering and/or exiting I-65 west of the interchange proper.

Design-Build Contractor shall provide a minimum of two travel lanes in each direction for the term of the Project for the following movements:

1. I-70 WB to I-65 SB/I-70 WB Collector-Distributor Ramp. Provide two travel lanes from the C-D to the Michigan Street exit ramp, and/or to the Ohio Street exit ramp.
2. I-70 WB to I-65 NB.
3. I-65 SB to I-70 EB, except as noted in Exhibit 10 of the PPA.
4. Pine Street entrance ramp to I-70 EB. Provide two travel lanes of traffic at the Pine Street entrance for the entire length of the ramp, from the intersection with Michigan Street to the east Project limit on I-70. The two travel lanes shall be provided during the time period when the Fletcher Avenue on ramp to I-65 NB/I-70 EB, I-65 SB to I-70 EB movement and/or the 12th Street on ramp to I-65 SB/I-70 EB are closed.

When I-65 NB and I-70 EB movements through the North Split interchange are closed, Design-Build Contractor shall provide positive protection to separate the I-70 EB movement from the I-70/West Street interchange to the South Split interchange. One lane of traffic shall be provided for the I-70 EB movement to access the Washington Street interchange exit ramp. Traffic entering EB I-70 from the I-70/West Street and I-70/Madison Avenue interchanges shall only have access to SB I-65.

Design-Build Contractor shall not exceed the maximum Movement Closure durations for the segments identified in Table 10-2-1 listed in Exhibit 10 of the PPA and except as provided in Section 12.4.9.1 (Movement Closures).

12.4.9.1.2 Ramp Movement Closures

Design-Build Contractor shall maintain the same number of existing traffic lanes open to traffic at all times during construction for the defined ramp movements, except as provided in Table 10-3-1 in Exhibit 10 of the PPA and Section 12.4.9.1.

Design-Build Contractor shall provide two lanes of traffic at the Washington Street interchange entrance and exit ramps to and from I-65/I-70 for the term of the PPA and as described in Section 12.4.9.1.

12.4.9.1.3 Local Street Movement Closures

Design-Build Contractor shall maintain the same number of traffic lanes as the existing roadway and be open to traffic at all times during construction for the defined local roadway movements, except as provided in Table 10-4-1 in Exhibit 10 of the PPA.

12.4.9.1.4 Local Trail Movement Closures

The local trails listed in Table 12-1 within the Planned ROW Limits may be closed or provided a detour route. Design-Build Contractor shall submit a trail detour to the appropriate trail jurisdiction and to INDOT for review and approval. Design-Build Contractor shall request concurrence of the trail detour from the trail jurisdiction and INDOT prior to closing the trail.

Table 12-1: Allowable Local Trail Movement Closures

Local Trail	Movement Closure Limitation
Monon Trail from just south of 15th Street to 13th Street	Trail detour route required (see RID Monon Trail Detour)
Payne Connection (north side of 10th Street) from Monon Trail to Bellefontaine Street.	Trail allowed to be closed during closure of 10th Street Movement Closure.

12.4.10 Notification and Coordination

The MOT Manager shall notify INDOT at least 28 days before the start of any Construction Work that would affect traffic operations, including placement or relocation of work zone signs.

The MOT Manager shall notify INDOT and the others listed in the TMP and this Section 12 in writing of all Movement Closures and upcoming MOT changes. Design-Build Contractor shall submit written notification of movement closures in accordance with Table 12-2 prior to implementation of the Movement Closure. Information shall include all construction and maintenance activities that impact or interfere with traffic and shall list the specific location, type of work, type of Movement Closure (e.g., temporary, off-peak, overnight local street, etc.), date and time of Movement Closure, duration, number of lanes maintained, detour routes if applicable, and any other information as requested by INDOT. A summary of the notification time and requirements for Movement Closures is provided in Table 12-2.

Table 12-2: Movement Closure Notification Periods

Movement Closure	Duration	Notification Period
Interstate, Ramp and Local Street	Greater than 2 weeks	28 days before Movement Closure
	Greater than 12 hours and less than 2 weeks	7 days before Movement Closure
	Less than 12 hours	4 days before Movement Closure
Interstate, Ramp and Local Street impacting: School access and/or bus route Transit system operations	All Movement Closures	28 days before Movement Closure
Lane Closure/Restrictions	Greater or equal to 2 weeks	7 days before Movement Closure
	Less than 2 weeks	4 days before Movement Closure
Temporary Traffic Stoppages under Section 801.16(c) of the Standard Specifications	All Movement Closures	14 days before Movement Closure
Overnight Local Street Closures	All Movement Closures	14 days before Movement Closure

A pre-MOT meeting between INDOT and Design-Build Contractor shall be held a minimum of 21 days before beginning Construction Work in an area that would affect traffic operations, including placement or relocation of work zone signs, or executing any change of MOT staging. This meeting shall include INDOT and any Design-Build Contractor Subcontractors involved with temporary traffic control.

12.5 Deliverables

Deliverables under this Section 12, a non-exhaustive list of which is set forth in Table 12-3 below, shall be submitted in hard copy and electronic format in accordance with the schedule set forth below. Acceptable electronic formats include PDF and current versions of Microsoft Word and Microsoft Excel, unless otherwise indicated.

Table 12-3: Deliverables

Deliverable	Deliverable Schedule	TP Section
Transportation Management Plan (TMP)	Draft TMP within 30 Days after NTP; Final TMP 30 days prior to commencement of Construction Work; updates as needed.	12.3.1
Temporary Traffic Control Plan (TTCP)	Draft TTCP within 30 Days after NTP; Final TTCP 30 days prior to Commencement of Construction for each Buildable Unit; Updates as needed.	12.3.3
Traffic Incident Management Plan (TIMP)	Draft TMP within 30 Days after NTP; Final TMP 30 days prior to Commencement of Construction; Updates as needed.	12.3.4
Weekly Traffic Control Device Inspection Report	Weekly after NTP	12.3.1
Local events for suspension of Work	90 days after NTP	12.4.9
Modifications to IHCP Exception	With Stage 3 Submittal	12.4.9.1
Modifications to Interstate Closure Request	With Stage 3 Submittal	12.4.9.1
Local Trail Detour Route	60 days prior to implementation	12.4.9.1.4

13 GEOTECHNICAL

13.1 General

This Section 13 provides the minimum Project requirements for geotechnical Work. Design-Build Contractor is responsible for addressing the specific geotechnical needs for the Project.

Design-Build Contractor shall perform the geotechnical Work, including supplemental subsurface explorations, investigations, testing, and analyses, in accordance with PPA Documents, including Project Standards, this Section 13 and its attachments; Governmental Approvals; and Governmental Rules.

13.2 Design Requirements

13.2.1 Geotechnical Data Report

Design-Build Contractor shall review and is solely responsible for interpreting any geotechnical data provided in the Geotechnical Data Report and performing such extra Work as Design-Build Contractor determines necessary or desirable to obtain geotechnical data required to meet the requirements of this Section 13. Design-Build Contractor shall be responsible for the geotechnical Work necessary to satisfy Project requirements.

13.2.2 Supplemental Geotechnical Work

Design-Build Contractor shall perform supplemental subsurface exploration and testing necessary to satisfy Project requirements and support the Work. Design-Build Contractor is responsible for the sufficiency, reliability, and accuracy of all Work and for determining the form and nature of the subsurface evaluation of the Site. Additional subsurface information referenced for bridge foundation designs shall be taken from boring(s) located within 30 feet of each planned substructure location.

Design-Build Contractor shall submit a subsurface exploration and testing program identifying all field and laboratory testing to be performed to establish the geotechnical conditions and parameters used for analysis and design. The subsurface exploration and testing program shall be submitted to INDOT for review and comment. At a minimum, the Submittal shall include a rationale for the development of the program, parameter selection, and descriptions of the methods of analyses. Supplemental test borings shall be selectively located based on geologic conditions, field observations, design considerations, and the minimum criteria specified in the Project Standards.

Design-Build Contractor shall determine the coordinate location, station, and offset from the alignment in addition to the ground surface elevation for each exploration performed.

13.2.2.1 Boring and Rock Core Logs

Final test boring and rock core logs shall be prepared and presented using gINT software as supplied by Bentley Systems Inc.

After collecting soil and rock samples, Design-Build Contractor shall perform laboratory tests to determine material properties and verify design assumptions. Sufficient testing shall be

performed to satisfy Design-Build Contractor that results are representative and characterize in-situ conditions.

13.2.2.2 Personnel

Geotechnical Work, including field exploration, shall be performed by a prequalified geotechnical Subcontractor approved by INDOT. All laboratory testing shall be performed by an INDOT-approved laboratory with AASHTO Materials Reference Laboratory certification for each specific test performed.

Geophysical investigations shall be planned and led by a geophysicist with a minimum of 10 years of experience performing geophysical investigations on transportation projects.

Boring and in-situ testing shall be supervised by field inspectors who have passed the NHI Subsurface Investigation Qualification Course (#132079) or have a minimum of five years of field experience in the inspection and reporting of field sampling and testing of similar type and quantity. The NHI Subsurface Investigation Qualification Course is not required if the inspector is a degreed engineer or geologist.

All field evaluations and laboratory testing, including geophysical investigations, shall be performed under the direct supervision of a Registered Professional Engineer, with a minimum of five years of experience in the performance and supervision of geotechnical engineering projects and approved by INDOT.

13.2.3 Geotechnical Design Reports

Design-Build Contractor shall prepare a Geotechnical Design Report addressing all of the Project's geotechnical Work. A Geotechnical Design Report may be written for individual Project elements or groups of Project elements. Geotechnical Design Reports shall be submitted to INDOT for review and comment. No Construction Work shall begin on the subject Project element(s) until the corresponding Geotechnical Design Report is submitted for review and comment by INDOT.

All design calculations and computer program results shall be checked and stamped by a Registered Professional Engineer and included in the corresponding Geotechnical Design Report.

13.2.3.1 Geotechnical Analysis

Each Geotechnical Design Report shall contain a separate section entitled "Geotechnical Analysis." The geotechnical analysis shall consider the design requirements of other design disciplines, such as the geometry of side-slopes, wall types, construction sequencing, and other items requiring geotechnical information for design and construction. At a minimum, this section of each Geotechnical Design Report shall include the following information:

1. Description of the Project element(s) addressed in the report
2. Data and descriptions of geotechnical analyses and designs
3. Values assigned to all applicable soil and rock parameters for design

4. An assessment of the engineering properties of all soil and rock types, including the expected average and range of soil strengths and deformational properties, and the preliminary design parameters for all soil and rock types
5. Results of laboratory tests
6. Settlement risks
7. Stability risks
8. Risks related to potential groundwater that may be encountered and planned remedial actions
9. Seismic site class
10. Other construction considerations, such as support of excavations and geotechnical instrumentation requirements. Refer to Section 7 (Environmental) for requirements related to noise and vibration

13.2.3.1.1 Foundations

For foundations, at a minimum, each Geotechnical Design Report shall include the following:

1. Design calculations for individual foundation elements and groups of foundation elements. At a minimum, design calculations shall include maximum factored axial and lateral resistances for the foundation type, size, and/or length (including any effects of downdrag), estimated differential and total settlements, rotations, and any additional design parameters applicable to the performance of the supported structure
2. Seismic zone and site class
3. Calculations of embankment settlement (magnitude and time rate) and downdrag forces, depths to zero or negligible settlement, and proposed means to mitigate or resist downdrag

13.2.3.1.2 Retaining Walls and Reinforced Soil Slopes

For retaining walls and reinforced soil slopes, the Geotechnical Design Report shall include, at a minimum, design calculations for bearing resistance, analysis of external stability, and estimates of total, differential, and secondary settlement. Refer to Attachment 13-1 (USP: Geotechnical) for requirements specific to reinforced soil slopes.

13.2.3.1.3 Embankments and Slopes

For embankments and slopes, at a minimum, the Geotechnical Design Report shall include the following:

1. Results of the slope stability analyses, including external loading from live and seismic forces.
2. Recommended side slopes. Sheet drainage of runoff from the pavement is prohibited down side-slopes steeper than 3:1 (H:V). The use of 2:1 unreinforced slopes shall be avoided unless the Design-Build Contractor can demonstrate the required factor of safety against slope instability can be achieved with the use of select fill, ground reinforcement, or a combination thereof. Slopes steeper than 2:1 shall be reinforced.

The required factor of safety shall also apply to an embankment instability mechanism characterized by near-surface sloughing failures, including any capping soil. Design-Build Contractor shall consider the use of select fill, ground reinforcement, or a combination thereof to satisfy the required resistance (i.e., the factor of safety against) near-surface sloughing failures.

3. Results of settlement analyses including predictions of the magnitude and duration of primary, secondary, and post-construction settlements.
4. Compactive efforts, embankment fill type, and/or design details necessary to prevent differential settlement and poor performance of rideability at transitions from bridges to embankment fill.
5. Proposed methods of protecting and abandoning Utilities where necessary.
6. Recommendations for staged geotechnical construction design where deemed necessary or to facilitate construction phasing.

13.2.3.2 Geotechnical Recommendations

Each Geotechnical Design Report shall contain a separate section entitled “Geotechnical Recommendations.” At a minimum, this section shall include the following information:

1. A narrative describing the interpretation of the pertinent geotechnical data used as a basis for selection, design, and installation of the proposed elements relative to the anticipated sequence and means and methods of construction.
2. Preparation of subgrade and foundation soil for support of Construction Work and permanent construction and actions to be taken during Construction Work to improve the soil as deemed necessary based on Site observations.
3. Requirements for geotechnical instrumentation and monitoring summaries determined to be necessary by the Design-Build Contractor’s geotechnical engineer.
4. Geotechnical risk management for design and construction.
5. Fill and backfill material requirements.
6. Ground improvements for support of, stability of, and/or control of settlement for embankment fill and foundation elements.
7. For foundations, specify the method used to field-verify the required resistance. For driven piles, indicate the number and locations of test piles and minimum time period Design-Build Contractor shall wait prior to restrike of test piles.

13.2.3.3 Presentation of Geotechnical Investigations

Each Geotechnical Design Report shall contain final typed boring logs updated with laboratory testing results, and the results of all in-situ testing, geophysical testing, and laboratory testing. An electronic copy of the gINT data used to create the boring logs shall be submitted with each Geotechnical Design Report.

13.2.4 Deep Foundations

Deep foundations shall be used where the need for or risk of the need for future excavations, such as for utilities, adjacent to the foundation element would compromise its performance and design resistance. Timber piles, precast prestressed concrete piles, auger cast-in-place piles, screw piles, and existing foundations shall not be used for new structures.

Deep foundation designs shall follow the Bridge Design Methodology by work type table found in the INDOT Design Manual Figure 412-3A. For work types where LRFD design methodology is required, the 2017 AASHTO LRFD Design Specifications, 8th Edition, and subsequent interim specifications shall be used. The INDOT Geotechnical Design Manual, the INDOT Design memoranda, and RSP 728-B-203 shall also be used. Drilled shafts, if used, shall also follow FHWA GEC No. 10, except that the design shall be per the methodology described in INDOT Design Manual Figure 412-3A.

13.3 Construction Requirements

13.3.1 Drilled Shafts and Driven Foundations

INDOT will perform integrity testing consisting of ASTM D-6760 Crosshole Sonic Logging, ASTM D-5882 Low Strain Pulse Echo Methods, and/or ASTM D-7949 Thermal Integrity Profiling. Design-Build Contractor shall install appropriate elements to facilitate testing. Each method will be performed on 100 percent of drilled shaft bridge foundations. Thermal integrity profiling using infrared probes is prohibited.

Based upon the installation and testing data, Design-Build Contractor's geotechnical engineer shall validate that drilled shafts were adequately constructed. If not adequately constructed, Design-Build Contractor's Engineer shall recommend an appropriate resolution for review and comment by INDOT. All testing shall be in accordance with the INDOT Recurring Special Provision 728-B-203.

INDOT will perform dynamic pile load testing consisting of ASTM D-4945. The completed pile and driving equipment data form shall be submitted to INDOT no less than 30 days prior to driving piles. Design-Build Contractor's geotechnical engineer shall complete a preliminary pre-construction drivability analysis prior to submittal of the pile and driving equipment data form. If the Contractor changes the hammer after production piles have started for a bridge, a new pile and driving equipment data form shall be submitted to INDOT as described above. When a hammer is changed after production piles have started, the Contractor is responsible for payment of INDOT's consultant retained by INDOT for subsequent dynamic pile load testing.

13.3.2 Compaction of Fill

The maximum dry density of all fill shall be determined in accordance with AASHTO T 180. Comply with Attachments 13-2 (Embankment) and Attachment 13-3 (Strength, Stiffness, and Density Tests) for requirements specific to strength and density control and for methods of acceptance testing, respectively.

13.4 Deliverables

Deliverables, a non-exhaustive list of which is set forth in Table 13-1 below, shall be submitted in electronic format in accordance with the schedule set forth below. Acceptable electronic

formats include PDF and current versions of Microsoft Word and Microsoft Excel, unless otherwise indicated.

Table 13-1: Deliverables

Deliverable	Deliverable Schedule	TP Section
Subsurface exploration and testing program	30 days prior to performing subsurface exploration and testing	13.2.2
Geotechnical Design Reports	60 days prior to Stage 3 Review Submission	13.2.3

14 STRUCTURES

14.1 General

Design-Build Contractor shall design and construct the structures Work in accordance with the PPA Documents, including Project Standards, this Section 14 and its attachments; Governmental Approvals; and Governmental Rules.

14.2 Bridge Structure Requirements

Design-Build Contractor shall comply with the following requirements:

1. All rehabilitated structures shall follow the Bridge Design Methodology by Work Type table found in the Indiana Design Manual Figure 412-3A. For work types where LRFD design methodology is required, the 2017 AASHTO LRFD Bridge Design Specifications, 8th Edition, and subsequent interim specifications shall be used. All bridge rehabilitations shall also be designed in accordance with the IDM Chapter 412.

2. All new and replacement bridge structures shall be designed for HL-93 loading in accordance with the 2017 AASHTO LRFD Bridge Design Specifications, 8th Edition, and subsequent interim specifications. Prefabricated bridge elements and systems for accelerated bridge construction shall additionally be designed in accordance with the 2018 AASHTO LRFD Guide Specifications for Accelerated Bridge Construction, 1st Edition.

3. New and replacement bridges and replacement superstructures shall be composite and continuous over interior supports, except at expansion joint locations where required by design due to bridge length in combination with jointless integral or semi-integral end bents.

4. Side-by-side precast prestressed concrete box beams, steel or concrete combined stringer and floor beams, steel or concrete trusses, timber beams, and concrete voided slabs are prohibited for new and replacement superstructures.

5. Use of self-consolidating, internally cured, and high-performance concrete for permanent bridge structural components shall be subject to INDOT review and approval in its good faith discretion, and requirements shall be provided by Design-Build Contractor in unique special provisions. Lightweight and semi-lightweight concrete for permanent bridge structural components are prohibited.

6. Steel beam or girder bridges shall use Grade 50 and/or Grade 70 steel. Hybrid steel girders are permissible. All structural steel components on steel beam or girder bridges shall be metallized with a thermally sprayed metallic coating system in accordance with Attachment 14-1 (USP: Metallized Structural Steel). Painted or weathering steel is prohibited, except for Bridges 43 through 48 as noted below and for bridges over local streets with a design year AADT equal to or less than a combined 16,000 VPD. Hinges or pin and hanger type connections are prohibited, except for Bridges 47 and 48. Fracture critical elements and fatigue prone details (AASHTO Category E or E') are prohibited, including for straddle bents.

7. Permanent substructures, including straddle bent caps and columns, shall be reinforced concrete. Wall piers are prohibited. Crash walls, where required, shall be designed and constructed in accordance with the Project Standards in conjunction with the pier

aesthetic requirements in accordance with Attachment 6-1 (North Split Aesthetics Design Guidelines).

8. Reinforcing bars meeting the mechanical properties of ASTM A1035 Grade 100 or ASTM A615 Grade 75 are permitted; provided, however, that maximum reinforcing bar spacing shall be in accordance to the Project Standards.

9. Reinforced concrete bridge railing shall be used on all bridge structures. Reinforced concrete bridge railing shall be TL-5 for all structures carrying I-65 and I-70. All barriers shall satisfy the criteria of Design Memo 19-08.

10. Reinforced concrete bridge railing transitions shall be placed at each bridge corner on the approach slabs where warranted and guardrail transitions shall be placed where guardrail is warranted.

11. Work shall match the geometry of existing bridges to be modified, except as noted below. New and replacement bridges shall meet design requirements for geometry.

12. Where Work is to be fitted to existing structures, all dimensions and conditions in the field shall be checked and all errors or discrepancies reported to INDOT. Design-Build Contractor shall assume responsibility for correctness and fit of the Work to the existing structures.

13. Epoxy resin adhesive, when used as a bonding agent, shall be used where new concrete abuts existing concrete.

14. Existing elevations shown in the 14.01 Existing Bridge Plans are based on the 1929 National Geodetic Vertical Datum (NGVD) or the 1988 North American Vertical Datum (NAVD) and are for information only. Design-Build Contractor shall field verify all existing elevations prior to construction and assume responsibility for their correctness.

15. Location of longitudinal bridge deck construction joints between existing and proposed concrete shall be staggered from the location of overlay construction joints by at least 1 foot. Longitudinal bridge deck joints, where required for phased or staged construction, shall be placed at proposed lane lines or mid-lane (e.g., at 6 feet, 7 feet, or 8 feet for 12-foot, 14-foot, or 16-foot lanes, respectively). Longitudinal closure pours shall be provided to account for differential dead load deflection between phases or stages of bridge construction.

16. Concrete barrier joints shall be designed and constructed to account for expansion and contraction in accordance with the Project Standards at the following locations: 1) integral or semi-integral end bents with the beginning of approach slabs; and 2) the end of approach slabs with moment slabs. Joints larger than 3 inches shall be designed and constructed to prevent snag. Butt joints are prohibited at these locations. Acute corners for barriers at end of bridge deck joints shall not be less than 70 degrees and barrier ends shall be designed and constructed square where possible. Exposed concrete barrier edges shall be detailed and constructed with a minimum 0.75 inch chamfer.

17. New bridge concrete shall be surface sealed in accordance with the Project Standards, except where Alternate Class C is used as required below for new and replacement structures. Existing bridge railings, copings, and piers to remain shall also be surface sealed. Surface seal shall not be applied to an overlay or to the top of bridge deck prior to the placement of an overlay.

18. New approach slabs shall be 13 inches thick, except as noted below, and connected to new and existing pavement ledges using horizontal tie reinforcing bars in accordance with the Project Standards. For new approach slabs at existing end bents with a mudwall, existing end bent to approach slab reinforcing shall be cleaned and reused where feasible. If reinforcing cannot be salvaged, connect the approach slab to the end bent mudwall through the horizontal surface of the pavement ledge with bent vertical reinforcing bars in field drilled holes with chemical epoxy. Approach slabs shall match the width of the bridge superstructure. New approach slabs shall not be poured concurrently with the bridge deck. Approach slabs shall be constructed with Next Generation Concrete Surface in accordance with Attachment 9-1 (USP: Pavement). Approach slabs are prohibited from being stepped in plan view at the terminal joint within the travelway for an individual bridge. Type I-A joints shall be constructed in accordance with the Project Standards. Pavement ledges for widened bridges shall match the existing pavement ledge width but shall not be less than 6 inches in width. Pavement ledges for new and replacement bridges shall be no less than 9 inches wide for integral end bents, semi-integral end bents, and all other end bents and abutments with a mudwall and deck joint.

19. Terminal joints and sleeper slabs for new and replacement bridges shall be designed and constructed in accordance with Attachment 14-1 (USP: Modified Terminal Joint) and 14-2 (Terminal Joint, Type CRCP). Terminal joints and/or sleeper slabs for preservation bridges shall be designed and constructed in accordance with the Project Standards and Attachment 14-1 (USP: Terminal Joint Retrofit, Polymer Modified Asphalt or Modified Terminal Joint).

20. At CRCP or PCCP terminal joints, the width of sleeper slab, precompressed foam joint, and CRCP or PCCP shall match the width of reinforced concrete bridge approach slab. When moment slab is present, sleeper slab and precompressed foam joint shall extend to the outside face of the moment slab. Moment slab to PCCP or CRCP connection details shall be designed and constructed in accordance with Standard Drawing E503-CCPJ and E706-MSRW.

21. Control joints shall be placed in all new approach slabs at lane lines, spaced no greater than 16 feet apart laterally. Control joints shall be identical to the upper 1.25 inch portion of the Type I-A joint.

22. Sacrificial embedded galvanic anodes shall be placed per Attachment 14-1 (USP: Embedded Galvanic Anodes) along all interfaces where cleaned and straightened existing reinforcing bars are cast in new concrete.

23. Load rating shall be performed by Design-Build Contractor on all new, replacement, rehabilitated, and preventative maintenance structures. Work shall comply with the INDOT Bridge Inspection Manual, Part 3 Bridge Load Rating. A draft load rating summary and the AASHTOWare BrR model for each bridge shall be submitted directly to the INDOT Central Office Load Rating Engineer and in accordance with the submittal requirements of Section 2 (Quality Management). AASHTOWare BrR shall be used as applicable within program limitations. Where the structure type is outside the program capabilities, the MIDAS program shall be used. The Smart Bridge Culvert program shall be used for underfill structures. All files to verify the load rating and revise future models shall be submitted to INDOT. Following completion of construction, the bridge load rating file shall be updated by Design-Build Contractor in accordance with the INDOT Bridge Inspection Manual and submitted to the INDOT Central Office Load Rating Engineer.

24. Structures shall be constructed in accordance with Design-Build Contractor's MOT Plans and the maintenance of traffic requirements in accordance with Section 12 (Maintenance of Traffic). Level One design criteria for MOT shall be met unless an approved Design Exception is obtained. A minimum of four beams or girders shall be required during phased or staged construction for both existing and proposed bridges.

25. Drainage features shall be designed to eliminate or minimize the need for bridge deck drains. Existing bridge deck drains to remain shall be cleaned out and painted, and bridge drainage shall be directed to off-structure inlets or existing pipe systems. New bridge deck drains, where needed, shall be located in accordance with IDM Chapter 203. Where feasible, 10 feet by 10 feet minimum riprap splash pads shall be constructed below new deck drains discharging directly as shown in IDM Figure 203-4H. The type and depth of riprap shall be determined in accordance with the Project Standards. Where the height from bottom of beam or girder to finished grade below exceeds 20 feet, or there are roads directly below the bridge, drainage shall be collected by a system of pipes, elbows, cleanouts, and downspouts, run down the side face of the piers or end bent MSE walls, and discharged no more than 2 feet above finished grade onto a riprap splash pad or turnout. Bridge deck drainage systems shall include a maximum of two inlets per shoulder and shall only run one span before running down the face of a pier or an end bent MSE wall.

26. For all existing structures, end bent and gutter drain pipes and their inlet and outlet structures shall be cleaned and painted. Outlet protection shall be replaced, revetment riprap shall be installed, and a delineator shall be installed at the outlets.

27. Foundations shall be designed and constructed in accordance with Section 13 (Geotechnical). Timber piles are prohibited for permanent bridge structure foundations.

28. If driven pile foundations are used, the number of dynamic pile load tests required and locations where dynamic pile load tests are to be performed shall be in accordance with the recommendations in the Geotechnical Design Reports and the Project Standards.

29. Any Class A and Class C concrete placement with a minimum dimension of 4 feet or more shall be considered mass pour concrete and shall be placed in accordance with Attachment 14-1 (USP: Structural Mass Pour Concrete). Drilled shaft concrete will not be considered mass pour concrete.

30. Seismic design of the structures shall be based on the soil profile type recommended in the Geotechnical Design Report. At a minimum, the existing substructure units for bridges requiring widening shall be checked for minimum seat length per AASHTO seismic guidelines and retrofitted as required.

31. Existing substructure units and undersides of decks to remain shall be patched as required to repair all concrete delamination and spalling. Areas to be patched shall be determined in accordance with the Project Standards.

32. For modified existing bridges, existing beams shall not be overstressed by more than 5 percent. This allowance will not apply to load rating.

33. For all bridges carrying I-65 and/or I-70, lighting conduits shall be installed in new bridge concrete railings or on the outside face of existing bridge railings not requiring replacement. The bridge conduits shall be connected to buried conduits with expansion connections. ITS conduit is prohibited from being placed inside new bridge concrete railing and shall be placed in accordance with Section 17 (ITS).

34. Minimum vertical clearance shall be 16.5 feet at all grade separation bridges, except for the following requirements: 1) minimum vertical clearance shall be 14.5 feet at Washington Street, Market Street, Ohio Street, Vermont Street, St. Clair Street, Central Avenue, Lewis Street, Roosevelt/Commerce Avenue, and Valley Avenue; 2) minimum vertical clearance shall be no less than existing 14.167 feet, which is a Level One Design Exception as noted in Section 14.8, over Delaware Street and Alabama Street; and 3) minimum vertical clearance shall be 10 feet over the Monon Trail. For bridges where the inside or outside shoulder for the roadway below is located immediately adjacent to steel guardrail or concrete barrier, the minimum vertical clearance criteria does not apply within the guardrail/barrier offset zone. If the required shoulder width does not include a guardrail/barrier offset, then minimum vertical clearance requirements are required to the front face of guardrail or barrier.

35. Bridges crossing Railroads shall provide the Railroad's required minimum horizontal clearance. A minimum vertical clearance of 23.25 feet shall be provided over the highest top of track elevation as of the Setting Date due to planned resurfacing by CSX Railroad in 2020. Minimum vertical clearance shall be 23 feet over the highest top of track elevation after the resurfacing by CSX Railroad.

36. Railroad crashwalls for MSE walls and piers shall be designed and constructed in accordance with the strictest requirements of the Railroad, IDM, AASHTO, and AREMA specifications.

37. All drainage from the bridge and roadway crossing over an existing Railroad shall be collected and directed away from the Railroad right of way.

38. Field drilled holes and chemical epoxy anchors are prohibited where reinforcing bars will be in permanent tension. Prior to fabrication and construction, other means of connecting new and existing reinforcing in tension and concrete shall be designed and constructed subject to INDOT review and approval.

39. The 4-inch guardrail offset loss shown in IDM Figure 402-6H shall not decrease the minimum required shoulder width across a bridge and shall only be used where a 4 inch to 2-foot guardrail/barrier offset is used on the roadway approaches. The 4 inch guardrail offset shall be accommodated off-structure and the approach guardrail transitioned as required when no guardrail/barrier offset is used.

40. New barrier delineators shall be placed on all bridges at a 40-foot maximum spacing.

41. New snow-plowable raised pavement markers shall be minimized across approach slabs and bridge decks using a maximum spacing of 80 feet in tangents and 40 feet in horizontal curves.

42. Lead based paint may be present on existing steel beams so the Design-Build Contractor shall follow all Hazardous Materials requirements in accordance with the PPA and Section 7 (Environmental), including for demolition and disposal.

43. Requirements for new and replacement structures:

    a. Spans over local streets shall provide room for the required shared-use path or sidewalk width, buffer to curb, buffer to face of abutment wall, and monuments in accordance with Section 6 (Aesthetics and Landscape Architectural Work), Section 8 (Roadway), and Attachment 14-6 (Minimum Local Street Bridge Span Lengths) and shall be no less than the required horizontal clear zone to the face of any obstruction

whether wall, pier, or monument. Abutment walls and slopewalls shall be placed behind the existing pier locations at all local streets included in Attachment 14-6, except as follows:

1) Abutment walls and slopewalls shall be placed behind the toe of the existing slopewalls at Market Street.

2) Abutment walls and slopewalls shall be placed behind the existing retaining wall to the north and the toe of existing slopewall to the south at 10th Street.

b. Spans within the interchange or crossing ramps shall be determined in accordance with the requirements of Section 8 (Roadway) and shall meet horizontal clear zone requirements. Where a restrictive condition does not allow meeting horizontal clear zone requirements or guardrail or concrete barrier is required in accordance with Section 8 (Roadway), walls and substructures shall be placed outside the guardrail deflection distance and/or zone of intrusion (ZOI) in accordance with the AASHTO Roadside Design Guide. For the purposes of this Section 14, a “restrictive condition” means a condition where the requirements of Section 8.3.1 (Roadway) and Chapter 49 of the IDM have been followed and there is no other feasible or reasonable alternative to the location of an individual end bent and wall or pier based on its required geometry and structural design.

c. The cross section of the bridges shall carry the full traveled way width and the minimum shoulder widths as shown in the typical sections of the Reference Plans.

d. Horizontally curved bridges using steel plate girders shall use curved steel plate girders and substructures shall be radial with no skew. Chorded steel plate girders are prohibited on horizontally curved bridges.

e. Single-span horizontally curved bridges using chorded precast, prestressed concrete beams shall use the construction chord (straight line from intersection of alignment with centerline bearing of each end bent) to set the span and skew.

f. Two-span horizontally curved bridges using chorded precast, prestressed concrete beams shall use the short chords (straight lines from intersection of alignment with centerline bearing end bent to centerline pier in first span and centerline pier to centerline bearing end bent in second span) to set spans and the long chord (straight line from intersection of alignment with centerline bearing of each end bent) to set the skew.

g. New decks shall have a minimum 7.5-inch thickness plus 1.5 inch very early strength LMC overlay with a minimum 2-percent cross slope and shall use stainless steel reinforcing bars in accordance with Attachment 14-1 (USP: Stainless Steel Reinforcing Bars). Top reinforcing cover for the 7.5-inch deck shall be 2 inches. Design of all bridge components shall be based on a 7.5-inch structural depth and no integral wearing surface. Design shall include the weight of the 1.5-inch overlay but shall not include the 35-psf future wearing surface. Decks shall be constructed with Next Generation Concrete Surface in accordance with Attachment 9-1 (USP: Pavement). Stainless steel reinforcing shall also be used for the end bent and pier diaphragm bars and approach slab tie bars extending into the deck.

h. Alternate Class C concrete shall be used in the deck, barriers, diaphragms, mudwalls, barrier transitions, and approach slabs in accordance with Attachment 14-1 (USP: Alternate Class C Concrete).

i. Reinforcing bar lap splices shall be calculated and detailed in accordance with the 2017 AASHTO LRFD Bridge Design Specifications, 8th Edition, and subsequent interim specifications.

j. Aesthetics shall be in accordance with Attachments 6-1 (North Split Aesthetics Design Guidelines) and 14-1 (USP: Structures). Aesthetic treatments on concrete bridge railings and bridge railing transitions shall be included in excess of the standard barrier shape and shall not reduce the required structural capacity for which the barrier was crash-tested.

k. Full-depth precast concrete panels for deck design and construction shall be in accordance with Attachment 14-1 (USP: Full-Depth Precast Concrete Deck Panels) and shall be a minimum of 7.5 inches thick providing a minimum 2-percent cross slope. UHPC shall be used with full-depth precast concrete panels closure pours in accordance with Attachment 14-1 (USP: Ultra High Performance Concrete). Stainless steel reinforcing bars shall be used in the full-depth precast concrete panels in accordance with Attachment 14-1 (USP: Stainless Steel Reinforcing Bars). Top reinforcing bar cover in the full-depth precast concrete panels shall be a minimum of 2.0 inches. Class A, B, or C concrete is prohibited for closure pours between panels. After closure pours are placed in accordance with the Attachment 14-1 (USP: Ultra High Performance Concrete), full-depth precast concrete panels shall receive a minimum 1.5 inch thick very early strength LMC overlay in accordance with the Project Standards and shall be constructed with Next Generation Concrete Surface in accordance with Attachment 9-1 (USP: Pavement). Partial-depth precast concrete panels are prohibited.

l. Precast bridge element design, construction, and installation for end bents, piers, and sleeper slabs shall be in accordance with Attachment 14-1 (USP: Precast Bridge Elements).

m. Offline superstructure design, construction, and installation shall be in accordance with Attachment 14-1 (USP: Superstructure Installation, SPMT or Superstructure Installation, Slide-In).

n. Precast prestressed high strength concrete beams shall be in accordance with Attachment 14-1 (USP: Precast Prestressed High Strength Concrete). Release strength, f'ci, shall be limited to a maximum of 8,000 psi and final 28-day strength, f'c, shall be limited to a maximum of 10,000 psi.

o. Only the web stirrups of precast prestressed bulb-tee beams shall be designed and constructed to extend into the deck from the top of beam. The web stirrups shall be epoxy-coated in accordance with the Project Standards. The top flange stirrups shall be revised to straight reinforcing bars and are prohibited from extending into the deck. The tops of beam shall be scored transversely at about 3 inches on center with a pointed tool to a maximum scoring depth of 0.25 inch.

p. Post-tensioning for precast beams, full-depth precast panels, precast bridge elements, straddle bent caps, and any other permanent bridge structural components shall be in accordance with Attachment 14-1 (USP: Post-Tensioning Works).

q. Safety handrails for inspection shall be provided on all steel plate girders where the web depth is 72 inches or greater. Safety handrails shall be placed a minimum of 5.0

feet from the bottom flange. Safety handrails shall be placed on the inside face of exterior girders and on both faces of the two first interior girders adjacent to the exterior girders.

r. Bearing type shall be elastomeric in accordance with the Project Standards, unless required otherwise by design and approved by INDOT. Fixed shoe bearing assembly shown in IDM Figure 409-7I is prohibited. Fixed elastomeric bearing assemblies for use with steel beams and girders shall be in accordance with Attachment 14-5 (Fixed Elastomeric Bearing Assembly Details). INDOT will consider alternate fixed bearing designs and details subject to review and approval.

s. Disk bearings used for post-tensioned concrete straddle bents and curved steel plate girder bridges shall be in accordance with Attachment 14-1 (USP: Disk Bearings). Pot bearings are prohibited.

t. End bent type shall be integral or semi-integral and deck joints eliminated, unless required otherwise by design and approved by INDOT. If required, deck joints shall be placed close to the vertical curve high point. Semi-integral end bent details shall be in accordance with Attachment 14-4 (Modified Semi-Integral End Bent Details). INDOT will review all deck joint locations, designs, and details subject to review and approval.

u. Tinted or modified surface seal shall be applied to the outside face and bottom flange of exterior precast, prestressed concrete beams and the bottom of the bottom flange of interior precast, prestressed concrete beams in accordance with Attachment 14-1 (USP: Modified Surface Seal). The color shall be in accordance with Attachment 6-1 (North Split Aesthetics Design Guidelines).

v. Anti-graffiti coating shall be placed on all exposed surfaces of new retaining walls and new bridge structures, excluding top of deck or overlay and interior beams. Anti-graffiti coating shall only be placed on the outside exposed face and bottom of exterior beams or girders. Anti-graffiti coating shall be placed from one foot below the finished ground surface at the base of the wall to the top of wall, including all exposed surfaces of the coping, or substructures to the top of cap but not on the top of cap or bearing surface. Anti-graffiti coating shall be in accordance with Attachment 14-1 (USP: Anti-Graffiti Coat).

w. Riprap turnouts are prohibited at bridge ends and all off-structure drainage shall be captured by inlets.

x. Existing superstructures shall be removed entirely per the Project Standards. Removal of existing substructures shall be the stricter of 3.0 feet below finished grade or to the required excavation limits. Existing substructures are prohibited from being incorporated into the Work.

44. Requirements for structures to be widened and receive a deck overlay:

a. The cross section of the bridges shall be widened to carry the full traveled way width and the minimum shoulder widths as shown in the typical sections of the Reference Plans.

b. The existing overlay shall be removed if present. The existing bridge deck shall be milled and hydrodemolition performed to remove unsound concrete. Full depth and partial depth bridge deck patching shall be performed as required. Bridges 47 and 48

milling depth may be a maximum of 0.5 inch, but no less than 0.25 inch, to maintain HS-20 Load Rating. If required, bridge 44 milling depth shall be 1.5 inches maximum to maintain HS-20 load rating and to match the required profile with adjacent pavement.

c. A portion of the existing concrete bridge deck coping shall be sufficiently removed to connect the widened deck and to remove unsound concrete. Sawcutting of the existing deck over an existing beam is prohibited. Damaged existing welded shear studs shall be replaced. Connection of new reinforcing to existing reinforcing shall be through the use of lap splices. Temporary supports and formwork shall be designed and constructed in accordance with the Project Standards.

d. The widened concrete bridge deck shall match the milled existing bridge deck thickness, profile, and cross slope.

e. Reinforcing bar lap splices shall be calculated and detailed in accordance with the IDM.

f. Reinforced concrete approach slab shall be replaced to match the widened superstructure width.

g. Place a 1.75 inch minimum depth very early strength latex-modified concrete overlay on existing and widened bridge deck surface. Minimum cross-slope shall be 1.5 percent.

h. The superstructure and substructures shall be widened with in-kind materials. Beam depths shall be adjusted as required, including with the use of Grade 50 steel, to meet minimum vertical clearance requirements.

i. New bearings shall match existing bearings, except as noted below for Bridges 47 and 48.

j. Riprap drainage turnouts shall be reconstructed at the ends of bridge rail transitions on shoulders that receive drainage. Modified concrete curb turnouts shall be constructed to direct water to the turnout.

k. New structural steel shall be painted to match the color of existing structural steel.

l. Slopewalls shall be widened to 2 feet outside the widened bridge deck underneath the structures.

45. Requirements for structures to be widened and receive a deck replacement:

a. The cross section of the bridges shall be widened to carry the full traveled way width and the minimum shoulder widths as shown in the typical sections of the Reference Plans.

b. The existing deck shall be removed and replaced. The existing concrete end diaphragms shall remain and shall be sufficiently connected to the new deck. Sawcutting of the existing deck over the existing beams is prohibited. Damaged existing welded shear studs shall be replaced. Connection of new reinforcing to existing reinforcing shall be through the use of lap splices. Temporary supports and formwork shall be designed and constructed in accordance with the Project Standards.

c. New decks shall have a minimum 8 inch thickness with a minimum 2 percent cross slope and shall use Class C concrete and epoxy-coated reinforcing bars in accordance with the Project Standards. Decks shall be constructed with Next Generation Concrete Surface in accordance with Attachment 9-1 (USP: Pavement). For bridge deck replacements on existing beams, Design-Build Contractor shall achieve the proper road grade and cross-slopes through the use of fillets, welded shear stud connectors, and/or reinforcing bars. Design-Build Contractor shall not use a fillet shallower than that required in accordance with Chapter 404-2.02 of the IDM.

d. Reinforcing bar lap slices shall be calculated and detailed in accordance with the 2017 AASHTO LRFD Bridge Design Specifications, 8th Edition, and subsequent interim specifications for new decks, diaphragms, and barriers.

e. Reinforcing bar lap splices shall be calculated and detailed in accordance with the IDM for existing piers and end bents being widened.

f. Reinforced concrete approach slabs shall be removed and replaced to match the widened superstructure width.

g. The superstructure and substructures shall be widened with in-kind materials. New beam depths shall be adjusted as required, including with the use of Grade 50 steel, to meet minimum vertical clearance requirements.

h. New bearings shall match existing bearings.

i. Riprap drainage turnouts shall be reconstructed at the ends of bridge rail transitions on shoulders that receive drainage. Modified concrete curb turnouts shall be constructed to direct water to the turnout.

j. The ends of steel beams shall be blast cleaned and primed at end bents where concrete is to be poured permanently against steel.

k. New structural steel shall be painted to match the color of existing structural steel.

l. Slopewalls shall be widened to 2 feet outside the bridge deck underneath the structures.

46. Requirements for structures to receive only a deck overlay:

a. The existing bridge deck shall be milled and hydrodemolition performed to remove unsound concrete. Full depth and partial depth bridge deck patching shall be performed as required. Milling depth shall be 1.5 inch maximum to maintain HS-20 Load Rating and to match the required profile with adjacent pavement. Place a constant depth very early strength latex-modified concrete overlay on existing bridge deck surface. The net thickness of the new overlay shall be 1.5 inches minimum after removing the thickness of the milled depth from the placed overlay depth. Minimum cross-slope shall be 2.0 percent.

b. Riprap drainage turnouts shall be reconstructed at the ends of bridge rail transitions on shoulders that receive drainage. Modified concrete curb turnouts shall be constructed to direct water to the turnout.

14.3 Specific Bridge Requirements

14.3.1 Bridges 1-3, 4-6, 10-12, 13A, 13B, 13C, 14-16, 18-21, 27-30, and 31-33: Multiple Crossings

File Structure No.: See Table 1-2 in Section 1 (General Scope of Work).

New and replacement structures shall be designed and constructed in accordance with Section 14.2 except:

1. These bridges structures shall be designed and constructed as single span bridges.

14.3.2 Bridge 7-9: I-65, I-70, and SB CD over CSXT Railroad and Ohio Street

File Structure No. I65-111-02830 NBL, I65-111-02831 SBL, and I65-111-02832 CD.

The replacement structures shall be designed and constructed in accordance with Section 14.2 except as modified herein:

1. South substructures and retaining wall shall provide a minimum 2.0 feet horizontal clearance from the outside face of the Pogues Run double box structure.
2. Piers between the Railroad tracks and Ohio Street shall provide a minimum of 25 feet horizontal clearance from centerline of closest track to the face of pier.
3. Railroad protective fencing is prohibited on the outside barriers.

14.3.3 Bridge 22: I-65 NB over East 10th Street

File Structure No. (I65)I70-079-10619 BNBL.

The replacement structure shall be designed and constructed in accordance with Section 14.2 except:

1. This structure shall be a single span bridge and is prohibited from being two spans with a pier in the raised median.

14.3.4 Bridge 34: I-65 SB and Delaware Entrance Ramp to I-70 EB over College Avenue and 5 Ramps

File Structure No. I65-112-10631 SBL.

The replacement structure shall be designed and constructed in accordance with Section 14.2 except as modified herein:

1. This structure shall remain a single bridge and is prohibited from being separated into two bridges with embankment and/or MSE wall retained backfill in between.
2. This structure shall provide an end span with a pier and pile end bent behind MSE wall west of College Avenue. The fill slope shall be graded to a maximum 8 feet exposed

retaining wall height in front of the end bent. A minimum 8 feet wide berm shall be provided in front of the MSE wall.

14.3.5 Bridge No. 39 thru 42: Multiple Movements over Lewis Street and Monon Trail

File Structure No. I70-083-10636 DWBL, I70-083-10637 WBL, I65-112-10638 SBL, and I70-083-10639 DEBL.

The new and replacement structures shall be designed and constructed in accordance with Section 14.2 except:

1. These bridge structures shall span the non-INDOT owned right of way and shall not require realignment or a reduction in width of the Monon Trail and Lewis Street.
2. The west end bent and MSE wall location shall provide a minimum 10 feet horizontal buffer from the edge of the Monon Trail.

14.3.6 Bridge No. 43 and 44: I-70 WB and EB over Roosevelt Avenue/Commerce Avenue

File Structure No. I70-083-05701 JEWB and I70-083-05701 EEBL.

The existing structures shall be rehabilitated in accordance with Section 14.2 except as modified herein:

Bridge No. 43

1. Reinforced concrete bridge approach slabs shall be removed and replaced. Thickness of the new west approach slab shall be 13 inches to match the CRCP and thickness of the east approach slab shall be 16 inches to match the existing PCCP.
2. Existing concrete bridge rail transitions shall be removed and replaced.
3. Existing west approach terminal joint and sleeper slab shall be removed. Proposed west approach sleeper slab and terminal joint shall be in accordance with Attachments 14-1 (USP: Modified Terminal Joint) and 14-2 (Terminal Joint Type CRCP).
4. Existing east approach asphalt terminal joint shall be removed and sleeper slab shall remain. New east approach polymer modified asphalt terminal joint shall be installed in accordance with Attachment 14-1 (USP: Terminal Joint Retrofit, Polymer Modified Asphalt).

Bridge No. 44

1. Existing superstructure and substructure shall be widened to the outside.
2. Reinforced concrete deck shall be removed and replaced.
3. The ends of steel beams shall be blast-cleaned and primed at end bents where concrete is to be poured permanently against steel.

4. Reinforced concrete bridge approach slabs shall be removed and replaced. Thickness of the new west approach slab shall be 13 inches to match the CRCP and thickness of the east approach slab shall be 16 inches to match the existing PCCP.

5. Existing south and median concrete bridge rail and concrete bridge rail transitions shall be removed and replaced. Existing guardrail transition Type TGB shall be removed and reset.

6. Existing west approach terminal joint and sleeper slab shall be removed. New west approach sleeper slab and terminal joint shall be in accordance with Attachment 14-1 (USP: Modified Terminal Joint) and Attachment 14-2 (Terminal Joint, Type CRCP).

7. Existing east approach terminal joint and sleeper slab shall be removed. New east approach terminal joint and sleeper slab shall be in accordance with the Project Standards.

14.3.7 Bridge No. 45 and 46: I-70 WB and EB over Valley Avenue

File Structure No. I70-80-05702 EWBL and I70-80-05702 JEWB

The existing structures shall be rehabilitated in accordance with Section 14.2 except as modified herein:

1. Existing concrete bridge railing transitions shall be removed and replaced.

2. Existing reinforced concrete bridge approach slabs shall be removed and replaced. Thickness of the new approach slabs shall be 16 inches to match the existing PCCP.

3. Existing asphalt terminal joint shall be removed, and sleeper slabs shall remain. New polymer modified asphalt terminal joints shall be installed in accordance with Attachment 14-1 (USP: Terminal Joint Retrofit, Polymer Modified Asphalt).

14.3.8 Bridge No. 47: I-65 NB Exit Ramp over Alabama Street and Delaware Street

File Structure No. I65-112-02419 DWBL

The existing structure shall be rehabilitated in accordance with Section 14.2 except as modified herein:

1. Superstructure and substructure of the existing bridge shall be widened toward the outside where required.

2. The existing overlay shall be removed, if present, to the mainline face of new median barrier. The very early strength latex-modified concrete overlay shall be placed on existing, to the ramp face of new median barrier, and widened bridge deck surface.

3. Existing joints shall be extended with new joint materials for the widened deck. Joint extensions shall be made per the manufacturer's instructions.

4. New bearings shall be steel H-pile bolsters on elastomeric bearing pads or elastomeric bearing pads placed on new raised reinforced concrete pedestals. New bearing fixity shall match the existing bearing fixity at each substructure.

5. New beams, including pins, cross frames, and H-pile portions of bearings shall be painted.
6. Spalled and delaminated areas on only the existing substructure units under the limits of the ramp bridge shall be patched.
7. Existing north concrete bridge railing and transitions shall be removed and replaced.
8. New concrete median barrier shall be anchored into the existing deck with epoxy-coated reinforcing bars with field drilled holes and chemical epoxy anchors.
9. Existing reinforced concrete approach slabs shall be removed and replaced. Removal and replacement limits for the east approach slab shall include the portion along mainline I-65 NB. Thickness of the new approach slabs shall be 13 inches. Approach slab thickness may be reduced at the pavement ledge to fit with existing end bent geometry.
10. Drains and downspouts shall be replaced and existing pipes to remain shall be cleaned and painted.
11. Light poles and concrete blisters shall be removed and replaced. Conduit shall be removed and replaced in the new concrete barrier.

14.3.9 Bridge No. 48: Delaware Entrance Ramp over Alabama Street

File Structure No. I65-112-02419 DEBL

The existing structure shall be rehabilitated in accordance with Section 14.2 except as modified herein:

1. Superstructure and substructure of the existing bridge shall be widened toward the outside.
2. The existing overlay shall be removed, if present, to the mainline face of new median barrier. The very early strength latex-modified concrete overlay shall be placed on existing, to the ramp face of new median barrier, and widened bridge deck surface.
3. Existing joints shall be extended with new joint materials for the widened deck. Joint extensions shall be made per the manufacturer's instructions.
4. New bearings shall be steel H-pile bolsters on elastomeric bearing pads or elastomeric bearing pads placed on new raised reinforced concrete pedestals. New bearing fixity shall match existing bearing fixity at each substructure.
5. New beams, including pins, cross frames, and H-pile portions of bearings shall be painted.
6. Spalled and delaminated areas on only the existing substructure units under the limits of the ramp bridge shall be patched.
7. Existing south concrete bridge railing and transitions shall be removed and replaced.
8. New concrete median barrier shall be anchored into the existing deck with epoxy-coated reinforcing bars with field drilled holes and chemical epoxy anchors.

9. Existing reinforced concrete approach slabs shall be removed and replaced. Removal and replacement limits for the east approach slab shall include the portion along mainline I-65 SB. Thickness of the new approach slabs shall be 13 inches. Approach slab thickness may be reduced at the pavement ledge to fit with existing end bent geometry.

10. Drains and downspouts shall be replaced and existing pipes to remain shall be cleaned and painted.

11. Light poles and concrete blisters shall be removed and replaced. Conduit shall be removed and replaced in the new concrete barrier.

14.4 Retaining Wall Structures

Design-Build Contractor shall comply with the following requirements.

1. All walls shall be designed and constructed in accordance with the applicable Project Standards.

2. Aesthetics shall be in accordance with Attachment 6-1 (North Split Aesthetics Design Guidelines) and Attachment 14-1 (USP: Structures).

3. Permanent retaining wall types shall not include dry cast modular block walls, bin walls, sheet pile, timber or gabion walls. Extensible ground reinforcement shall not be used. Wall types shall be subject to approval by INDOT.

4. Proposed MSE walls shall be in accordance with the applicable Project Standards. Material specifications for wall types other than MSE walls, including H-pile and precast concrete lagging walls with a reinforced concrete facing, shall be in accordance with the applicable Project Standards. All retaining wall components shall be designed in accordance with the applicable Project Standards.

5. Reinforced concrete barrier and moment slabs atop MSE walls are prohibited. Reinforced concrete barrier and moment slabs shall be designed and constructed aside MSE walls.

6. Where exposed heights of retaining walls adjacent to a sidewalk or shared-use path or trail are unprotected by railing or includes grade differences greater than 2 feet, appropriate permanent fall hazard protection shall be installed on retaining wall structures. Railing materials and aesthetics shall be in accordance with Section 6 (Aesthetics and Landscape Architectural Work) and Attachment 6-1 (North Split Aesthetics Design Guidelines).

7. Retaining walls along the Project west of College Avenue and on the north side of the interstate shall be limited to a maximum of 12 feet exposed height. Retaining walls along the Project west of College Avenue and on the south side of the interstate shall be limited to a maximum of 8 feet exposed height.

8. Retaining walls shall be constructed with tinted or modified surface seal in accordance with Attachment 6-1 (North Split Aesthetics Design Guidelines). The modified surface seal shall be applied to all exposed surfaces of retaining walls to 1 foot below finished grade in accordance with Attachment 14-1 (USP: Modified Surface Seal).

9. Riprap is prohibited as side-slope protection between the edge of shoulder and rear face of retaining wall where angled or flared retaining walls are used,

10. Removal of existing retaining walls shall be the stricter of 3 feet below finished grade or to the required excavation limits. The existing cast-in-place concrete retaining wall adjacent to the Marion County Processing Center Correction facility north of Market Street and Davidson Street intersection shall not be disturbed or removed and shall be left in place. No Work is required for that wall.

14.5 Sound Barrier Requirements

Sound barriers, if required, shall be in accordance with the Project Standards, with the exception that the sound barriers shall be designed in accordance with the 2017 AASHTO LRFD Bridge Design Specifications, 8th Edition, and subsequent interim specifications.

1. Sound barriers shall be considered roadside hazards and may be located adjacent to the roadway shoulders, the top of cut slopes, on top of or immediately behind retaining walls, and on bridges.

2. The geotechnical evaluation required to design and construct the sound barrier shall be the responsibility of Design-Build Contractor.

3. Coordinating the location and design of signing details with the sound barriers shall be the responsibility of Design-Build Contractor.

4. Fire hydrant access doors shall be provided in accordance with Attachment 14-1 (USP: Sound Barrier Fire Hydrant Access Door Features) wherever fire hydrants are located within 400 feet of the edge of the I-65, I-70, and ramp shoulders.

14.6 Traffic Structure Requirements

Refer to Section 11 (Traffic and Lighting) for design and construction requirements.

With the exception of lighting, bridge-mounted traffic structures are prohibited.

14.7 Sign Structure Requirements

Refer to Section 11 (Traffic and Lighting) for design and construction requirements.

Standard sign structures shall be in accordance with the Standard Drawings.

Non-standard sign structures shall comply with AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals. Design-Build Contractor shall apply 50-year recurrence interval for wind speed and other adjustment factors in accordance with AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals for non-standard sign structures.

Design-Build Contractor shall apply sign data (e.g., material, weight, and dimensions) from sign manufacturers approved by INDOT to perform sign structure calculations and shall submit calculations to INDOT for approval.

Bridge-mounted sign structures are prohibited.

14.8 Level One Design Exceptions

There are two Level One Design Exceptions obtained by INDOT related to: 1) bridge shoulder width and clear roadway widths specific to bridges 1 through 12, 13A through 13C, 14 through 16, 18 through 21, 27 through 30, 44, 47, and 48 in accordance with Attachment 8-3 (Shoulder and Bridge Clear Roadway Width); and 2) minimum vertical clearance specific to this Section 14 for bridges 47 and 48. Design-Build Contractor shall meet the requirements listed in these Design Exceptions.

14.9 Deliverables

Deliverables under this Section 14, a non-exhaustive list of which is set forth in Table 14-1, shall be submitted in electronic format in accordance with the schedule set forth below. Acceptable electronic formats include PDF and current versions of Microsoft Word and Microsoft Excel, unless otherwise indicated.

Table 14-1: Deliverables

Deliverable	Schedule	TP Section
Foundation Review Form	With Stage 3 Review Submission and Released for Construction Documents	NA
Level One checklist	With Stage 1 Review Submission, Stage 3 Review Submission, and Released for Construction Documents	NA
Draft load rating summary for widened bridges, for bridges with a new rigid overlay, and for new and replacement bridges	With Stage 3 Review Submission and approved prior to Released for Construction Documents	14.2
Final load rating summary for widened bridges, for bridges with a new rigid overlay, and for new and replacement bridges	Within 30 days after completion of construction for each bridge	14.2

15 UTILITIES

15.1 General

Design-Build Contractor shall conduct Utility Work in accordance with the PPA Documents, including Project Standards, this Section 15 and its attachments; Governmental Approvals; and Governmental Rules.

Except for Type 1 Utility Adjustments as shown in Attachment 15-3 (Existing Utility Matrix), Design-Build Contractor shall be responsible for completing or causing the completion of all Utility Adjustments and other Utility Adjustment Work as required under Sections 6.3 and 6.4 of the PPA.

15.2 Design and Construction Requirements

15.2.1 Consultant Prequalification for Utility Coordination

Design-Build Contractor shall provide a Utility Coordination Manager who is certified through INDOT Utility Coordination Training and Certification.

15.2.2 Technical Requirements

Certified SUE Utility Information is provided in Attachment 15-2. Design-Build Contractor shall identify all Utility conflicts on the Project. Design-Build Contractor shall create a Utility Conflict Matrix and submit to INDOT for review and comment. The matrix shall include the Utility name, facility (size and type), location, and conflict. The Plans and details prepared by Design-Build Contractor shall be in accordance with the Utility Work Plans. The Utility Conflict Matrix shall be updated as new or revised conflicts are determined and shall be submitted to INDOT for review and comment.

Design-Build Contractor shall be responsible for construction and connection of New Utility services owned and maintained by INDOT as applicable for signs, lighting, signals, and all other New Utility services required for the Project.

Design-Build Contractor shall notify INDOT at least two Business Days in advance of any Utility meeting. INDOT may elect to attend Utility meetings in its sole discretion.

Design-Build Contractor shall submit Utility Work Plans based on the template provided in Attachment 15-4 (Utility Work Plan and Agreement Template) for review and comment. INDOT's review of the Utility Work Plans will commence only after the other required design reviews have been completed and approved. Once the Utility Work Plans are approved, Design-Build Contractor shall coordinate the execution of the Utility Work Plans with affected Utilities.

Design-Build Contractor shall be responsible for working with Utilities to ensure that all Utility concerns are addressed.

15.3 Utility Specific Coordination and Construction Requirements

15.3.1 General

The list of Utilities below is not an all-inclusive list.

15.3.1.1 Indianapolis Power and Light (IPL) (Electric Transmission and Distribution)

There are overhead and underground Utilities, including nine overhead crossings identified as Type 1 Utility Adjustments in Attachment 15-3 (Existing Utility Matrix), in the Planned ROW Limits. The Utilities are located within private easements and City of Indianapolis right of way. Type 1 Utility Adjustments will necessitate vertical clearance Utility Adjustments at these locations.

Design-Build Contractor shall allow Type 1 IPL transmission lines to be relocated by the latest of (a) June 15, 2021, (b) 240 days from the date of Environmental Determination, or (c) the date reflected on the approved Project Baseline Schedule for the Type 1 Utility Adjustment as identified in Attachment 15-3 (Existing Utility Matrix). Design-Build Contractor shall coordinate with IPL in IPL's design of the Utility Adjustments and provision of Utility Adjustment Plans.

Design-Build Contractor shall allow Type 1 IPL Distribution lines to be relocated by the latest of (a) April 15, 2021, (b) 180 days from the date of Environmental Determination, or (c) the date reflected on the approved Project Baseline Schedule for the Type 1 Utility Adjustment as identified in Attachment 15-3 (Existing Utility Matrix). Design-Build Contractor shall coordinate with IPL in IPL's design of the Utility Adjustments and provision of Utility Adjustment Plans.

The Utility will be adjusting their facilities based on the approved Utility Work Plan, as shown in Attachment 15-5A (IPL Transmission Work Plan), Attachment 15-5A1 (IPL Transmission Work Plan Exhibit A), Attachment 15-5I (IPL Distribution Work Plan), Attachment 15-5I1 (IPL Distribution Work Plan Exhibit A), and Attachment 15-5O (IPL Distribution Work Plan Exhibit B). The Design-Build Contractor shall coordinate with INDOT and IPL to avoid IPL relocation schedule conflict with the Work.

15.3.1.2 AT&T – Distribution (Telecommunications)

AT&T has fiber optic cables in the Planned ROW Limits that may be in conflict with the Work. The Utility will be adjusting their facilities based on the approved Utility Work Plan, as shown in Attachment 15-5Q (ATT Distribution Work Plan). INDOT will reimburse the Utility based on the approved Utility Work Plan, subject to reimbursement by Design-Build Contractor in accordance with Section 6.3.8.5 of the PPA.

15.3.1.3 Spectrum (aka Brighthouse Networks, TimeWarner (Telecommunications))

Brighthouse has fiber optic cables in the Planned ROW Limits that may be in conflict with the Work. The Utility will be adjusting their facilities based on approved Utility Work Plan, as shown in Attachment 15-5L (Spectrum Brighthouse Work Plan). Design-Build Contractor shall allow Type 1 Spectrum lines to be relocated by the latest of (a) July 15, 2021, (b) 30 days from the completion of IPL Distribution work, or (c) the date reflected on the approved Project Baseline Schedule for the Type 1 Utility Adjustment as identified in Attachment 15-3 (Existing Utility

Matrix). INDOT will reimburse the Utility based on the approved Utility Work Plan, subject to reimbursement by Design-Build Contractor in accordance with Section 6.3.8.5 of the PPA.

15.3.1.4 Century Link (Level 3) (Telecommunications)

Century Link has telecommunication cables in the Planned ROW Limits that may be in conflict with the Work. The Utility will be adjusting their facilities based on the approved Utility Work Plan, as shown in Attachment 15-5J (Century Link Myron St Work Plan Exhibit A), Attachment 15-5K (Century Link St. Clair Work Plan Exhibit A), and Attachment 15-5N (Century Link Work Plan). Design Build Contractor shall allow Type 1 Century Link lines to be relocated by the latest of (a) February 15, 2021, (b) 75 days from the completion of IPL Distribution work, or (c) the date reflected on the approved Project Baseline schedule for the Type 1 Utility Adjustment as identified in Attachment 15-3 (Existing Utility Matrix). INDOT will reimburse the Utility based on the approved Utility Work Plan, subject to reimbursement by Design-Build Contractor in accordance with Section 6.3.8.5 of the PPA.

15.3.1.5 Citizens Energy Group (Natural Gas)

Citizens Energy Group has gas pipelines in the Planned ROW Limits that may be in conflict with the Work. The Utility will be adjusting their facilities based on the approved Utility Work Plan, as shown in Attachment 15-5M (CEG Gas Work Plan). INDOT will reimburse the Utility based on the approved Utility Work Plan, subject to reimbursement by Design-Build Contractor in accordance with Section 6.3.8.5 of the PPA.

15.3.1.6 Citizens Energy Group (Sanitary Sewer & Combined Sewer)

Citizens Energy Group has sanitary and combined sewer lines in the Planned ROW Limits that may be in conflict with the Work. The Utility will adjust their facilities or Protect in Place the facilities based on the approved Utility Work Plan, as shown in Attachment 15-5D (CEG Sanitary Work Plan). INDOT will reimburse the Utility based on the approved Utility Work Plan, subject to reimbursement by Design-Build Contractor in accordance with Section 6.3.8.5 of the PPA. INDOT will be responsible for the cost of the CCTV, structural lining, and construction inspection for the structural lining by Citizens Energy Group.

15.3.1.7 Citizens Energy Group (Potable Water)

Citizens Energy Group has water mains and service lines in the Planned ROW Limits that may be in conflict with the Work. The Utility will adjust their facilities or Protect in Place the facilities based on the approved Utility Work Plan, as shown in Attachment 15-5E (CEG Water Work Plan) and Attachment 15-5E1 (CEG Water Work Plan Exhibit A).INDOT will reimburse the Utility based on the approved Utility Work Plan, subject to reimbursement by Design-Build Contractor in accordance with Section 6.3.8.5 of the PPA.

15.3.1.8 Crown Castle (aka Fiber Technologies Networks, LLC (Telecommunications))

Fiber Technologies has fiber optic cables in the Planned ROW Limits that may be in conflict with the Work. The Utility will be adjusting their facilities based on the approved Utility Work Plan. INDOT will reimburse the Utility based on the approved Utility Work Plan, subject to reimbursement by Design-Build Contractor in accordance with Section 6.3.8.5 of the PPA.

15.3.1.9 US Signal (RVP Fiber Company, LLC) (Telecommunications)

US Signal has fiber optic cables in the Planned ROW Limits that may be in conflict with the Work. The Utility will be adjusting their facilities based on the approved Utility Work Plan, as shown in Attachment 15-5H (US Signal Work Plan). INDOT will reimburse the Utility based on the approved Utility Work Plan, subject to reimbursement by Design-Build Contractor in accordance with Section 6.3.8.5 of the PPA.

15.3.1.10 URBANSYSTEMS (Telecommunications)

URBANSYSTEMS has fiber optic cables in the Planned ROW Limits that may be in conflict with the Work. Based on Design-Build Contractor's final design, the Utility may be adjusting their facilities based on the approved Utility Work Plan. INDOT will reimburse the Utility based on the Approved Work Plan, subject to reimbursement by Design-Build Contractor in accordance with Section 6.3.8.5 of the PPA.

15.3.1.11 Windstream (Telecommunications)

Windstream has fiber optic cables in the Planned ROW Limits that may be in conflict with the Work. The Utility will be adjusting their facilities based on the approved Utility Work Plan. INDOT will reimburse the Utility based on the approved Utility Work Plan, subject to reimbursement by Design-Build Contractor in accordance with Section 6.3.8.5 of the PPA.

15.3.1.12 Zayo Bandwidth (Infinity Fiber Route / ALS) (Telecommunications)

Zayo Bandwidth has fiber optic cables in the Planned ROW Limits that may be in conflict with the Work. The Utility will be adjusting their facilities based on the approved Utility Work Plan, as shown in Attachment 15-5C (Zayo Work Plan). INDOT will reimburse the Utility based on the approved Utility Work Plan, subject to reimbursement by Design-Build Contractor in accordance with Section 6.3.8.5 of the PPA.

15.3.1.13 Comcast (Telecommunications)

Comcast has fiber optic cables in the Planned ROW Limits that may be in conflict with the Work. The Utility will be adjusting their facilities based on the approved Utility Work Plan, as shown in Attachment 15-5B (Comcast Work Plan). INDOT will reimburse the Utility based on the approved Utility Work Plan, subject to reimbursement by Design-Build Contractor in accordance with Section 6.3.8.5 of the PPA.

15.3.1.14 Metronet (Telecommunications)

Metronet has indicated they do not have facilities within the Project area as shown on Attachment 15-5G (Metronet Work Plan).

15.3.1.15 Sprint (Telecommunications)

Sprint has indicated they do not have facilities within the Project area as shown on Attachment 15-5P (Sprint Work Plan).

15.3.1.16 MCI / Verizon Business (Telecommunications)

MCI / Verizon Business has facilities in the Planned ROW Limits that may be in conflict with the Work. The Utility will be adjusting their facilities based on the approved Utility Work Plan. INDOT will reimburse the Utility based on the approved Utility Work Plan, subject to reimbursement by Design-Build Contractor in accordance with Section 6.3.8.5 of the PPA.

15.3.1.17 Angies List (Telecommunications)

Angies List has facilities in the Planned ROW Limits that may be in conflict with the Work. The Utility will be adjusting their facilities based on the approved Utility Work Plan. INDOT will reimburse the Utility based on the approved Utility Work Plan, subject to reimbursement by Design-Build Contractor in accordance with Section 6.3.8.5 of the PPA.

15.3.1.18 AT&T Transmission (Telecommunications)

AT&T Transmission has facilities in the Planned ROW Limits that may be in conflict with the Work, as shown on Attachment 15-5F (ATT Transmission Work Plan). The Utility will be adjusting their facilities based on the approved Utility Work Plan. INDOT will reimburse the Utility based on the approved Utility Work Plan, subject to reimbursement by Design-Build Contractor in accordance with Section 6.3.8.5 of the PPA.

15.3.1.19 AT&T TCA (Telecommunications)

AT&T TCA has facilities in the Planned ROW Limits that may be in conflict with the Work. The Utility will be adjusting their facilities based on the approved Utility Work Plan. INDOT will reimburse the Utility based on the approved Utility Work Plan, subject to reimbursement by Design-Build Contractor in accordance with Section 6.3.8.5 of the PPA.

15.3.1.20 Intelligent Fiber Network

Intelligent Fiber Network has facilities in the Planned ROW Limits that may be in conflict with the Work, as shown on Attachment 15-5R (IFN North Split-Work Plan). The Utility will be adjusting their facilities based on the approved Utility Work Plan. INDOT will reimburse the Utility based on the approved Utility Work Plan, subject to reimbursement by Design-Build Contractor in accordance with Section 6.3.8.5 of the PPA.

15.4 Deliverables

Deliverables under this Section 15, a non-exhaustive list of which is set forth in Table 15-1 below, shall be submitted in electronic format in accordance with the schedule set forth below. Acceptable electronic formats include PDF and current versions of Microsoft Word and Microsoft Excel, unless otherwise indicated.

Table 15-1: Deliverables

Deliverable	Deliverable Schedule	TP Section
Utility Conflict Matrix	No later than 90 days following NTP	15.2
Utility Conflict Matrix Updates	As needed	15.2

Deliverable	Deliverable Schedule	TP Section
Utility Work Plans (If Applicable)	With RFC Plans	15.2
Utility Agreements (If Applicable)	With RFC Plans	15.2

16 RAILROAD COORDINATION

16.1 General

This Section 16 defines the criteria required for the Project to accommodate Railroads crossing the Project ROW. Design-Build Contractor is responsible for coordination with all Railroads that may be impacted by the Work.

16.2 Railroad Design Standards

Design-Build Contractor shall design the Work affecting Railroads following Good Industry Practice, such as FHWA Railroad-Highway Grade Crossing Handbook, AREMA, and MUTCD, and incorporating the usual and customary design standards and operating requirements of Railroad(s) that has, or is expected to have, an agreement with INDOT. However, for purposes of Section 1.3.5 of the PPA, wherever a conflict arises between any details in the design standards and operating requirements, the criteria as required by the Railroad shall govern.

Construction details and specifications shall conform to the Standard Specifications and the rules, regulations, and requirements of the Railroads, including those related to safety, fall protection, and protective equipment. Draft copies of the Recurring Special Provisions for the Protection of Railway Interest are included in Attachment 16-1 (RSP_CSXT) for each Railroad. Note: for the entirety of Attachment 16-1, all occurrences of "Contractor" shall mean Design-Build Contractor, "Engineer" shall mean INDOT, "Department" shall mean INDOT, and "Agency" shall mean INDOT. Design-Build Contractor shall coordinate with Railroads to finalize the Recurring Special Provisions and comply with the finalized special provisions at no additional cost to INDOT.

16.3 Design Criteria in Railroad ROW

1. The design of all Railroad facilities shall conform to the requirements of the Railroad specifications and the provisions set forth by the Railroad Agreement.
2. All Railroad tracks and other Railroad ROW shall be protected from damage during the Work.
3. During construction, all bridges over Railroad facilities shall at least maintain existing minimum vertical clearance over Railroad facilities. Design-Build Contractor shall verify the existing minimum vertical clearance over the Railroad facilities prior to commencing Work.
4. All horizontal clearances shall conform to the Railroad specifications; and, crash walls shall be provided as required by the Railroad specifications. Design-Build Contractor shall measure the existing minimum horizontal clearances for all Railroad facilities prior to commencing work. The measurements shall be provided to INDOT.
5. All substructure elements within 25 feet of the centerline of tracks shall be designed and constructed with a crash wall per AREMA requirements, unless otherwise specified by the relevant Railroad Agreement, Other Approvals, or other Railroad specifications.
6. Provide track monitoring plan for all foundation construction processes.
7. Construction equipment or material shall not be stored within the Railroad ROW.

8. If excavation for pier foundations impact the live load influence line, sheeting and shoring will be required. Theoretical live load influence zones shall be detailed on the final Plans.
9. All drainage from the bridge and roadway crossing over any Railroad ROW shall be collected and directed away from the Railroad ROW and shall be detailed on the final Plans.
10. Detail existing culverts located adjacent to the Railroad tracks in the final Plans and indicate directional flow.
11. Indicate on final Plans the distance from the intersection of centerline of roadway and centerline of track to the nearest Railroad milepost.

16.4 Coordinating Design

Design-Build Contractor shall coordinate the Project design with the Railroad. This coordination shall include meetings, Plan submissions, resolution of pertinent commentary provided by the Railroad, and any other obligation under the relevant Railroad Agreement. Design-Build Contractor will complete the Railroad Stage 3 Review Submission and prepare Release for Construction documents in accordance with the Railroad Agreement.

Design-Build Contractor shall complete final Plans for the Railroad crossings. The Plans shall contain points labelling the location of the minimum horizontal and vertical clearance between the bridge and the adjacent Railroad tracks. The Plans shall also include details providing the bottom of footing and top of rail elevation and distance from centerline of track to nearest footing.

CSX Transportation, Inc. owns the existing tracks that cross the Project ROW under I-65/I-70 between Market St. and Ohio St. (RP 111+40, Bridge 7, 8 and 9, Sta. 126+98.13 Line P_ALG_I65/I70).

16.5 Design Costs

During design coordination, Design-Build Contractor shall provide INDOT with an estimate of all anticipated costs for Work related to Railroads at INDOT’s request.

16.6 Records

Design-Build Contractor shall maintain Books and Records of all coordination and Construction Work with the Railroad. Copies of these Books and Records shall be provided to INDOT as they are completed. Specific documents required include: correspondence, meeting minutes, negotiations, force account estimates from the Railroad for its Work, design comments, agreements, inspection records, invoices, and change orders.

16.7 Project Work Affecting Railroad Operations

Where the Project crosses or affects Railroad ROW, operations, or facilities, the Design-Build Contractor shall coordinate the Work with the Railroads, and INDOT’s Capital Program Management’s “Railroads Team”, as appropriate.

16.7.1 Project Schedule

INDOT shall be responsible for obtaining all Government Approvals and Other Approvals required for any Railroad or any Railroad-related Work. All costs, fees, and Work associated with these matters shall be the responsibility of the Design-Build Contractor. Design-Build Contractor shall be responsible for including and incorporating all Railroad-related items into the Project Baseline Schedule under Section 1.3.2.1.

16.7.2 Railroad Agreement

Design-Build Contractor shall comply with all requirements contained in the Railroad Agreement (Attachment 16-2), which compliance is included as part of the Work.

16.7.3 Operation Safety

Design-Build Contractor shall arrange with the Railroad for railroad flagging as required in accordance with the Railroad Agreement and Section 6.2.4 of the PPA. Design-Build Contractor shall comply with the owning and operating Railroad's requirements for contractor safety training prior to performing Construction Work or other activities on the Railroad's property.

16.7.4 Railroad Right of Entry Agreement

In order to enter the Railroad's real property rights to perform the Work, Design-Build Contractor shall have secured a right of entry from the Railroad pursuant to the Railroad Agreement.

16.7.5 Design-Build Contractor Right of Entry Agreement

Design-Build Contractor shall cooperate and coordinate with all Railroads for access by the Railroad and, as applicable, each Railroad's agents to the Railroad real property rights as necessary for rail maintenance and operations activities performed by the Railroad or its agents.

16.7.6 Insurance Requirements

Design-Build Contractor shall procure and maintain any insurance coverage as may be required by any Railroad as a condition of the Railroad's consent for entry onto or nearby Railroad facilities or property. Design-Build Contractor shall comply with all insurance requirements set forth in the unique Railroad Special Provisions, Railroad Agreement(s), rights of entry, or other agreements or approvals required for performing Work on or near the ROW of any Railroad.

All insurance policies shall be in a form acceptable to the Railroad. The original Railroad Protective Liability Insurance Policy shall be submitted to the Railroad with the Railroad as the name insured. Copies of all other insurance policies shall be submitted to the owning Railroad, operating Railroad, INDOT and be approved by the Railroad prior to any entry by Design-Build Contractor upon or nearby Railroad real property rights

16.8 Railroad Construction Requirements

Design-Build Contractor shall comply with all construction requirements and specifications set forth by the Railroad, including those requirements set forth in the Railroad Agreements.

16.8.1 Cost of Reimbursements

Design-Build Contractor shall be responsible for all reimbursement of costs to Railroads and shall be responsible for reimbursing all costs that Railroads incur in adjusting their facilities or operations, as applicable, to accommodate the Work.

16.8.2 Monitoring Construction Management Costs

Design-Build Contractor shall monitor the costs associated with the construction of the Project as it relates to Railroad coordination. Design-Build Contractor shall provide, at a minimum, monthly reports to INDOT on the usage of a Railroad flagman. Design-Build Contractor is responsible for all flagging costs in accordance with Section 6.2.4 of the PPA.

16.9 Deliverables

Deliverables under this Section 16, a non-exhaustive list of which is set forth in Table 16-1 below, shall be submitted in electronic format in accordance with the schedule set forth below. Acceptable electronic formats include PDF and current versions of Microsoft Word and Microsoft Excel, unless otherwise indicated.

Table 16-1: Deliverables

Deliverable	Deliverable Schedule	TP Section
Track monitoring plan	As completed	16.3
Railroad Stage 3 Review Submission	As completed	16.4
Railroad crossing plans	As completed	16.4
Estimate	As completed	16.5
Records of Railroad involvement	As completed	16.6
Insurance Policies	Prior to entry upon Railroad real property rights	16.7.6
Railroad flagman Reports	Monthly	16.8.2

17 INTELLIGENT TRANSPORTATION SYSTEM (ITS)

17.1 General

Design-Build Contractor shall provide, as part of the Work, the following elements of the ITS: detection for traffic management, closed-circuit television (CCTV) cameras for Incident verification and monitoring, temporary and permanent fiber, any modification to the RWIS station at the northwest corner of I-65/I-70 and Washington Street and supporting infrastructure.

Design-Build Contractor shall maintain the existing camera systems and communication systems (detectors, DMS, TTS, etc.) to the INDOT Traffic Management Center (TMC) throughout the term of the PPA. Design-Build Contractor shall replace the existing fiber backbone through the Project, connecting to the vaults both east and west of the Project ROW. Design-Build Contractor shall also install a new fiber backbone south through the Project, beginning in a vault east of the Project and terminating in a vault south of the interchange.

In order to maintain connectivity of the ITS system, Design-Build Contractor shall construct a temporary fiber prior to any roadwork that involves Movement Closures. The temporary fiber shall be fully operational with communications to the INDOT TMC. Design-Build Contractor shall maintain this temporary fiber throughout the Project until such time as the permanent fiber is installed and fully operational. The temporary fiber will be spliced into the same locations as the permanent fiber but can be either underground or aerial installation. The Project includes all new cameras, towers, detection, fiber, vaults, service points and any other equipment necessary to complete the ITS system for the Project.

The ITS shall include all communications, electrical power, and supporting infrastructure to provide a complete, fully operational ITS that is ready to be integrated and controlled by INDOT TMC.

All components of the ITS system will be controlled and operated by INDOT TMC.

The design shall include a minimum of seven cameras that ensure complete coverage of the approaching interstate, system interchange, and local ramps to complement the adjacent ITS system. The Project shall provide vehicle detection on all mainline, system ramps, and local ramps. Design shall include a minimum of three 2-inch conduits for the fiber along the corridor.

Design-Build Contractor shall design and construct the ITS components in accordance with the PPA Documents, including Project Standards, this Section 17 and its attachments; Governmental Approvals; and Governmental Rules. Design-Build Contractor shall meet with INDOT to confirm details on ITS Work elements. Meetings shall be held at the Indianapolis TMC prior to start of Construction Work.

17.2 Performance Requirements

All material and equipment provided shall be compatible with existing INDOT ITS deployments to ensure a seamless integration with existing systems. The ITS shall be consistent with published State and federal ITS architectures, as well as the National Transportation Communications for ITS Protocol (NTCIP).

The ITS items included in the Project shall be provided and installed to accommodate routine system maintenance with no impact to normal traffic operations. The ITS items shall also be

provided and installed to accommodate safety of maintenance personnel, including widened access shoulders, level maintenance platforms, and safety guide railings or traffic barriers if within clear zones.

17.3 Design and Construction Requirements

17.3.1 Power Requirements

Design-Build Contractor-provided ITS requires a New Utility.

17.3.2 ITS Equipment

Design-Build Contractor shall submit to INDOT for approval a preliminary and final ITS layout, including the quantity and location of the ITS elements, communication network diagrams, ITS location Plan sheets, and dimensioned layout sheets illustrating horizontal and vertical plan locations, ITS elements, support structures, and construction materials. Design-Build Contractor shall in advance submit material cut sheets to INDOT for approval prior to ordering.

Clearances between ITS devices and other non-ITS infrastructure shall comply with all applicable requirements and the location of ITS equipment shall accommodate safe access for routine maintenance activities.

17.3.3 ITS Operations

All ITS elements shall be under the control of INDOT TMC. Design-Build Contractor shall not activate any display, broadcast, or other message without prior coordination with the TMC.

17.3.4 ITS Work Elements

17.3.4.1 Materials

Design-Build Contractor shall furnish all materials for ITS Work elements.

17.3.4.2 Detectors

Design-Build Contractor shall design, furnish, and install vehicle detectors at CCTV camera locations. Detector installations within the Project ROW shall be congruent with Attachment 17-1 (USP: ITS). The detectors shall be wireless in-pavement sensor detection system or microwave radar. All products utilized in the Project must appear on INDOT's Approved Materials List. Design-Build Contractor shall confirm the detector type at each location with INDOT prior to installation of such detectors. The detectors shall provide vehicle volumes, speeds, user-defined classes, and occupancies by lane in user-defined intervals (typically two minutes to 15 minutes). All traffic data shall be transmitted continuously to INDOT TMC. Detectors shall connect to a HP Field Controller (HPE GL10 IoT Gateway Series) provided by Design-Build Contractor in INDOT field cabinet for communications back to the TMC, where the detector field data will be integrated into the existing vehicle detection system for traffic monitoring and management.

17.3.4.3 CCTV Cameras

Design-Build Contractor shall design, furnish, install, and test permanent CCTV cameras, field equipment and control center equipment necessary to maintain cameras and detectors on the

ITS. New CCTV cameras and support towers shall be installed in accordance with Attachment 17-1 (USP: ITS). CCTV cameras shall be installed on towers at an elevation to be determined based on the location of the towers but no less than 40 feet. CCTV camera locations along horizontal roadway curves shall be installed on the outer side of the horizontal curve to maximize viewing distance. Two pan-tilt-zoom cameras shall be installed on the support tower at each location.

Design-Build Contractor shall maintain or install temporary CCTV camera sites prior to Work on any roadway as advance work prior to any roadwork that involves Movement Closures. The temporary CCTV cameras shall be fully operational with communications to the INDOT TMC and provide comparable coverage of all traffic movements.

Remote video and control for these temporary CCTV cameras shall be provided at the two TMCs to enable monitoring of traffic conditions in the construction zone.

All existing cameras, switches, modems and contents of cabinets shall be salvaged and returned to the INDOT Indianapolis TMC.

17.3.4.4 Fiber Optic Backbone:

Design-Build Contractor shall design, furnish, and install a permanent fiber optic backbone within the Planned ROW Limits along I-65 and I-70.

The new fiber shall be 192-strand, single-mode fiber-optic armored cable.

Fiber communications shall provide redundant communications paths. Fiber communications redundancy via separate cables in separate conduits is preferred; redundancy via separate fiber strands within the same fiber cable shall be provided at a minimum. Design-Build Contractor shall provide new above-ground fiber cabinets to store, splice, and terminate the new fiber at the north and south termini. The new final conduit and fiber shall be installed near the right of way line to minimize risk from damage due to roadway construction. Design-Build Contractor shall assess the existing conditions and propose, with supporting reasons, the side of I-65 and I-70 for conduit/cable installation in a fiber optic Installation Plan. Bridge crossings shall be specifically addressed in the fiber optic installation Plan, which shall include a description of the method of installing conduit and cable passing such crossings. The installation method shall incorporate a means of maintaining communications connectivity through roadway and bridge Construction Work.

Design-Build Contractor shall install temporary fiber optic line and maintain such throughout the duration of the Project. The temporary line shall be spliced at existing ITS splicing vaults outside the limits of the Project. Temporary connections must be made such that ITS service is not interrupted by construction activities.

17.4 Integration and Testing Requirements

Design-Build Contractor shall conduct installation testing during construction to ensure that the devices perform per the manufacturer's specifications. Design-Build Contractor shall provide to INDOT for review and comment test plans and test results. Test plans shall be provided 30 days prior to installation and test results within 10 days after installation. Vendor-unique software or hardware used to verify proper operation of the ITS or used to troubleshoot the ITS may be used by Design-Build Contractor. Design-Build Contractor shall provide this vendor-unique software or hardware to INDOT with the Construction Documents consistent with Section 21.8

of the PPA (which shall not be, nor be deemed to be, “shrink wrap software” as used thereunder).

Tests shall be scheduled to allow a representative from INDOT to witness the test. INDOT shall be notified a minimum of 72 hours prior to the commencement of each test.

Additionally, Design-Build Contractor shall provide INDOT 72 hours of advance notification for the anticipated disruption of any services.

Instruments used by Design-Build Contractor shall be regularly and accurately calibrated and maintained in good working condition. Test reports shall include copies of documentation (calibration reports or tags) demonstrating calibration within six months of the start of testing. Design-Build Contractor shall provide all test instruments.

Design-Build Contractor shall test the installation of each component/subsystem to ensure the component/subsystem is properly installed and is operational. The component/subsystem test procedure may be vendor-supplied acceptance test procedures. Design-Build Contractor shall use the component test plan to verify the component has been correctly installed and is operational.

Each subsystem and communication path shall be operated without any failures for a period of no less than 30 days prior to Final Acceptance. Any failures during the 30-day period shall be repaired by Design-Build Contractor and restart the 30-day period for the system. Design-Build Contractor shall be responsible for configuring the equipment. INDOT will provide the configuration parameters required to interface with existing systems. These parameters include multilink trunks, split multilink trunking groups, inter switch trunk links, virtual local area network creation and associated IP addressing, open shortest path first routing protocol, protocol independent multicast routing protocol, and Internet group management protocol snooping. At the good faith discretion of INDOT, pre-installation testing may be repeated as part of the Final Acceptance by INDOT. Final Acceptance by INDOT, with respect to the ITS, will occur when testing concludes, and all components and subsystems perform as an integrated system.

Design-Build Contractor shall develop and submit for review and comment test plans and test procedures for each component and each subsystem. As a minimum, the test plans shall define Design-Build Contractor’s planned approach, the desired results of each test, and steps for resolving out-of-spec conditions. As a minimum, the test procedures shall specify the step-by-step process for connecting to test equipment, reading the test equipment, and recording the results. Further, the test procedures shall contain forms to be used in recording results during actual testing. Test plans and test procedures shall be submitted no later than 120 days after the Design Documents are approved. Testing may not commence without INDOT’s approval of the test plans and procedures.

Design-Build Contractor shall accurately record and report the methods of testing, times, and dates of the test; the calibration dates of test equipment; witnesses to the test; and the results of the test. When systems are tested in segments, a separate and complete report is required for each segment. INDOT shall have a minimum of five days to review the test report. Final Acceptance shall not occur until a satisfactory review of the test report has been completed and all other requirements of the PPA Documents have been satisfied.

17.5 Deliverables

Deliverables under this Section 17, a non-exhaustive list of which is set forth in Table 17-1 below, shall be submitted in electronic format in accordance with the schedule set forth below. Acceptable electronic formats include PDF and current versions of Microsoft Word and Microsoft Excel, unless otherwise indicated.

Drawings (including as-builts) shall be submitted in PDF format on three CDs or DVDs. These Deliverables shall also include drawings in the current version of MicroStation and manufacturer's documentation for all equipment used in the Project.

Table 17-1: Deliverables

Deliverable	Deliverable Schedule	TP Section
Draft ITS layout	Stage 1 Review Submission	17.3.2
Final ITS layout	Stage 3 Review Submission	17.3.2
Camera locations layout	Stage 3 Review Submission	17.3.4.3
Drilled shaft installation plan	Stage 3 Review Submission	Attachment 17-1 (USP: ITS)
Special or unique hardware/software	Prior to Final Acceptance	17.4
Fiber optic installation Plan	Stage 3 Review Submission	17.3.4.4
Test plans and procedures	Within 120 days after Design Document approval	17.4
Testing date, time, and location	Three days before performing test	17.4
Test results	Within 10 days of performing the test	17.4
As-built drawings (PDF and Microstation on CD)	Final Acceptance	17.5
Manufacturers documentation for all equipment used in the Project	Final Acceptance	17.5

18 RIGHT OF WAY

Design-Build Contractor shall conduct all Work necessary for the Project in accordance with the PPA Documents, including this Section 18; Governmental Approvals; and Governmental Rules.

Without limiting Section 6.1.3 of the PPA, all Work shall be constructed within Planned ROW Limits.

18.1 Additional Properties

Should Contractor require Additional Properties, Project-Specific Locations or other additional temporary real property interests, it shall comply with the requirements of Sections 6.1.3 and 6.1.4 of the PPA. In addition to complying with the requirements of the PPA, Design-Build Contractor shall be responsible for:

1. Obtaining a concurring opinion from INDOT as to the necessity for said Additional Properties
2. Provide all required documentation to INDOT for environmental studies, reports, and public involvement activities to comply with the National Environmental Policy Act (NEPA) requirement
3. Preparing and obtaining approval for acquisition of Additional Properties by INDOT
4. Coordinating with Utility Owners all adverse impacts to Utilities caused by Design-Build Contractor's proposed Additional Properties, including acquiring any Replacement Utility Property Interests and Adjusting the impacted Utility
5. All costs associated with this Work, as well as any costs and expenses incurred by INDOT in acquiring the property, as required in Sections 6.1.3.4 and 6.1.4.2 of the PPA.

Should Design-Build Contractor require Additional Properties, Design-Build Contractor shall be responsible for fencing the Additional Properties, survey monumentation assemblies, reference monuments, and any other items associated with monuments in accordance with Project Standards, including fence design and construction adjacent to residential or commercial properties with maintained lawns. Design-Build Contractor is responsible for scheduling its Work with sufficient time to satisfy the requirements for Witness Points and Hold Points.

18.2 Fencing Requirements

Design-Build Contractor shall remove all existing fencing and install new black vinyl coated chain link type fencing along the Project Right of Way in accordance with Project Standards. New fencing along the Monon Trail and Monon Trail detour shall be 6 feet high. Fence shall be continuous along Project ROW unless noted or approved by INDOT. Design-Build Contractor shall submit fencing Plans, types and locations to INDOT for review and approval. Exceptions and locations to this criterion are noted below:

1. Project Right of Way parallel to the Railroad's real property rights and Right of Way.
2. Project Right of Way along Pine Street and Davidson Street.

18.3 Monuments

Monuments shall be installed within the Project ROW in accordance with Project Standards.

18.4 Deliverables

Deliverables, a non-exhaustive list of which is set forth in Table 18-1 below, shall be submitted in electronic format in accordance with the schedule set forth below. Acceptable electronic formats include PDF and current versions of Microsoft Word and Microsoft Excel, unless otherwise indicated. The following are required only in the event of Additional Property acquisition.

Table 18-1: Deliverables

Deliverable	Deliverable Schedule	TP Section
Provide required documentation to INDOT for Environmental documents required by NEPA, if required	Prior to beginning of appraisal	18.1
Final ROW Plans for Additional Properties	Stage 3 review Submission, if needed	18.1
Fencing Plan	Submit with Stage 3 Review Submission	18.2