REQUEST FOR PROPOSALS

to Design and Build the

Sherman Minton Corridor Project

through a Public-Private Agreement

VOLUME II

TECHNICAL PROVISIONS

a Project of the

INDIANA FINANCE AUTHORITY

ISSUED June 15, 2020

ADDENDUM #1 ISSUED: AUGUST 17, 2020

ADDENDUM #2 ISSUED: OCTOBER 15, 2020

ADDENDUM #3 ISSUED: NOVEMBER 6, 2020

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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.

1.1.1 Interpretation

In accordance with Section 24.15 of the PPA, the Parties acknowledge that IFA is the Party contracting with Design-Build Contractor and INDOT will be involved in Project administration and implementation. The Parties further acknowledge that these Technical Provisions reference various rights and responsibilities of IFA and INDOT. Any reference to INDOT that may, on its face, appear to set forth a particular responsibility, shall be interpreted as a responsibility of IFA, which IFA may delegate to INDOT in whole or in part. In the case of any ambiguity or question as to whether IFA or INDOT is the relevant party, IFA shall make a determination as to the relevant party, in its sole discretion.

1.2 Project Identification and Description

1.2.1 Project Identification

Contract No.:	B-40719
Project No.:	1702255
Roadway Des. No.:	1702255
Structure Des. No.:	See Table 1-1. Specific Work is described in Section 14 (Structures).
Route No.:	Interstate 64
Counties:	Floyd County, IN and Jefferson County, KY
District:	Seymour
Federal Oversight:	Yes
Project:	The Project is described in Section 1.2.2 below.

1.2.2 Project Description

The Project includes rehabilitation of the I-64 Sherman Minton Bridge over the Ohio River and the associated Indiana and Kentucky approach bridges. The purpose of the Project is to rehabilitate the I-64 Sherman Minton Bridge over the Ohio River and the associated approach bridges with the goal of extending the service life of the structures by at least 30 years. The Project also includes painting of the I-64 eastbound bridge over Market Street, milling and overlay of I-64 Westbound beyond the approach slab in Indiana and overlay work on Old State Route 62 in New Albany, Indiana.

A general map of the Project is shown in Attachment 1-4 (General Location of the Project).

Maintenance of Traffic Limits are shown in Attachment 1-3 (Maintenance of Traffic Limits).

Structures within the Project include those shown in Table 1-1.

Table 1-1: Structures within Project

Des. No.	Bridge No.	Description	Primary Work Type
SHERMAN MINTON BRIDGE			
1702255 1592187	I64-123-04691 E	I-64 Sherman Minton Bridge over the Ohio River	Bridge Deck Replacement, Structural Repairs, and Bridge Painting
KENTUCKY APPROACH BRIDGE			
1702260 1702254	056B00161N	KY Approach to I-64 Sherman Minton Bridge	Bridge Deck Replacement, Bridge Painting, Structural Repairs, and Substructure Repairs
INDIANA APPROACH BRIDGES			
1702257	I64-123-02294 DWBL	I-64 WB IN Approach (1 of 1) (over SR 111/Main Street, Norfolk Southern RR)	Bridge Deck Overlay
1702258	I64-123-02294 DEBL	I-64 EB IN Approach (1 of 2) (over SR 111/Main Street)	Bridge Deck Overlay
1702259	I64-123-02294 JDEB	I-64 EB IN Approach (2 of 2) (over Norfolk Southern RR)	Bridge Deck Overlay
MARKET STREET BRIDGE			
1900579	I64-123-04690 BEBL	I-64 EB over Market Street	Bridge Painting

All work shall be performed within the Project ROW and MOT Limits. The Planned ROW Limits consist of the existing ROW owned by INDOT or KYTC as shown in Attachment 1-2 (Planned ROW Limits).

The Planned ROW Limits also include any other real property for permanent improvements that IFA acquires in connection with an IFA-Directed Change or Necessary Basic Configuration Change. The Planned ROW Limits do not include Additional Properties.

The Planned ROW Limits do not include areas needed for temporary traffic control devices on local streets.

The limits of paving on I-64 are described in Table 1-2.

Table 1-2: I-64 Paving limits

Description	Limits
I-64 WB	From the end of the Sherman Minton approach slab along the I-64 WB Indiana approach to the beginning of the concrete pavement section along the I-64 WB lanes prior to the Market Street overpass bridge.

The limits of New Albany Pavement are described in Table 1-3.

Table 1-3: New Albany Pavement

Description	Limits
West Spring Street	From west of the 5th Street intersection at the start of the northern curb radius to approximately 85' west of the State Street centerline. Paving shall extend to the concrete pavement joint at the I-64 exit ramp near 5th Street and to the concrete paving joints at the I-64 entrance ramps near the intersections of 4th Street and Washington Place.
West Elm Street	From the I-64 exit ramp concrete paving joint west of Scribner Drive to approximately 195' west of the State Street centerline.
West 5th Street	From approximately 90' north of the SR 111 (W. Main Street) centerline to West Spring Street. Traffic loop detectors near SR 111 intersection shall not be disturbed.

1.2.3 Basic Configuration

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

- The Planned ROW Limits and MOT Limits representing the minimum limits of Work for the Project defined in Section 1.2.2
- Number and general location of curb ramps, as shown on Plan sheets
- Minimum number of lanes for each roadway, as shown on the Plan sheets
- Minimum widths of lanes, shoulders, medians, as shown on the typical sections

1.2.4 Progress Meetings

Design-Build Contractor shall hold weekly Progress Meetings with IFA at the field office, or other mutually agreed-upon location. Design-Build Contractor shall document the Progress Meetings with meeting minutes and distribute to IFA for review and comment within three days after the Progress Meetings. At a minimum, Progress Meetings shall be attended by the relevant Key Personnel and the relevant additional personnel listed in Section 1.3.1.2. Design-Build Contractor shall invite the IFA personnel listed in Section 2.3.1 (Overview) and Section 5.2 (IFA Public Involvement Responsibilities) to the Progress Meetings. Other personnel for both Design-Build Contractor and IFA will be invited on an as-needed basis as mutually agreed upon.

Design-Build Contractor shall provide a four-week look-ahead schedule at the Progress Meetings, including the number of work crews, work hours, delineation of day-time and night-time Work and the specific portions of the Work to be performed during the four-week period. Design-Build Contractor shall also discuss the status of the Project Schedule, including critical

operations and potential problems. Design-Build Contractor shall provide a Progress Report to IFA on a monthly basis documenting the design and construction progress.

1.2.5 Progress Reports

Design-Build Contractor shall submit a Progress Report to IFA for review and comment on a monthly basis documenting progress of Design Work and Construction Work.

Content of the Progress Report shall include, at a minimum:

1. Executive summary
    a. Overall summary
    b. Summary of resolutions related to critical issues/significant events since previous Progress Report
    c. Outstanding critical issues/significant events
2. Progress Summaries
    a. PMP
    b. Design
    c. Construction
    d. Railroads
    e. Environmental
3. Quality – Design and construction
4. Safety
5. DBE and EEO compliance
6. Change management
    a. Deviations
    b. Directive Letters
    c. Change Requests
    d. Change Orders
    e. Disputes
    f. Claims
7. Public coordination and communication
8. Schedule
    a. Major milestone tracking
    b. Upcoming activities

c. TMP/closures

d. Progress photography

1.2.6 Coordination with Other Projects

Design-Build Contractor shall coordinate all Work with other projects in accordance with Standard Specification 105.07 and Section 23 of the PPA. The following is a non-comprehensive list of other projects IFA is aware of:

- Jefferson County, Kentucky, KYTC. Pavement rehabilitation of I-64 MP 0.0 to 0.828 and I-264 MP 0.0 to 12.7 with anticipated construction starting in Spring 2020 and substantially complete in December 2020.
- Jefferson County, Kentucky, KYTC. Address deficiencies and painting of I-64 Riverside Expressway, including repair of the drainage system on the I-64 bridge over Norfolk Southern Railroad with anticipated construction starting in late 2020 and substantially complete in 2021.

A non-comprehensive list of INDOT projects that may be under construction within the same time frame as the Project are as follows:

- Information on INDOT projects is available on the contract letting page and the 18-month letting list on INDOT website at: http://www.in.gov/indot/div/lettings/18MonthsConstLettingDetails_Ext.pdf
- Information on KYTC Projects are available on the following Page: http://datamart.business.transportation.ky.gov/
- Information on Regional Transportation Projects through the MPO can be found on the following website: https://www.kipda.org/transportation/core-products/transportation-improvement-program/

Design-Build Contractor shall become fully informed of the conditions relating to construction of these and any other contracts under which the Work is planned to be or is now being performed.

Design-Build Contractor shall coordinate access to the Site with other contractor(s). Design-Build Contractor shall afford other contractors reasonable opportunity for the delivery of their materials and the execution of their work, and shall properly integrate, incorporate, and/or coordinate its Work with theirs. Design-Build Contractor shall take due account of all such Work and shall arrange its methods of operation and storage of materials and equipment so as to cause a minimum of interferences with the work to be performed by other contractors, Utilities, or any Governmental Entity.

If any part of the Work depends on proper execution or results on the work of any other contractor, Design-Build Contractor shall promptly report to IFA any defect in work by another contractor which renders it unsuitable for such proper execution and results. Design-Build Contractor's failure to inspect and report such defects shall constitute an acceptance of the other contractor's work as fit and proper for the integration or incorporation of its Work, except as to defects which may develop in the other contractor's work after the execution of Design-Build Contractor's 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 overall design, environmental compliance, construction, quality management, and contract administration. Targeted/desired experience for the Project Manager includes at least 15 years of design-build experience managing the design and construction of major bridge structures, such as complex steel bridge construction, reconstruction and rehabilitation, major highways, and interstate-to-interstate interchanges. The Project Manager shall be assigned to the Project full time and shall 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 bridge structures, such as complex steel bridge construction, reconstruction and rehabilitation, major highways, and interstate-to-interstate interchanges. The Design Manager must be a Registered Professional Engineer in the states of Indiana and Kentucky or shall 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 Work, 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, rehabilitation of complex and long span bridge structures and having been Engineer of Record for at least one completed rehabilitation bridge project similar in scope and budget to the Project. Targeted/desired experience also includes Level 2 complex bridge design in accordance with INDOT prequalification requirements, and as outlined in INDOT Design Memorandum No. 17-20. In addition to the criteria listed in Memorandum No. 17-20, complex bridges shall also include: accelerated bridge construction (ABC), spans over 200 feet in length, arch bridges, truss bridges, and bridges requiring three-dimensional finite element analysis for design and/or load rating. The Structural Design Lead Engineer shall be a Registered Professional Engineer in the States of Indiana and Kentucky or shall obtain licensure by award of the PPA. The Structural Design Lead Engineer shall be available on-Site for weekly Progress Meetings at the field office.

4. Construction Manager: The Construction Manager shall be responsible for managing all aspects of the Construction Work. Targeted/desired experience for the Construction Manager includes at least 10 years of recent management experience, design-build experience preferred, on 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 of the PPA.

5. Design-Build Coordinator: The Design-Build Coordinator shall be responsible for providing overall coordination between Design Work and Construction Work. 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 for the Design-Build Coordinator 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 shall 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 coordinate designer-initiated and contractor-initiated plan, design, specification, and quantity revisions.

6. Design Quality Manager: The Design Quality Manager shall be the Lead Engineering Firms engineer who is responsible for QA/QC for all Design Work that is performed for the Project, including any design changes during the Construction Work and the production of As-Built 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. 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 be assigned to the Project full time upon commencement of construction, as defined in Section 4.5 of the PPA, and shall be on-Site through Final Acceptance. The Construction Quality Manager shall report directly to 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.

8. Maintenance of Traffic Design-Build Coordinator: Section 12.2.1 describes roles and responsibilities. Targeted/desired experience for the MOT Design-Build Coordinator includes at least 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. The MOT Design-Build Coordinator shall be assigned to the Project full time and shall be on-Site through Final Acceptance. The MOT Design-Build Coordinator shall be different from and report to the Construction Manager.

9. Structural Steel Painting Manager (SSPM): The Structural Steel Painting Manger shall have a minimum of 5 years of experience with cleaning and painting of steel substrates, as a manager or inspector, and shall be responsible for the management of the painting operations and oversight of the painting quality control. The SSPM shall be assigned to

the Project full time and on-Site for the duration of the Project. The SSPM shall be a full-time employee of the Lead Painting Firm. The SSPM shall maintain all certifications in good standing with SSPC for the duration of the contract. The SSPM shall have one or more of the following qualifications: SSPC or NACE Certified Protective Coating Specialist; SSPC-certified Protective Coating Inspector-Level 3; NACE CIP Certified Coating Inspector Level 3, BS degree in materials engineering, corrosion science, or corrosion engineering. The SSPM shall be familiar with INDOT Specifications, testing frequencies and sampling requirements. The SSPM shall be responsible for the following: development and implementation of the Painting Quality Control Plan; ensuring conformance with the Plans and Contract Documents; notifying IFA of areas of excessive deterioration; ensuring environmental conditions are met and proper containment and testing, documentation and handling of waste materials is performed.

10. Public Information Coordinator: The Public Information Coordinator shall be responsible for identifying public information issues related to the Design-Build Contractor's Work, and for working with the IFA Public Involvement Manager, INDOT communications personnel, and KYTC communications personnel to formulate and implement strategies to address those issues, in accordance with Section 5.3.2. The Public Information Coordinator shall work with IFA to maintain a high degree of public satisfaction, with a strong emphasis on communication of traffic restrictions and impacts. The Public Information Coordinator shall be available at the field office 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 3 years of recent experience coordinating information on public projects, preferably on large highway improvement projects.

11. Environmental Compliance Manager: The Environmental Compliance Manager 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 can also be the Level 1 SWQM per Section 7.2.1 and shall be a full-time, on-Site staff member for the term of the PPA 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 in a similar role with managing environmental construction compliance, permitting compliance, environmental reporting, and overall environmental compliance with transportation construction 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 shall be the primary liaison with IFA for any environmental or permitting issues.

12. Safety Manager: The 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 term of the PPA. 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, and bridges over railroads or water. The Safety Manager shall 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 shall have authority to stop Work and experience in authorizing to stop Work. The Safety manager shall be familiar with FHWA work zone safety regulations and targeted/preferred shall be at least 10 years of experience working with complex roadway work zone safety and OSHA regulations.

13. 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 IFA. 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 at least 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. 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.

2. DBE Compliance Manager: The DBE Compliance Manager shall be responsible for overseeing DBE compliance in accordance with Section 7.1.3 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 IFA.

3. 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 two years of experience as an INDOT certified Utility Coordinator 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, the INDOT Utility Accommodation Policy, and KYTC Utility and Rails Guidance Manual.

1.3.2 Project Administration

1.3.2.1 NTP + 180 Schedule and Project Baseline Schedule

Design-Build Contractor shall submit the NTP + 180 Schedule in accordance with requirements for the Project Baseline Schedule as described in Attachment 1-1 (USP Critical Path Method

Schedule), but limited to the first 180 days following issuance of the NTP. The NTP + 180 Schedule is not required to be cost-loaded.

Design-Build Contractor shall submit 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 IFA in accordance with Section 4.7 of the PPA.

1.3.2.2 Project Status Schedule

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

Design-Build Contractor shall submit the Project Status Schedule to IFA 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 IFA for approval in accordance with Attachment 1-1 (USP Critical Path Method Schedule).

1.3.2.4 Revisions

If it becomes necessary to add, combine, eliminate, or modify schedule Activities to reflect modifications to the Work, as approved by IFA, 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 a written time impact analysis illustrating the influence of each claimed delay to IFA. 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 IFA the need for any modification to its time impact analysis.

3. As part of the time impact analysis, Design-Build Contractor shall submit one electronic PDF Gantt chart and Primavera (.xer format) file, 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 submit one electronic backup of the Project Schedule with the time impact analysis and a comprehensive narrative for each Change Request. Design-Build Contractor shall incorporate the results of the Change Notices from IFA into the Project Status Schedule for the next Progress Report.

1.3.2.6 Recovery Schedule

Design-Build Contractor shall prepare and submit a Recovery Schedule as and when required and otherwise in accordance with Section 4.6 of the PPA. Design-Build Contractor shall submit the Recovery Schedule in a format in accordance with Attachment 1-1 (USP Critical Path Method Schedule). Design-Build Contractor shall include with the Recovery Schedule Submittal a narrative report describing Design-Build Contractor's proposed plan to regain lost schedule progress and to achieve the original contractual milestones in accordance with the PPA, including Substantial Completion by the Substantial Completion Deadline.

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.

IFA 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 to IFA for 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. Project Baseline Schedule
6. Quality control procedures to establish and encourage continuous improvement
7. Procedures to facilitate review and audit by IFA
8. Auditing and management review of Design-Build Contractor's own Activities under the PMP
9. Revisions to PMP - Procedures for preparation of amendments and submission of amendments to any part of the PMP
10. 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 IFA and its consultants; applicable third-parties; 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.

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;

   iii. Design-Build Contractor's approach for security and backup of the Project documentation.

11. Response and mitigation measures for a Pandemic, including:

    a. Methods to ensure and maximize labor and Key Personnel availability and continuity;

    b. Methods to ensure availability of supplies, materials, and equipment, including backup plans for unavailability due to a Pandemic.

1.3.3.2 Quality Management Plan

12. Organizational structure covering the activities to be performed in accordance with the PPA Documents

13. Personnel – Resource plan for Design-Build Contractor and its Subcontractors

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

15. Names and contact details, titles, job roles, and specific experience required for the Key Personnel and for other principal personnel during Design Work

16. Names, contact details, titles, and job roles of principal personnel of Design-Build Contractor and any third-party with which Design-Build Contractor will coordinate activities

17. Provisions for its design and construction obligations with respect to Utilities

18. Design Quality Management Plan

    a. Arrangements for coordinating and managing staff interaction with IFA 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 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 described in Section 2 (Quality Management)

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

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

j. Procedures to establish and encourage continuous improvement, including corrective and preventive action procedures

19. Construction Quality Management Plan

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

b. Project-specific construction quality control procedures

c. Steps taken to ensure Design-Build Contractor and its Subcontractors and Suppliers 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 IFA will be involved

h. Training, mentoring, and audits

1.3.3.3 Environmental Management Plan

20. Organizational structure covering the activities to be performed in accordance with the PPA Documents and consistent with that in the Proposal

21. Environmental contact organization chart

22. Personnel – Resource plan for Design-Build Contractor and its Subcontractors

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

b. Names, contact details, titles, job roles and specific experience required for Key Personnel and for other environmental personnel

23. Subcontractors - Overall control procedures for Subcontractors

24. Environmental Compliance and Mitigation Plan (ECMP) as described in Section 7 (Environmental)

25. Spill Prevention, Control, and Counter-measure Plan (SPCCP)

26. Environmental compliance and mitigation training program as described in Section 7.3.4.2 (Environmental Compliance and Mitigation Training Program)

27. Methods for ensuring adequate installation, maintenance, and repair of erosion and sediment control devices

28. Potential environmental risk and the approach to mitigate, eliminate, or reduce those risks

29. Methods and procedures for monitoring environmental commitments and ensuring those have been implemented in the design and construction

1.3.3.4 Safety Plan

30. Organization – Personnel, policies, plans, training programs, Work Site controls, and Incident management and response plans to ensure the health and safety of personnel, including response to a Pandemic, involved in the Project and the general public affected by the Project

31. Procedures for immediately notifying IFA of all Incidents arising out of or in connection with the performance of the Work

1.3.3.5 Public Involvement Plan

32. 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 5.3 (Design-Build Contractor Public Information Responsibilities and Requirements).

33. Processes and procedures for communication of Project information between Design-Build Contractor's organization, IFA, Governmental Entities (e.g., permitting agencies), Utility Owners, other third-parties, and the public, as outlined in Section 5.3 (Design-Build Contractor Public Information Responsibilities and Requirements).

1.3.3.6 Revisions to the PMP

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

1. The occurrence of any changes to Key Personnel, Quality Management Plan, Safety Plan, Project Baseline Schedule prior to acceptance, or Project administration policies and procedures

2. The occurrence of other changes necessitating revision to the PMP, including as a result of any Change Order or Directive Letter

3. As otherwise directed by IFA

1.3.4 Document Management System

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

1. Uses data protocols, standards, and procedures compatible with those employed by IFA. (e.g., SharePoint, ERMS, SiteManager, etc.). Design-Build Contractor shall implement any new operating practices required as a result of IFA's amendments to any of its systems, standards, and procedures.

2. Provides a secure location for any interface, as may be required by IFA, such that only authorized IFA users have access and that such secure location is protected from loss, theft, damage, and unauthorized or malicious use.

3. Employs appropriate standards and procedures and ensures training Design-Build Contractor personnel to operate any IFA data management system which IFA may require in connection with the Project.

4. Provides a mechanism for the electronic transfer of meta-data along with the associated PDF images for uploading into an EDMS.

5. Provides IFA with procedures and software for accessing all Project-related documents as a component of Design-Build Contractor's obligations under Section 21 of the PPA.

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

Design-Build Contractor shall submit all Submittals, Design Documents, and Construction Documents to IFA in a legible and searchable electronic format in as small a file size as possible without loss of legibility.

Design-Build Contractor shall submit a detailed description of:

1. Methods by which all Submittals, Design Documents, and Construction Documents 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 documents.

3. Methods to facilitate sharing of data, including procedures and software for accessing all Project-related documents.

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, IFA records series item number, IFA agency item

number, IFA records series title, IFA 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 Project-related documents in a secure off-Site area no less than on a weekly basis.

1.3.5 Facilities

1.3.5.1 Project Office & IFA Field Office

Design-Build Contractor shall establish a Project Office within the city limits of the City of New Albany, Indiana within 60 days after Notice to Proceed, and before design commences. The purpose of the Project Office is to consolidate and collocate Design-Build Contractor's key management, design, construction, quality, and compliance functions and IFA's management, oversight, and compliance staff in order to facilitate the teamwork, communications, and interaction called for by the PPA Documents and necessary to ensure a successful project. The Design-Build Contractor shall coordinate with IFA to refine the specifics of the Project Office, including location and accommodations. The Project Office shall remain open and fully functional as specified herein until 90 days after Final Acceptance.

IFA's section of the Project Office (the "Field Office") shall conform to the requirements of this Section 1.3.5.1 and generally to the Type C field office. Where discrepancies arise between the two documents, the larger, higher-quality, or newer technology shall be provided. Except as otherwise provided in Section 1.3.5.1, or approved by IFA, the Field Office shall meet the following requirements:

- Field Office and all equipment and supplies shall be maintained and replenished in a satisfactory manner during the term of the PPA and up to a maximum of 90 days after Final Acceptance or until released by IFA.
- Field Office must meet all local zoning requirements.
- Field Office shall be a permanent structure, with a size to accommodate a minimum of 6 private offices, and a minimum of 12 cubicles. Each private office shall have at least 120 square feet of area, with desk, office chair, folding table, bookcase, two drawer file cabinet, two side chairs, and a 3-foot-by-5-foot dry-erase board with eraser and multiple colored dry erase markers which shall be replenished for the term of the PPA. Each cubical shall have at least 64 square feet of area, with desk, office chair, bookcase,and a two drawer file cabinet.
- Field Office shall have one conference room that can accommodate up to 20 participants.
- Field Office shall have two kitchen/common areas.
- Field Office shall have a secure, business-grade direct internet access (DIA) connection of at least 100 MB/s in addition to 5G/LTE wireless failover for redundancy. The high-speed internet service and wifi connectivity shall be sufficient to provide simultaneous service to at least [18] IFA staff in addition to Design-Build Contractor staff.
- 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:

- 6 adding machines
- 40 conference room chairs
- Conference room tables for 40 people with additional seating room for up to 20 people
- One large, high-quality, wideband speaker phone with control panel and dial pad and two wired expansion microphones
- One field office desktop computer system with internet access meeting the following requirements:

    1) Processor – I7 Intel 4.6-GHz

    2) Memory – 32 GB RAM

    3) Hard Drive – 512 GB SSD

    4) Optical Drive – 24X CD-RW, DVD-RW capability

    5) USB Ports – five USB 3- and four USB 2-compliant ports

    6) Network – integrated or add-on 10/100/1000 Ethernet capability

    7) Graphics – AMD 4GB Radeon RX550

    8) Monitor – minimum of one 22-inch wide-screen LCD

    9) Keyboard – one USB 104-key keyboard

    10) Mouse – one USB three-button mouse

- 20 four-drawer file cabinets
- Eight four-drawer fireproof file cabinets
- 8 folding office tables
- 8 folding office chairs
- 120 linear feet of book shelving
- Two refrigerator/freezers with minimum capacity of 20 cubic feet each
- Two bottled drinking water dispensers having both hot and cold-water capabilities
- Indoor toilet facilities for up to 30 staff
- 25 wastepaper baskets
- 10 dry-erase boards, 3-foot-by-5-foot with erasers

- 2 dry-erase boards, 4-foot-by-8-foot with erasers
- Multiple colored dry erase markers (required for the duration of the Contract)
- 2 GPS rovers per Recurring Special Provisions (GPS Rover for Use by Project Personnel)
- 3 high-end color, multifunctional copiers with 11-inch-by-17-inch color printing capabilities
- 5 wi-fi hotspots for field connectivity
- One projector, one screen, and one 75-inch or larger with minimum 4K HDR TV with wireless computer mirroring capability
- Adequate parking for up to 50 vehicles including appropriate amount of handicap accessible spots (per local zoning requirements)

- Design-Build Contractor shall provide cleaning services (floors, toilet facilities, kitchen/common area, and trash) on a regular basis, but no less than daily.
- Design-Build Contractor shall provide regularly scheduled exterior maintenance service (lawn care, landscaping upkeep, snow removal, and general exterior maintenance) with a weekly scheduled trash service dumpster (at least 5 cubic yards).

1.3.5.2 Project Field Laboratory

In addition to the requirements in Section 1.3.5.1, Design-Build Contractor shall provide for IFA's exclusive 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 Project Office. In addition to the provisions of Section 628.02(f), Design-Build Contractor shall provide hot and cold running water (potable), three portable cook stoves for drying samples, and propane fuel in containers of suitable size to be transported to the Site and with continuingly sufficient quantities for IFA to use during the term of the PPA.

Design-Build Contractor shall provide for IFA's use in accordance with applicable ITMs and AASHTO T 23, concrete test beam forms, annually certified beam breaking machine (manual or hydraulic), concrete test cylinder molds, annually certified cylinder breaking machines and lime bath cure tanks required for IFA quality assurance testing of QA/QC PCCP. The quantity of equipment shall be sufficient to meet the production schedule of Design-Build Contractor.

1.3.5.3 Kentucky Field Office

If the Design-Build Contractor elects to place a field office in Kentucky to support construction activities then the Design Build Contractor shall also provide for IFA's exclusive use, one Type C field office immediately adjacent to or collocated with Design-Build Contractor's field office and within one mile of the Project Site.

1.3.6 IFA Contacts

INDOT Project Manager:

Indiana Department of Transportation

100 North Senate Avenue
Indianapolis, IN 46204
Attention: Ron Heustis
Telephone: (317) 691-6620
E-mail: rheustis@indot.in.gov

INDOT Construction Area Engineer:

Indiana Department of Transportation
185 Agrico Lane
Seymour, IN 47274
Attention: Ryan Cox
Telephone: (812) 524-3737
E-mail: rycox@indot.IN.gov

Existing plans and as-built plans:

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 1-4, 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 1-4: Deliverables

Deliverable	Deliverable Schedule	TP Section
Progress Reports	Monthly	1.2.4, 1.2.5
1.3.2.1 NTP + 180 Schedule	See Exhibit 15 of the PPA	1.3.2.1
Project Baseline Schedule	See Section 4.7 of the PPA	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
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

Deliverable	Deliverable Schedule	TP Section
Recovery Schedule	See Section 4.6 of the PPA	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 revisions 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 perform all Work necessary to meet the quality requirements for the Project, including schedule management, Submittals and electronic posting of documents, and other quality-related items, all in accordance with the PPA Documents, including Project Standards, this Section 2; Governmental Approvals; and Governmental Rules.

2.2 Schedule Management

Design-Build Contractor shall schedule 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 IFA 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 FDCs, including red-line markups of RFC Plans
6. Concept Drainage Report described in Section 10 (Hydraulics & Drainage)
7. Transportation Management Plan
8. Revisions to approved shop plans
9. Design QMP
10. Preliminary Capacity and Load Rating Evaluation Submittal
11. Bridge Shop Plans

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

2.2.2 Hold Points

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

Hold Points shall occur for all construction Activities which require inspection by IFA 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, PCCP, HMA, and temporary HMA paving
4. QC plan approval for storm water management plan
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. Work area access plan approval
18. ITS Submittals
19. Hazardous Materials removal plan, if required
20. Maintenance of traffic setup for permanent lane closures

Hold Points for design are as follows:

1. Hydraulic report Submittal
2. Approval of the State and Commonwealth of Kentucky NPDES Notice of Intent
3. Construction sequencing, MOT, and temporary traffic control Plans
4. Final MOT details
5. MOT Level One design criteria checklist for each major traffic phase
6. Level One design criteria checklist and calculations for design items
7. Level One and Level Two Design Exceptions

8. Level Two design criteria calculations for design items
9. ADA compliance
10. Finalized structural steel erection plans
11. Finalized structural steel repair plans
12. Finalized typical sections
13. Finalized plan and profile grade
14. Clearances and geometrics for structures
15. Foundation review
16. Foundation design of overhead sign structures and high mast light towers
17. Roadside barrier design
18. Design Load ratings for bridges
19. As-Built Load ratings for bridges
20. Geotechnical evaluation report
21. Retaining wall design and details
22. Signing Plans
23. Lighting Plans
24. ITS Plans
25. Requirements under USPs
26. Environmental permit revisions
27. Required documentation for NEPA Document modifications
28. IHCP modifications
29. Interstate closure modifications
30. Preliminary Plans for bridge preservation with calculations
31. Final Plans for bridge preservation with calculations
32. Stage 1 Review Submission
33. Stage 3 Review Submission including special provisions
34. RFC Plans with calculations
35. Drainage calculations
36. Working Drawings
37. NDCs
38. Level 2 and 3 FDCs

39. Incident Management Plan

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

2.3 Submittal and Electronic Posting Requirements

2.3.1 Overview

Design-Build Contractor will be provided access to the Project's dedicated website or file sharing system. Except as may be required under Section 24.12 of the PPA, all Submittals shall be made electronically in PDF, Microsoft Word, Microsoft Excel, MicroStation, and Primavera format through IFA's designated Project website or file sharing system. Access and use will be described and provided by IFA after NTP.

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

1. INDOT's Project Manager
2. INDOT's Construction Area Engineer
3. INDOT's consultant project manager
4. INDOT's consultant design manager

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

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 all required files are posted to IFA's Project website or file sharing system and email notification has been sent in accordance with this Section 2.3.1.

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. IFA 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.

Subsequent to any initial Submittal, for any revised Submittal or update to an approved original Submittal, Design-Build Contractor shall include a redline document that clearly shows all changes from the previous version of the Submittal. For clarity, the redline need only show

changes at the word level and does not need to include changes to figures, diagrams, drawings, or other graphics included in the body or appendices of the Submittal.

Design-Build Contractor shall maintain a complete and conformed set of current Released for Construction Documents on the designated IFA 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 or file-sharing system when revisions are made. Current copies of all supporting Design Documents, correspondence, and other related materials shall be maintained on the designated IFA Project website or file sharing system in a similar fashion.

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

2.3.2 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 Lead Engineering Firm. IFA will review the Design-Build Contractor-approved Working Drawings and design calculations for conformance with standard INDOT practice.

2.3.3 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 current list 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 IFA at the Project Kickoff, broken out by each designation number or "Des. No.". Design-Build Contractor shall submit an updated items list throughout the term of the PPA 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 IFA 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 IFA's sole discretion.

2.3.4 Record Drawings

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

follow INDOT requirements unless approved by IFA. Record Drawings and design calculations shall be submitted to IFA in electronic PDF files. Record Drawings and design calculations shall be posted to the Project website or file sharing system for IFA review and comment. Accepted Record Drawings and design calculations shall be submitted on ERMS site by Design-Build Contractor and Lead Engineering Firm.

2.3.5 Final Documents

Design-Build Contractor shall furnish IFA 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 IFA at the Project Kickoff, by designation number, with quantity calculations for each item.

Design-Build Contractor shall submit final documentation for completed Work to IFA 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 flash drives or hard drives to INDOT Central Office and Seymour District.

IFA will prepare the final construction record which will incorporate the above information along with inspection and test results collected by IFA.

2.4 Deliverables

Deliverables under this Section 2, a non-exhaustive list of which is set forth in Table 2-1, 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 2-1: Deliverables

Deliverable	Deliverables Schedule	TP Section
Items list	Prior to the start of Work, but in no case later than 30 days after NTP	2.3.3
Updated items list	Weekly, as needed for items list updates	2.3.3
Record Drawings	On or before Final Acceptance	2.3.4
Final documents	Within 60 days after Final Acceptance	2.3.5

3 DESIGN REQUIREMENTS

3.1 General Design Requirements

Design-Build Contractor shall perform the Design 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 and KYTC, 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 (Lead Engineering Firm). 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 or Kentucky to be in charge of the applicable Work. Design-Build Contractor, in the aggregate (including Subcontractors), shall be prequalified in the following Prequalification Work Type Certification:

- 3.2 Complex Traffic Capacity and Operations Analysis
- 5.6 Waterway Permits
- 5.9 Archaeological Investigations
- 5.10 Historical/Architectural Investigations
- 6.1 Topographic Survey Data Collection
- 7.1 Geotechnical Engineering Services
- 9.1 Level 1 Bridge Design
- 9.2 Level 2 Bridge Design
- 10.1 Traffic Signal Design
- 10.3 Complex Roadway Sign Design
- 10.4 Lighting Design
- 10.5 Intelligent Transportation System Design
- 10.6 Intelligent Transportation System Integration
- 14.1 Regular Bridge Inspections
- 14.2 Complex Bridge Inspections
- 14.5 Bridge Load Capacity Rating & Other Bridge Analysis / Testing
- 16.1 Utility Coordination

- 17.3 Storm Sewer and Detention Design
- 18.1 Pavement Analysis and Design

In addition, the Design-Build Contractor, in the aggregate (including Subcontractors and subconsultants), shall be prequalified in the following Prequalification Work Type Certification for KYTC:

- Structure Design for Spans Less Than 500 Feet (Including Culvert Design)

In addition, the Design-Build Contractor, in the aggregate (including subcontractors and subconsultants), shall be prequalified in either of the following consultant prequalification work types:

- Level 3 Design Elements, including design and rehabilitation of deck truss, through truss, and tied-arch through truss type structures (INDOT); or
- Structure Design for Spans Greater Than 500 Feet (KYTC).

Plans shall be developed in accordance with Chapter 14 of the IDM. 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 IFA. Preliminary Plans for bridge rehabilitation 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's file naming convention shall follow INDOT requirements (https://www.in.gov/dot/div/contracts/design/dmforms/EdDoc103-02-02NamingConventions.pdf) or as modified and approved by IFA.

In addition to the Submittal requirements of Section 2 (Quality Management) and this Section 3, Design-Build Contractor shall submit Released for Construction Document packages developed in accordance with Section 3.4 (Design Submittal Package 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 IFA. 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 IFA personnel listed in Section 2.3 (Submittal and Electronic Posting Requirements).

3.2 Specific Design Requirements

Design-Build Contractor shall:

1. Consult with IFA to understand IFA's requirements for the Project and review all available data.
2. Use English units for preparation of Plans and Submittals.
3. Prepare plan sheets in 24-inch-by-36-inch format.
4. Provide investigations, analyses and design, necessary permits or permit revisions, and any other necessary items to design and construct the Project complete and in place.

5. Maintain and make available to IFA, 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.

6. Perform additional surveys required for the Project and provide any design updates related to the changes in the topographic survey related to the Project.

7. Perform additional exploratory field Work, laboratory testing, and appropriate analyses and engineering calculations to produce the proposed design.

8. Provide video documentation of the existing condition of all routes being used for signed detours or haul routes.

3.3 Design Criteria

INDOT Design Standards shall be used unless otherwise noted.

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 IFA review and approval in its good faith discretion.

For erosion control measures, the IDEM Indiana Stormwater Quality Manual shall control in case of conflict. Erosion control measures in Kentucky shall follow the Kentucky Pollutant Discharge Elimination System (KYPDES) Stormwater Pollution Prevention Plan Best Management Practices Plan (SWPPP) requirements as well as the KYPDES general stormwater construction permit KYR10.

3.4 Design Submittal Package Requirements

All Design Documents and other related documents for the Design Work shall be assembled into separate, single packages based on logical groupings and constructible units per designation number ("Des. No."), as shown in Section 1 (General Scope of Work). Unless otherwise approved by IFA, for the purposes as expressed under Section 3.2.2.4 of the PPA, Submittals shall be separated into packages by designation number and by design 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, including maintenance of traffic phasing or staged construction and bridge painting. At the Project Kickoff, Design-Build Contractor shall submit to IFA for review and comment one design Submittal report identifying each package for the whole Project.

The design Submittal report shall include:

1. Package descriptions, including the scope of the Design Work within each package, including limits and interface points

2. Anticipated Submittal schedule for packages by discipline

3. Lead Engineering Firm's engineer of record for each package

The monthly Progress Report described in Section 1 (General Scope of Work) shall include any revisions to the design Submittal report previously submitted 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 IFA before Design Work commences. An agenda shall be submitted to IFA for review and comment three days prior to the Project Kickoff. The goal of the Project Kickoff shall be to familiarize the Design-Build Contractor's design personnel and IFA review personnel with the design concepts, issues, status, and review procedures, with the intent of making the subsequent design review more effective and efficient for all Parties.

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 consistent with the Project Baseline Schedule.

All agreements, schedules, and understandings reached during the Project Kickoff shall be documented and submitted for approval by IFA.

3.6 Design Exceptions

Except for Sections 8.3 (IFA-Provided Design Exceptions) and 14.3.5 (Level One Design Exceptions), Design-Build Contractor may propose Design Exceptions and follow INDOT's Design Exception process described in Chapter 40 of the IDM; however, IFA 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 will not be considered eligible for a Change Order. All Design Exceptions must be approved in advance, by IFA in writing.

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 Submittal report	At Project Kickoff and revisions with the Progress Report	3.4
Project Kickoff schedule and agenda	Three days prior to Project Kickoff	3.5

Deliverable	Deliverable Schedule	TP Section
Design Exception documentation	As needed	3.6

4 CONSTRUCTION REQUIREMENTS

4.1 General Construction Requirements

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

4.2 Qualification and Prequalification

Design-Build Contractor (or its Equity Members) shall have 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) shall have an INDOT Certificate of Qualification for at least $150 million in the aggregate by INDOT. Subcontractors will not be counted toward this qualification requirement.
2. Design-Build Contractor (or its Equity Members or Major Subcontractors) shall have INDOT Prequalification Work Type Certification for Unlimited in one of the following INDOT construction prequalification work types:
    a. D (a) Highway or Railroad Bridges over Water or,
    b. D (c) Bridge Involving Protection of Railroad Tracks

Subcontractors, unless they are a Major Participant, will not be counted toward this INDOT Prequalification Work Type Certification requirement. In addition, one subcontractor shall be designated as the lead painting firm for the Project.

3. Design-Build Contractor, in the aggregate (including Subcontractors), shall have INDOT Prequalification Work Type Certification in the following INDOT contractor prequalification categories:
    a. B (a) Asphalt Pavement – with INDOT Certified Hot Mix Asphalt (HMA) Plant
    b. A (a) Concrete Pavement: General D (a) Highway or Railroad Bridges over Water
    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 (k) Guardrail, Cable Barrier, Crash Attenuators, and Fence
    h. E (l) Structural Steel Erection
    i. E (m) Cleaning and Painting Bridges

For any Utility Adjustments that Design-Build Contractor shall undertake 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

INDOT Construction Standards shall be used unless otherwise noted.

Design-Build Contractor shall comply with the following requirements:

1. Design-Build Contractor will be permitted to work 24 hours per day, seven days per week, except for Holidays and local ordinances, in accordance with Attachment 12-5 (IHCP Exception Request) and Attachment 12-6 (Interstate Closure Request), or as otherwise restricted in the PPA Documents. Design-Build Contractor shall not work during the following Holiday periods unless prior written approval is received from IFA. All deliveries and traffic coming from suppliers shall cease during the IFA-ordered suspensions of work listed below. No time extensions to closure periods or Completion Milestones will be granted for suspending work 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.

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

h. Thunder Over Louisville Weekend (Saturday through Sunday) in 2021, 2022 and 2023: Work shall be suspended from 12:00 midnight ET Friday prior to the weekend until 07:00 a.m. ET the following Monday.

i. Kentucky Derby Weekend (Friday through Sunday) in 2021, 2022 and 2023: Work shall be suspended from 12:00 midnight ET Thursday prior to the weekend until 07:00 a.m. ET the following Monday

j. Harvest Homecoming Festival Weeks in 2021, 2022, and 2023: No movement closures under Technical Provision Section 12.2.11.4, and no Allowable Mainline Interstate Closures under PPA Exhibit 10 Table 10-1-1, and no Allowable Ramp Movement Closures under PPA Exhibit 10, Table 10-2-1, and no Allowable Local Street Movement Closures under PPA Exhibit 10, Table 10-3-1 shall be in effect during Harvest Homecoming weeks.

k. Additional INDOT holidays that will not require work suspension include:

1) Martin Luther King Day

2) Lincoln's Birthday

3) Washington's Birthday

4) Primary Election Day

5) Election Day

6) Columbus Day

7) Veteran's Day

2. Quality adjustments will be made per Standard Specifications and Section 9.2.1 of the Technical Provisions for work done or materials furnished and incorporated into the work which fall below the standards established by the contract. No quality adjustments will be made for work which exceeds the standards established by the contract. This quality adjustment will be applicable to QC/QA HMA.

3. Design-Build Contractor shall maintain positive drainage on all active travel lanes during construction and shall meet spread requirements per Project Standards. Design-Build Contractor shall verify to the satisfaction of IFA that all existing drainage is adequately functioning prior to construction.

4. Design-Build Contractor shall perform all maintenance during construction for the general location of the Project as shown in Attachment 1-3 (Maintenance of Traffic Limits). Required maintenance shall include mowing cycles that coincide with INDOT and KYTC mowing cycles for the area, Pothole repair, roadway debris clean-up (dead animals, litter, hazards that disrupt normal traffic condition and flow), signing repair, lighting repair (that is in addition to replacing a luminaire), guardrail repair (that requires replacement of 12.5 ft or more of guardrail), any guardrail post, attenuator repair or replacement, and other items required to maintain safe driving conditions. Any deviations to these requirements for maintenance require IFA approval prior to implementation.

5. Construction Memorandum 09-02, Potholes in Work Zones, does not apply. Design-Build Contractor shall assess and document existing pavement condition prior to NTP and repair any Potholes or pavement failures that develop during Construction Work after receiving commencement of construction, as defined in Section 4.5 of the PPA. Design-Build Contractor shall submit the documentation to IFA. At any point during the Project, IFA, in its sole discretion, may require Design-Build Contractor to take action for Potholes or other pavement failures to be repaired within 24 hours of notification, subject to Section 12.1.3.2 of the PPA.

6. INDOT, KYTC and the Local Agencies are responsible for snow and ice removal of active travel lanes within the limits of the Project during winter months. Design-Build Contractor shall not be entitled to any claim for damages caused by INDOT or KYTC during performance of snow and ice removal operations. Design-Build Contractor shall perform snow removal in areas of the field office(s), laboratory areas, and other construction access points.

7. An IMSA certified Level II technician or ATSSA Traffic Control Supervisor shall be available 24 hours per day to respond within two hours for any maintenance of traffic signal equipment issue within the limits of the Project.

4.4 Clearing Project Right of Way

No tree clearing shall be performed from April 1 through September 30 in Indiana or from April 1 through October 14 in Kentucky on trees suitable for Indiana bat and northern long-eared bat roosting (greater than 3 inches diameter at breast height) unless approved in advance in writing by U.S. Fish and Wildlife Service. Design-Build Contractor shall support the IFA in obtaining any such approval. The Design-Build Contractor shall take sole responsibility for impacts to schedule and budget associated with approval or denial of clearing during the April 1 through September 30 period.

Tree and shrub clearing shall be limited to the construction limits and include no more than is necessary to construct the Work, including required Utility relocations, right-of-way fencing, and right-of-way markers.

Existing topsoil materials shall be preserved and stored at a suitable location as approved by IFA. All quantities of existing topsoil materials suitable for the growth of vegetation shall be preserved from within the planned excavation areas and later used on constructed cut, fill, and shoulder slopes to help develop growth of new vegetation.

When Design-Build Contractor chooses to burn construction related debris, the burning shall be conducted in accordance with all local, State, and Federal regulations. All burning shall be conducted a reasonable distance from all homes and care will be taken to alleviate any potential atmospheric conditions that may be a hazard to the public. Design-Builder shall monitor all burning.

4.5 Scheduling and Notification

Design-Build Contractor shall submit an updated Construction Work Activity schedule to IFA by noon (Eastern time) on Friday of 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 look-ahead schedule of planned Construction Work

Activities shall also be submitted and discussed at weekly Progress Meeting, as described in Section 1.2.4 (Progress Meetings), to allow timely coordination of IFA inspection activities.

Design-Build Contractor shall provide at least a 24-hour notice to IFA for any schedule changes to the planned Construction Work requiring inspection activities.

4.6 Construction Documentation

Design-Build Contractor shall document progress and observed construction performance during performance of the Construction Work. The documentation shall be in a digital format acceptable to IFA and shall include:

1. CPM Project Schedules per Section 1 (General Scope of Work)
2. Record Drawings per Section 2 (Quality Management)
    a. In addition, the Design-Build Contractor shall also provide GPS coordinates of all completed underdrain outlets and cleanouts and all pipe and culvert outlets. The GPS coordinates shall be incorporated into the underdrain and structure data tables of the Record Drawings.
3. As-Built utility information per Section 15 (Utilities)
4. Spreadsheets and computation books
5. High-resolution progress photographs of bridge elements shall be taken as follows:
    a. Photos shall be taken before repair or replacement of bridge elements to verify that criteria for repair or replacement have been met
    b. Photos shall be taken after repair or replacement of bridge elements to document the actual repair
6. High-resolution UAS photography of the Project shall be taken as follows:
    a. Weekly aerial photography shall be used to document roadway conditions throughout the limits of the project
    b. Weekly aerial photography shall be used to document progress on the project
    c. Aerial photography shall be used to document initial conditions of project prior to implementation of MOT phases
    d. Aerial photography shall be used to document traffic patterns before and after initial implementation of MOT
    e. Aerial photography shall be used to document traffic patterns before and after each subsequent change to MOT
7. Field Design Change documentation for design and construction changes
8. Any other construction documentation as requested by IFA.

4.6.1 Required Logs

A comprehensive daily log for Construction Work Activities shall be prepared and maintained by the Project Manager or their designee(s) and made available to IFA upon request. The daily log

shall include all significant occurrences in a narrative form, including 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 the appropriate law enforcement agency and a report with locations and setup of the traffic control at the time of the crash to IFA.

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.

4.6.2 Submittal Requirements

Design-Build Contractor shall complete and submit weekly documentation and records that include factual evidence, including progress photographs, 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 IFA 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 Project.

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 IFA in its sole discretion.

For all lighting located on the Kentucky approach, the Design-Build Contractor shall adhere to KYTC lighting standard specifications for construction and materials as well as all KYTC roadway lighting standard detail drawings.

When Design-Build Contractor purchases materials from Suppliers shown on INDOT's approved materials list, Design-Build Contractor will 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 IFA or its representative at the same time Design-Build Contractor receives such documentary evidence and prior to incorporation into the Work. If Design-Build Contractor wishes to purchase materials from a Supplier not shown on INDOT's approved materials list, Design-Build Contractor shall submit a request to IFA for approval in its sole discretion. Design-Build Contractor shall obtain approval from IFA 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 incorporation into the Work or the use of such materials. 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 specified materials is not to occur without prior approval by Design-Build Contractor's Design Manager and IFA. Failure to acquire prior substitution approval prior to use constitutes as Nonconforming Work and is cause for rejection or rework.

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 of 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, but no less than 24 hours prior to incorporation into the Work	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.

5.2 IFA Public Involvement Plan Responsibilities

Except for the items expressly referenced in this Section 5 and elsewhere in the PPA Documents as being the responsibility of the Design-Build Contractor, IFA will have the primary responsibility of preparing, maintaining and implementing the Public Involvement Plan and will designate a Public Involvement Manager to lead this program. Reference to IFA in this Section includes any communications or public relations firms contracted by IFA or INDOT to facilitate the implementation of the Public Involvement Plan.

IFA's responsibilities will include the following activities:

1. Identify appropriate points of contact within the SMCP communications team for the Design-Build Contractor regarding Public Involvement activities.
2. Serve as the official spokesperson for the Project.
3. Draft all messages, talking points and event scripts for interviews and external announcements.
4. Coordinate all media relations activities, such as press releases, media events and advisories, and media interviews, including those with Design-Build Contractor staff.
5. Develop content for and maintain the Project website and applicable social media accounts.

5.3 Design-Build Contractor Public Information Responsibilities and Requirements

5.3.1 General PIP Requirements

Design-Build Contractor shall support IFA in administering its Public Involvement Plan (PIP), including public involvement tasks defined in this Section 5 and elsewhere in the PPA Documents.

All public information related correspondence from the Design-Build Contractor will be shared with IFA or to Government Entities, agencies or others only as specifically directed by IFA, or as specified in Section 5.3.

5.3.2 Design-Build Contractor's Public Information Coordinator

Design-Build Contractor shall provide a Public Information Coordinator (PIC) to work and coordinate with IFA to disseminate public information as part of the Sherman Minton Corridor Public Involvement Plan.

The PIC shall be responsible for identifying public information issues related to the Design-Build Contractor's work, and for working with IFA's Public Involvement Manager to formulate and implement strategies to address those issues. The PIC shall work with IFA to maintain a high degree of public satisfaction, with a strong emphasis on communication of traffic restrictions and impacts.

The PIC shall participate along with IFA in bi-weekly Contractor Coordination Progress Meetings (pre-construction), weekly Contractor Coordination Progress Meetings (during construction) and monthly Traffic Maintenance Plan (TMP) team monthly meetings.

The Design-Build Contractor shall participate in IFA-organized public meetings at least twice per year during construction.

The PIC shall designate a deputy public information coordinator to serve as a backup if the PIC is unavailable and to assist in the performance of the functions described in this Section.

The PIC shall have full access to all Design-Build Contractor's Project details and schedules that may be relevant to the general public, environmental justice communities, public agencies, emergency service providers, businesses, media, schools and other interested parties. The PIC shall share information with IFA continually throughout the Project.

The Design-Build Contractor shall provide IFA 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 PIC and deputy PIC, including mobile phone numbers and email addresses.

5.3.2.1 Construction Schedule

At least 28 days prior to the start of construction and/or a construction phase change, the PIC shall notify IFA's Public Involvement Manager in writing, providing full details of the anticipated process and the phase change. The PIC shall provide additional updates if construction and traffic impacts change, or as requested by IFA and its Public Involvement Manager. These updates shall include the upcoming week's planned closures, detours, Project status and other information relevant to the public and neighborhoods in proximity to the project.

Design-Build Contractor shall provide IFA information related to changes in construction phasing, MOT, and access that impacts commuters, residents, and businesses. The information shall be provided to IFA at least 28 days prior to implementation of major MOT phase changes. Information shall include the following:

1. Purpose of the change
2. Area affected and dates of impact
3. Alternate routes and detours
4. A contact person for further information

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

Questions or comments received by the Design-Build Contractor from residents, businesses, or other members of the public shall be forwarded to IFA within four hours of receipt. IFA will work with the Design-Build Contractor to develop a response within one business day. The Design-Build Contractor shall take the necessary steps to facilitate a response in no more than one business day.

If the Design-Build Contractor receives a public complaint regarding the Work, the Design-Build Contractor shall notify IFA within four hours. The Design-Build Contractor shall provide the necessary information, staff support, and representation to assist in resolving the issue.

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

5.3.4 Media Relations

Media relations will be led by IFA unless otherwise specified in this Section 5.

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

If contacted by media, Design-Build Contractor shall direct the media to contact IFA's Public Involvement Manager and inform IFA's PIM within one hour of being contacted. Any request for media interviews shall be coordinated with IFA's Public Involvement Manager prior to interviews. IFA or its designated Public Involvement Manager will be the media spokesperson. Design-Build Contractor shall provide IFA and its Public Involvement Manager with information and access to Project staff for press interviews, as requested.

If requested by IFA, the Design-Build Contractor shall provide information and materials to IFA that meets local broadcast and print media requirements and deadlines. All Project information released to the news media will be reviewed and released by IFA . IFA is the only Party that may release information to the media.

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

At IFA's request, the Design-Build Contractor shall conduct tours of the Project Site for media, local, state, or federal government officials, or IFA management. The Design-Build Contractor shall provide required safety equipment for tour participants.

5.3.5 Public Notifications

The Design-Build Contractor shall notify IFA of any public, residential, or business contacts. As directed by the IFA, this shall include direct contact with affected parties for updates on upcoming events.

The Design-Build Contractor shall provide the specific notifications listed in Table 5-1 to IFA and the PIC.

Table 5-1: Notifications

Notice	Requirement
Road and Movement Closures	In accordance with notification requirements in Table 12-4 (Movement Closure Notification Requirements)
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 project out the next six weeks.
Property Access Notification	Non-emergency and emergency access may be required on private properties outside the Planned ROW Limits. Design-Build Contractor shall be responsible for securing permission to access private property from property owner. Design-Build Contractor shall supply information to IFA documenting access approval from the property owner prior to accessing property
Road and Driveway Closures	Notice and personal contact in advance of closure, as specified in Maintenance of Traffic (MOT), Haul Routes, and Access During Construction Technical Provisions.
Road Closures impacting School Access	Changes in roads used by school bus routes will be discussed with the school systems a minimum of 28 days prior to when they are planned to 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.
Road 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.

5.3.6 Public Forums and Meetings

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

5.3.6.1 Coordination with Traffic Management Plans

The PIC shall coordinate with the MOT Design-Build Coordinator, Incident Management Liaison, Certified Worksite Traffic Supervisor, and other Project staff and assist IFA to communicate construction traffic information to the public and other affected parties. In addition, the Design-Build Contractor shall assist the IFA in coordinating traffic communications with adjacent construction projects, as part of an established coordinated communications plan. The PIC shall coordinate with IFA prior to communicating with existing TMP groups and other Project stakeholder groups for development of the Project TMP.

5.3.6.2 Maintenance of Traffic and Access

The Design-Build Contractor shall provide IFA information related to maintenance of traffic and access that impacts commuters, residents and businesses. The information shall be provided to IFA at least twenty-eight days prior to any revision to access and/or a change in construction phase. Information shall include the following:

1. Purpose of the change
2. Area affected and dates of impact;
3. Alternate routes and detours;
4. Maps and/or graphics depicting the routes and detours; and,
5. A contact person for further information

5.3.6.3 Traffic Conditions

Design-Build Contractor shall inform IFA's Public Involvement Manager of any Incidents or unexpected traffic conditions, such as road obstructions, within 15 minutes of detection.

5.3.6.4 Commercial Vehicle Access and Restriction Information

Thirty days prior 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, the Design-Build Contractor shall coordinate with IFA and shall assist IFA in providing the following agencies with a description, start date and end date of the event:

1. Indiana State Police
2. Kentucky State Police
3. Emergency Responders
4. Indiana Department of Revenue and INDOT Overweight/Oversize Section
5. Local Departments of Public Works in Indiana and Kentucky
6. INDOT Seymour District
7. KYTC District 5
8. Indiana Motor Truck Association (IMTA)
9. Kentucky Trucking Association
10. TARC, or others as deemed by IFA to be appropriate

5.3.6.5 Emergency Vehicle Access

The Design-Build Contractor shall provide IFA relevant access/closure information for the purpose of emergency vehicle coordination. The Design-Build Contractor shall provide such information to the appropriate TMP stakeholders, as identified by IFA.

5.3.7 Methods and Tools for Disseminating Information

The methods and tools listed in this Section shall be employed by the Design-Build Contractor, with IFA approval, to disseminate information to the public by IFA in a timely fashion.

5.3.7.1 Highway Advisory Radio (HAR) Messaging

Design-Build Contractor shall provide timely and accurate information daily or as requested by IFA for HAR messages. IFA will coordinate and author HAR messaging.

5.3.7.2 Variable Message Signs (VMS) Messaging

Design-Build Contractor shall prepare and submit accurate information to IFA for review at least 28 days in advance of traffic restrictions due to planned construction activities.

5.3.7.3 Collateral Materials

Upon request from IFA, the Design-Build Contractor shall assist with producing written materials regarding construction issues specific to the Project, which may include schedule, lighting or other issues. The IFA will be responsible for final approval and making these materials available to the public as requested through U.S. mail, e-mail, Project web site, social media and at individual and group meetings.

5.3.7.4 Correspondence and E-Mail

IFA will forward email, letters, and other forms of correspondence from the public regarding design and construction issues to Design-Build Contractor PIC. Design-Build Contractor shall assist IFA in preparing responses to correspondence within one business day; however, IFA will be responsible for responding to all correspondence.

Design-Build Contractor shall forward to IFA all requests Design-Build Contractor receives for Project-related information via telephone, email, and letters to and from the public within one business day of the request. Project-related correspondence shall include communications from the public, businesses, community groups, and government.

5.3.7.5 Condition Acquisition and Reporting System (CARS)

Design-Build Contractor shall enter information regarding lane width and vertical clearance restrictions into the INDOT Condition Acquisition and Reporting System (CARS) whenever restrictions are placed or changed on the existing roadways within the Project.

Design-Build Contractor shall coordinate with IFA to schedule a training session for the Design-Build Contractor with the INDOT Traffic Management Center. The training will provide information on how Design-Build Contractor shall access CARS, how information shall be entered and when information shall be entered prior to restrictions.

5.3.8 Deliverables

Deliverables under this Section 5, a non-exhaustive list of which is set forth in Table 5-2, 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 5-2: Deliverables

Deliverable	Deliverable Schedule	TP Section
General construction schedule	28 days prior to construction in any area of Project	5.3.2.1
Updates to general construction schedule	Weekly	5.3.2.1
Maintenance of traffic and access change notifications	28 days prior to access revision	5.3.6.2
Notice to IFA of Incidents or unexpected traffic conditions	Within 15 minutes of detection	5.3.6.3
Notice to IFA of restrictions to movement of commercial vehicles	30 days prior to restrictions	5.3.6.4
Progress Report with photos	See Table 1-5	1.2.5 & 5.3.8
Project Management Plan	No later than 30 days following NTP	1.3.3 & 5.3.8

6 (NOT USED)

This section not used. Intentionally left blank.

7 ENVIRONMENTAL

7.1 General

Design-Build Contractor shall perform the environmental Work in accordance with the PPA Documents, including Project Standards, this Section 7 and its attachments; Governmental Approvals; and Governmental Rules. Design-Build Contractor shall comply with all conditions of the NEPA Documents and all permit approvals, whether obtained by IFA or by Design-Build Contractor, for this Project.

The NEPA Document has been completed under a Categorical Exclusion Level 4 (CE 4). The CE 4 has received final approval from INDOT and FHWA on October 7, 2020. Design-Build Contractor shall not proceed with any final design or physical construction and/or ground disturbance outside the limits defined during the NEPA process without prior approval by IFA.

7.2 Administrative Requirements

7.2.1 Environmental Personnel

Design-Build Contractor shall designate an on-site Environmental Compliance Manager (ECM) in accordance with Section 1 (General Scope of Work). Design-Build Contractor shall designate an on-site Level 2 SWQM. The SWQM may also be the ECM. The SWQM shall be one of the following: Certified Erosion Sediment and Storm Water Inspector (CESSWI). Certified Inspector of Sediment and Erosion Control (CISEC), or Certified Professional in Erosion and Sediment Control (CPESC).

7.3 Design and Construction Requirements

7.3.1 Permits and Approvals

Design-Build Contractor shall comply with all approved NEPA Documents as described in this Section 7 and in accordance with Section 6.11 of the PPA. Design-Build Contractor shall provide documentation to IFA 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 Approvals and Governmental Approvals necessary for any work outside the Planned ROW Limits or the MOT Limits.

Design-Build Contractor shall obtain all permits required for the Project. If any change to the Project by the Design-Build Contractor result in impacts to streams, wetlands, or other waters, the Design-Build Contractor shall acquire any necessary Environmental Approvals or modification to existing Environmental Approvals. For any necessary Environmental Approvals, the Design-Build Contractor shall coordinate with IFA.

In accordance with Section 6.11.3.3 of the PPA, Design-Build Contractor is responsible for Environmental Approvals and any modifications, renewals and extensions of the IFA-Provided Approvals required in connection with the Work and the Project.

7.3.1.1 Governmental Approvals

Table 7-1 lists the Governmental Approvals the Design-Build Contractor is expected to obtain in order to complete the Work. These lists are not exhaustive, and there may be other Governmental Approvals required based on Design-Build Contractor's final design. Design-Build

Contractor shall be responsible for identifying all Governmental Approvals necessary to complete the Work and shall secure all necessary Governmental Approvals unless Table 7-1 and the PPA Documents expressly state that IFA 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 IFA for review and approval prior to submittal to the appropriate Governmental Entity. Design-Build Contractor shall refer to Section 3.6.5 of the PPA for requirements regarding any Governmental Approvals that are the responsibility of Design-Build Contractor to obtain but which shall formally be issued in the name of IFA.

Table 7-1: Governmental Approvals – Design-Build Contractor Responsibility

Agency	Permit/Approval	Responsible Party	Required Date
USACE	404 NWP- Nation Wide Permit	Design-Build Contractor	Prior to Construction Work
USACE	Section 10 – Rivers and Harbors Act of 1899	Design-Build Contractor	Prior to Construction Work
USACE	Section 408 – 33 USC 408	Design – Build Contractor	Prior to Construction Work
IDEM	401 Water Quality Certification	Design-Build Contractor	Prior to Construction Work
IDNR	CIF – Construction in a Floodway	Design-Build Contractor	Prior to Construction Work
IDEM	327 IAC 15-5 ("Rule 5")	Design-Build Contractor	Prior to Construction Work
EEC	KYR10 eNOI & BMP Plan	Design-Build Contractor	Prior to Construction Work
KDOW/EEC	401 Water Quality Certification	Design-Build Contractor	Prior to Construction Work
KDOW/EEC	Floodplain Construction Permit	Design-Build Contractor	Prior to Construction Work

Note: Design-Build Contractor shall be responsible for securing any required permit modifications and performing any mitigation required.

7.3.1.2 Environmental Permits Referenced

The following referenced permits are discussed in the environmental document. All preliminary permit coordination with permitting agencies in the planning phase shall require follow-up coordination with IFA and the agencies by the Design-Build Contractor. The Design-Build Contractor shall be responsible for obtaining final permits in coordination with IFA and the permitting agencies.

1. United States Coast Guard Navigable Waterways

The United States Coast Guard (USCG) regulates all work on or in navigable waters. The Design-Build Contractor shall submit a work plan to IFA for review and approval. The work plan will also be reviewed by the USCG. Design-Build Contractor shall obtain a Work Conditions Letter from the USCG prior to commencement of work in a navigable water. The Design-Build Contractor shall provide the United States Army Corps of Engineers with either a U.S. Coast Guard permit or correspondence from USCG stating a permit is not required.

2. United States Army Corps of Engineers (USACE), Nationwide Permit

Design-Build Contractor shall coordinate with IFA, the INDOT Environmental Services Division and KYTC Division of Environmental Analysis regarding permits for impacts to waterway, wetland and other water resources. The Design-Build Contractor shall provide the location, size and work for any staging, borrow and/or waste sites to the USACE. The submittal shall include a description of work at those locations and any temporary work to be performed, including the installation of temporary mats, cofferdams, etc. when completing a United States Army Corps of Engineers permit application. Two (2) permit applications, one for each USACE District having jurisdiction, for all regulated impacts resulting from the project shall be completed by the Design-Build Contactor and submitted to IFA for review and approval prior to submittal to USACE. The Design-Build Contractor shall notify IFA and USACE of any modifications to the permitted work. The Design-Build Contractor shall notify IFA and USACE if potential endangered species or historical/archaeological resources are encountered during the course of work.

3. United States Army Corps of Engineers, Rivers and Harbors Act of 1899 Section 10

Design-Build Contractor shall coordinate with IFA, the INDOT Environmental Services Division and KYTC Division of Environmental Analysis regarding permits for impacts to the Ohio River. If the Design-Build Contractor proposes the use of barges, the Design-Build Contractor shall provide details of the proposed location of barges using maps and drawings stamped by a professional engineer showing the locations, mooring configurations, and locations of deadmen if used. If a Section 10 permit is required, the Design-Build Contractor shall complete two (2) separate forms; one for each USACE District having jurisdiction. Due to the Water Resources Development Act, INDOT and KYTC will be co-applicants with the Design-Build Contractor. The Design-Build Contractor shall notify IFA and USACE of any modifications to the permitted work. The Design-Build Contractor shall notify IFA and USACE if potential endangered species or historical/archaeological resources are encountered during the course of work.

4. United States Army Corps of Engineers, Section 408 – 33 USC 408

Design-Build Contractor shall coordinate with IFA, the INDOT Environmental Services Division and KYTC Division of Environmental Analysis regarding Section 408 permits for impacts to the Ohio River. The proposed project is expected to impact two levee systems on each side of the river. Under Engineer Circular (EC)1165-2-220, any work/alterations, etc., on or above a Civil Works project (in this case the levees) will require coordination with INDOT Environmental Services Division and KYTC Division of Environmental Analysis in regards to a Section 408 permit from the USACE. The point of contact at the Corps is Bonnie Jennings, Section 408 Coordinator / Project Engineer, U.S. Army Corps of Engineers, Louisville District Levee Safety Section, phone: 502-315-6481/email: Bonnie.F.Jennings@usace.army.mil.

5. Indiana Department of Environmental Management, Water Quality Certification

Design-Build Contractor shall coordinate with IFA and the INDOT Environmental Services Division regarding permits for impacts to waterway, wetland and other water resources. An IDEM Water Quality Certification (WQC) is not anticipated for this project.

6. Indiana Department of Natural Resources Division, Construction in a Floodway Permit

Design-Build Contractor shall coordinate with IFA and the INDOT Environmental Services Division regarding permits for impacts to waterway, wetland and other water resources. The Design-Build Contractor shall submit detailed plans to IFA and the INDOT Environmental Services Division for a determination of the requirement of a Construction in Floodway Permit.

7. Kentucky Energy and Environmental Cabinet, KYR10 Stormwater Construction Permit

Design-Build Contractor shall coordinate with IFA and the Kentucky Division of Water (KYDOW) regarding permits for impacts to receiving waters, areas of disturbance and other resources. The Design-Build Contractor shall submit detailed BMP and SWPPP plans to IFA and KYDOW for a determination of the requirement of a KYR10 or General KPDES Permit.

8. Kentucky Division of Water, 401 Water Quality Certification

Design-Build Contractor shall coordinate with IFA and the KYTC Division of Environmental Analysis regarding permits for impacts to waterway, wetland and other water resources. The 401 Water Quality Certification is an extension of the USACE 401 permit and ensures compliance with Kentucky state requirements.

9. Kentucky Division of Water, Floodplain Permit

Design-Build Contractor shall coordinate with IFA and the KYTC Division of Environmental Analysis regarding permits for impacts to waterway, wetland and other water resources. The Design-Build Contractor shall submit detailed plans to IFA and the KYTC Division of Environmental Analysis for a determination of the requirement of a Floodplain Permit.

7.3.2 Groundwater Protection

The Project is not located within a Wellhead Protection Area (WHPA) in Indiana nor Kentucky.

7.3.3 Hazardous Materials

Design-Build Contractor shall adhere to the requirements of Section 6.10.1 of the PPA related to Hazardous Materials. No hazardous materials have been identified within the Planned ROW Limits and the MOT Limits.

7.3.3.1 Hazardous Materials Releases

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

1. Release of Hazardous Materials on the Site, whether by Design-Build Contractor or third-parties, shall be reported to IFA and the IDEM Office of Emergency Response (OER) Spill Line at (888) 233-7745. For Release of Hazardous Materials by third-parties, the contact 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. For Release of Hazardous Materials by Design-Build Contractor, the contact shall be made within 12 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. Contact IFA

b. Identify the spilled material from a safe distance.

c. Contain the spilled material or block/restrict its flow using absorbent booms/pillows, dirt, sand, or by other available means.

d. Cordon off the area of the spill.

e. Deny entry to the cordoned off area to all but response personnel.

f. Contact IDEM OER Spill Line, IDEM's 24-Hour Emergency Spill Line toll free at (888) 233-7745 or (317) 233-7745.

g. Contact Kentucky Emergency Management at (800) 255-2587.

h. Contact INDOT Operations Support.

7.3.3.2 Lead-Based Paint

Design-Build Contractor shall evaluate paint on bridges, regardless of surface (i.e., metal, concrete, etc.), to determine if lead-based paint is present. Design-Build Contractor shall remove and dispose of lead-based paint and lead-based paint contaminated materials in accordance with the provisions in Attachment 7-2 (Provisions for Lead-Based Paint) and the approved HMMP.

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

7.3.3.3 Hazardous Materials Management Plan

Design-Build Contractor shall prepare a Hazardous Materials Management Plan (HMMP) for the identification, assessment, handling, storage, management, transportation, and/or disposal of Hazardous Materials, REC related wastes, and closure and removal of USTs or ASTs, whether encountered on or brought onto the Site by the Design-Build Contractor, encountered or brought onto the Site by a third party, or otherwise, during the term of the PPA. Design-Build Contractor shall submit the final HMMP to IFA for review and approval in its good faith discretion within 60 days of NTP; approval of the Plan by IFA shall be a condition of NTP. The HMMP shall contain specific provisions to undertake Hazardous Materials Management as appropriate, in accordance with applicable Governmental Rules, Governmental Approvals, and all applicable provisions of the PPA Documents.

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

Further, the HMMP shall include procedures for ensuring that all applicable certifications, licenses, authorizations, and Governmental Approvals for Design-Build Contractor personnel handling Hazardous Materials or RECs 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 encountered on Site
5. Spill Prevention, Control, and Counter-Measure Plan, including:
    a. Potential spill sources
    b. Spill reporting protocol, including emergency contact telephone numbers
    c. Spill prevention and response training
    d. Spill containment
    e. Spill prevention
    f. Spill response report form(s)
    g. Bulk storage containment
    h. Safety data sheets
    i. Copies of agreements with any agencies which are part of the spill response effort
6. Procedural plan for unanticipated Hazardous Materials or Recognized Environmental Condition discoveries
7. Procedural plan for the excavation and disposal of any Hazardous Materials and Recognized Environmental Conditions disturbed by the Project

7.3.4 Environmental Compliance

Design-Build Contractor shall comply with and track the fulfilment of all environmental commitments in accordance with Attachment 7-1 (Environmental Commitments Summary).

7.3.4.1 Environmental Compliance and Mitigation Plan

Pursuant to Section 1.3.3.3 (Environmental Management Plan), Design-Build Contractor shall develop and maintain an Environmental Compliance and Mitigation Plan (ECMP). The ECMP shall be submitted to IFA for review and approval as part of the PMP. The ECMP shall include all environmental commitments and required mitigation listed in the PPA Documents, Environmental Approvals, and Governmental Approvals.

Design-Build Contractor shall prepare quarterly updates to the ECMP, which shall include a checklist that documents all impacts and anticipated impacts to environmental resources identified in the PPA Documents, Environmental Approvals, and Governmental Approvals. The checklist shall be submitted with the ECMP for IFA approval. Design-Build Contractor shall submit an updated checklist to IFA 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 environmental commitments, conditions of Environmental Approvals, Environmental Law, and IFA review and comment during Design Work and Construction Work.
2. A plan of how environmental commitments shall 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/QC processes and procedures.
4. A response plan that includes procedures to follow if unanticipated discoveries are encountered during Project development, such as threatened or endangered species or historical and archaeological sites. The response plan shall be developed to keep the Project in compliance with Environmental Approvals, Environmental Law, and Governmental Approvals at all times.
5. A corrective action plan that includes procedures to follow if it is discovered the Project is not in compliance with Environmental Approvals, Environmental Law, and Governmental Approvals.

7.3.4.2 Environmental Compliance and Mitigation Training Program

Design-Build Contractor shall develop and implement a mandatory environmental compliance and mitigation training program and present the training program to Design-Build Contractor's supervisory personnel, equipment operators, construction personnel, and any Subcontractor personnel who will perform Work within the Planned ROW Limits. The training shall provide an understanding of the necessary environmental compliance requirements and any environmentally sensitive areas of the Project.

The training program shall be focused on the specific environmental concerns for any personnel that are working in a specific location. Concerns for one location may differ from those in another location. The training program shall be submitted to IFA 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
5. Identification and locations of "do not disturb" zones
6. Wildlife education and reporting, including habitat protection for Indiana bats, northern long eared bats, and bald eagles, and what to do if any of these species is found

7. IFA-provided endangered, threatened, and rare species training video shown to all personnel prior to entry within the Planned ROW Limits
8. Seasonal Work restrictions, including trees and waterways
9. Pumping and dewatering operations
10. Aquatic invasive species decontamination and removal
11. Accidental discovery of archaeological sites, archaeological material, or human remains
12. Impacts and consequences for departure from approved operating procedures
13. Encountering Unknown Hazardous Materials
14. Historic properties and structures

The environmental compliance and mitigation training program shall be a component part of the PMP. Design-Build Contractor shall not allow personnel to enter the Planned ROW Limits or MOT Limits without completing the required training. Design-Build Contractor shall provide updates to this training program to IFA as necessary to meet current requirements and new commitments and to ensure the training is implemented by the appropriate personnel. Project bulletins shall be posted on-Site to inform previously trained employees of updates and/or changes to environmental conditions. Design-Build Contractor shall maintain a list of trained individuals including name, company, type and date of training, and make the information available for IFA review.

7.3.5 Noise

7.3.5.1 Construction Noise

Design-Build Contractor shall design and construct the Project in accordance with local, state, and federal noise regulations, policies, and guidance.

Design-Build Contractor shall document how it will address construction noise mitigation in a Construction Noise Abatement Plan. The Construction Noise Abatement Plan shall be submitted to IFA for review and approval as a condition to commencement of construction, as defined in Section 4.5 of the PPA. The noise monitoring approach shall include a communication and reporting process to control excessive noise levels and to respond to community complaints.

Outside of the restrictions stated in the local, state and/or federal regulations, polices, and/or guidance(s), and to the extent permitted by Governmental Rules, Design-Build Contractor will be allowed to operate construction equipment at all times during performance of Construction Work.

7.3.6 Cultural Resources

Design-Build Contractor shall have responsibilities related to the protection of cultural resources and the accidental discovery of previously unknown archaeological resources and historic resources in either Kentucky or Indiana.

Some examples of accidental discoveries include (but are not limited to):

1. Dark soil stains containing prehistoric artifacts (such as arrowheads, stones, bone, charcoal) or historic artifacts (such as bricks, nails, bottles, broken glass, whole or broken dishes and crocks, metal, bone, charcoal, etc.)

2. Concentrations of these types of artifacts with no dark stain visible
3. Buried foundations or footers (coursed bricks, mortared stones, limestone piers, etc.)
4. Wells and cisterns (may be lined with bricks)
5. Buried wooden posts, planks, and boxes
6. Human remains - or potential human remains

If it appears that an accidental discovery occurs during construction in Indiana, the following steps shall be taken by the Design-Build Contractor:

1. Work within 100 feet of the discovery area shall stop, but may continue in other areas.
2. The Design-Build Contractor shall notify IFA and INDOT- Cultural Resource Office (CRO) of the discovery by calling 317-234-5168. The INDOT Archaeology Team Lead can be reached at 317-233-6795 for additional assistance.
3. A description of the discovery shall be provided, along with digital photographs if possible, to CRO at the time of the discovery. A set of scaled photographs will allow CRO staff to evaluate the discovery and determine whether work may resume or whether additional documentation will be necessary without the time required for a site visit.

Design-Build Contractor shall ensure an on-site evaluation is conducted and a treatment plan(s) is developed, as needed.

If it appears that an accidental discovery occurs during construction activities in Kentucky, the following steps shall be taken by the Design-Build Contractor:

1. Work within 100 feet of the discovery area shall stop, but may continue in other areas.
2. Immediately notify IFA and KYTC DEA archaeologists at (502) 564-7250
3. Notify Kentucky Heritage Council (KHC/SHPO) archaeologists at (502) 892-3614
4. Design-Build Contractor shall have a qualified professional archaeologist on-call, approved by KYTC Division of Environmental Analysis, who can respond and report to the Site within four hours in case of discovery of any Differing Site Conditions. The qualified professional archaeologist shall have experience with documentation, excavation, and mitigation of historic urban archaeological sites.
5. If human remains are encountered during project activities, all work within 100 feet shall be immediately stopped. The area shall be cordoned off, and, in accordance with KRS 72.020, the county coroner and local law enforcement shall be contacted immediately. Upon confirmation that the human remains are not of forensic interest, the unanticipated discovery shall be reported to Nicolas Laracuente at the Kentucky Heritage Council at (502) 892-3614, George Crothers at the Office of State Archaeology at (859) 257-1944, and KYTC Division of Environmental Analysis archaeologists at (502) 564-7250.
6. Identified archeological sites shall not be disturbed unless the site is cleared by established procedures and written authorization to enter the site has been obtained by the Design-Build Contractor.

Design-Build Contractor shall be responsible for any archaeology surveys and any associated additional mitigation for Construction Work outside the previously surveyed area and Planned ROW Limits.

Following rehabilitation of the Kentucky Approach Bridge, the Design Build Contractor shall re-seed grass and restore landscaped elements of the affected parcels to pre-existing condition.

7.3.6.1 Indiana

The Area of Potential Effect (APE) for historic and archaeological resources in Indiana is provided in Attachment 7-4 (Indiana Minor Programmatic Agreement). Any Work within the established Indiana APE that does not comply with or goes beyond the scope of work assumed during the development of MPPA documentation shall require approval by IFA. Any Work proposed outside of the approved Indiana APE shall require additional coordination with INDOT Cultural Resources Office and the Indiana State Historic Preservation Office (SHPO).

7.3.6.2 Kentucky

The Area of Potential Effect (APE) for historic and archaeological resources in Kentucky is provided in Attachment 7-3 (Kentucky SHPO Coordination). The KY SHPO's conditionally approved effects finding is provided in Attachment 7-3 (Kentucky SHPO Coordination).

7.3.6.2.1 Historic (Above Ground) Resources

The Kentucky APE for historic (above ground) resources and the Historic Properties Report (HPR) is provided in Attachment 7-3 (Kentucky SHPO Coordination). Any Work within the established Kentucky historic APE that does not comply with or goes beyond the scope of work assumed during the development of HPR documentation shall require approval by IFA. Any Work proposed outside of the approved Kentucky historic APE shall require additional coordination with KYTC Cultural Historic Branch and the Kentucky State Historic Preservation Office (SHPO). Design-Build Contractor shall be advised that activities within the boundaries of the Shawnee Park and the Shawnee Golf Course, except for those within the established Kentucky historic APE, shall require consultation with Louisville Metro Parks, KYTC Cultural Historic Branch and the Kentucky State Historic Preservation Office (SHPO). Given the historic stature of the park, consultation by Design-Build Contractor with the National Parks Service may be required.

7.3.6.2.2 Archaeological (Below Ground) Resources

The Kentucky APE for archaeological (below ground) resources and a Phase I Report is provided in Attachment 7-3 (Kentucky SHPO Coordination). The Kentucky archaeological APE is shown in RID 7-9, is approximately 2.5 acres and is strictly defined to the ground surface immediately under the Kentucky Approach Bridge. The use of the Kentucky archaeological APE shall be limited to temporary staging during construction. No excavation within the Kentucky archaeological APE shall be allowed without prior approval by IFA. Any work within the established Kentucky archaeological APE that does not comply with or goes beyond the scope of work assumed during the development of Phase I documentation shall require approval by IFA. Such work shall include but is not limited to excavation, deep testing, and extensive pier work that requires ground disturbance. Any deviation of the Work or any Work proposed outside of the approved Kentucky archaeological APE shall require additional coordination with KYTC Cultural Historic Branch and the Kentucky State Historic Preservation Office (SHPO). The areas immediately adjacent to the Kentucky archaeological APE are located within a resource listed on the National Register of Historic Places which may contain sensitive resources.

Design-Build Contractor shall be advised that activities within the boundaries of the Shawnee Park and the Shawnee Golf Course, except for those within the established Kentucky archaeological APE, shall require consultation with Louisville Metro Parks, KYTC Cultural Historic Branch and the Kentucky State Historic Preservation Office (SHPO). Given the historic stature of the park, consultation by Design-Build Contractor with the National Parks Service may be required.

7.3.7 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 shall be controlled in accordance with the Standard Specifications.

7.3.8 Wetlands and Waters of the United States

Design-Build Contractor shall obtain any needed modifications or amendments to Governmental Approvals based on Design-Build Contractor's final design. Design-Build Contractor shall be responsible for the installation and continued maintenance of temporary protective fencing and prohibitive signing adjacent to wetland areas and waterways prior to construction. Temporary protective fencing shall consist of high visibility plastic mesh snow fencing. The temporary protective fencing shall be installed along the Planned ROW Limits adjacent to protected jurisdictional streams, wetlands, and other water bodies. All Design-Build Contractor personnel shall be made aware of all designated protection areas. Design-Build Contractor shall perform all Work in wetlands, wetland areas, and waterways in compliance with Environmental Approvals, including the Construction in a Floodway and Section 401/404 permits and conditions.

7.3.8.1 Impacts to Wetlands and Waterways

Design-Build Contractor shall avoid and minimize impacts to wetlands and streams in the development of the Design Documents and during Construction Work. The following stipulations shall be adhered to:

1. Design-Build Contractor shall not impact any wetland area or waterway, whether it is permanent or temporary, unless that impact is addressed and approved as an authorized action by the appropriate federal and, as applicable, State regulatory agency in a Governmental Approval or permit modification.

2. Design-Build Contractor shall provide Notice to IFA within 24 hours of impacts to wetlands or waterways for which activities are not permitted. Areas shall be immediately restored to the full satisfaction of IFA and the appropriate environmental regulatory agencies. The cost of restoration and, as applicable, mitigation of any impacted areas shall be the sole responsibility of Design-Build Contractor. If permit modifications and additional mitigation are required, the anticipated wetland and stream mitigation shall be provided by the Design-Build Contractor in accordance with the applicable regulatory agency requirements and/or conditions of the permit modification

3. to the Design-Build Contractor shall coordinate work within the Ohio River with the Navigation Branch of the Louisville District USACE. to the Design-Build Contractor shall notify IFA and the Navigation Branch of the Louisville District USACE 30 days prior to the commencement of work within the river.

4. Design-Build Contractor shall coordinate implementation of a barge or any access work within the Ohio River with IFA and the appropriate regulatory agencies. Coordination shall at minimum include the following:

    a. No work shall take place prior to proper approval.

    b. Coordination with INDOT Environmental Services Department, IDNR and USFWS regarding Mussel Surveys. The Design-Build Contractor shall responsible for the completion of any ecological surveys.

7.3.8.2 Best Management Practices for Work in Wetlands, Waterways, and 100-Year Floodplains

Design-Build Contractor shall include measures to control and minimize soil erosion and water quality impacts from construction related activities. Design-Build Contractor shall follow the Best Management Practices (BMPs) listed below during construction. The Project Standards shall govern construction activities to control erosion 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. The following BMPs, among others, shall be implemented:

1. Design-Build Contractor shall not stockpile or store excess fill, construction material, equipment, or debris in wetlands, waterways, wetlands, or any 100-year floodplains unless authorized by IFA-Provided Approvals or Governmental Approvals. 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.

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

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

4. Design-Build Contractor shall limit the physical disturbance of waterways and vegetation to only that which is necessary and authorized in the IFA-Provided Approvals or Governmental Approvals. Details shall be included in the plans to further minimize the removal of trees and understory vegetation that falls within the Planned ROW Limits and MOT Limits, but outside the actual limits of construction.

5. 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.

6. Staging, refueling, concrete washout wastewater, and cleanup areas shall not be allowed within a minimum distance of 200 feet from streams, wetlands, and other waterbodies. Equipment cleaning and staging areas shall be located such that runoff

from these areas shall not directly enter streams, wetlands, and other waterbodies. Equipment cleaning and staging areas shall be located such that effluent shall be 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, and other harmful materials shall not be discharged into or near rivers, streams, and impoundments, or into natural or manmade channels leading thereto. Washwater or waste from concrete mixing operations shall not be allowed to enter any streams, wetlands, or other waterbodies. Washwater disposal shall be in accordance with the Project Standards.

7. Design-Build Contractor shall seed and protect all disturbed slopes that are 3:1 or steeper with biodegradable erosion control blankets in accordance with the Project Standards and all Governmental Approvals.

8. The size, shape, and stability of natural stream channels unavoidably impacted by construction shall be used as the basis for designing replacement channels. Work in the low-water channel of existing streams shall be minimized to the maximum practicable extent by limiting construction to the placement of required drainage structures or structure components such as piers, pilings, footings, cofferdams, the shaping of spill slopes around bridge abutments, and the placement of riprap. Newly created stream channels shall be stabilized with vegetation prior to water being diverted from the original stream channel (or diversion measure).

9. Fording of streams shall not be allowed unless authorized by IFA-Provided Approvals or Governmental Approvals. Temporary bridges or other structures shall be used in accordance with IFA-Provided Approvals or Governmental Approvals. Unless otherwise approved in writing by IFA, and upon the receipt of any required Governmental Approvals, mechanical equipment shall not be allowed to enter or operate in streams, wetlands, or other water bodies. Only non-erodible materials shall be permitted to be placed in temporary crossings. The Design-Build Contractor shall completely remove any temporary construction access built near streams, wetlands, or other water bodies prior to Final Acceptance.

10. Design-Build Contractor shall prevent downstream siltation during cofferdam dewatering. Pollutants such as fuels, lubricants, bitumen, raw sewage, and other harmful materials shall not be discharged into or near rivers, streams, and impoundments, or into natural or manmade channels leading thereto. The use of artificial bank stabilization such as riprap shall be limited unless otherwise authorized by IFA-Provided Approvals or Governmental Approvals. Channel alternations below the ordinary high-water mark (OHWM) elevation shall be avoided to maintain habitat for aquatic organisms.

11. If piers are placed within the floodplain as required by structural design, impacts to drainage within the floodplain shall be minimized. Installation of riprap shall be limited to areas necessary to protect the integrity of structures being installed. If riprap is required, it shall be installed outside the thalweg and between the toe of slope and the OHWM where possible.

7.3.8.3 Temporary Impacts to Streams, Wetlands, and Floodplains

Design-Build Contractor shall not incur unpermitted temporary stream or wetland impacts. Temporary impacts are defined as regulated activity, typically fill that is intentionally placed within jurisdictional waterways for construction purposes and that is of an impermanent nature. Design-Build Contractor shall restore the temporarily affected area to preconstruction conditions

or in accordance with the Released for Construction Documents corresponding to the time when the Design-Build Contractor ceases use of the temporarily impacted area or prior to expiration of the permit authorizing the temporary impact, whichever occurs first. Additional stream stabilization measures may be required by IFA to ensure the stability of the restored section and as required by Government Agencies. Design-Build Contractor shall limit temporary stream impacts to those impacts authorized by the Project Governmental Approvals.

Restoration plans for streams, wetlands, and floodplains shall be dictated by waterway IFA-Provided Approvals. Design-Build Contractor shall be responsible for final design and construction of all stream and wetland restoration required by the Project Governmental Approvals and Technical Provisions. The following elements shall be incorporated into restoration for additional Work proposed by Design-Build Contractor:

1. Removal of all construction and temporary fill material.
2. Use of timber mats or similar materials when working within wetland areas to prevent soil compaction.
3. Deconsolidation and, as applicable, scarification of compacted soils.
4. Replacement of topsoil and, as applicable, organic matter lost to erosion and sediment control measures.
5. Reestablishment of grades to preconstruction conditions.
6. Removal of temporary stream crossings, pump-arounds, and/or causeways.
7. Restoration of stream banks with woody vegetation.
8. Replant any area within 50 feet of a streambank that was disturbed temporarily and that was vegetated preconstruction with native vegetation similar to preconstruction species composition, with the exception of Utility corridors.

Design-Build Contractor shall monitor the restoration of temporary impacts for compliance with requirements and conditions of Project Governmental Approvals. Additional remediation efforts shall be implemented by Design-Build Contractor, if determined necessary by IFA.

7.3.9 Reforestation

7.3.9.1 Forest Impact Avoidance and Minimization

Design-Build Contractor shall keep tree clearing and snag removals within the Planned ROW Limits and MOT Limits to a minimum.

Design-Build Contractor shall revegetate all disturbed areas within the Planned ROW Limits and MOT Limits. Design-Build Contractor shall be responsible for forest mitigation associated with the Work, including impacts to any areas designated as “do not disturb.”

1. IFA will provide for all riparian forest mitigation described in the IFA-Provided Approvals, unless specified elsewhere in this Section 7.
2. Design-Build Contractor shall prepare and submit to IFA for review and approval calculations of forest, wetland, and stream impacts based on the Design Work.

7.3.10 Terrestrial Wildlife

7.3.10.1 Terrestrial Wildlife Avoidance and Minimization

Design-Build Contractor shall incorporate invasive-free mulches, topsoil and seed mixtures. The known invasive species list can be found on the IDNR website (http://www.in.gov/dnr/3123.htm).

7.3.10.2 Bat Inspection and Mitigation Measures

The Site is within the range of the federally endangered Indiana bat (*Myotis sodalis*) and the federally threatened northern long-eared bat (*Myotis septentrionalis*), however; the project has been determined to have no effect on the endangered Indiana bat (*Myotis sodalis*) or the threatened Northern long-eared bat (*Myotis septentrionalis*). The project is also within range of the gray bat (*Myotis grisescens*) and the sheepnose mussel (*Plethobasus cyphyus*). USFWS does not anticipate impacts to the gray bats. If Indiana bats or gray bats are later detected during construction the Design-Build Contractor shall submit a Post Assessment Discovery of Bats at Bridge/Structure Form to the Bloomington, Indiana Service Office. The Design-Build Contractor shall not handle dead or injured bats, regardless of species, and any other federally listed species that are found at the Site in order to preserve biological material in the best possible condition and to protect personnel from exposure to diseases, such as rabies. Design-Build Contractor personnel shall ensure that any evidence about determining the cause of death or injury is not unnecessarily disturbed. Reporting the discovery of dead or injured listed species shall be required in all cases to enable the U.S. Fish and Wildlife Service to determine whether the level of incidental take exempted by the biological opinion (BO), is exceeded, and to ensure that the terms and conditions are appropriate and effective. Design-Build Contractor personnel finding a dead, injured, or sick specimen of any bat, regardless of species, or other endangered or threatened species, shall promptly notify the U.S. Fish and Wildlife Service Bloomington Field Office at (812) 334-4261 and IFA.

If the project effects any other federally listed or proposed species and/or designated critical habitat, additional consultation between the lead Federal action agency and the Service Office is required. If the bridge rehabilitation has the potential to take bald or golden eagles, the Design-Build Contractor shall commence additional coordination with the Service under the Bald and Golden Eagle Protection Act.

If the Design-Build Contractor chooses to use a causeway, the following USFWS recommendations shall be followed.

1. Locate the causeway primarily outside of the cobble/gravel substrate area, which is the most suitable habitat for many mussel species.

2. Install culverts/pipes within the causeway to allow continued flow of water through the area to prevent pooling and stagnation.

3. The height of the causeway shall be kept to a minimum to allow over-topping during heavy rain events to prevent upstream flooding.

4. Use clean fill material and remove immediately once project is completed.

5. The structure shall not be in the stream longer than a year in order to minimize disruption of the mussel and host fish reproductive cycle.

6. All equipment to be used in the river shall be inspected using accepted protocols and determined free of zebra mussel adults and veligers.

In the event a barge is used by the Design-Build Contactor, the Design-Build Contractor shall comply with the following USFWS recommendations.

1. All barge equipment maintenance shall be conducted away from the Ohio River, whenever possible. Fuel storage shall be contained/maintained in an area where leakage and spilling into the river will be avoided.

2. Excavation for deadman anchors and steel cables shall be performed in a manner to minimize the amount of surface disturbance, and appropriate measures shall be implemented to prevent the discharge of material into the river channel. During excavation, temporary silt fence shall be installed around each deadman anchor site during excavation and installation. Extreme caution shall be exercised during excavation/installation activities to prevent sediment from being washed into the Ohio River.

3. Towboats shall be operated at as low of RPM's as practicable when approaching and leaving the work site to minimize river bottom scouring and downstream siltation.

4. Minimize impacts to shoreline and substrate via barge grounding.

7.3.10.3 Migratory Birds

The Design-Build Contractor shall comply with the provisions of the Migratory Bird Treaty Act (MBTA). The structures associated with the Project have shown no evidence of use, such as nests, by a bird species protected under the MBTA during previous inspections, however in the event of evidence of such; every effort shall be made by the Design-Build Contractor not to disturb any nests with eggs or young. Design-Build Contractor shall document these efforts as part of the ECMP.

Intentional taking of migratory birds or nests with eggs or young without a federal permit is prohibited by the Migratory Bird Treaty Act, 16 U.S.C. 703-712. During the period between May 1 and September 7, Work on bridge structures with migratory birds may be allowed provided the procedures below are implemented.

1. No special action is necessary by the Design-Build Contractor for bridge Work performed entirely on the deck as long as Design-Build Contractor does not require access to areas where birds are nesting and Work will not result in the disturbance of nesting adults, or to their eggs or young. Disturbance is any activity that results in reproductive failures or the killing of eggs or young.

2. For bridge structures that have previous or current evidence of use by bird species protected under MBTA, the Design-Build Contractor shall use exclusionary devices to deter birds from nesting beneath the deck prior to the start of Construction Work. If birds are present, Design-Build Contractor shall determine the status of the birds, their nests, and young and shall take any and all actions necessary to meet the requirements of the Migratory Bird Treaty Act.

3. For bridge work performed from September 8 to April 30, birds are normally not nesting; therefore, no special actions by the Design-Build Contractor are necessary after an inspection is conducted to determine that no birds are present.

4. Measures designed to avoid and minimize impacts to migratory birds nesting on structures shall be implemented prior to April 30 and be maintained throughout the nesting season. The Design-Build Contractor shall be responsible for developing a Project-specific avoidance and minimization plan that shall be submitted to IFA for review and approval as part of the ECMP.

Avoidance and minimization measures shall include the following:

1. After inspection and confirmation that no active nests with eggs or young are present, the Design-Build Contractor shall remove existing nests and other nesting debris from the bridge girders or other surfaces that will be impacted by the Project.

2. After nest removal, exclusion devices shall be installed on the structure, especially if the start of construction will be delayed after April 30. Exclusion devices may include plastic sheeting, canvas, burlap or other material to block access to the underside of bridges and exterior girders. Ledge protectors, such as coil, pin and wire, can be placed on structures to prevent nest building where appropriate. Design-Build Contractor shall not use weather resistant polypropylene netting with 0.25 inch or smaller openings as it can trap adult birds.

3. After nest removal, hazing or harassment devices using sight or sound to scare the birds away may be installed on the structure. Materials may include mylar flagging and auditory speakers. Other sensory deterrents such as active construction, predator models, scare balloons and sonic devices may also be used.

4. Design-Build Contractor shall inspect the underside of the existing structure on a routine basis to ensure that nests are removed prior to egg laying and that exclusion devices that have been damaged are repaired. If eggs or young are present, construction activity that may impact those nests shall not occur and the Design-Build Contractor shall contact IFA. No additional contract time shall be granted if eggs or young are found.

5. Nests may be screened from construction to prevent impacts. Work may continue if the active nests will not be destroyed and if parent birds will not be precluded from tending their nests to the extent that eggs or young are negatively impacted.

6. If birds penetrate the barrier or nest building has commenced, Design-Build Contractor shall determine how birds are entering the underside of the bridge and adjust or repair the barrier to prevent further access. If nest building or repair of existing nests has begun, but no eggs or young are present in the nests based upon visual inspection of the nest and activity of the adults, Design-Build Contractor shall remove the nests.

7. Design-Build Contractor shall not disturb any nests with eggs or young. If active nests with eggs or young are found that would be affected by construction activities, Work shall be delayed until an evaluation of nesting status and avoidance and minimization measures implemented or the birds fledge from the nest.

The exception to this mitigation will only take place in the event of an active osprey nest. Osprey are known to have extreme site fidelity and nest removal will not deter an osprey from egg laying on the bridge. In the event an active osprey nest is present Kentucky State Fish and Wildlife and the Kentucky Transportation Cabinet Environmental Biologist Specialist for the district shall be contacted for mitigation measures.

7.3.11 Avoidance and Minimization

No work shall be performed within a jurisdictional stream from April 1 through June 30 without prior written approval of the IDNR Division of Fish and Wildlife.

Design-Build Contractor shall park, service, and maintain equipment in designated areas as approved by IFA. 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 Planned ROW Limits or MOT Limits shall be identified and located to minimize soil erosion, tree clearing, and impacts to other identified resources. Stable construction entrances shall be provided at the points where construction traffic shall enter an existing roadway.

Design-Build Contractor shall notify IFA in writing within 24 hours of inadvertent impacts to wetlands or waterways for which activities are not permitted. Inadvertent impacted areas shall be immediately restored to the full satisfaction of IFA and the appropriate Governmental Entities.

7.4 Deliverables

Deliverables under this Section 7, a non-exhaustive list of which is set forth in Table 7-2, 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 7-2: Deliverables

Deliverable	Responsible Party	Deliverable Schedule	TP Section
Governmental Approvals and Permits	Design-Build Contractor	Prior to Construction Work	7.3.1
Hazardous Materials Management Plan (HMMP)	Design-Build Contractor	Within 60 days of NTP	7.3.3.3
Environmental Compliance and Mitigation Plan (ECMP)	Design-Build Contractor	Within 30 days of NTP then quarterly updates	7.3.4.1

8 ROADWAY

8.1 General

Design-Build Contractor shall perform 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 Roadway Design Requirements

Attachment 8-1 (Design Criteria) lists the minimum requirements for the design of each roadway. Design-Build Contractor's design shall not provide for less than the minimum requirements depicted in Attachment 8-1 (Design Criteria) unless prior written approval is obtained from IFA.

8.2.1 General Design Requirements

Design-Build Contractor shall comply with the following requirements:

1. Vertical Clearance – Vertical Clearances at underpass and overpass locations shall not be reduced from existing conditions
2. Clear Zones – Clear zones shall be provided per Project Standards.
3. Changes to Design Requirements – Design-Build Contractor shall not design the roadways to meet less than the minimum requirements of Section 8.2.2 for each roadway unless written approval is received from IFA.
4. Guardrail – any guardrail and guardrail connections installed or replaced within the limits of the project shall meet current Manual for Assessing Safety Hardware (MASH) Standards
5. Borrow and disposal – Design-Build Contractor shall obtain approval from IFA for borrow and disposal sites, before material is excavated or disposed of within or outside of the Planned ROW Limits.

8.2.2 Specific Design Requirements

8.2.2.1 Overlay Paving & Curb Ramp Replacement

The Reference Design Plans provided in the RID outline the curb ramp replacement and paving limits of the HMA overlay along West Spring Street, West Elm Street and West 5th Street in New Albany, IN. In conjunction with the minimum limits of work defined in Section 1.2.2 (Project Description), the Design-Build Contractor shall meet the following requirements:

1. Complete all work within the limits of the existing right of way
2. Paving shall extend around the end of the curb radii or to the back of cross walk, whichever is further, for adjacent roadways except where explicitly noted below:
    a. Overlay shall not extend around the curb radii at West Spring Street and Scribner Drive
    b. Overlay shall not extend around the curb radii at the south approach of Scribner Drive on West Elm Street

3. For all traffic signal loops and detector housings impacted by the pavement rehabilitation refer to Section 11.4 (Traffic Signals) for proper treatment.

4. Provide bicycle and pedestrian accommodations in the form of sidewalks and shared-use paths.

5. Push Button Accessible Pedestrian Signals (APS) and Countdown heads shall be installed at the intersection locations listed below. All signal modifications shall comply with the criteria outlined in Section 11.4 (Traffic Signals):

    a. Intersection of Scribner Drive and West Spring Street, all quadrants.

    b. Intersection of Scribner Drive and West Elm Street, Northeast and Southeast quadrants.

8.2.2.2 Guardrail and Guardrail Connections

Any guardrail or guardrail connections disturbed, damaged, or removed as a result of the bridge rehabilitation, maintenance of traffic or roadway work shall be replaced in-kind within the limits of disturbance in accordance with the design requirements outlined in Section 8.2.1.

8.3 IFA-Provided Design Exceptions

The Level One and Level Two Design Exceptions identified in this Section 8 shall apply only to the specific locations stated within the Design Exceptions. Design-Build Contractor shall submit separate Design Exceptions to IFA for review and approval for any variations to the approved Design Exceptions listed below.

IFA has obtained the following Design Exceptions for the Project.

8.3.1 Level One Design Exceptions

See Attachment 8-2 (Design Exceptions) for approved values and limits of design exceptions.

The following mitigation measures are required for all Level One Design Exceptions within the approved limits shown in Attachment 8-2 (Design Exceptions):

1. Shoulder width exceptions require 6-inch wide pavement markings on edge of pavement adjacent to shoulders with inadequate width.

8.3.2 Level Two Design Exceptions

There are no anticipated Level 2 Design Exceptions for this project.

8.4 Deliverables

Deliverables under this Section 8, a non-exhaustive list of which is set forth in Table 8-1, 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 8-1: Deliverables

Deliverables	Deliverable Schedule	TP Section
Level One Checklists with associated calculations: - Horizontal Stopping Sight Distance (mainline, ramps, and secondary roads) - Vertical Sight Distance - Superelevation calculations - ADA curb ramp designs	Stage 1 Review Submission, Stage 3 Review Submission, and Released for Construction Documents	8.2
Guardrail length of need including roadside barrier, end treatments, and impact attenuators	Stage 1 Review Submission, Stage 3 Review Submission, and Released for Construction Documents	8. 2
Design Exception documentation	As needed	8.3.1

9 PAVEMENT

9.1 General

Design-Build Contractor shall perform the pavement Work in accordance with the PPA Documents, including Project Standards, this Section 9 and its attachments; Governmental Approvals; and Governmental Rules.

9.2 Administrative Requirements

9.2.1 Testing

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 certified personnel who are qualified to perform INDOT test methods.

Unit prices to be used for pay factor adjustments according to Sections 401 and 410 of the Standard Specifications shall be defined by the following:

- 401 QC/QA HMA, non OG items, Pavement Items: $75/TON
- 401 QC/QA HMA, OG items, Pavement Items: $60/TON
- 410 QC/QA HMA-SMA Pavement Items: $100/TON

9.3 Design Requirements

9.3.1 General Requirements

The permanent and temporary proposed pavements for this Project shall be as prescribed below.

Sherman Minton Bridge approach pavement, MOT interchange ramp shoulder strengthening, Indiana Bridge Approaches and Kentucky Bridge Approach pavement, and New Albany Pavement – All permanent pavement constructed, including but not limited to, approach pavement to tie-into bridge profiles changed by bridge construction and mill and overlay projects shall be new pavement.

MOT crossovers shall be constructed as described in Section 9.3.2.5. Concrete surfaced pavement shall not be overlaid.

9.3.2 Pavement Designs

For purposes of this Section 9, 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 and end at the edge of travel lane pavement for crossing roadways. The pavement designs in this Section 9 are minimum pavement designs that shall be included in the Plans and constructed as prescribed without further pavement design approvals by IFA.

The traffic data and design criteria used for determination of prescribed pavement designs are as follows:

1. Sherman Minton Bridge, Kentucky Approach Bridges and Indiana Approach Bridges Traffic Data:

   Initial AADTT = 7,277
   Growth Rate = 0.50%
   Operational Speed = 55 mph
   Lanes in Design Direction = 3-4 (3-lane used in design)
   Percent Trucks in Design Direction = 55
   Percent Trucks in Design Lane = 60
   Truck Weight Road Group Factors = Traffic Group C

2. New Albany Pavement (Elm, Spring, W 5th) Overlay Traffic Data:

   Initial AADTT = 185
   Growth Rate = 0.5%
   Operational Speed = 25 mph
   Lanes in Design Direction = 2 (W 5th St.) 3 (Spring St. and Elm St.)
   Percent Trucks in Design Direction = 100
   Percent Trucks in Design Lane = 90
   Truck Weight Road Group Factors = Traffic Group A

3. MOT Crossovers:

   Initial AADTT = 7,277
   Growth Rate = 0.50%
   Operational Speed = 45 mph (Reduced for MOT)
   Lanes in Design Direction = 1
   Percent Trucks in Design Direction = 52
   Percent Trucks in Design Lane = 100
   Truck Weight Road Group Factors = Traffic Group C

4. I-64/I-265 Interchange Ramp Shoulder Strengthening:

   Initial One-Way AADTT = 1,174
   Growth Rate = 0.5%
   Operational Speed = 45 mph
   Lanes in Design Direction = 2
   Percent Trucks in Design Direction = 55
   Percent Trucks in Design Lane = 90
   Truck Weight Road Group Factors = Traffic Group A

5. I-65/I-265 Interchange Ramp Shoulder Strengthening:

   Initial One-Way AADTT = 897
   Growth Rate = 0.5%
   Operational Speed = 45 mph
   Lanes in Design Direction = 2
   Percent Trucks in Design Direction = 55
   Percent Trucks in Design Lane = 90
   Truck Weight Road Group Factors = Traffic Group A

6. PCCP Design Criteria:

   Maximum predicted IRI = 150 inches per mile at year 20
   Maximum predicted mean joint faulting = 0.15 inches at year 30
   Maximum predicted PCCP transverse cracking = 10% of slabs cracked at year 30
   Minimum Reliability = 90%
   Required pavement base
   Subbase for PCCP on
   Geotextile for subgrade, Type 2B

7. Hot Mix Asphalt Pavement Design Criteria:

   Mainline and Auxiliary Lanes shall use a Hot Mix Asphalt surface.
   Maximum predicted IRI = 150 inches per mile at year 20
   Maximum predicted AC bottom-up fatigue cracking = 10% of lane area at year 20
   Maximum predicted Permanent Deformation – total pavement = 0.75 inches at year 20
   Maximum predicted Permanent Deformation – AC only = 0.40 inches at year 20
   Minimum Reliability = 90%

9.3.2.1 [This section intentionally left blank]

9.3.2.2 Indiana Approach Bridges and Ky Approach Bridge Pavement Design

1. Prior to use of existing outside shoulder for MOT construct new outside shoulder. For construction of new shoulder pavement adjacent to existing mainline pavement that will not be replaced, remove any existing shoulder pavement, then use:

   165 lbs/syd QC/QA-HMA, 4, 76, Surface, 9.5 mm on
   275 lbs/syd QC/QA-HMA, 4, 76, Intermediate, 19.0 mm on
   1100 lbs/syd QC/QA-HMA, 4, 64, Base, 25.0 mm on
   Subgrade Treatment, Type ID

2. New terminal joints shall be constructed in accordance with INDOT Standard Drawings for Terminal Joint, Type PCCP.

3. Replace the mainline and adjacent shoulder pavement in accordance with INDOT Standard Drawing 503-R-692d, for 40 feet with Jointed Reinforced Concrete Pavement 12 in. at the end of each Terminal Joint, Type PCCP. Where the mainline pavement is being replaced, replace the adjacent shoulder pavement also.

4. Where additional concrete pavement removal and replacement is required to achieve a 720:1 transition caused by a change in profile grade, that cannot be achieved within the 40-ft of replacement described in item #3, the remaining length of removed concrete pavement shall be replaced with:

   New full depth PCCP pavement consisting of:
   PCCP, 12” with
   D-1 Joints spaced at 15’ with 1.5” diameter dowel bars spaced at 12” on
   Subbase for PCCP on
   Subgrade Treatment, Type IC on
   Geotextile for Subgrade, Type 2B

5. Where asphalt overlaid over concrete pavement exists at the north approach of northbound lanes of the I-64 over Main St. bridge, which is not replaced as part of new

terminal joint construction, mill existing asphalt pavement to the top of existing concrete pavement, or a minimum of 1.5", and overlay with variable depth (minimum 165 lbs/syd) QC/QA-HMA, 4, 76, Surface, 9.5 mm.

6. HMA pavements shall have joint adhesive installed at all longitudinal joints in the surface layer and intermediate layer as per Standard Specification 401.15. A 24-inch-wide liquid asphalt sealant shall be placed centered on longitudinal joints that have joint adhesive installed, as per Standard Specification 401.15.

7. Riprap drainage turnouts shall be placed 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.

9.3.2.3 New Albany Pavement (Elm, Spring, W 5th St.) Pavement Design

The minimum pavement design requirements shall be as follows:

1. Areas identified as requiring full-depth pavement repair shall be patched with a full-depth HMA patch.

2. The full depth HMA patch shall consist of HMA for Patching Type B and match existing pavement thickness (or a minimum of 10-in if existing pavement is less than 10-in), and follow patching details attached in Appendix F of SMCP RID 9-1 Pavement Design Report. Full-depth HMA patches shall be constructed over Subgrade Treatment, Type ID.

   a. Full-Depth Patch:

      i. HMA Patching, Type B, consisting of:

         (1) 440 lbs/syd HMA Intermediate, Type B, on

         (2) Variable depth (min. 660 lbs/syd) HMA Base, Type B on

      ii. Subgrade Treatment, Type ID (9 in. of coarse aggregate No. 53 over 3 in. of coarse aggregate No. 5 or No. 8. Geotextile, Type 2B in accordance with 918.02(c) shall be placed above and below the layer of No. 5 or No. 8 coarse aggregate.)

3. Partial depth patching will be needed in areas where increased distress is observed but isolated to the HMA layers. Partial depth patches should follow patching details attached in Appendix F. Partial depth patches shall be 4-in deep (440 lbs/sys) and shall be comprised of HMA for Patching, Type B, intermediate mix only.

4. Mill and overlay shall be constructed on mainline lanes, turn-lanes, and paved shoulder.

   a. Mainline Lanes, Turn-Lanes, and Paved Shoulders:

      i. Asphalt Milling, 1-1/2-in of existing HMA and overlay with:

         (1) 165 lbs/syd QC/QA-HMA, 3, 64, Surface 9.5 mm on

         (2) Existing, milled HMA surface

5. After the milling operation is performed, crack sealing shall be performed for cracks greater than or equal to 1/4-in wide. Crack fill and seal operations should use PG 64-22 liquid asphalt.

6. If any HMA public road approaches or driveway approaches are determined to require an overlay, they shall be overlaid using HMA for Approaches Type B in accordance with INDOT Standard Specifications.

9.3.2.4 I-64/I265 and I-65/I-265 Interchange Ramp Shoulder Strengthening Pavement Design

The minimum pavement design requirements for interchange widening shall be as follows:

1. Mill existing shoulders to be used for MOT with Milling, Asphalt, 1.5-in and overlay with
   a. 165 lbs/syd QC/QA-HMA, 4, 76, Surface, 9.5 mm

9.3.2.5 MOT Crossover Pavement Design

The minimum pavement design requirements shall be as follows:

1. HMA for Temporary Pavement, Type D consisting of:
   a. 165 lbs/syd HMA Surface, Type D on
   b. 275 lbs/syd HMA Intermediate, Type D on
   c. 550 lbs/syd HMA Base, Type D on
   d. 5 inches of Compacted Aggregate, No. 53 on
2. Subgrade Treatment, Type IC (12 inches of subgrade excavated and replaced with Compacted Aggregate, No. 53).

9.4 Construction Requirements

9.4.1 Smoothness Requirements

For all HMA surfaced roadways, Design-Build Contractor shall construct a transition at the end of the full-depth construction that consist of 1.5 inches of milling followed by 165 lbs/syd QC/QA-HMA, 3, 70, surface, 9.5 mm for a length of 50 feet onto the existing roadway.

9.4.2 Subgrade Treatment

Except as specified in Section 9.3.2, Design-Build Contractor shall use 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 SGT Type ID).

9.4.3 Temporary Pavement

If temporary pavement, other than for MOT crossovers is required to be constructed, the Design-Build Contractor shall design, construct, and maintain temporary pavements within the Planned ROW Limits in compliance with the PPA Documents and the following performance requirements and according to the applicable Project Standards. Temporary pavement is defined as pavement that is in use by vehicular traffic for 24 months or less, or as shoulders,

and portions thereof, that will be used for mainline, auxiliary or ramp lanes. The use of existing shoulders as lanes shall be considered temporary pavement. Design-Build Contractor shall:

1. 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 limits of the Project.
2. Temporary pavements shall be designed with a 95 percent reliability.
3. Provide a durable, maintainable pavement system that meets the following requirements during its service life:
    a. Minimum friction number of 37
    b. IRI shall not exceed 70 when placed and not to exceed 120 inches/mile throughout the service life of the pavement.
    c. Free of potholes, fatigue areas, duress, and rutting exceeding 0.25 inches
    d. Provide adequate cross-slope to drain water quickly from pavement surface

If IFA believes, in its sole discretion, that these requirements are not being met, IFA 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 the Work.

9.4.3.1 Temporary HMA Pavement Performance Standards

Design-Build Contractor shall construct and maintain temporary HMA pavements according to Project Standards and the following:

1. No occurrence of pavement shoving shall exceed 2 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 2 inches in depth for a continuous length of 15 feet or more.
4. No depression exceeding 0.5 inches in depth (e.g., 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 ravelling shall exceed 0.5 square feet in area. Furthermore, the total delamination or ravelling 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.

9.4.4 Shoulder Corrugations

Shoulder corrugations are not required for this Project.

9.4.5 Underdrains

Where full-depth pavement replacement is constructed for pavements within the limits of the Project that have existing underdrains, underdrains shall be installed and perpetuated in accordance with the Project Standards. Design-Build Contractor shall video inspect underdrains per IDM requirements.

9.5 Deliverables

Deliverables under this Section 9, a non-exhaustive list of which is set forth in Table 9-1, 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 9-1: Deliverables

Deliverable	Deliverable Schedule	TP Section
Pavement design for temporary pavement	With Stage 3 Review Submission	9.4.3
Pavement design for sections that are not in accordance with Section 9.3.2.1 through Section 9.3.2.5)	30 days prior to Stage 3 Review Submission	9.3.2
Underdrain details	With Stage 3 Review Submission	9.4.5

10 HYDRAULICS AND DRAINAGE

10.1 General

Design-Build Contractor shall design and construct all hydraulics and drainage Work, including culverts, bridge-deck drainage system, inlets, and other drainage facilities.

10.2 Administrative Requirements

Design-Build Contractor shall perform all Work in accordance with the PPA Documents, including Project Standards and this Section 10; Governmental Approvals; and Governmental Rules.

INDOT Project Standards shall apply to the roadways, bridges and approaches within the Project limits located in Indiana, including the Sherman Minton Bridge Span 1, 2, A, B, and C. KYTC Project Standards shall apply to the KY Approach Bridge.

10.3 Performance Requirements

Design-Build Contractor shall replace the drainage systems for bridges 056B00161N and I64-123-04691 E.

The Design-Build Contractor shall repair or replace defective, damaged or deteriorated drainage systems for bridges I64-123-02294 DWBL, I64-123-02294 DEBL, and I64-123-02294 JDEB. The Design-Build Contractor shall evaluate and identify any defect, damage or deterioration of the existing bridge drainage systems and design an appropriate repair or replacement.

The existing bridge drainage system or its component(s) shall be repaired or replaced if the defect, damage or deterioration includes:

1. Structural damage to any drainage system component
2. Broken inlet grates, scuppers or deck drains
3. Holes in the piping system
4. Broken or cracked connectors, supports, or other hardware
5. Downspout or pipe section damage or loss
6. Inadequate pipe slope or undersized components leading to clogged systems
7. Missing or loose fittings or other hardware
8. Clogged or partial obstruction of the deck drains or downspouts
9. Leakages within the piping system
10. Existing pipe enclosed in substructures

Erosion at the outfall of any drainage system shall be repaired.

The bridge, approach, and roadway drainage systems (including runoff collection systems, conveyance systems, runoff treatment facilities, and outfalls for the Project) shall meet the requirements of this Section 10, Project Standards, and the Project permits. Design-Build Contractor shall maintain existing drainage patterns except as approved by IFA.

Elements of the existing drainage system for the roadway sections within the limits of the Project are to remain in place, given they meet hydraulic capacity requirements, Project Standard requirements, and it is demonstrated to the governing agency that the facility is in satisfactory condition. If any elements of the existing system do not comply with the requirements of this Section, those elements shall be replaced by the Design-Build Contractor unless designated to remain by the governing agency. The Design-Build Contractor shall base its final design on design computations for all aspects of Project drainage.

Drawing submittals shall be complete with associated engineering documentation sufficient to verify that the design meets the Project Standards, specifications, and permits. Project submittals include, but are not limited to, the following:

1. Drainage design calculations submitted with the corresponding drainage design plans.
2. Drainage Report (submittal during design development, supplemental updates during construction).
3. Shop drawings.
4. Amendments to the Standard Specifications, Special Provisions, and Technical Specifications.
5. Final submittal in PDF format including all calculations, documents, and drawing files unless otherwise indicated.

Design-Build Contractor shall prepare a Drainage Report to address all applicable items in the IDM, PPA Documents, Project Standards, and this Section 10, including all applicable culverts, bridge-deck drainage system, inlets, and other drainage items and requirements. 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 drainage system layout
4. Drainage design criteria
5. Drainage design approach and methodology

Design-Build Contractor shall submit the Drainage Report to IFA for review and approval.

10.3.1 Collection and Conveyance Structures

The Design-Build Contractor shall be responsible for calculating the gutter flows, inlet spacing, and storm drain capacity and replacing the collection and conveyance system as required by the design criteria in the Project Standards. The capacity of all existing and proposed inlets, storm drains, scuppers, ditches, outfalls and other conveyance structures shall be designed or checked and included in the Drainage Report. Calculations shall verify that the design meets the Project Standards.

Conveyance system structures including manholes, inlets and catch basins shall be located outside of the travelled way and auxiliary lanes of freeways including collector-distributors and

ramps. Unless prescribed otherwise in this Section, existing structures shall be removed and replaced if they fall within these limits.

Where drainage outlets to side-slopes, riprap drainage turnouts shall be reconstructed at ends of bridge rail transitions on shoulders that receive drainage. Modified concrete curb turnouts shall be constructed to direct water to the turnout.

10.3.2 [This section intentionally left blank.]

10.3.3 Bridge Deck Drainage

Runoff from bridge decks shall be carried off the bridge into the adjacent roadway system and/or conveyed in a closed system down substructure units into an open or closed storm sewer system, or free fall as indicated in Section 10.3.3.2. Bridge drainage shall be collected at the gutter lines (toe of parapet) by scuppers or deck drains. Over-the-side drainage is not permitted.

Drainage features shall be designed to eliminate or minimize the need for bridge deck drains.

10.3.3.1 [This section intentionally left blank]

10.3.3.2 Sherman Minton Bridge over the Ohio River

The capacity of all existing and proposed inlets, storm drains, scuppers, ditches, outfalls and other conveyance structures shall be as required in Section 10.3.1.

Free fall drains are allowed on the Sherman Minton Bridge, between stations 79+70 and 95+70. Free fall drains shall not be placed where the drains are over roadways or pedestrian paths. Water intercepted on the upper deck shall be conveyed in pipe until it reaches a point below the bottom of the lower deck. Water intercepted on the lower deck may be dropped vertically below the deck into the Ohio River. The downspout for free fall shall extend below the superstructure approximately 12 inches. The downspout shall be placed no closer than 10 feet from the face of a substructure unit.

Deck drainage for the Sherman Minton Bridge, between stations 95+70 and 100+23, shall be conveyed in a closed system as indicated in Section 10.3.3.3.

See SMCP RID 14-001 Bridge Rehab Plans Sherman Minton Bridge for stationing references for the Sherman Minton Bridge.

10.3.3.3 Underdeck Discharge System

1. The drainage system for all bridges and approaches, except as indicated in Section 10.3.3.2 shall consist of closed pipe from the deck elevation to the point of discharge into an open or closed storm drainage system in order to replace the existing system and preserve the existing drainage pattern.
2. Pipe enclosed in substructures is not permitted.
3. The minimum pipe diameter is 6 inches.
4. The minimum desirable pipe slope is 1%
5. The pipe shall have sufficient slope to maintain a minimum velocity of 3 feet per

second. Provide slopes as steep as can be practically incorporated with the geometry of the structure.

6. Longitudinal pipe must not extend below the superstructure.
7. Vertical pipe runs to the ground drainage system shall only be located at piers and consist of closed pipe down to 2 feet above the ground and discharge onto a riprap splash pad or turnout.
8. The maximum pipe bend angle is 45 degrees.
9. Cleanouts shall be provided immediately upstream of each bend, on vertical downspouts accessible from the ground, and at the end of each horizontal segment.
10. Transverse deck drains are not permitted.

10.4 Construction Requirements

Design Build Contractor shall replace the drainage systems for the bridge and approaches within the limits of the Project, unless otherwise directed in Section 10.3. Design-Build Contractor shall be responsible for inspection, maintenance, and reporting of the existing drainage systems to remain in place, as required by the Project Standards and Project permits from NTP to Final Acceptance.

Temporary erosion control measures shall be in accordance with the IDM and IDEM - Indiana Stormwater Quality Manual, Project permits, and applicable INDOT Specifications for roadways, bridges and approaches within the limits of the Project located in Indiana, including the Sherman Minton Bridge Span 1, 2, A, B, and C. In case of a conflict, the Project permits shall control.

Temporary erosion control measures shall be in accordance with the KYTC Drainage Manual, Project permits, and applicable specifications for the KY approach.

10.5 Deliverables

Deliverables under this Section 10, a non-exhaustive list of which is set forth in Table 10-1, 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. The submittals shall also include all computer modelling software files per IDM requirements.

Table 10-1: Deliverables

Deliverables	Deliverable Schedule	TP Section
Drainage Report	45 days prior to Stage 1 Review Submission	10.3.1

11 TRAFFIC AND LIGHTING

11.1 General

Design-Build Contractor shall perform the traffic Work including signing, pavement markings, traffic signals and lighting in accordance with the PPA Documents, including Project Standards, this Section 11 and its attachments, Governmental Approvals, and Governmental Rules.

11.2 Signing

11.2.1 Design and Construction Requirements

Design-Build Contractor shall remove all existing signs, sign structures, and foundations from Station 61+78 “EB LANES” to Station 115+71 “EB LANES” for I-64 westbound travel and from Station 62+62 “EB LANES” to Station 115+82 “EB LANES” for I-64 eastbound travel. Design-Build Contractor shall design and construct new regulatory, warning, recreation, ground mounted guide signs and overhead guide signs from Station 61+78 “EB LANES” to Station 115+71 “EB LANES” for I-64 westbound travel and from Station 62+62 “EB LANES” to Station 115+82 “EB LANES” for I-64 eastbound travel . Design-Build Contractor shall remove and replace existing Indiana welcome sign. Design-Build Contractor shall incorporate following items in the signing design:

1. All signs along the mainline I-64 and associated ramps shall be “freeway” size.
2. For purposes of sign design, all interchanges shall be classified as major, category A, as defined in IMUTCD Section 2E.
3. Design-Build Contractor shall remove and replace existing Indiana welcome sign in accordance with Attachment 11-8 (Welcome to Indiana Sign).
4. The sheeting material for all overhead signs shall be in accordance with Attachment 11-1 (USP Traffic Control Device).
5. Reference markers shall be included in accordance with the IMUTCD along mainline I-64 using the D10-5 sign at one-tenth mile increments. All existing non-compliant reference markers shall be removed.
6. If bridge-mounted signs are to be installed or replaced on the Sherman Minton Bridge, Design-Build Contractor shall consider the size and location of the proposed signs during structural analysis of the bridge. The Design-Build Contractor shall be responsible for all structural analysis and design of bridge mounted sign mounts in accordance with Attachment 11-7 (USP Bridge Mounted Sign).
7. No signs shall be banded or connected to Utility poles, lighting poles, or overhead sign structure uprights.
8. Sign lighting for newly installed overhead panel signs is not required.
9. The signing locations shall be coordinated with other design disciplines to avoid conflicts with proposed landscaping, Utilities, hydraulics, lighting, ITS, and all other roadside features.

10. Existing sign foundations shall be removed to a minimum depth of 1 foot below finished grade. Existing sign foundations shall not be used for any proposed permanent sign construction.

11.2.1.1 Signing Roll Plots

Prior to the Stage 1 Review Submission, Design-Build Contractor shall prepare and submit signing roll plots to IFA for review and comment. The signing roll plots shall include proposed overhead and ground-mounted panel signs. The signing roll plots shall include features such as roadway linework, proposed pavement markings, ROW, Utility information, existing topography, and applicable legends.

11.2.1.2 Sign Supports and Foundations

Design-Build Contractor shall use INDOT standard sign structures and foundations where possible. Any required special sign structures shall be designed per Chapter 502-1.01 of the IDM and applicable Project Standards. The special sign structures, support, and foundation calculations shall be submitted to IFA for review and comment. Design-Build Contractor shall use KYTC standard sign structures and foundations on any signs located in Kentucky.

For each sign support location, Design-Build Contractor shall indicate on the Plans the sign panel(s) and the sign support on the corresponding completed cross-section. The proper vertical and horizontal clearances, sign sizes and offsets, foundations, number of lanes, and lane widths shall be labelled on the sign cross-sections. If a non-standard overhead sign support is proposed, Design-Build Contractor shall submit calculations to properly size the sign supports. Calculations shall be provided for IFA review and comment with signing Plan Submittals.

Roadside barrier shall be provided to protect all non-breakaway supports within the clear zone.

11.2.1.3 Sight Distance Requirements

At the Stage 1 Review Submission and Stage 3 Review Submission, Design-Build Contractor shall provide sight distance documentation for review and comment. The sight distance documentation shall demonstrate that sign locations meet sight distance requirements.

11.3 Pavement Markings

11.3.1 General Requirements

Design-Build Contractor shall design, install, and maintain pavement markings and delineation until Final Acceptance from Station 61+78 “EB LANES” to Station 115+71 “EB LANES” for I-64 westbound travel and from Station 62+62 “EB LANES” to Station 115+82 “EB LANES” for I-64 eastbound travel. Design-Build Contractor shall design, install, and maintain pavement markings and delineation within the local street limits of the Project as specified in Section 1.2.2 (Project Description).

11.3.2 Design and Construction Requirements

All retro-reflective pavement marking materials shall be grooved wet reflective preformed plastic on interstates, ramps, US routes and State roads and installed in accordance with Attachment 11-2 (USP Wet Reflective Preformed Plastic).

Contrast lane lines shall be in accordance with Attachment 11-1 (USP Traffic Control Device), Attachment 11-3 (Contrast Edge Line Detail) and Attachment 11-4 (Contrast Lane Line Detail).

Pavement marking shields and cardinal direction message markings shall be installed to delineate lane assignments at locations in advance of any option-lane and multi-lane splits as depicted in the example shown in Attachment 11-5 (Pavement Message Marking Detail).

Design-Build Contractor shall provide delineators on the outside shoulder of I-64 mainline and on one side of each interchange ramp. The delineator color shall match the color of the edge line. Design-Build Contractor shall provide delineators 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 concrete barrier.

Proposed pavement markings shall be shown in the signing roll plots and included in the Stage 1 Review Submission and Stage 3 Review Submission for IFA review and comment. The roll plots and Plans shall show the color, size, location, and material type for markings. The lanes shall be dimensioned based on the typical sections for the Project. Dimensions shall be included for each change in the roadway typical section.

11.4 Traffic Signals

11.4.1 Design and Construction Requirements

Design-Build Contractor shall perform all construction activities pertaining to traffic signals as impacted by the HMA overlay.

Design-Build Contractor shall remove and replace all existing traffic signal loops and detector housings impacted within the local street limits of the Project as specified in Section 1.2.2 (Project Description) and the reference plans provided in the RID.

Design-Build Contractor shall remove and replace all existing pedestrian push buttons with Audible Pedestrian Signals (APSs) in accordance with INDOT Standard Drawings Series E805-PBBA, Pedestrian Push Button Assembly Details, at pedestrian crossing locations as listed in Section 8.2.2.1. Design-Build Contractor shall remove and replace all existing pedestrian signals with countdown pedestrian signals at pedestrian crossing locations as listed in Section 8.2.2.1.

Existing traffic signal operation and detection shall be maintained during all phases of the roadway construction.

Work shall include coordinating Utility connections with the proper Utility Owner and coordinating the signal cable connections with local jurisdictions.

11.4.1.1 Utility Requirements

Design-Build Contractor shall locate and mark all underground Utilities prior to any signal installation Work.

Design-Build Contractor shall coordinate with Utility Owner(s) to deliver metered power to all signal equipment installed or modified under this Project. Design-Build Contractor shall be

responsible for all Work, materials, and costs required to obtain power to signal equipment, including application and coordination with Utility Owner(s).

11.4.2 Materials

All traffic signal equipment installed under the Project shall be new.

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

11.4.3 Traffic Control Device Verification – Signals

Design-Build Contractor shall schedule two meetings with IFA per intersection signal installation to verify traffic control device Work as follows:

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

These meetings shall be coordinated and scheduled a minimum of 72 hours in advance of each individual meeting date.

11.5 Lighting

11.5.1 Design and Construction Requirements

Design-Build Contractor shall design and construct lighting within the limits of the Project in accordance with Project Standards and Utility Owner requirements. Design-Build Contractor shall maintain required highway illumination levels for all open traffic movements and corresponding functional/operational lighting during construction of the Project until new lighting is installed and operational. Design-Build Contractor shall also be responsible for design and installation of new bridge navigational lighting conduit and cable.

For all lighting located on the Kentucky approach, the Design-Build Contractor shall adhere to KYTC lighting standard specifications and KYTC roadway lighting standard detail drawings.

11.5.1.1 Design Criteria

Design-Build Contractor shall prepare and submit lighting design photometric model(s) and calculations for review with lighting Plan Submittals. The photometric model(s) shall use either Visual or AGi32 software. The design shall include a combination of conventional lighting poles and bridge underpass lighting within the limits of the Project as described herein.

The lighting design photometric model(s) shall achieve an Average Maintained Horizontal Illuminance, Minimum Illuminance and Uniformity Ratio for each facility as shown in Table 11-1 below. Calculation point spacing shall be no greater than 5 feet by 5 feet.

Table 11-1: SMCP Illuminance Design Values

Facility	Average Maintained Horizontal Illuminance (Eavg) (footcandles) (min)	Minimum Illuminance (Emin) (footcandles)	Illuminance Uniformity Ratio (Eavg/Emin) (max)
I-64	0.8	0.2	4:1
Main St.	1.2	As Uniformity Ratio Allows	
Market St.	1.0		
Spring St.	1.2		
Bike Lane	1.2		
Sidewalks	0.8		

Design-Build Contractor shall provide all new lighting structures, luminaires, foundations, handholes, conduit, cables, service points, and other necessary equipment to meet design criteria for the proposed pavement. At least one existing pole and luminaire beyond the limits of the Project shall be included in the photometric model, in each direction.

Light trespass outside the Planned ROW Limits shall be limited through the use of shields, lighting distribution selection, mounting heights, pole types, or other means. Design-Build Contractor shall prepare an exhibit identifying all residential areas at outset of photometric modeling 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 5 feet in depth behind the Planned ROW line(s) and of similar longitudinal length to the adjacent travel pavement calculation zone. Illuminance values shall be measured to 0.01 fc accuracy. The average illuminance in these light trespass calculation zones shall not exceed 10 percent of the average illuminance for travel pavement of the section of mainline I-64 running parallel to the ROW. Sound walls and privacy fences along the ROW that are part of the completed design shall be modeled as solid objects of the appropriate height in photometric model(s) to accurately model the light trespass.

11.5.1.2 New Roadway Lighting

Design-Build Contractor shall coordinate the light structure heights with IFA and the FAA, comply with FAA requirements, and apply for permits if necessary.

Power supply for lighting shall be installed in separate Conduits and on independently metered circuits from other non-lighting equipment. Luminaires shall be connected to alternating conductors to balance load along each branch circuit.

All new roadway lighting shall use LED luminaires from manufacturers listed on Attachment 11-6 (INDOT Preapproved Luminaires List). Design-Build Contractor shall apply LLF values as shown on the Approved Luminaire List when computing illuminance in the photometric model(s).

Design-Build Contractor shall see Section 13 (Geotechnical) and Section 14 (Structures) for structural design requirements.

11.5.1.3 Existing Roadway Lighting

Design-Build Contractor shall not relocate or reuse existing lighting fixtures or equipment within the Planned ROW Limits.

Design-Build Contractor shall remove existing light poles that are no longer required. For light poles as part of the Work, but not owned by INDOT, the Design Build Contractor shall coordinate the removal or relocation of the light fixture with the Local Agency or Utility Owner.

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

11.5.1.4 Underpass Lighting

Design-Build Contractor shall provide new underpass lighting to maintain roadway lighting continuity at Main Street, Market Street, Spring Street and for I-64 eastbound on the lower deck of the Sherman Minton Bridge. The underpass lighting shall be in accordance with the criteria from Table 11-1.

11.5.1.5 Bridge Navigation Lighting

Design-Build Contractor shall be responsible for coordinating all work associated with bridge navigation lighting. Design-Build Contractor shall maintain bridge navigation lighting at all times during construction activities and may use temporary fixtures if necessary. Bridge navigation lighting shall not be off for any period of time.

11.5.2 Lighting Roll Plots

Prior to the Stage 1 Review Submission, Design-Build Contractor shall submit lighting roll plots for IFA review and comment. The lighting roll plots shall include proposed locations for all lights and photometric design model files and calculations supporting the light locations.

11.5.3 Performance Requirements

All proposed lighting equipment, including conventional light poles and service points, shall be located such that it can be readily maintained and easily accessible. Conventional poles shall have mast arm(s) and luminaire(s) that are accessible from the shoulder and mast arm(s) length shall be limited such that no luminaires extend above vehicular travel lanes. Where possible, luminaires shall be centered over the width of the shoulder. In locations with narrow shoulder widths, mast arm length shall be limited such that only one lane of traffic shall be closed for maintenance operations. All bridge-mounted conventional poles shall have mast arm lengths five feet in length or less. Design-Build Contractor shall provide lighting plans displaying, at a minimum, existing topography, existing right-of-way limits, proposed pavement markings, proposed right-of-way limits and proposed luminaire locations. Light pole cross sections shall be included with the lighting plan set for all conventional poles not mounted to the bridge.

Design-Build Contractor shall provide voltage drop calculations for all circuits. The voltage drop shall not exceed 10 percent for each circuit. All lighting circuits shall have balanced lighting loads between red and black line conductors to operate at 240 volts. Electrical cables and conductors for lighting systems only shall enter the foundation of the lighting structures.

Design-Build Contractor shall furnish and install single conductor cables in Conduit under all roadway surfaces. Single conductor cables shall be used wherever cables are to be installed in

Conduit. Design-Build Contractor shall provide electrical lighting handholes and connectors to splice the conductors. No in-ground splices of electrical cables are allowed. No electrical lighting handholes shall be placed in drainage ditches. Design-Build Contractor shall abandon existing conductors between poles to be removed. Any existing lighting structure impacted by the Project and outside the Planned ROW Limits shall be disconnected and reconnected to its original power supply by Design-Build Contractor.

All conventional light poles owned by INDOT 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. Luminaire shielding may be provided in residential areas to achieve the light trespass design criteria.

11.5.3.1 Temporary Lighting

Design-Build Contractor shall maintain required highway illumination levels for all open traffic movements and corresponding operational lighting during construction of the Project, whether by maintenance of existing lighting or by installation of temporary lighting, 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 (luminaires attached to wood poles or other temporary supports). Temporary lighting shall achieve existing lighting illumination levels as a minimum, including Average Maintained Horizontal Illuminance, Minimum Illuminance, and Average/Minimum Uniformity Ratio. Design-Build Contractor shall provide photometric model files detailing location, mounting height, and luminaire specifications for both the existing condition and the temporary condition. If permanent lighting installation is used to maintain illumination, illumination levels provided in Table 11-1 shall be achieved. 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 of any and all temporary lighting that may be required, and it is Design-Build Contractor's responsibility to schedule and coordinate all Utility connections.

11.5.3.2 Electrical Service for Lighting

Design-Build Contractor shall coordinate with Utility Owner(s) to deliver metered power to all lighting equipment installed or modified under this Project. Design-Build Contractor shall be responsible for all Work required to obtain power to lighting equipment including application and coordination with Utility Owner(s).

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.

Each lighting system shall clearly identify the power service location and power company provider based on jurisdiction. Lighting system circuitry shall be separated by power company provider jurisdiction where feasible.

11.6 Deliverables

Deliverables under this Section 11, a non-exhaustive list of which is set forth in Table 11-2, 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 11-2: Deliverables

Deliverable	Deliverable Schedule	TP Section
Signing roll plots	Prior to Stage 1 Review Submission	11.2.1.1
Sign structure calculations	With Stage 1 Review Submission, Stage 3 Review Submission, and Released for Construction Documents	11.2, 14.3.4
Signing Plans	With Stage 1 Review Submission, Stage 3 Review Submission, and Released for Construction Documents	11.2.1.1
Pavement marking Plans	With Stage 1 Review Submission, Stage 3 Review Submission, and Released for Construction Documents	11.3
Lighting Design Photometric Model(s)	With Stage 1 Review Submission, Stage 3 Review Submission, and Released for Construction Documents	11.5.1.1
Lighting roll plots	Prior to Stage 1 Review Submission	11.5.2
Lighting Plans	With Stage 1 Review Submission, Stage 3 Review Submission, and Released for Construction Documents	11.5.3

12 MAINTENANCE OF TRAFFIC

12.1 General

Design-Build Contractor shall perform all MOT Work in accordance with the PPA Documents, including Project Standards, this Section 12 and its attachments; Governmental Approvals; and Governmental Rules.

Design-Build Contractor shall design and construct MOT in a manner that minimizes traffic impacts, vehicular delay, and the exposure to potential hazards for both motorists and personnel in the work zone and vicinity. This Section 12 defines specific requirements, restrictions, and permitted closure durations for lanes, ramps, and local streets.

12.2 Administrative Requirements

12.2.1 Required Personnel

12.2.1.1 MOT Design-Build Coordinator

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

1. Coordinate MOT activities with IFA and other Governmental Entities.
2. Implement traffic management strategies and lead development of the Traffic Management Plan (TMP).
3. Prepare and submit a weekly inspection report to IFA for all maintenance of traffic control devices used in MOT activities for the Project.
4. Monitor crashes within and adjacent to the Project, and provide a weekly report summarizing findings.
5. Supervise the activities of the CWTS.
6. Coordinate the MOT Plan design.

12.2.1.2 Certified Worksite Traffic Supervisor

Design-Build Contractor shall provide a CWTS in accordance with Section 801.03 of the Standard Specifications. The CWTS, or designee as approved by IFA, shall be on-Site when Construction Work is occurring until Final Acceptance. The CWTS shall be under the supervision of the MOT Design-Build Coordinator.

12.2.1.3 Incident Management Liaison

Design-Build Contractor shall provide an Incident Management Liaison to participate in TMP Team meetings, conduct incident management training, document incidents and responses, and other duties as described in the Traffic Incident Management Plan (TIMP).

12.2.2 TMP Team Meetings.

Design-Build Contractor shall engage with IFA and Governmental Entities, including law enforcement agencies, emergency response providers, school systems, and other stakeholders

and agencies whose operations affect, or are affected by, the Project construction and/or MOT (collectively, the "TMP Team"). Design-Build Contractor shall schedule and hold meetings with this TMP Team. IFA will identify the required invitees for the TMP Team and provide to the Design-Build Contractor. IFA will be the primary contact for the TMP Team.

The MOT Design-Build Coordinator shall maintain a contact list of TMP Team members. This list shall include, at a minimum, the following information: name, affiliation, work phone, and email. The list shall be sorted in alphabetical order by affiliation and then last name.

12.2.2.1 Initial Meeting

Design-Build Contractor shall arrange and hold an initial TMP Team meeting at least six weeks prior to initial installation of the traffic control devices for the beginning MOT phase.

12.2.2.2 Monthly Meetings

Design-Build Contractor shall hold monthly TMP Team meetings from commencement of construction, as defined in Section 4.5 of the PPA to Substantial Completion. The meeting schedule and frequency may be adjusted upon the agreement of the TMP Team members and approval by IFA. Design-Build Contractor shall cover the following objectives at these meetings:

1. Further refine, develop, and discuss the MOT Plans.
2. Review and discuss the Design-Build Contractor's MOT details, including review of MOT and traffic-related environmental commitments, work zone crash rate and crash rate trend, and work zone queueing.
3. Disseminate Project MOT information to TMP Team, including schedules and details regarding MOT phase shifts, closures, and detours.
4. Obtain MOT input from TMP Team and prepare and distribute meeting minutes.
5. Develop, refine, and review the TIMP and its implementation.
6. Review all Incidents within and adjacent to the limits of the Project, and discuss mitigation measures, as needed.
7. Review emergency responder access.

The MOT Design-Build Coordinator shall notify members of the TMP Team of meetings at least 14 days prior to any scheduled meeting and distribute a meeting agenda at least two days in advance. The MOT Design-Build Coordinator shall prepare meeting minutes and distribute to the TMP Team within five days after the meeting.

12.3 Design and Construction Requirements

12.3.1 Transportation Management Plan

Design-Build Contractor shall prepare, implement, and maintain a TMP for the Project. Design-Build Contractor shall obtain IFA approval of the TMP prior to initiation of any Construction Work. Design-Build Contractor shall prepare and submit updates to the TMP to IFA for approval no later than 14 days after the identification of a necessary change to the Work, including the MOT scheme. IFA has developed a baseline TMP, included in the RID.

The TMP shall be developed in coordination with and be consistent with the PIP and include procedures to communicate TMP information to the Public Involvement Manager for communication of all MOT Work to the public, stakeholders, including affected Governmental Entities' stakeholders and other affected parties prior to implementation of any MOT phase or phase change.

The TMP shall include:

1. Traffic Operations Plan
2. Temporary Traffic Control Plan (TTCP)
3. Traffic Incident Management Plan (TIMP)
4. Coordination process with the PIP, as described in Section 5 (Public Involvement), including the use of highway advisory radio and variable message signs.
5. Procedures for communication of all MOT phase installations and changes with the affected groups and stakeholders.
6. Procedures defining how MOT Design-Build Coordinator will coordinate construction traffic impacts with the IFA communication manager and TMP Team, and with Design-Build Contractor's CWTS, who is responsible for monitoring daily MOT activities.
7. Descriptions of contact methods and response times of the CWTS to address any MOT conditions needing attention during all hours.
8. 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.
9. Procedures to identify and incorporate the needs of transit operators, Utility Owners, and business owners in the Project corridor, including Utility Owner maintenance access and business access signing.
10. Identification of measurable limits for the repair and replacement of traffic control devices, including pavement markings.
11. Processes to determine the placement, spacing, messaging, and design of temporary panels signs to provide advance warning of construction zone and closures.
12. Processes to identify, design, and obtain required approval for all necessary temporary traffic signals or modifications to existing traffic signals.
13. Processes to determine the need for revised traffic signal timings, and if revisions are required, detailed procedures for the development, approval, implementation, testing, and maintenance of all signals affected by the MOT; both within the limits of the Project and on detour routes.
14. Processes for determining the need for temporary traffic signals at existing unsignalized intersections, both within the limits of the Project and on detour routes.
15. Work zone access management mapping (including ingress/egress locations and details) for each construction phase.
16. Construction haul route mapping for each construction phase.

17. Frequency of inspection and methods of maintenance of all traffic control devices in use by the Project.

18. Provisions to provide continuous access to established truck routes and any Hazardous Material routes.

19. Procedures for modification of the MOT Plans.

12.3.2 Temporary Traffic Control Plan

Design-Build Contractor shall prepare a TTCP, submit for IFA approval, and implement the approved TTCP. An approved TTCP shall be included with each applicable RFC package Submittal. The TTCP shall become part of the appropriate TMP as amendments once the TTCP is approved by IFA.

The TTCP shall define how Design-Build Contractor is to phase construction and detail all the required elements of the physical work zone.

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

1. A cover page/title sheet signed and sealed by a Registered Professional Engineer.

2. Standard Drawings used for MOT Plans and MOT design.

3. MOT Plans. The MOT Plans shall detail phases and shall identify allMovement Closures anticipated during the Work.

4. Detour routes and haul routes required for the purpose of Construction Work.

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 markings to permanent signing and permanent pavement markings.

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 Planned ROW Limits. 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 limits of the Project 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 PIP.

In addition to the requirements in the IDM, the MOT Plans shall include the following information for each phase of construction:

1. Locations and details for traffic shifts and lane closures

2. Use of temporary roadways

3. Temporary traffic signals
4. Access modifications to businesses and residences
5. Proposed mitigation measures for traffic impacts
6. Ingress/egress locations and details for Design-Build Contractor-Related Entities
7. Temporary local road closures and detour routes
8. Temporary pedestrian and bicycle detour routes
9. Temporary golf course access

12.3.3 Traffic Incident Management

12.3.3.1 Traffic Incident Management Plan

Design-Build Contractor shall prepare and submit the TIMP as part of the TMP for review and approval by IFA. The TIMP shall include procedures for interaction with IFA, INDOT, INDOT's consultant, KYTC, emergency responders, and other Governmental Entities.

Design-Build Contractor shall coordinate resources on the job and cooperate with all the emergency services providers as necessary for efficient response in emergency situations.

Design-Build Contractor shall establish procedures for the detection, verification, response, management, and clearance of incidents within or adjacent to the work zone. These procedures shall be discussed at TMP Team meetings and are subject to IFA review and approval. Design-Build Contractor shall designate an Incident Management Liaison to participate in the TMP Team. The CWTS may also serve the role of Incident Management Liaison. Prior to the start of Construction Work, the Incident Management Liaison shall arrange and conduct a detailed Incident Management training session for Design-Build Contractor's Key Personnel, superintendents, and lead foremen. Design-Build Contractor shall invite IFA and provide IFA with Notice of the training two weeks prior to the session. This training shall familiarize Design-Build Contractor's personnel with the Incident management procedures developed by the TMP Team that need to be followed throughout the Project. This training shall be conducted at a frequency as agreed upon with IFA for the term of the PPA as personnel are added to the Project. Documentation of this training, including dates performed and a list of all attendees, with signatures, shall be provided to IFA within five days of performing the training.

Design-Build Contractor's Incident Management Liaison shall coordinate all Incident response requirements with INDOT Incident Management Program Director from the Work Zone Safety Section.

12.3.3.2 Meeting and Notification Requirements

The Incident Management Liaison shall be present at the TMP Team meetings.

The Incident Management Liaison shall prepare and distribute incident management maps as approved by IFA to agencies identified by the TMP Team. The Incident Management Liaison shall update maps at a minimum of once per change of phase in maintenance of traffic plan or at the request of IFA. The maps shall be 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 IFA
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 labelled

The Incident Management Liaison shall meet with local emergency responder representatives at least 14 days prior to a major change in the MOT traffic patterns and coordinate with INDOT TMC.

The Incident Management Liaison shall present reports on Incidents at TMP meetings.

12.3.3.3 Incident Response

The Incident Management Liaison shall coordinate Design-Build Contractor's resources in response to an Incident either in the limits of the Project, work zone, or portions of the roadways where traffic is in queues approaching the work zone. Design-Build Contractor shall provide to IFA no later than seven days prior to commencement of construction, as defined in Section 4.5 of the PPA, the phone and email contact information for such designee(s), and Design-Build Contractor shall cause such designees' phone and email contact information to remain current until Final Acceptance. The designee shall be available and on call 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 in the limits of the Project, work zone, or portions of the roadways where traffic is in queues approaching the work zone and Construction Work is underway, Design-Build Contractor's personnel shall assist in establishing road or ramp closures to isolate Incident scenes in an emergency situation (as requested by IFA, emergency responders, or law enforcement). 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 or law enforcement and realigning temporary barriers to facilitate reopening the road to normal traffic (as requested). The Incident Management Liaison shall coordinate these activities with IFA and emergency responders on the scene.

Design-Build Contractor shall contact the appropriate law enforcement agency for disabled vehicles in active lanes and shoulders.

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

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.

12.3.4 Design Criteria

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

Level One design criteria for MOT shall be met unless an approved Design Exception is obtained. The Level One Design Exceptions identified in this Section 12.3.4 shall apply only to the specific locations stated within the Design Exceptions. Based on the Design-Build Contractor's MOT design, the Design-Build Contractor is responsible for preparing and submitting any MOT Design Exceptions to IFA for review. Design-Build Contractor shall obtain IFA's written approval of Design Exceptions prior to inclusion in the TTCP plans.

12.3.4.1 General Design Criteria

1. Construction Zone Design Speed

   a. The construction zone design speed on I-64 and ramps shall be as shown in Attachment 8-1 (Design Criteria) (or advisory speeds on ramps) and on all approaches to the work zone. The construction zone design speed on I-264, I-265, and ramps shall be the existing posted speed limit (or advisory speeds on ramps) and on approaches to the work zone.

   b. A 15-mile-per-hour speed reduction within the work zone shall be posted when a single 11 feet lane is maintained in any direction. A 10 mile-per-hour speed reduction within the work zone shall be posted in all other instances.

   c. The construction zone design speed on local streets within the New Albany Pavement work shall be the existing posted speed limit.

2. Lane Widths

   a. The minimum MOT lane width shall be 11 feet on I-64, I-264, and I-265.

   b. The minimum MOT lane width for multiple lane ramps shall be 11.5 feet.

   c. The minimum MOT lane width for single lane ramps shall be 16 feet.

   d. The minimum MOT clear roadway width for a single lane cross-over shall meet the Project Standards.

   e. The minimum MOT lane width on local streets shall match existing lane widths up to 11 feet.

   f. The minimum MOT lane width within multi-lane shifts on interstate mainline and ramps shall be 13 feet.

3. Separation Between Lane and Barriers

   a. A minimum horizontal clearance of 1 foot between barrier and edge of travel lane shall be provided.

   b. Temporary Traffic Barrier (TTB) and approved end treatments shall be used to separate the motoring public from the Work area when Work or equipment, including

personal vehicles and trucks used for loading and unloading, would otherwise be located within the construction clear zone. TTB 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. When TTB is used to channelize traffic through a lane shift taper or merging taper, the horizontal clearance between the barrier and the edge of travel lane shall be increased by using a 100 foot extension of the barrier at the beginning and end of the taper in accordance with Attachment 12-2 (Construction Taper Detail).

d. Opposing traffic lanes of I-64, I-264, or I-265 traffic shall be separated by traffic barrier if the existing open median width is reduced or otherwise cannot be provided.

e. For TTB used to separate two directions of traffic in a crossover, glare screens shall be used to eliminate headlight glare.

4. Design-Build Contractor shall maintain positive drainage on all active travel lanes during Construction Work and the design shall meet spread requirements for a 50 percent exceedance probability storm. The 50 percent exceedance probability storm may encroach into the nearest travel lane; however, a 10 feet minimum dry travel lane shall be maintained when the construction zone design speed is 45 mph and the full travel lane shall be maintained dry (e.g., no spread encroachment into the lane, whether 11feet or 12 feet) when the construction zone design speed is 55 mph. Design-Build Contractor shall verify to the satisfaction of IFA that all existing drainage features are adequately functioning prior to Construction Work.

5. Single lane temporary crossovers shall be per the Standard Drawings. Temporary crossover designs shall be submitted for IFA review and approval. Design-Build Contractor shall obtain IFA approval of final temporary crossover locations prior to their construction.

6. Design-Build Contractor shall install any missing reference markers prior to initiation of MOT and shall maintain reference markers during construction.

7. Barriers shall not impede snow removal operations outside the limits of the Project. To facilitate snow removal operations by INDOT and KYTC, from December 1 through March 31 each year, Design-Build Contractor shall maintain open areas along interstate routes and ramps matching existing shoulder widths. Within the limits of the Project, shoulders may be reduced to the widths shown in the Design-Build Contractor's approved MOT plans, while Work is progressing.

8. Ramp acceleration/deceleration lane lengths on I-64, I-264, and I-265 shall meet the Project Standards and be provided for all entrance and exit ramps during MOT operations.

9. Design-Build Contractor shall remove all existing rumble strips and replace with asphalt pavement prior to moving any traffic onto shoulders. Vehicles cannot straddle rumble strips at any point of construction. After substantial project completion, all rumble strips shall be replaced in their existing location.

10. Existing striping which conflicts with temporary markings within 12-feet of construction shall be water blasted and removed prior to any traffic shifts. All areas shown in the Design-Build Contractor's approved MOT plans shall be returned to their original configuration prior to Final Acceptance.

11. All existing raised pavement markers within 12-feet of construction shall be removed prior to any traffic shifts.

12. Signing shall meet Project Standards and be provided to designate express lanes and local access lanes.

13. Temporary minimum vertical clearance shall be 14'-6" for I-64 during construction.

12.3.4.2 Level One Design Exceptions

IFA has obtained the following Design Exceptions for MOT for the Project. See Attachment 12-7 (Design Exception Requests for MOT) for approved values and limits of design exceptions.

12.3.5 Traffic Through the Construction Zone

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

Appropriate MOT and flagging procedures shall be followed during all Construction Work, including mobilization and demobilization activities. Construction vehicles shall be equipped with flashing or rotating amber lights.

12.3.6 Access During Construction

12.3.6.1 Pedestrian and Bicycle

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. Occupational safety regulations that apply to the limits of the Project 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 of 48 inches 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 pedestrian and/or bicycles and the Work area.

Design-Build Contractor shall provide protective barricades, fencing, and footbridges, together with warning and guidance devices and signs to protect pedestrians. Design-Build Contractor shall provide suitable handrails whenever pedestrian walkways are provided across excavations. Footbridges shall be safe, strong, and free of bounce and sway; have a slip-resistant coating; and be free of cracks, holes, and irregularities. Design-Build Contractor shall provide ramps at the entrance and exit of all raised footbridges.

When the existing facility is illuminated and/or Work is required during the non-daylight hours, Design-Build Contractor shall address temporary construction lighting needs as well as address

any concerns regarding glare. 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 MUTCD, PROWAG, and ADA requirements 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 barricades or channelizing devices where it is necessary to divert pedestrians into the roadway to separate the pedestrian route from the adjacent vehicular traffic lane. 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 vehicles, locate construction signs, or place equipment on a pedestrian sidewalk or path open to pedestrian traffic; or use the pedestrian sidewalk or path for loading operations, stockpiling of materials, or allowing 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.

12.3.6.2 Golf Course

Design-Build Contractor shall provide temporary access for the Shawnee Golf Course through the Work area under the Kentucky Approach Bridge at all times. Access shall accommodate golf carts, golf cart paths, and pedestrian walkways.

If Work areas encroach upon the golf course access, a minimum clear width of 15 feet wide by 16 feet high shall be provided.

All temporary golf course access points shall be coordinated with the management of the Shawnee Golf Course a minimum of 14 days prior to implementation of temporary access.

All protective safety parameters, ADA requirements, and any other applicable requirements noted in Section 12.3.6.1 shall be provided for temporary golf course access.

12.3.7 Construction Access and Haul Routes

Design-Build Contractor shall obtain 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 is not limited in its use of local streets for the following activities:

1. New Albany Pavement work
2. Utility Adjustments
3. Construction Work and implementation of roadway detours

Design-Build Contractor shall maintain construction access roads and haul roads in a good, clean, safe condition at all times while used for the delivery of materials required for the Work.

Design-Build Contractor shall not use local streets through residential neighborhoods for access to the Site without written approval of the local jurisdiction. Deliveries and hauling to and from the Site shall be performed via designated haul routes along the Project.

Design-Build Contractor shall submit an Ingress-Egress Plan for IFA review and approval.

All ingress and egress locations on I-64, I-264 and I-265 shall comply with Attachment 12-1 (Construction Access Points Details). All construction equipment and supplies shall access the Site via a public road unless otherwise approved by IFA.

12.3.8 Alternate Routes and Detour Routes

Design-Build Contractor shall maintain pavement on alternate routes and detour routes in a condition that is reasonably smooth and free from holes, ruts, ridges, bumps, dust, and standing water. Prior to implementation of an alternate route or a detour route, Design-Build Contractor shall submit photographic documentation, including high-resolution UAS photography, of the existing condition of the alternate routes and detour route to IFA for its review and use. The photographic documentation shall include sufficient detail to establish the existing condition of roadway features including, but not limited to, pavement, curbs, drainage structures, signs, and pavement markings. 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 condition that existed prior to Construction Work.

12.3.9 Portable Changeable Message Signs

Design-Build Contractor shall provide, operate, and maintain a sufficient number of PCMSs where shown on the approved TTCP or when requested by IFA. Along with the PCMSs required for the Project as part of the approved TTCP, Design-Build Contractor shall provide a minimum of two additional PCMSs on-site and in good working condition for use in emergencies. These additional PCMSs' signs shall be available on-site until Substantial Completion. Design-Build Contractor shall coordinate the placement, messaging, and operation of PCMS with IFA. PCMS shall be placed seven days in advance to announce changing traffic patterns.

12.3.10 Public Notification

Design-Build Contractor shall furnish and install temporary panel signs that provide advance notification of interstate, ramp, and local road restrictions and closures. The temporary panel signs shall include information for all alternate routes and detour route. Design-Build Contractor shall use PCMS to supplement the required signs a minimum of seven days prior to the scheduled closure. Design-Build Contractor shall show sign locations, messages, letter sizes, and sign sizes in the TTCP. Design-Build Contractor shall notify all applicable 911 offices, police departments, local fire departments, city engineering departments, public transit agencies, and the affected school districts in writing a minimum of 14 days prior to scheduled restrictions or closures. Design-Build Contractor shall provide written copies of these notifications to IFA.

Design-Build Contract shall enter required restriction information into the INDOT Condition Acquisition and Report System (CARS) in accordance with Section 5.3.7.5.

12.3.11 Restrictions for Construction Work

The requirements of this Section 12.3.11 apply throughout the term of the PPA.

12.3.11.1 Movement Closures

Design-Build Contractor will be assessed Movement Charges in accordance with Section 17.3.1 of the PPA and Exhibit 10 to the PPA.

Outside of the Movement Closure durations in Tables 10-1-1, 10-2-1, and 10-3-1 of Exhibit 10 to the PPA, Design-Build Contractor will not be assessed Movement Charges for any mainline off-peak closures for the time periods indicated in Table 12-1, provided that (a) Design-Build Contractor maintains the minimum number of lanes open to traffic during the applicable time period in Table 12-1 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.

Any Movement Closure from 11 p.m. to 4 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 IFA is provided in accordance with Table 12-3.

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

Alternative or detour routes for Movement Closures shall comply with the routes shown in Attachment 12-3 (Approved Detour Routes).

12.3.11.1.1 Mainline Interstate Movement Closures

Design-Build Contractor shall comply with the requirements and commitments defined in Attachment 12-5 (IHCP Exception Request) and Attachment 12-6 (Interstate Closure Request) if it elects to use the permitted closure(s).

During the full closure(s) of I-64 EB or WB, Design-Build Contractor shall close the following ramps:

1. For the I-64 EB closure from the interchanges with I-265 to I-264: EB on ramp from West Spring Street and off ramp to I-264 East
2. For the I-64 WB closure from the interchanges with I-265 to I-264: WB on ramp from I-264 West and off ramp to West Elm Street

Design Build Contractor shall always maintain two I-64 traffic lanes in each direction on the Indiana Approach Bridges, the Sherman Minton Bridge, and the Kentucky Approach Bridge (together “the Bridges”) and maintain the associated ramps for the term of the PPA on I-64, except for the time periods shown in Table 12-1 and Table 10-1-1 of Exhibit 10 in the PPA.

Design-Build Contractor may reduce lane(s) on I-64 and the associated ramps no more than periods shown in Table 12-1.

Table 12-1: Permitted Mainline Interstate Off-Peak Movement Closures

Roadway	From	To	Minimum Number of Lanes Maintained on the Bridges	Number of Off-Peak Periods	Restrictions
I-64 EB	I-265	I-264	1 lane	[360] Prior to Substantial Completion [60] After Substantial Completion for approved Punch List work only.	Between 9:00 p.m. and 5:00 a.m. each night - Sunday night through Thursday night Between 10:00 p.m. and 6:00 a.m. Friday night Between 10:00 p.m. and 9:00 a.m. Saturday night
I-64 WB	I-264	I-265	1 lane	[360] Prior to Substantial Completion [60] after Substantial Completion for approved Punch List work only.	Between 10:00 p.m. and 6:00 a.m. each night - Sunday night through Thursday night Between 10:00 p.m. and 9:00 a.m. Friday night Between 10:00 p.m. and 10:00 a.m. Saturday night

During the permitted off-peak closure(s) of I-64 EB or WB as defined in Table 12-1, Design-Build Contractor shall close the following ramps:

1. For the I-64 EB closure from the interchanges with I-265 to I-264: EB on ramp from West Spring Street and off ramp to I-264 East
2. For the I-64 WB closure from the interchanges with I-265 to I-264: WB on ramp from I-264 West and off ramp to West Elm Street

12.3.11.1.2 Ramp Movement Closures

Design-Build Contractor shall maintain the same number of existing ramp lanes open to traffic at all times during construction for the defined ramp movements except as noted in Table 10-2-1 in Exhibit 10 of the PPA and Section 12.3.11.1.1.

12.3.11.1.3 Local Street Movement Closures

Design-Build Contractor shall maintain the same number of traffic lanes as the existing roadway with lanes open to traffic at all times during construction for all local streets as noted in Table 12-2 and Table 10-3-1 in Exhibit 10 of the PPA.

Off peak periods for local street closures are from 9 p.m. to 6 a.m.

Table 12-2: Permitted Local Street Movement Closures

Roadway	From	To	Minimum Number of Lanes Maintained	Restrictions
W. Spring Street	100 feet west of W. 5th Street/I-64 EB off-ramp	State Street	Maintain one lane of traffic during off-peak periods	During construction of W. Spring Street only
W. Elm Street	I-64 WB off-ramp	State Street	Maintain one lane of traffic during off-peak periods	During construction of W. Elm Street only
W. 5th Street	W. Market Street	W. Spring Street	Maintain one lane of traffic during off-peak periods	During construction of W. 5th Street only

12.3.11.1.4 As-Built Bridge Reference Document Verification Movement Closures

Design-Build Contractor shall perform an inspection to verify As-Built Bridge Reference Documents in accordance with Section 6.13 of the PPA.

The Design-Build Contractor shall submit an As-Built Bridge Reference Document Verification Plan for IFA review and approval. The As-Built Reference Document Verification Plan shall include the proposed maintenance of traffic plans for Movement Closures to be used for the inspection and shall include the schedule and sequence of the inspection.

In order to restrict lanes for the As-Built Bridge Reference Document Verification inspection, Design-Build Contractor shall obtain an IHCP Exception Request through the INDOT Seymour District. Design-Build Contractor shall not use Attachment 12-5 (IHCP Exception Request) or Attachment 12-6 (Interstate Closure Request) for Movement Closures for the As-Built Bridge Reference Document Verification inspection.

Design-Build Contractor shall comply with the notification and coordination requirements in Section 12.3.13 prior to any Movement Closure for the inspection.

Design Build Contractor shall not be permitted to undertake any Movement Closures except for the time periods shown in Table 10-1-1 of Exhibit 10 in the PPA.

12.3.11.1.5 Construction Mitigation Measures

Design-Build Contractor shall design, construct, and maintain construction mitigation measures as noted in Table 12-3. The general location of construction mitigation measures is shown in Attachment 1-3 (Maintenance of Traffic Limits). These measures shall remain in effect for the entire duration of the project from beginning of construction to substantial project completion. All areas of construction mitigation measures shall be returned to their original configuration prior to Final Acceptance.

Table 12-3: Required Construction Mitigation Measures

Movement	From	To	Mitigation Measure
I-64 EB Exit Ramp to I-265 EB	Painted gore nose of exit from I-64 EB	Painted gore nose of entrance to I-265 EB	Strengthen shoulder pavement and convert ramp to minimum two (2) 11-foot lanes with 1-foot shoulders.
I-265 WB Exit Ramp to I-64 WB	Painted gore nose of exit from I-265 WB	Painted gore nose of entrance to I-64 WB	Strengthen shoulder pavement and convert ramp to minimum two (2) 11-foot lanes with 1-foot shoulders.
I-265 EB Exit Ramp to I-65 SB	Painted gore nose of exit from I-265 EB	Painted gore nose of entrance to I-65 SB	Strengthen shoulder pavement and convert ramp to minimum two (2) 11-foot lanes with 1-foot shoulders.

12.3.12 MOT Mitigation Strategies and Technologies

Design-Build Contractor shall provide a dynamic late merge system in accordance with Attachment 12-4 (Dynamic Late Merge System) as a basis for development of MOT mitigation strategies and technologies. Design-Build Contractor may propose alternative or additional technologies for MOT mitigation for IFA approval.

12.3.13 Notification and Coordination

The MOT Design-Build Coordinator shall notify IFA at least 28 days before the start of any Work that would affect traffic operations, including placement or relocation of work zone signs.

Information shall include all construction and maintenance activities that impact or interfere with traffic and shall list the specific location, type of Work, date and time of Movement Closure, duration, number of lanes maintained, detour routes if applicable, and any other information as requested by IFA. A summary of the notification time and requirements for movement closures is provided in Table 12-4.

Table 12-4: Movement Closure Notification Requirements

Item	Duration of Closure	Notification Time Frame
Interstate, Ramp and Local Street Movement Closures	Greater than 2 weeks	28 Days before closure
	Greater than 12 hours and less than 2 weeks	14 Days before closure
	Less than 12 hours	14 Days before closure
Interstate, Ramp and Local Street Movement Closures impacting: School access and/or bus route Transit system operations	All closures	28 Days before closure
Interstate Lane Closure/Restrictions	All closures	28 Days before closure

The Design-Build Contractor shall schedule and hold a pre-MOT meeting with IFA and the TMP Team a minimum of 14 days before beginning Construction Work or executing any change of MOT staging. This meeting shall include IFA and any Design-Build Contractor Subcontractors involved with temporary traffic control.

12.4 Deliverables

Deliverables under this Section 12, a non-exhaustive list of which is set forth in Table 12-5, 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 12-5: Deliverables

Deliverable	Deliverable Schedule	TP Section
Weekly traffic control device inspection report	Weekly after NTP	12.2.2.1
Transportation Management Plan (TMP) for Construction Work	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 Work for each buildable unit; updates as needed.	12.3.2
Traffic Incident Management Plan (TIMP)	Draft TMP within 30 days after NTP; Final TMP 30 days prior to commencement of Construction Work; updates as needed.	12.3.3
Incident management training documentation	Within 72 hours after completion of training for each training session	12.3.3.1
Notice of suspension of work for local events	14 days prior to suspension of work	12.3.11

13 GEOTECHNICAL

13.1 General

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

This Section 13 provides the minimum Project requirements for geotechnical Work. Design-Build Contractor shall address the specific geotechnical needs for the Project.

13.2 Administrative Requirements

13.2.1 Standards

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

13.2.2 Personnel

Geotechnical Work, including field exploration, shall be performed by a prequalified geotechnical Subcontractor approved by the INDOT Geotechnical Services Division, and KYTC Structural Design as applicable. All laboratory testing shall be performed by an INDOT-approved laboratory with AASHTO Materials Reference Laboratory accreditation 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, approved by INDOT Geotechnical Services Division, with a minimum of five years of experience in the performance and supervision of geotechnical engineering projects.

13.3 Design Requirements

13.3.1 Geotechnical Data Report

The Geotechnical Data Report in the RID provides preliminary geotechnical data obtained by IFA for the Work. Design-Build Contractor is responsible for reviewing and interpreting the geotechnical data provided by IFA in order to determine if the geotechnical requirements of the Project have been met. Design-Build Contractor is responsible for the geotechnical Work necessary to satisfy Project requirements.

13.3.2 Supplemental Geotechnical Work

Design-Build Contractor shall perform supplemental subsurface exploration and testing necessary to satisfy Project requirements and support its design approach and construction methods. Design-Build Contractor shall be responsible for the sufficiency, reliability, and accuracy of all Work and for determining the form and nature of the subsurface evaluation of the Site. 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 IFA for review and approval. At a minimum, the Submittal shall include a rationale for the development of the program, parameter selection, descriptions of the methods of analyses, and Plan sheets showing all test boring locations. 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.

13.3.2.1 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. IFA will provide the electronic template for the current version of gINT.

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 of and characterize in-situ conditions.

13.3.3 Geotechnical Design Reports

Design-Build Contractor shall prepare Geotechnical Design Reports addressing all of the Project's geotechnical Work. A Geotechnical Design Report shall be written for individual Project elements or groups of Project elements based on the requirements in Section 3.4 (Design Submittal Package Requirements). Geotechnical Design Reports shall be submitted to IFA for review and approval.

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

13.3.3.1 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 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, 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 recommended remedial actions;
9. Seismic site class;
10. Other construction considerations, such as support of excavations and geotechnical instrumentation requirements, noise and vibration requirements described in Section 7 (Environmental)

13.3.3.2 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 activity and permanent construction and actions to be taken during construction to improve the soil as deemed necessary based on Site observations
3. Geotechnical risk management for design and construction
4. Fill and backfill material requirements

13.3.3.3 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 report.

13.4 Construction Requirements

13.4.1 Compaction of Fill

The maximum dry density of all fill will be determined in accordance with AASHTO T 180. Design-Build Contractor shall comply with Attachment 13-2 (Embankment) and Attachment 13-3 (SSDT) for requirements specific to strength and density control and for methods of acceptance testing, respectively.

13.5 Deliverables

Deliverables under this Section 13, a non-exhaustive list of which is set forth in Table 13-1, 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 13-1: Deliverables

Deliverable	Deliverable Schedule	TP Section
Subsurface exploration and testing program	30 days prior to performing subsurface exploration and testing	13.3.2
Geotechnical Design Reports	60 days prior to Stage 3 Review Submission	13.3.3

14 STRUCTURES

14.1 General

Design-Build Contractor shall design and construct all structures Work, including bridges, traffic structures, and sign structures.

14.2 Administrative Requirements

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

14.3 Rehabilitation Requirements

14.3.1 Bridge Structure Requirements

Design-Build Contractor shall comply with the following requirements.

1. All bridge design shall be in accordance with the IDM unless specified otherwise herein Table 14-1 specifies the work type and design methodology to be used for all structures.

Table 14-1: Work Type and Design Methodology

Work Type	Methodology
Deck Design	LRFD[1]
Expansion Joints and Link Slabs	LRFD[1]
Railing Design	LRFD[1]
Structural Steel Repairs/Strengthening	ASD[2], LFD[2], or LRFD[1]
Structure Steel Repair: Replacement with New Member	LRFD[1]
Hanger Replacement: Hangers and Sockets	LFD[2]
Hanger Replacement: Weldment/Structural Connections	LRFD[1]
Bearing Design	LRFD[1]
Inspection Access	ASD[3] or LRFD[1]
Stability Check	LRFD[1]

Work Type		Methodology
Load Rating:		
	I64-123-02294 DWBL	Per INDOT BIM[4]
	I64-123-02294 DEBL	Per INDOT BIM[4]
	I64-123-02294 JDEB	Per INDOT BIM[4]
	I64-123-04691 E	Per INDOT BIM[4]
	056B00161N	Per KY BIPM[5]

1: Use AASHTO LRFD Bridge Design Specification
2: Use AASHTO Bridge Standard Specification
3: Use OSHA Standards for ASD Factor of Safety Requirements
4: INDOT Bridge Inspection Manual
5: Kentucky Bridge Inspection Procedures Manual

2. Where Work is to be fitted to existing structures, all dimensions and conditions in the field shall be checked and the Design-Build Contractor shall assume responsibility for correctness and fit of the Work to the existing structures.

3. Design-Build Contractor shall field verify all existing elevations prior to construction and incorporate any necessary corrections into the Plans.

4. Work shall match the geometry of existing bridges to be modified, except as noted below. The final as-built minimum vertical clearance shall be no less than the existing minimum vertical clearance for the combination of the Indiana Approach Bridges, the Sherman Minton Bridge and the Kentucky Approach Bridge.

5. The Design-Build Contractor shall submit for IFA review and approval analyses and design checks sufficient to ensure structural stability and elastic behavior (no permanent deformations) of all structural elements as a result of the Design-Build Contractor's means and methods of performing the work during all phases of the project.

6. As-built capacity means the structural capacity of the member in the original design and includes any subsequent modifications, retrofits, or strengthening of the structure.

7. Shoulders shall meet those shown in the RID.

8. All bridge decks shall be cast-in-place reinforced concrete. Requirements for structures to receive a deck replacement:

   a. The Design-Build Contractor shall prevent damage to the structure during deck removal and is responsible for repairing any damage done. The Design-Build Contractor shall submit for IFA review and approval a deck removal plan. The plan shall include working drawings and calculations as applicable to address, at a minimum, construction sequencing and equipment loading, structural stability, protection of traffic and containment of debris, locations of sawcuts, use of pneumatic hammers and limitations, and/or other equipment, methods to locate and avoid damaging existing steel members to remain, and handling and disposal of lead-contaminated concrete surfaces.

b. Non-contact lap splices of reinforcing steel shall be prohibited.

c. Design-Build Contractor shall achieve the proper road grade and cross slopes through the use of fillets, shear stud connectors, and reinforcing bars. See Figure 404-2B from the IDM.

d. The design vehicle for the Kentucky Approach (056B00161N) deck design shall be the KY-HL93 which is equivalent to the HL93 design truck multiplied by 125%.

e. Bursting reinforcing for post-tensioning anchorage shall be galvanized per ASTM A767.

f. Mechanical couplers shall be capable of developing not less than 125% of the yield strength of the bar and meet all requirements of INDOT Standard Specifications 910.01(b)3.

g. Unless specific product sheets are provided for review and approval, a minimum 15 psf weight shall be used in design of stay-in-place permanent metal deck forms.

h. The deck design shall include 20 psf for the future wearing surface.

i. Partial depth precast concrete deck forms are not permitted.

j. Longitudinal bridge deck joints, where required for phased or staged construction, shall be placed at proposed lane lines or mid-lane where possible, as determined by IFA. Longitudinal bridge deck construction joints are allowed over beam flanges.

k. Decks shall be constructed with longitudinal grooving in accordance with Attachment 14-1 (USP Longitudinal Grooving).

l. Reinforcing bar lap slices shall be calculated and detailed in accordance with the AASHTO LRFD Bridge Design Specifications for new decks, diaphragms, and barriers.

m. An epoxy sealer shall be applied to all construction joints unless an overlay is provided.

9. Requirements for structures to receive a deck overlay:

a. A bridge deck overlay shall be a Latex Modified Portland Cement Concrete (LMC) Overlay, Latex Modified Concrete Very Early Strength (LMC-VE), or Silica Fume Modified Concrete Overlay. The existing bridge deck shall be prepared by milling and removal of unsound concrete.

b. Due to known regions of shallow clear cover, all concrete removal (cover concrete and unsound concrete) shall be completed by hydrodemolition to protect the existing deck steel. Any reinforcement with epoxy coating damaged shall be recoated with epoxy prior to placing the new overlay.

c. Vertical profile of the bridge deck after the overlay is placed shall match up with the existing profile at the joint to the Sherman Minton Bridge (I64-123-04691 E).

d. The vertical profile of the bridge deck after the overlay is placed shall match the existing profile for the eastbound Indiana Approaches (I64-123-02294 DEBL and I64-123-02294 JDEB) to ensure there is no reduction to the existing vertical clearance.

e. The vertical profile of the westbound Indiana Approach (I64-123-02294 DWBL) may vary from the existing as long as all hydraulic and roadway criteria are satisfied.

f. The location of overlay construction joints shall be staggered from the longitudinal bridge deck construction joints by at least 1 foot, where possible as determined by IFA.

10. Use of self-consolidating, internally cured, and high-performance concrete for permanent bridge structural components shall be subject to IFA review and approval in its good faith discretion, and requirements shall be provided by Design-Build Contractor in a unique special provision. Lightweight and semi-lightweight concrete for permanent bridge structural components are prohibited.

11. All mild reinforcing steel shall conform to ASTM A615, Grade 60 unless otherwise demonstrated by the Design-Build Contractor to provide superior value as approved by IFA.

12. New bridge concrete shall be surface sealed. Existing bridge railings, copings, and pier caps 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. The Kentucky approach (056B00161N) driving surface deck, railings, and approach slab shall be surface sealed.

13. 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 IFA review and approval.

14. New snow-plowable raised pavement markers across approach slabs and bridge decks shall be spaced at 40.0 feet maximum through horizontal curves and 80.0 feet maximum through tangents.

15. New barrier delineators shall be placed at a 40-foot maximum spacing on all bridges.

16. Reinforced concrete bridge railing shall be used on all bridge structures. Reinforced concrete bridge railing shall be TL-5 for all structures. All barriers shall satisfy the criteria of INDOT Design Memo 19-08.

    a. The bridge railing for the Sherman Minton Bridge spans 1, 2, A, B, & C (I64-123-04691 D) shall be INDOT standard Bridge Railing Type TF-2.

    b. The bridge railing for the Kentucky approach bridges (056B00161N) shall be INDOT standard Bridge Railing Type FT.

17. The temporary traffic barriers shall meet, as a minimum, the testing requirements of TL 3.

18. 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.

19. Concrete barrier joints shall be designed and constructed appropriately to account for expansion and contraction. Joints larger than 3.0 inches shall be designed and constructed to prevent snag. Butt joints are prohibited at these locations. At a minimum, 0.25-inch preformed expansion joint material shall be used. 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.

20. Requirements for expansion joints:

a. All joints shall be eliminated or fully replaced including anchorages and embed plates. Finger plate expansion joints shall be used at locations where thermal movements exceeds the limitations of strip seal expansion devices in accordance with Attachment 14-2 (USP Finger Expansion Joints).

b. When an expansion joint is not eliminated and thermal movements allow, use compression foam joints rather than strip seals.

c. Do not add additional expansion joints to any structure.

21. Longitudinal joints (other than construction joints between adjacent concrete pours or precast panels) in the deck are prohibited.

22. All steel within expansion joints shall be ASTM A709, Grade 36 or 50 (Galvanized in accordance with ASTM A123).

23. All joints shall be sealed from bridge deck surface drainage except at finger joint locations. Open-type joints that accept bridge deck surface drainage, such as finger joints, are only permitted at locations with existing finger joints.

24. Finger joints shall meet all the following specifications in addition to the requirements of Attachment 14-2 (USP Finger Expansion Joints):

    a. Finger plate expansions joints shall be bolted and designed to allow the finger plates to be removed, shimmed and reattached during any future overlay operation.

    b. Bridge expansion joints, if necessary and with IFA approval, shall be located in the same locations as the existing.

    c. Straight finger plate geometry shall be used and tapered finger plate geometry shall not be used to minimize the opening and provide increased safety for motorcycles during cold weather when the opening is the greatest.

    d. Finger thickness and joint opening gaps shall be designed based on the appropriate Strength loading using AASHTO LRFD load factors and multi-presence factors in accordance with the requirements of AASHTO LRFD Section 14.5.

    e. Each wheel shall be applied to a 10” x 20” area placed at the tip of the fingers on one side of the expansion device so that the centroid of the load is 5 inches from the tip of the fingers

    f. The moment capacity of the finger shall be limited to first yield.

    g. The minimum gap at minimum expansion device opening shall be 1 ½ inches. The minimum finger overlap during maximum expansion device opening shall be 1 ½ inches. Finger Joints shall be designed and operate as a cantilever.

25. Bearings on the Indiana Approach Bridges shall be replaced or repaired as described in Section 14.3.2.3, 14.3.2.4, and 14.3.2.5.

26. Acceptable link slab system includes: Ultra-High-Performance Concrete (UHPC), reinforced concrete, and fiber reinforced concrete. Limit the tensile stresses in the reinforcing steel bars to 0.4 Fy. Debond the slab from the end of the beam a minimum of 5% of the span length in each span. Design the link slab for all applicable loads including, but not limited to: live loads, thermal gradients, and superimposed dead load. Do not account for the capacity of the link slab when evaluating beams in either adjacent

span. AASHTO LRFD Bridge Design Specifications shall be followed for crack control, using severe exposure conditions for design. The design, material specifications, installation procedures, and quality control shall be submitted to IFA for review and approval.

27. All superstructure steel repair designs shall meet or exceed the as-built capacity of the nominal section before deterioration occurred unless specified otherwise.

28. All structural steel shall be ASTM A709 Grade 50 and Grade 70. The use of Grade 36 steel is permitted for miscellaneous components only. Hinges or pin and hanger type connections are prohibited. New fatigue prone details (AASHTO Category E or E') are prohibited for primary members.

29. All structural steel components, whether welded or bolted, sustaining tensile stresses under the Strength-I load combination shall meet the notch toughness requirements for Temperature Zone 2 as designated in AASHTO 6.6.2

30. Bolted steel connections shall have a Class B coating on the faying surface and slip coefficient of 0.5

31. Pack rust shall be mitigated by cleaning and the use of an alkaline penetrating sealer as described in Section 3.2.3 of SMCP RID 14-502 – 2018 JTRP Pack Rust Identification and Mitigation Strategies.

32. The Preliminary Capacity and Load Rating Evaluation Submittal shall be performed in accordance with INDOT Bridge Inspection Manual, Part 3 Bridge Load Rating for the Indiana Approach bridges and the Sherman Minton Bridge. The Preliminary Capacity and Load Rating Evaluation Submittal shall be performed in accordance with KYTC Bridge Inspection Procedures Manual, Section 400 Load Rating for the Kentucky Approach bridge. A 20 psf future wearing surface shall be included in the calculations for this load rating submittal.

33. Upon completion of the rehabilitation work, submit a final load rating for all primary members of the superstructure and all steel pier caps/straddle bents of the substructure of each bridge for IFA review and approval, except for the Market Street Bridge.

    a. Work shall comply with the INDOT Bridge Inspection Manual, Part 3 Bridge Load Rating for the Indiana Approach bridges and the Sherman Minton Bridge.

        i. A draft load rating summary and the AASHTOWare BrR model for each bridge shall be submitted to IFA for review and approval.

        ii. 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.

        iii. The Design-Build Contractor shall provide a rating manual for any bridge type that is not compatible with AASHTOWare BrR software. The rating manual shall include a Microsoft Excel-compatible spreadsheet in electronic format to load-rate the bridge for future permit vehicles (e.g., overweight or superload vehicles). The spreadsheet shall be capable of performing the analysis with the permit vehicle both isolated and included with legal loads. Such vehicles may weigh up to 600,000 pounds, have as many as 25 axles with two to eight tires per axle, and have a width of 20 feet and a length of 200 feet.

iv. Following completion of construction, the bridge file documents shall be updated by Design-Build Contractor in accordance with the INDOT Bridge Inspection Manual and submitted to IFA.

v. All files to verify the load rating and revise future models shall be submitted to IFA.

b. Work shall comply with KYTC Bridge Inspection Procedures Manual, Section 400 Load Rating for the Kentucky Approach bridge.

i. LARS shall be used as applicable within program limitations. Where the structure type is outside the program capabilities, AASHTO BrR or MIDAS program shall be used.

ii. A draft load rating summary, the LARS model, and the SUPERLOAD Transfer file (.XFR) for each structure shall be submitted directly to IFA

iii. Following completion of construction, the bridge load rating file shall be updated by Design-Build Contractor in accordance with the KYTC Bridge Inspection Procedures Manual and submitted to the KYTC Central Office Load Rating Engineer. This submittal should also include the BMD files and XFR files produced by LARS and any hand calculations or spreadsheets used in the rating.

iv. The load rating method shall be LFR or LRFR for Inventory, Operating, and EV loads. The original design method shall be used for all other load cases including KYTC Type 1-4, SU 4-7 and eight permit trucks A-H, as shown in SMCP Attachment 14-7 (KYTC Load Rating Vehicles) for all the required KYTC vehicles.

34. All substructure concrete patching repairs shall meet the following requirements to repair concrete delamination and spalling. Locations to be patched shall be determined in accordance with the RID and bridge specific requirements in Section 14.3.2.

a. Provide protective shielding, as approved by IFA, below all repair areas. Determine the extent of the repair areas in the presence of an IFA Representative. Outline the edge of the designated repair areas with a 1-inch sawcut depth.

b. Within the outlined repair areas, remove the deteriorated concrete to a depth of 1-inch behind the first mat of reinforcement bars to sound concrete. Allow uncovered or exposed reinforcement bars to have a 1-inch clearance all around. If concrete is unsound at a depth of 1-inch behind the reinforcement bars, do not remove any additional concrete without the approval of IFA's Representative.

c. Square-out/bevel the edge of the repair areas to key in construction. Use hand tools for removing deteriorated concrete. Use pneumatic hammers, if required, not exceeding an impact rating of 30 foot-pounds. If deteriorated concrete extends beyond the initially outlined repair area, enlarge area as directed by IFA's Representative.

d. After the removal operations are complete, clean all remaining debris and loose materials from the repair areas by abrasive blasting. Abrasive blast exposed reinforcement bars to SSPC-SP10. Epoxy coat the exposed reinforcement bars. Splice any damaged or heavily corroded reinforcement bars at 50% or more section loss in accordance with the AASHTO LRFD Bridge Design Specifications. If enough splice length is not available, drill new dowel holes and place dowel bars as directed. Use a pachometer to locate existing reinforcement when drilling dowel holes to avoid drilling thru existing bars.

e. Repair any concrete damaged during the operations to the satisfaction of IFA's Representative at no additional cost to IFA.

f. Install galvanic anodes in accordance with Attachment 14-5 (USP Galvanic Anode).

g. Set forms to provide minimum concrete cover of 2 inches. If enough concrete cover on the existing reinforcement bars is not available, haunch the repair outward.

h. Just prior to placing concrete, air-blast all repair areas with oil-free compressed air to protect against any contaminant detrimental to the bond of the new concrete. Apply epoxy bonding compound to the repair area. While the epoxy bonding compound is still tacky, place repair concrete with No. 8 Coarse aggregate. Do not place concrete if the compound is no longer tacky or if the compound has hardened. Recoat any compound that is no longer tacky. Wire brush or abrasive blast any compound that has hardened and recoat repair area.

35. The Design-Build Contractor shall submit a structural mass concrete placement plan for any concrete placement with a minimum dimension in excess of 6 feet.

36. The existing substructure units for each bridge shall be checked for minimum seat length per AASHTO seismic guidelines. The Design-Build Contractor shall retrofit any deficient locations as necessary.

37. The bridges' drainage systems shall be replaced. See Section 10 (Hydraulics and Drainage) for requirements.

38. For all bridges, 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).

39. IFA has determined that lead-based paint is likely to exist on steel surfaces, including those in contact with concrete. IFA has not performed a detailed evaluation. Design-Build Contractor shall follow all Hazardous Materials requirements in accordance with the PPA, Section 7.3.3.2 (Lead-Based Paint), and the Project Standards.

40. For crack arrest holes field drilled by the Design Build Contractor, the crack geometry, proposed location and arrest hole size shall be evaluated by a professional engineer prior to drilling the hole. The end of the crack shall be located and marked following a magnetic particle test (MT) by a certified ASNT NDT Level II MT technician. Following the drilling of the crack arrest hole the NDT technician shall verify that the end of the crack was captured by the hole. Flame cutting or plasma cutting shall not be permitted. Any notches or gouges shall be repaired to the satisfaction of the engineer. Design Build Contractor shall update the as-built load rating of the member for the final condition.

41. The Design-Build Contractor shall coordinate and provide for safe access for the state's inspectors to conduct Federally required bridge safety inspections.

42. Any inspection access, attachments, equipment, conduit, modifications, or other appurtenances shall be designed so as to not be visually different than the color of the structure to which they are affixed.

14.3.2 Bridge Structure Requirements

14.3.2.1 Kentucky Approach

File Structure No.: Design-Build Contractor shall see the table in Section 1 (General Scope of Work).

1. Analysis and structural steel rehabilitation requirements:

   a. Prior to developing rehabilitation plans, perform a hands-on inspection of the structure to determine section loss and existing conditions for the Preliminary Capacity and Load Rating Evaluation Submittal.

   b. Provide calculations and analysis as part of the Preliminary Capacity and Load Rating Evaluation Submittal for IFA review and approval that identifies the existing capacity and load rating of the members in Table 14-2. Provide a list to IFA of all members not meeting the acceptance criteria of Table 14-2.

   c. Table 14-2 establishes the minimum acceptable criteria for members to remain in service in their existing condition. The Design-Build Contractor shall rehabilitate members identified in Table 14-2 that do not meet the acceptance criteria specified therein. At member locations that do not meet the acceptance criteria, the repairs shall be designed to provide the original as-built capacity of the member.

Table 14-2: Kentucky Approach Structural Steel Rehabilitation Criteria

MEMBERS	ACCEPTANCE CRITERIA
Girder flanges and webs protected by a continuous concrete deck slab in the final condition. Girder ends below deck joints that have been eliminated by the Design-Build Contractor as part of this project.	Provides an operating rating for Indiana and Kentucky Legal Load Vehicles equal to or greater than 1.0
Bearing stiffeners Girder ends below deck joints in final condition Steel transverse pier girder	Provides at least 90% of the as-built capacity of the member based on the LFD or LRFD code, and Provides an operating rating for Indiana and Kentucky Legal Load Vehicles equal to or greater than 1.0.
Cross frames and connecting elements under existing deck joint locations. Steel channels or beams and connecting elements that support the ends of slabs or joints.	Provides at least 90% of the as-built capacity of the members based on the LFD or LRFD code.

d. Submit detailed plans for IFA review and approval showing how the substandard members identified for repair will be rehabilitated in order to meet the acceptance criteria above.

e. During construction, confirm the conditions observed in the field for any additional section loss or other conditions that were not previously identified and that would result in a reduced capacity of the member. Update the analysis and rehabilitation plans to account for actual conditions observed in the field during performance of the Work.

2. Remove and replace the bridge deck as described in Section 14.3.1. The replacement decks shall be made composite.

3. Clean and paint all structural steel. See Attachment 14-8 (USP Provisions for Painting Bridge Steel). Paint color shall be SEA-AMS-STD-595 FS 17178, Aluminum/Silver.

4. A total of 10 joints over piers, for the combined eastbound and westbound bridges shall be eliminated and replaced with link slabs. Replace all longitudinal girder bearings at abutment A through pier 10 on westbound, abutment B through pier 23 on eastbound, and pier 12 on the lower deck with elastomeric, or reinforced elastomeric bearings. Design-Build Contractor shall provide analysis and calculations to IFA for review and approval demonstrating, based on the Design-Build Contractor's design, all bridge components, except foundations, will retain adequate capacity in the final configuration. Evaluate the existing substructure for LRFD Strength and Service load combinations.

5. Steel repairs shall be completed prior to painting including:

   a. Rehabilitate all cracks identified during construction, including the known locations shown in SMCP RID 14-005 - Bridge Rehab Plans KY Approach and SMCP RID 14-322 – 2019 NBIS KY Approach Inspection Framing Plan of Deficiencies. Acceptable repairs include crack arrest holes per Section 14.3.1.40, plating, or other contractor proposed and IFA approved approaches. If plating is proposed, submit plating design methodology and designs for IFA review prior to beginning work. All methodology and designs must be approved by IFA prior to beginning work.

   b. Lateral restraints located at the steel bent caps and located on the RIDs shall be repaired or replaced to provide at a minimum the original structural capacity of the original lateral restraints. See Attachment 14-6 (TP Figures).

6. Replace the existing approach slabs and construct the terminal joint in accordance with INDOT Recurring Special Provision 503-R-692d. The RCBA shall follow INDOT standards except expect for the following changes:

   a. have a minimum thickness of 17 inches,

   b. longitudinal steel in the bottom mat shall be a minimum of #8 reinforcing steel bars at 6 inches on center, and

   c. the top mat shall be a minimum of #5 reinforcing steel bars at 12 inches in each direction.

   d. The length of the approach slab shall be 25'-0".

7. Rehabilitate the existing abutments in one of two ways:

   a. Change the abutments to be semi-integral abutments in accordance with INDOT Design Memorandum 19-04 or,

b. Cast the ends of the steel beams in a concrete diaphragm and remove the back wall of the abutment level with the top of the girder. Then place the new deck continuous with the RCBA leaving 3 layers of greased 30 lb. roofing felt between the top of lowered back wall and the top of the new concrete deck. The new concrete diaphragm shall allow for any anticipated longitudinal movement provided by the bearing plus live load rotation without impacting the backwall of the abutment.

8. Rehabilitate the cross-frames located under the existing joints which have pack rust between connection of the members. Cross-frame rehabilitation requirements shall include:

   a. For cross-frames with one or more welds broken, replace the entire cross-frame. Previously identified locations are noted in previous inspection reports, including SMCP RID 14-320 – 2019 Special Inspection KY Approach Inspection Report.

   b. For cross-frames located under joints that are eliminated and replaced with a link slab, clean and remediate pack rust with an alkaline penetrating sealer before painting.

   c. Cross-frames located under bridge deck joints in the final condition shall be remediated in one of two ways:

      i. Replacement of the entire cross-frame or

      ii. Removal and replacement of the cross-frame members with pack rust. Field welding will not be allowed to reattach the cross-frame member after cleaning the connection plate.

9. Analysis and substructure concrete repair requirements:

   a. Prior to developing rehabilitation plans, perform a hands-on inspection of the structure to determine existing conditions for the Preliminary Capacity and Load Rating Evaluation Submittal as noted in Section 14.3.1.32.

   b. As criteria for acceptance, repaired substructure elements shall provide capacity in excess of demand in the final condition. Submit detailed repair plans for IFA review and approval showing that the substructure elements will be repaired in order to meet the acceptance criteria.

   c. All concrete pier caps shall have their exterior concrete removed to 1” behind the first layer of steel in accordance with Section 14.3.1.34 and replaced on the top face, side faces, bottom face and ends of the pier caps. Concrete directly below original bearings that are to remain in service does not need to be removed and replaced. Submit a Temporary Support Plan for Concrete Substructure Patching Repairs, with calculations, that ensures adequate structural capacity during removal and replacement of concrete and/or provide a temporary support plan to IFA for review and approval for the substructure concrete patching repairs.

   d. Design-Build Contractor shall identify, remove and replace all areas of unsound concrete on all surfaces of the abutments and pier columns including cross struts where present. The abutment, pier column and cross strut concrete repairs will be paid for under the Allowance for Patching Concrete Structures.

   e. No below grade repairs are required.

14.3.2.2 Sherman Minton Bridge

File Structure No.: Design-Build Contractor shall see the table in Section 1 (General Scope of Work).

1. Analysis and structural steel rehabilitation

   a. Prior to developing rehabilitation plans, perform a hands-on inspection of the structure to determine section loss and existing conditions for the Preliminary Capacity and Load Rating Evaluation Submittal.

   b. Provide calculations and analysis as part of the Preliminary Capacity and Load Rating Evaluation Submittal for IFA review and approval that show the existing capacity of the members in Table 14-3 and load rating for all primary members of the bridge superstructure. Provide to IFA a list of all members not meeting the acceptance criteria of Table 14-3.

   c. Table 14-3 establishes the minimum acceptable criteria for members to remain in service in their existing condition. Members not meeting the acceptance criteria shown in Table 14-3 shall be strengthened at locations required Section 14.3.2.2.6.

Table 14-3: Sherman Minton Bridge Structural Steel Strengthening Criteria

MEMBERS	ACCEPTANCE CRITERIA
Stringers, including bearing stiffeners Floorframes in Spans 1 and 2 Floorbeams at panels F0, F1, F2, F20, F21, and F22 in Spans 1 and 2 Floorbeams in Spans A, B, & C	Provides at least 90% of the as-built capacity of the member based on the LFD or LRFD code, and Provides an operating rating for Indiana and Kentucky Legal Load Vehicles equal to or greater than 1.0
Diaphragms Connections of all Stringers, floorframes, and floorbeams Lower lateral bracing, truss rib lateral bracing, and portal/sway bracing	Provides at least 90% of the as-built capacity of the member based on the LFD or LRFD code.
Primary Arch Members in Spans 1 & 2, including Gusset Plates, and Tie Girders Deck truss members in spans A, B, & C, including Top and Bottom Chords, Diagonals, and all Gusset Plates	Provides an operating rating for Indiana and Kentucky Legal Load Vehicles equal to or greater than 1.0

d. Submit detailed plans for IFA review and approval showing how the substandard members identified for repair will be rehabilitated in order to meet the acceptance criteria above.

e. During construction, confirm the conditions observed in the field for any additional section loss or other conditions that were not previously identified and would result in a reduced capacity of the member. Update the analysis and rehabilitation plans to account for actual conditions observed in the field during performance of the Work.

2. Design-Build Contractor shall remove and replace the bridge decks as described in Section 14.3.1.8. The replacement deck shall be made composite at the following locations:

   a. The upper deck stringers of the Spans 1 and 2 between panel points 0 & 1 as well as between panel points 21 & 22.

   b. The lower deck stringers of the Spans 1 and 2 between panel points 0 & 3 as well as between panel points 19 & 22.

   c. The stringers over the entire length of both levels of Spans A, B, and C.

3. All deck joints except those at pier 1, 2, 3 and 6 shall be eliminated and replaced with link slabs. Bearing replacement and changes to bearing fixity shall be as required by design to accommodate the joint elimination. Design-Build Contractor shall provide analysis and calculations to IFA for review and approval demonstrating, based on the Design-Build Contractor's design, that all superstructure components will meet the requirements of Table 14-3 in the final configuration.

4. All hangers for the bridge shall be removed and replaced in accordance with Attachment 14-4 (USP Hanger Replacement).

5. Clean and paint all structural steel. See Attachment 14-8 (USP Provisions for Painting Bridge Steel). Paint color shall be SAE-AMS-STD-595 FS 17178, Aluminum/Silver.

6. The Design-Build Contractor shall prepare plans and provide installation of a vertical clearance gauge(s) on the Sherman Minton Bridge. The vertical clearance gauges shall conform to the USCG requirements, Attachment 14-10 (USP Paint Navigation Clearance Gauge), and as listed in 33 CFR Part 118. The Design-Build Contractor shall be responsible for any temporary clearance gauges that may be required during construction. This Work shall be completed no later than June 30, 2021.

7. Strengthen Superstructure Components as follows:

   a. The arch ribs, tie girders and deck truss main members, including gusset plates are anticipated to meet the acceptance criteria in Table 14-3, thus no strengthening is required. Inspection, analysis, and load rating of these members shall be performed in accordance with Section 14.3.2.2.1.

   b. Lower lateral bracing, truss rib lateral bracing, and portal/sway bracing are anticipated to meet the acceptance criteria in Table 14-3, thus no strengthening is required. Inspection and evaluation of these members shall be performed in accordance with Section 14.3.2.2.1.

   c. Stringer end repairs shall be performed at the following locations. Acceptable retrofits include, but are not limited to, plating of the section, stringer end replacement with bolted splice, or full stringer replacement. Repairs shall be designed to provide the as-

built capacity of the section. Stringer locations not meeting the acceptance criteria of Table 14-3 and not identified for repair as noted below shall be repaired at the discretion of the IFA and paid for under the structural repair allowance shown in PPA 12.1.3.3.

i. Spans A-C at floorbeam locations U0, U2, U4, U6, U8, U8', U6', U4', U2' and U0' exhibit corrosion and section loss and cracking. Repair the stringer end locations shown in the SMCP RID 14-001 – Bridge Rehab Plans Sherman Minton Bridge. Stringer lengths as identified in the RID are for information only. Perform stringer end repairs to strengthen stringer members and bearing stiffeners as required by Table 14-3, and arrest existing cracks.

ii. Stringer ends on the upper deck of spans 1-2 at floorbeam locations F0, F11, F22 and lower deck of spans 1-2 at floorbeam locations F0, F3, F7, F11, F15, F19 and F22 exhibit corrosion and section loss. Repair the stringer end locations shown in the SMCP RID 14-001 – Bridge Rehab Plans Sherman Minton Bridge. Stringer lengths as identified in the RID are for information only. Perform stringer end repairs to strengthen stringer members and bearing stiffeners as required by Table 14-3.

d. Floorbeam/ Floorframe strengthening shall be performed at the identified members, in locations that do not meet the acceptance criteria of Table 14-3. Acceptable repairs include, but are not limited to, plating of the section or floorbeam/ floorframe replacement. Repairs shall be designed to provide the as-built capacity of the section. Floorbeam or Floorframe members not meeting the acceptance criteria of Table 14-3 and not identified for repair as noted below shall be repaired at the discretion of the IFA and paid for under the structural repair allowance shown in PPA 12.1.3.3. The floorbeam/ floorframe members identified for strengthening include:

i. Upper deck floorbeams and lower deck floorbeams of spans A-C under existing deck joints exhibit corrosion and section loss along portions of the member. Perform repairs to strengthen these members and connections at locations as required by Table 14-3.

ii. Floorframes in spans 1 and 2 at panel points F3, F7, F11, F15 and F19 and floorbeams at panel points F0 and F22 at existing deck joints exhibit corrosion and section loss along portions of the member. Perform repairs to strengthen these members and connections at locations as required by Table 14-3.

8. Rehabilitation Requirements for Miscellaneous Repairs

a. Stringer welded cover plate retrofit:

i. Upper deck and lower deck stringers on Spans 1 and 2 have cover plates welded to the bottom flange. Stringer lines A-F shall be retrofitted at cover plate terminations between Panel Points F9 and F11 and between Panel Points F11 and F13.

ii. To improve fatigue resistance, perform impact treatment at designated cover plate ends at the toe of the fillet welds on the tapered portion of the cover plate and the cover plate termination. The impact treatment method shall be either air hammer peening or ultrasonic impact treatment.

(1) If air hammer peening is used set the hammer air pressure to 40 psi and use at least 6 passes of the hammer. Use a peening tip on the chisel. The depth

of indentation shall be approximately 1/32 inch. Lightly grind the peened surface to remove any lap marks.

(2) If ultrasonic impact treatment is used follow all manufacturer's recommendations. Provide a treatment with amplitudes of 20-50 microns at a frequency of 27-55 kHz.

b. Stringer bearing bolt replacement:

Remove and replace, one at a time, all bolts that are broken, missing or where the width across the flats of the head or nut, measured after abrasive blasting and cleaning, is less than 75% of the original dimension.

c. Floorframe flange stiffener terminations at all locations in spans 1 and 2 shall be retrofitted for the 8 flange stiffeners located at each of the flange radius points as the flange transitions from horizontal to vertical inclination. Retrofit category E details at the stiffener end to provide a category D or better detail for these locations.

d. Floorframe splice bolt replacement at spans 1 and 2 at panel points F3, F7, F11, F15 and F19:

The Design-Build Contractor shall remove and replace, one at a time, all bolts where the width across the flats of the head or nut, measured after abrasive blasting and cleaning, is less than 75% of the original dimension. Additional quantities at other floorframes shall be repaired at the discretion of the IFA and paid for under the structural repair allowance shown in PPA 12.1.3.3.

e. Notched floorframe repairs at all locations in spans 1 and 2:

All floorframes were notched during a previous retrofit to allow installation of additional plates for the tie girder. See Attachment 14-6 ((TP Figures), Figure 2). The locations are indicated on the RIDs. At each location, perform grinding to remove the notch by feathering out the steel around the notch. The grinding shall occur parallel to the state of stress and the steel plates grind to a slope of 2.5 to 1 or less.

f. Remove the tie shavings and apply a penetrating sealer to prevent future pack rust at the tie shaving locations as shown in SMCP RID 14-001 – Bridge Rehab Plans Sherman Minton Bridge. Loosening or removal of structural elements is not required. Submit a plan to IFA for review and approval in advance of conducting the work.

g. Pack rust was identified in areas beneath deck joints, between stringers and stringer bearings, between stringer bearings and floorbeams/floorframes, and between other primary load carrying members such as the gusset plates on Spans A, B, and C. Pack rust remediation shall conform to the following requirements:

i. Stringer bearing pack rust removal and application of penetrating sealer shall be performed all at the stringer bearings on the upper deck of spans 1-2 at floorbeam locations F0, F11, and F22 and lower deck of spans 1-2 at floorbeam locations F0, F3, F7, F11, F15, F19 and F22.

ii. Pack rust between the stringer ends and the connected channel diaphragms shall be remediated as follows:

(1) For stringer ends located under joints that are eliminated and replaced with a link slab the pack rust shall be cleaned and remediated with an alkaline penetrating sealer before painting.

(2) For stringer ends located under joints that will remain in the final condition the diaphragm shall be unbolted, the pack rust cleaned and the diaphragm reinstalled with new bolts before painting.

iii. All other instances of pack rust identified during construction shall be cleaned and remediated with an alkaline penetrating sealer before painting.

h. Pier 6 epoxy injection grouting

The crack in the pier cap of the Pier 6, which runs the width of the pier cap, shall be repaired by epoxy injection grouting.

i. Catwalk/Inspection Access repairs and improvements:

i. Design and prepare construction plans for IFA review and approval, specifications, calculations and details for the ladders, platforms and inspection access system. Designer shall use minimum design loads and other criteria defined in OSHA CFR 1910 & 1926 Specification. Design and construct horizontal lifeline to provide for two persons attached to the line.

ii. Replace the deteriorated inspection catwalk components at the following locations and shown in the SMCP RID 14-001 Bridge Rehab Plans Sherman Minton Bridge:

(1) Inspection horizontal lifeline on Lateral Bracing: Remove and replace overhead safety cable attached to stringers and floorframes.

(2) Inspection horizontal lifeline on Tie Girder: Remove the overhead safety cable currently attached to the concrete deck and install horizontal lifeline at handrail height along the tie girder.

(3) Inspection Catwalk: Remove and replace in kind the existing Grip Strut grating a minimum of 5 feet each side of floorframe F3, F7, F11, F15 & F19 Span 1 & 2.

iii. New inspection access items to be added to the structure include the following:

(1) A galvanized or stainless steel safety lifeline cable shall be mounted at waist height for the full length of each top chord of the arch truss. A similar safety cable shall be mounted to the top chord of the end panel at each ladder location to allow for access from the downstream chord to the upstream chord. A cable shall be placed in the gap between the top chords of spans 1 and 2 with sufficient slack to accommodate the bridge thermal movement.

(2) Provide access ladders from the top of the pier cap to the top of the arch truss. The ladders shall be located on the downstream side of the truss at Pier 1, at Pier 2, and at Pier 3. Existing ladders at these locations shall be removed as part of this work.

iv. Additional inspection access design requirements include the following:

(1) Replace the inspection walkway to support at a minimum working load of 50 lbs./ft^2. This would include the walkway grating, grating supports and any attachments to the floorframes. All handrails shall meet current OSHA standards for handrails. Cables used for fall-arrest throughout the structure shall be inspected and replaced in kind if any part of the cable has more than 10% loss in the measured diameter of the cable.

(2) Hatches, ladders, platforms, gratings, handrails, and hardware shall be ASTM A709, Grade 36 or 50, and galvanized in accordance with ASTM A123 or A153 as applicable and painted to match colors of the attached components. Cables and other inspection access components shall be made of galvanized or stainless steel.

(3) All access ladders shall be rated to meet minimum OSHA requirements, including OSHA 1910.27 and 1926.1053, and ANSI A14.3 requirements. The access ladders shall be provided with a fall protection system per OSHA requirements. The Design-Build Contractor is especially directed to Title 29 Code of Federal Regulations, Subpart M, Fall Protection, 1926.500(a), 1926.501, 1926.502, and 1926.503; as well as the OSHA Publication 3146, "Fall Protection in Construction."

(4) All access ladders shall be painted to match the color of the existing bridge.

(5) All ladders shall have a security device at the ladder entry point. The security device shall be a metal gate affixed to the cage to prevent unauthorized entry into the ladder cage. The gate, when closed, shall cover the access entry formed by the cage around the access ladder. The gate shall be hinged at the attachment point on the backside of the access cage and rotate around that hinge to a position allowing access. When the gate is open and swung back, the rungs of the access ladder are accessible, and the ladder can be descended. When the gate is open and swung back, a positive locking mechanism shall prevent the gate from inadvertent closure. When the gate is closed and locked, the ladder rungs are blocked, and the ladder cannot be accessed. The door is secured by a padlock that locks the handle on the gate to a hasp bolted to the ladder frame.

(a) All material for the security devices shall be ASTM A 709 Grade 36, galvanized (Paint faying surfaces between unpainted weathering steel and galvanized steel with I coat of inorganic zinc prime coat). Stainless steel may be substituted upon approval of the Engineer. Aluminum is not allowed.

(b) Alternative security devices shall be approved by IFA.

(c) The security devices shall be provided with lockable hasp and a weatherproof padlock. All padlocks shall be keyed alike.

14.3.2.3 Indiana Approach WB over SR 11/Main St./RR (DWBL)

File Structure No.: Design-Build Contractor shall see the table in Section 1 (General Scope of Work).

The structure shall be rehabilitated in accordance with Section 14.3 except as modified herein.

1. Perform deck overlay for this bridge in accordance with Section 14.3.1.
2. All joints except joints at pier 6, pier 7 and pier 10 shall be eliminated and replaced with link slabs. . Design-Build Contractor shall provide analysis and calculations to IFA for review and approval demonstrating, based on the Design-Build Contractor’s design, all bridge components, except foundations, will retain adequate capacity in the final configuration. Evaluate the existing substructure for LRFD Strength and Service load

combinations. All joints at pier 6, 7 and 10 shall be replaced in accordance with Section 14.3.1.

3. Replace bearings at piers 11, 12 ,13E, 14E and bent D with elastomeric, or reinforced elastomeric bearings.

4. Rehabilitate the existing abutments to be semi-integral abutments in accordance with INDOT Design Memorandum 19-04.

5. Perform partial cleaning and painting of all structural steel locations that are repaired with the following requirements. See Attachment 14-9 (USP 619-B-314 201201).

   a. The existing paint system is a 3-coat system consisting of a base coat of metallizing, with an intermediate sealer and a polyurethane topcoat. Design-Build Contractor qualified personnel shall inspect the coating system and provide IFA with a recommended coating preservation plan for the bridge with consideration of the repair work to be performed.

   b. Determine and then match existing paint color using color samples from the approved paint supplier.

6. All superstructure steel repair designs shall meet or exceed the original capacity of the nominal section before deterioration occurred. For the superstructure steel repairs indicated on the SMCP RID 14-003 - Bridge Rehab Plans IN Approach (DWBL), the Design-Build Contractor will determine when and how to perform these steel repairs, conforming to all provisions of the Project Standards. The following directives apply to the specific steel repairs:

   a. Girder end repairs

      At Pier 7, 8, and 10 Girder lines A-H have a retrofit performed in 1996 and shown in RID which included a complete joint penetration (CJP) weld of the coped bottom flange. The welds at these locations shall be inspected by Ultrasonic Testing (UT) or Phased Array Ultrasonic Testing (PAUT) by at a minimum an ASNT NDT Level II UT certification holder. Any rejectable indication shall be removed and repaired or a retrofit designed and constructed that is capable of sustaining the loads following a fracture of the entire CJP weld. The proposed repair or retrofit methodology shall be submitted to IFA for approval prior to starting the work. See Attachment 14-6 ((TP Figures), Figure 3) for a representative picture of the detail.

   b. Girder bottom flange cut

      Span G Girder F near Pier 10 there is an apparent cut in the bottom flange of the girder. At this location the Contractor shall remove the cut and smooth out the gouge by feathering out the steel. The grinding shall occur parallel to the state of stress and the steel plates grind to a slope of 2.5 to 1 or less. See Attachment 14-6 ((TP Figures), Figure 4) for a picture of the defect.

   c. Retrofit poor fatigue detail on Pier 11 Pier Cap

      The steel pier cap on Pier 11 has full penetration weld between the webs of the box and the top flange. A discontinuous backer bar was used in the fabrication process. A backer bar butt joint was observed 19'-10 ¾" from the west end of the box girder on the north web plate. Other butt joints may exist behind the internal diaphragms, but these locations are obscured from visual inspection. Core

through the web to flange weld at the known butt joint location and provide a means to prevent access from animals. Propose a plan to inspect and retrofit the remaining potential locations butt joint locations at the internal diaphragms.

d. Reinforced concrete approach slabs shall be removed and replaced to per INDOT IDM and in accordance with the following requirements:

   i. New approach slab thicknesses shall be 12 inches and connected to existing pavement ledges using horizontal tie reinforcing bars in accordance with the Project Standards. Approach slabs shall match the width of the bridge superstructure. Approach slabs shall be constructed with longitudinal grooving in accordance with Attachment 14-1 (USP Longitudinal Grooving). Approach slabs shall not be offset longitudinally at the terminal joint.

   ii. Terminal joints and/or sleeper slabs shall be designed and constructed in accordance with INDOT Design Memo 19-10.

   iii. 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.

14.3.2.4 Indiana Approach EB over SR 111/Main St. (DEBL)

File Structure No.: See the table in Section 1 (General Scope of Work). The structure shall receive rehabilitation in accordance with Section 14.3 except as modified herein:

1. Perform deck overlay in accordance with Section 14.3.1.
2. Replace all joints for this bridge in accordance with Section 14.3.1.
3. Steel rocker bearings shall be replaced with elastomeric or reinforced elastomeric bearings.
4. Rehabilitate the existing abutments to be semi-integral abutments in accordance with INDOT Design Memorandum 19-04.
5. Perform partial cleaning and painting of all structural steel locations that are repaired with the following requirements. See Attachment 14-9 (USP 619-B-314 201201).

   a. The existing paint system is a 3-coat system consisting of a base coat of metallizing, with an intermediate sealer and a polyurethane topcoat. Qualified personnel shall inspect the coating system and provide IFA with a recommended coating preservation plan for the bridge with consideration of the repair work to be performed.

   b. Determine and then match existing paint color using color samples from the approved paint supplier.

6. Replace all lighting and components in accordance with Section 11.5 (Lighting).
7. Reinforced concrete approach slabs shall be removed and replaced to per INDOT IDM and in accordance with the following requirements:

   a. New approach slab thicknesses shall be 12 inches and connected to existing pavement ledges using horizontal tie reinforcing bars in accordance with the Project Standards. Approach slabs shall match the width of the bridge superstructure. Approach slabs shall be constructed with longitudinal grooving in accordance with

Attachment 14-1 (USP Longitudinal Grooving). Approach slabs shall not be offset longitudinally at the terminal joint.

b. Terminal joints and/or sleeper slabs shall be designed and constructed in accordance with INDOT Design Memo 19-10.

c. 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.

14.3.2.5 Indiana Approach EB over Southern RR (JDEB)

File Structure No.: See the table in Section 1 (General Scope of Work).

The structure shall receive rehabilitation in accordance with Section 14.3 except as modified herein:

1. Perform deck overlay for this bridge in accordance with Section 14.3.1.

2. Steel rocker bearings (expansion shoe bearings) shall be replaced with elastomeric or reinforced elastomeric bearings. .

3. Rehabilitate the existing abutments to be semi-integral abutments in accordance with INDOT Design Memorandum 19-04.

4. Perform partial cleaning and painting of all structural steel locations that are repaired by the Design-Build Contractor with the following requirements. See Attachment 14-9 (USP 619-B-314 201201).

   The existing paint system is a 3-coat system consisting of a base coat of metallizing, with an intermediate sealer and a polyurethane topcoat. Design-Build Contractor shall submit a partial cleaning and painting plan for IFA approval. The plan shall define the means, methods, and materials for the partial cleaning and painting work, including how the existing topcoat paint color will be matched.

5. All joints except joints at pier 6 and pier 7 shall be eliminated and replaced with link slabs. Replace bearings where necessary to accommodate the joint elimination. Provide analysis and calculations to IFA for review and approval demonstrating that all bridge components, except foundations, have adequate capacity in the final configuration. Evaluate the existing substructure for LRFD Strength and Service load combinations. All joints at pier 6 and 7 shall be replaced in accordance with Section 14.3.1.

6. Replace all lighting and components in accordance with Section 11.5 (Lighting).

7. Reinforced concrete approach slabs shall be removed and replaced to per INDOT IDM and in accordance with the following requirements:

   a. New approach slab thicknesses shall be 12 inches and connected to existing pavement ledges using horizontal tie reinforcing bars in accordance with the Project Standards. Approach slabs shall match the width of the bridge superstructure. Approach slabs shall be constructed with longitudinal grooving in accordance with Attachment 14-1 (USP Longitudinal Grooving). Approach slabs shall not be offset longitudinally at the terminal joint.

   b. Terminal joints and/or sleeper slabs shall be designed and constructed in accordance with INDOT Design Memo 19-10.

c. 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.

14.3.2.6 I-64 EB over Market Street

File Structure No.: See the table in Section 1 (General Scope of Work).

1. Clean and Paint all structural steel. See Attachment 14-8 (USP Provisions for Painting Bridge Steel). Paint color shall be green.

14.3.3 Traffic Structure Requirements

2. Comply with Section 11 (Traffic and Lighting) and Section 17 (ITS) for design and construction requirements.

3. With the exception of lighting, bridge-mounted traffic structures are prohibited.

14.3.4 Sign Structure Requirements

4. Refer to Section 11 (Traffic and Lighting) and Section 17 (ITS) for design and construction requirements.

5. Standard sign structures shall be in accordance with the Standard Drawings.

6. Non-standard sign structures shall comply with AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals. Apply a 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.

7. 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 IFA for approval.

14.3.5 Level One Design Exceptions

The following Level One Design Exceptions have been obtained by IFA related to bridges:

1. Shoulder Width:

   a. I-64 EB and WB Right and Left Shoulder width on the SMB DES 1702255 and 1562187

   b. I-64 EB and WB Left shoulder width for approach roadway and structures north of SMB: DES 1702257, 1702258 and 1702259

   c. I-64 EB and WB Right and Left Shoulder width on the approach structures south of SMB: DES 1702254 and 1702260

2. Horizontal Stopping Sight Distance:

   a. I-64 EB and WB Horizontal Stopping Sight Distance on the approach structures south of SMB: DES 1702254 and 1702260

3. Vertical Clearance:

a. I-64 EB Vertical Clearance on the lower deck on the approach structures south of SMB: DES 1702254 and 1702260

14.4 Deliverables

Deliverables under this Section 14, a non-exhaustive list of which is set forth in Table 14-4, 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 14-4: Deliverables

Deliverable	Deliverable Schedule	TP Section
Level 1 checklist	With Stage 1 Review Submission, Stage 3 Review Submission, and Released for Construction Documents	14.2
Construction analysis and design checks for stability and elastic behavior	With Stage 3 Review Submission and approved prior to Released for Construction Documents	14.3.1.5
Deck removal plan and staging analysis	With Stage 3 Review Submission and approved prior to Released for Construction Documents	14.3.1.9
Hanger replacement calculations and replacement methodology plans	With Stage 3 Review Submission and approved prior to Released for Construction Documents	USP Hanger Replacement
Link Slab design, material specifications, installation procedures, and QC plan	With Stage 3 Review Submission and approved prior to Released for Construction Documents	14.3.1.27
Temporary support plan for concrete substructure patching repairs	With Stage 3 Review Submission and approved prior to Released for Construction Documents	14.3.1.34
Preliminary Capacity and Load Rating Evaluation Submittal	With Stage 3 Review Submission and approved prior to Released for Construction Documents	14.3.1.32
Joint elimination submittal including any joint and bearing calculations, shop drawings, and construction plan.	With Stage 3 Review Submission and approved prior to Released for Construction Documents	14.3.2.1.7, 14.3.2.2.7
Tie shaving removal plan	With Stage 3 Review Submission and approved prior to Released for Construction Documents	14.3.2.2.10.f

Deliverable	Deliverable Schedule	TP Section
Inspection access rehabilitation and improvement plan and calculations	With Stage 3 Review Submission and approved prior to Released for Construction Documents	14.3.2.2.10.i
Structural steel rehabilitation plan, calculations, and shop drawings	With Stage 3 Review Submission and approved prior to Released for Construction Documents	14.3.1
Permanent metal deck form calculations	With Stage 3 Review Submission and approved prior to Released for Construction Documents	14.3.1
Final load rating summary and Bridge File documentation for bridges	Within 30 days after completion of Construction Work for each bridge	14.3.1.32

15 UTILITIES

15.1 General

Design-Build Contractor shall perform Utility coordination and Utility Adjustment Work in accordance with the PPA Documents, including Project Standards, this Section 15 and its attachments; Governmental Approvals; and Governmental Rules.

As specified in Attachment 15-3 (Utility Adjustments), no Type 1 Utility Adjustments, no Type 2 Utility Adjustments, no Type 3 Utility Adjustments, and no Type 4 Utility Adjustments are anticipated.

IFA has completed early coordination with Utilities, including preliminary conflict analysis associated with the Work.

Design-Build Contractor shall be responsible for and complete all Utility coordination and other Work as required.

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's Utility Coordinator Certification Training and as set forth in Section 1.3.1.2 of the Technical Provisions.

15.2.2 Technical Requirements

Design-Build Contractor shall identify all Utility conflicts on the Project. Design-Build Contractor shall submit a Utility Conflict Matrix on the template provided in Attachment 15-1 (Project Design and Utility Summary Template) to IFA for review and comment. 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 IFA for review and comment.

Design-Build Contractor shall be responsible for construction and connection of modified existing and New Utility services owned and maintained by INDOT and KYTC as applicable for signs, lighting, signals, ITS, 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 15-2 (Utility Work Plan 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 AT&T (Telecommunications)

AT&T has facilities in the Planned ROW Limits. Design-Build Contractor's final plans which may require Utility Adjustments to AT&T shall be the responsibility of the Design-Build Contractor to coordinate the Utility relocation. Design-Build Contractor shall be responsible for any reimbursable costs associated with the design and adjustment of the facilities. Monte Gullion of the utility may be contacted at 812-948-7170, mg4381@att.com.

15.3.1.2 Century Link/Level 3 Communications (Telecommunications)

CenturyLink/Level 3 Communications has facilities in the Planned ROW Limits. Design-Build Contractor's final plans which may require Utility Adjustments to CenturyLink/Level 3 Communications shall be the responsibility of the Design-Build Contractor to coordinate the Utility relocation. Design-Build Contractor shall be responsible for any reimbursable costs associated with the design and adjustment of the facilities. Tim Hill of the utility may be contacted at 704-733-3204, tim.w.hill@level3.com.

15.3.1.3 City of New Albany (Sanitary and Stormwater)

City of New Albany has facilities in the Planned ROW Limits. Design-Build Contractor's final plans which may require Utility Adjustments to City of New Albany's facilities shall be the responsibility of the Design-Build Contractor to coordinate the Utility relocation. Design-Build Contractor shall be responsible for any reimbursable costs associated with the design and adjustment of the facilities. Christopher Gardner for Stormwater of the utility may be contacted at 812-945-1989, cgardner@cityofnewalbany.com, Scott Wilkinson for Wastewater of the utility may be contacted at 812-948-5320, swilkinson@cityofnewalbany.com.

15.3.1.4 Crown Castle Network Operations (Telecommunications)

Crown Castle Network Operations has facilities in the Planned ROW Limits. Design-Build Contractor's final plans which may require Utility Adjustments to Crown Castle Network Operations facilities shall be the responsibility of the Design-Build Contractor to coordinate the Utility relocation. Design-Build Contractor shall be responsible for any reimbursable costs associated with the design and adjustment of the facilities. Indiana – Rebecca Gray of the utility may be contacted at 502-318-1313, Kentucky – Edna Roy of the utility may be contacted at 704-405-6561, edna.roy@crowncastle.com.

15.3.1.5 Duke Energy (Electric)

Duke Energy has facilities in the Planned ROW Limits. Design-Build Contractor's final plans which may require Utility Adjustments to Duke Energy shall be the responsibility of the Design-Build Contractor to coordinate the Utility relocation. Design-Build Contractor shall be responsible for any reimbursable costs associated with the design and adjustment of the facilities. Connie Maus of the utility may be contacted at 765-454-6180, connie.maus@duke-energy.com.

15.3.1.6 Indiana American Water (Potable Water)

Indiana American Water has facilities in the Planned ROW Limits. Design-Build Contractor's final plans which may require Utility Adjustments to Indiana American Water shall be the responsibility of the Design-Build Contractor to coordinate the Utility relocation. Design-Build Contractor shall be responsible for any reimbursable costs associated with the design and adjustment of the facilities. Rebecca Ashack of the utility may be contacted at 317-885-2405, Rebecca.ashack@amwater.com.

15.3.1.7 LG&E KU (Electric)

LG&E KU has facilities in the Planned ROW Limits. Design-Build Contractor's final plans which may require Utility Adjustments to LG&E KU shall be the responsibility of the Design-Build Contractor to coordinate the Utility relocation. Design-Build Contractor shall be responsible for any reimbursable costs associated with the design and adjustment of the facilities. Caroline Justice of the utility may be contacted at 502-627-3708, caroline.justice@LGE-KU.com.

15.3.1.8 Louisville Water Company

Louisville Water Company has facilities in the Planned ROW Limits. Design-Build Contractor's final plans which may require Utility Adjustments to Louisville Water Company shall be the responsibility of the Design-Build Contractor to coordinate the Utility relocation. Design-Build Contractor shall be responsible for any reimbursable costs associated with the design and adjustment of the facilities. Daniel Tegene of the utility may be contacted at 502-569-3649, dtegene@LWCky.com.

15.3.1.9 Metropolitan Sewer District

Metropolitan Sewer District has facilities in the Planned ROW Limits. Design-Build Contractor's final plans which may require Utility Adjustments to Metropolitan Sewer District shall be the responsibility of the Design-Build Contractor to coordinate the Utility relocation. Design-Build Contractor shall be responsible for any reimbursable costs associated with the design and adjustment of the facilities. Brandon Flaherty of the utility may be contacted at 502-540-6632, brandon.flaherty@LouisvilleMSD.org.

15.3.1.10 Vectren Gas Distribution (Natural Gas)

Vectren Gas Distribution has facilities in the Planned ROW Limits. Design-Build Contractor's final plans which may require Utility Adjustments to Vectren Gas Distribution shall be the responsibility of the Design-Build Contractor to coordinate the Utility relocation. Design-Build Contractor shall be responsible for any reimbursable costs associated with the design and adjustment of the facilities. Shelby Williams of the utility may be contacted at 812-491-5923, shelby.williams@centerpointenergy.com.

15.3.1.11 Windstream (Telecommunications)

Windstream has facilities in the Planned ROW Limits. Design-Build Contractor's final plans which may require Utility Adjustments to Windstream shall be the responsibility of the Design-Build Contractor to coordinate the Utility relocation. Design-Build Contractor shall be responsible for any reimbursable costs associated with the design and adjustment of the facilities. James Gavin of the utility may be contacted at 270-765-1818, james.galvin@windstream.com.

15.3.1.12 Zayo Bandwidth (Telecommunications)

Zayo Bandwidth has facilities in the Planned ROW Limits. Design-Build Contractor's final plans which may require Utility Adjustments to Zayo Bandwidth shall be the responsibility of the Design-Build Contractor to coordinate the Utility relocation. Design-Build Contractor shall be responsible for any reimbursable costs associated with the design and adjustment of the facilities. Indiana – Waylon Higgins of the utility may be contacted at 765-341-1199, Waylon.higgins@zayo.com, Kentucky – Ryan Burns of the utility may be contacted at 317-296-6048, ryan.burns@zayo.com.

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
Design-Build Contractor Utility Conflict Matrix	No later than 60 days following NTP	15.2
Design-Build Contractor Utility Conflict Matrix updates	As needed	15.2
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

Design-Build Contractor shall perform the railroad Work in accordance with the PPA Documents, including Project Standards, this Section 16 and its attachments; Governmental Approvals; and Governmental Rules.

This Section 16 defines the criteria required for the Project to accommodate Railroads crossing the Planned ROW Limits. Design-Build Contractor shall be responsible for coordination with all Railroads within the limits of the Project.

16.2 Railroad Design Standards

Design-Build Contractor shall design the Work affecting Railroad facilities following current Good Industry Practice, using FHWA Railroad-Highway Grade Crossing Handbook, AREMA, and IMUTCD, and incorporating the usual and customary design standards and operating requirements of the Railroad(s) that has, or is expected to have, an agreement with IFA. However, for the 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 Railroad Information) for each Railroad. Design-Build Contractor shall coordinate with Railroads to finalize the Recurring Special Provisions and shall comply with the finalized special provisions at no additional cost to IFA.

16.3 Design Criteria in Railroad ROW

1. The design of any 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 real property rights shall be protected from damage resulting from the Work.
3. All bridges over Railroad facilities shall provide the required minimum vertical clearance over Railroad facilities. Design-Build Contractor shall survey the existing track elevations and measure the existing minimum vertical clearance over the Railroad facilities prior to commencing Design Work. The measurements shall be provided to IFA.
4. All horizontal clearances shall conform to the operating Railroad specifications; and, crash walls shall be provided as required by the operating Railroad specifications. Design-Build Contractor shall survey existing track elevations and measure the existing minimum horizontal clearances for all Railroad facilities prior to commencing Design Work. The measurements shall be provided to IFA.
5. All substructure elements within 25 feet of the centerline of tracks shall be designed and constructed with a crash wall per AREMA requirements.

6. Submitted plans shall be dated, signed, and sealed by a professional engineer.
7. Design-Build Contractor shall provide track monitoring plans for all foundation construction processes.
8. Construction equipment and material shall not be stored within the Railroad real property rights.
9. If excavation for retaining wall or pier foundations impact the live load influence line, sheeting and shoring will be required. Theoretical live load influence zones shall be detailed on the Stage 3 Review Submission and Released for Construction Documents.
10. All drainage from the bridge and roadway crossing over the existing Railroad shall be collected and directed away from the Railroad real property rights and shall be detailed on the Stage 3 Review Submission and Released for Construction Documents
11. Design-Build Contractor shall detail culverts located adjacent to the Railroad tracks in the Stage 3 Review Submission and Released for Construction Documents and indicate directional flow.
12. Design-Build Contractor shall indicate on the Stage 3 Review Submission and Released for Construction Documents 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, and 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. Plans shall fully consult each Railroad in such a manner as necessary to ensure compliance with all standards not in conflict with IFA's requirements and a viable final design. The Railroad has final approval rights for the design of Work affecting its facilities.

Design-Build Contractor shall complete final Plans for the Railroad crossings. The Plans shall be dated, signed, and sealed by a professional engineer. 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. The Plans shall include the following Railroad required notes:

- All work on, over, under, or adjacent to Norfolk Southern right-of-way shall be done in accordance with the Norfolk Southern "Special Provisions for the Protection of Railway Interests".
- "One Call" services do not locate buried railroad signal and communications lines. The contractor shall contact the railroad's representative two (2) days in advance of those places where excavation, pile driving, or heavy loads may damage railroad underground lines on railroad property. Upon request from the contractor or agency, railroad signal forces will locate and paint mark or flag railroad underground signal, communication, and power lines in the area to be disturbed for the contractor. The contractor shall avoid excavation or other disturbance of these lines which are critical to the safety of the railroad and the public. If disturbance or excavation is required near a buried railroad

signal, communication, or power line, the line shall be potholed manually with careful hand excavation by the contractor and protected by the contractor during the course of the disturbance under the supervision and direction of a railroad signal representative.

- The quantity and character of the drainage flow within Norfolk Southern right-of-way shall not be altered.

- For Projects exceeding 30 days of construction, Contractor shall provide the flagman a small work area with a desk/counter and chair within the field/site trailer, including the use of bathroom facilities, where the flagman can check in/out with the Project, as well as to the flagman's home terminal. The work area should provide access to two (2) electrical outlets for recharging radio(s), and a laptop computer; and have the ability to print off needed documentation and orders as needed at the field/site trailer. This should aid in maximizing the flagman's time and efficiency on the Project.

- The contractor shall submit construction submittals in accordance with the Public Project Manual.

- Existing substandard clearances shall not be further reduced for the temporary construction condition without written permission from Norfolk Southern.

- The following criteria shall govern the use of falsework and formwork above or adjacent to operated tracks: a minimum vertical clearance of 22'-0" above top of highest rail shall be maintained at all times, a minimum horizontal clearance of 14'-0" from centerline of track shall be maintained at all times.

Norfolk Southern owns the existing tracks that cross the Planned ROW Limits under I-64 Structure NO. I-64-125-2294 JDEB and JDWB, Span D, E, and F, Sta. 100+23.00 – 102+50.00 Line "A". Contact, as of the Setting Date, for Norfolk Southern is provided in Attachment 16-1 (RSP Railroad Information).

16.5 Design Costs

During negotiation and design coordination, Design-Build Contractor shall provide IFA with an estimate of all anticipated costs for Work related to Railroads at IFA 's request.

The costs shall be reviewed by the Design-Build Contractor for compliance with federal and state standards and will be the basis of the Railroad Agreement. Design-Build Contractor shall submit the cost estimate to IFA for review and approval.

16.6 Records

Design-Build Contractor shall maintain Book and Records of all coordination and Construction Work with the Railroad. Copy of these Books and Records shall be provided to IFA as they are completed. Specific documents required include: correspondence, meeting minutes, 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 real property rights, operations, or facilities, the Design-Build Contractor shall coordinate the Work with the Railroad(s), and IFA, as appropriate.

16.7.1 Schedule

Design-Build Contractor shall be responsible for obtaining required approvals, permits, petitions, required for any Railroad-related Work not already in place. All costs, fees, and Work associated with Railroad matters shall be the responsibility of Design Build Contractor. Design-Build Contractor shall be responsible for including and incorporating all Railroad-related items into the Project Schedule. No time extensions will be granted to Design-Build Contractor for Railroad-related Work. Design-Build Contractor shall enter into other agreements with and obtain any permits from Governmental Entities or others that are necessary to perform the Work described herein or that otherwise apply to Work hereunder, except for those items expressly described in this Section 16.7 as being the responsibility of IFA.

16.7.2 Railroad Agreement

Design-Build Contractor shall comply with all requirements contained in Attachment 16-2 (Railroad Agreement), which compliance is included as part of the Work. Design-Build Contractor shall pay, as part of the Work, for the Railroad's expenses relating to Work hereunder that the Railroad Agreement states are payable by IFA, within the time specified in the Railroad Agreement, including all but not limited to costs associated with Railroad flaggers and periodic Railroad inspections.

16.7.3 Operation Safety

Design-Build Contractor shall arrange with the Railroad for Railroad flagging and periodic Railroad inspections as required in accordance with Attachment 16-1 (RSP Railroad Information). All flagging costs and periodic Railroad inspections, including those in excess of the estimate provided in the Railroad Agreement and Section 6.2.4 of the PPA, are included in the Work. Design-Build Contractor shall comply with the Railroad's requirements for contractor safety training prior to performing Construction Work or other activities on the Railroad's real property rights.

16.7.4 Railroad Right of Entry Agreement

In order to enter the operating Railroad's real property rights to perform the Work, Design-Build Contractor shall have secure its right of entry from the Railroad and shall coordinate the arrangements of the necessary agreements directly with the operating Railroad.

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 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, IFA and be approved by the Railroad prior to any entry by the Design-Build Contractor upon 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 daily costs associated with the Construction Work of the Project as it relates to Railroad coordination. Design-Build Contractor shall provide, at a minimum, monthly reports to IFA on the usage of Railroad flaggers. Design-Build Contractor shall be responsible for all costs but not limited to flagging and periodic inspection 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
Stage 3 Review Submission	As completed	16.4
Released for Construction Documents	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 and periodic inspection reports	Monthly	16.8.2

17 INTELLIGENT TRANSPORTATION SYSTEM (ITS)

17.1 General

Design-Build Contractor shall perform the ITS Work in accordance with the PPA Documents, including Project Standards, this Section 17 and its attachments; Governmental Approvals; and Governmental Rules.

The purpose of ITS is to improve traveller safety, improve traffic efficiency by minimizing congestion, mitigate the impact of incidents, and minimize traffic-related environmental impacts.

17.2 Administrative Requirements

Any and all manufacturer warranties that extend beyond the required two-year warranty period as prescribed in the Standard Specifications shall be transferred to IFA in accordance with Section 11.1.2 of the PPA.

17.3 Design and Construction Requirements

The Project 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 system will be controlled and operated by the INDOT TMC.

Design-Build Contractor shall be responsible for providing continuous ITS functionality at all times during construction of the Project.

Prior to starting any Work on I-64, Design-Build Contractor shall submit a maintenance of ITS plan to IFA for review and approval. The plan shall describe and detail how the Design-Build Contractor intends to maintain ITS functionality during construction of the Project. The Plan shall describe the timing of the removal of existing equipment and placement of proposed equipment. Methods to maintain ITS functionality may include but are not limited to the use of existing, temporary, and new proposed ITS equipment.

Design-Build Contractor shall be responsible for providing complete video coverage at all times of all traffic movements along mainline I-64 within the Maintenance of Traffic Limits, at I-64 interchanges within the Maintenance of Traffic Limits and at the I-265/I-65 interchange. Any necessary temporary cameras shall be fully operational with communications to the INDOT TMC. Design-Build Contractor may use existing, temporary, or proposed permanent cameras to provide complete video coverage. Design-Build Contractor shall provide remote video and control for temporary cameras at the TMC to enable monitoring of traffic conditions in the construction zone.

INDOT TMC shall be notified if ITS equipment in Indiana is to be impacted. KYTC shall be notified if ITS equipment in Kentucky is to be impacted. Design-Build Contractor can avoid disincentive fees by providing temporary equipment to provide the same/similar functionality of the impacted device.

The existing cameras located under the westbound bridge over Spring Street, Market Street and Main Street shall not be disturbed and shall not be required to be integrated into the new INDOT fiber system. All other existing cameras, switches, modems and contents of cabinets on the

bridge and in Indiana shall be salvaged and returned to the INDOT TMC. Any equipment salvaged in Kentucky shall be returned to KYTC.

17.3.1 Material and Equipment Requirements

All material and equipment provided shall be compatible with existing INDOT ITS deployments and Design-Build Contractor shall ensure a seamless integration with existing systems. The system shall be consistent with published State and federal ITS architectures, as well as the National Transportation Communications for ITS Protocol (NTCIP). Design-Build Contractor shall furnish all materials for ITS Work elements. Design-Build Contractor shall submit material specifications and details to IFA for approval prior to ordering.

17.3.2 Power Requirements

Design-Build Contractor shall coordinate with Utility Owner(s) to deliver metered AC power to all ITS equipment installed or modified under this Project. Design-Build Contractor shall be responsible for all Work, materials, and costs required to obtain power to ITS equipment, including application and coordination with Utility Owner(s).

17.3.3 ITS Components

The components of the ITS shall consists of, but not be limited to, vehicle detectors, closed-circuit TV cameras (CCTV), fiber optic cable and conduit, and lane control signals (LCSs). All INDOT ITS components shall meet the requirements as described in Attachment 17-1 (USP ITS). All KYTC ITS components shall meet the requirements as described in Attachment 17-3 (USP KYTC ITS).

17.3.3.1 Wireless Vehicle Detection System

Design-Build Contractor shall design, furnish, and install vehicle detectors along I-64 at all proposed permanent CCTV camera locations. The detector pole locations may be combined with CCTV camera locations. The detectors shall be either wireless in-pavement sensor detection system or microwave radar. Design-Build Contractor shall include the field equipment and control center equipment necessary to maintain the wireless vehicle detection system. Design-Build Contractor shall coordinate with IFA to confirm the detector type at each location during preliminary design of the ITS system. The detectors shall provide vehicle volumes, speeds, user-defined classes, and occupancies by lane in user-defined intervals.

17.3.3.2 CCTV Cameras

Design-Build Contractor shall design, furnish, install and test CCTV cameras, field equipment and control center equipment that are necessary to integrate the Sherman Minton Bridge video coverage and detection functions into the existing video coverage and control system. CCTV spacing shall not exceed one mile and the placement of the CCTVs shall provide 100% video coverage of the upper and lower decks of the Sherman Minton Bridge, and of the roadways, interchanges, intersections, and critical traffic operations. 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 at each CCTV camera location. Design-Build Contractor shall provide temporary CCTV camera locations, if required during bridge maintenance activities, to maintain 100% video coverage of the upper and lower decks of the Sherman Minton Bridge.

In addition, two standalone (not to be integrated with INDOT) cameras shall be provided and installed on the eastern-most end of the Sherman Minton Bridge, one on each level of the bridge. These cameras will require a separate power service from any other cameras required for the Project. The meter shall be transferred to KYTC after Final Acceptance. The Design-Build Contractor shall coordinate with IFA to seek input on mounting locations and optimizing views to provide a complete and functional design allowing KYTC visibility onto the bridge while also providing views of ingress and egress traffic. The Design-Build Contractor will be required to submit designs and plans to IFA for review and approval. All manufacturer recommended installation and operation procedures must be adhered to for all equipment used to accomplish this installation.

17.3.3.3 Fiber Optic Backbone

Design-Build Contractor shall design, furnish, and install a permanent fiber optic backbone within the limits of the Project along I-64 on the Sherman Minton Bridge. The new fiber shall be 192-strand, single-mode fiber-optic cable. Design-Build Contractor shall provide a new vault to store, splice, and terminate the new fiber at the east terminus at or around Station 80+00 “EB LANES.” Design-Build Contractor shall provide a new vault to store and splice the new fiber to the existing fiber at the west terminus within the Spring Street interchange. Design-Build Contractor shall coordinate with INDOT to determine final vault locations of the east and west termini. Maximum spacing between handholes shall be 1500 feet for INDOT and KYTC ITS Conduits. If maximum spacing cannot be obtained within bridge limits, Design-Build Contractor shall coordinate acceptable locations with INDOT and/or KYTC. There shall be 20 feet of extra fiber in the handholes and 300 feet (150 feet each side) for the vaults.

The fiber optic backbone shall include a total of nine Conduits. Three one-and-a-half-inch diameter Conduits shall be for use by INDOT ITS. Four two-inch diameter empty Conduits shall be for use for the INDOT Broadband Corridor. Two one-and-a-half-inch diameter Conduits shall be for use for KYTC ITS.

The Design-Build Contractor shall arrange the Conduits as follows: INDOT ITS Conduits shall be located on the bottom (deepest) portion of the trench or hangar; KYTC ITS Conduits shall be placed above INDOT ITS Conduits and the broadband corridor Conduits near the top of the trench or hangar.

The INDOT ITS Conduits, KYTC ITS Conduits, and INDOT Broadband Corridor Conduits shall have separate handholes and vaults. For INDOT Broadband Corridor Conduits, maximum spacing between handholes shall be 2000 feet. No splices are allowed in the handholes.

Design-Build Contractor shall coordinate with INDOT to determine the location of the fiber optic backbone, handholes and vaults. Handholes and vaults shall be located with special attention to ease of access for maintenance. Prior to installation, Design-Build Contractor shall verify vault and/or handhole design with INDOT and shall show similar specifications as displayed in Attachment 17-2 (USP On-Bridge Junction Box). Design-Build Contractor shall be responsible for testing as-built fiber optic backbone Conduits to demonstrate viability for future installation of fiber by others.

Any existing Conduits and fiber optic cables may remain in place if they are not disturbed or damaged during Construction Work. Verification documentation to ensure that the existing fiber is in working condition shall be provided to IFA for review.

Design-Build Contractor shall be responsible for producing a fiber optic installation plan. The fiber optic installation Plan shall include a description of the method of installing Conduit and cable. Specifically, the Design-Build Contractor shall address the method of installing fiber on the Sherman Minton Bridge in the fiber optic installation plan. The installation method shall incorporate a means of maintaining communications continuously during Project work.

17.3.3.4 Lane Control Signals (LCSs)

Design-Build Contractor shall provide a comprehensive infrastructure of LCSs for the Sherman Minton Bridge lower deck to effectively shift traffic away from lanes with safety concerns. LCSs shall be mounted above travel lanes at bridge lower deck approaches (Sta. 103+16.93 to Sta. 114+00.00) and within the limits of the bridge lower deck in Indiana (approximate Sta. 80+00 to Sta. 103+16.93). LCSs shall be mounted approximately every 500 feet to alert travellers about lane open, lane prohibition, or impending lane closures in accordance with MUTCD 2009 Edition Chapter 4M. The final mounting height of the signal enclosures shall have the minimum clearance as required by the PPA documents. Design-Build Contractor shall coordinate final mounting locations with IFA.

Each LCS shall be capable of displaying an 18-inch by 18-inch green downward arrow and red ‘X’. The full graphical display of the LCS shall be positioned in the line-of-sight of the roadway segment so it is clearly visible and legible from in-vehicle view under clear daylight and night-time conditions. The graphical display shall also be seen when the sun is in the background of the LCS from in-vehicle view to avoid sun-glare issues. The design of LCSs shall comply with the pertinent state guidelines and MUTCD standards regarding LCS controller and communications, maintenance with safe access, and operation on 24/7 schedules.

Design-Build Contractor shall be fully responsible for the site survey, design, fabrication, and installations of the LCSs. Design-Build Contractor shall be responsible for the design, structural calculations, and installation of supporting structures for LCSs, as required by OSHA and Department standards.

Design-Build Contractor shall provide power connections to the LCS controller cabinets and LCS assembly as stipulated by the power requirements of the sign manufacturer, which includes installations of all conduits, cabling, power supplies and converters, wiring harnesses, circuit breakers, and other incidental materials, to provide a complete powered LCS. Design-Build Contractor shall provide communications connections to allow data transmission from the Traffic Management Center to the LCS assembly. Design-Build Contractor shall furnish and install all conduits, cabling, connectors, terminal servers and switches, cable management devices, and other incidental materials to make required data connections. The LCS controller shall include not only the individual sign control but also a comprehensive sequence control logic corresponding to incident identification, closure, and recovery by using a series of LCSs from upstream to downstream, to guarantee the safe operations of the bridge lower deck. The controller shall also be able to verify the device status, and any failure to respond to central command shall activate manual control override to complete and lane control logic.

The control software shall be designed to refuse any prohibited combination of signal indications to any traffic at any point in the controlled lanes in accordance with MUTCD 2009 Edition Chapter 4M and pertinent State standards. The integration of LCS with the existing INDOT ATMS will be performed by others.

17.3.4 Safety and Maintenance Access

The design shall provide safe maintenance access to ITS equipment for use by INDOT ITS maintenance personnel. Safe maintenance access shall be achieved by installing access driveways, level maintenance platforms, railings, and guardrails or barriers within clear zones. Design-Build Contractor shall provide access driveways at all camera, detector and shelter locations in excess of 15 feet from the edge of shoulder and subject to review and approval by IFA. Access driveways shall be designed for access by a single-unit truck. Access driveways shall provide turnaround for the maintenance vehicle to make three-point turn. Maximum grade for access driveway shall be 6 percent. The access driveway locations shall meet adequate sight distance requirement to enable maintenance vehicles to enter and exit without creating a hazardous situation. When placement of ITS equipment outside of the edge of shoulder is infeasible, Design-Build Contractor shall locate ITS equipment such that future maintenance operations shall only require closure to one lane of traffic.

17.3.5 ITS Plan Documents

Prior to the Stage 1 Review Submission, Design-Build Contractor shall submit ITS roll Plans to IFA for review and comment. The ITS roll Plans shall include the location and details of the ITS components.

The Stage 1 Review Submission shall include Plans depicting location and details of ITS components. The Plans shall identify driveway locations for maintenance access.

The Stage 3 Review Submission shall include Plans depicting additional details such as communication network diagrams and any applicable design details. The Plans shall include lay out sheets illustrating driveway design for maintenance access, grading Plans and any associated design elements such as drainage, fencing, and gates.

17.4 Integration and Testing Requirements

Design-Build Contractor shall conduct installation testing during construction to ensure the devices perform per the manufacturer's specifications. Design-Build Contractor shall provide test plans and test results for IFA review and comment. 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 IFA with the Construction Documents. Design-Build Contractor shall provide 72-hour advance Notice to IFA for testing.

Design-Build Contractor shall provide 72-hour advanced Notice to IFA for the anticipated disruption of any services. Any planned disruption of services shall be coordinated with IFA. Concealed Work (including underground) shall be tested by Design-Build Contractor and witnessed by IFA prior to covering.

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 field equipment. The field equipment shall be configured using parameters which will be supplied by IFA. Design-Build Contractor shall work with the INDOT ITS staff for final configuration of equipment and physical connection to the existing equipment.

Design-Build Contractor's ITS obligations as a condition to Final Acceptance will occur when testing concludes, and all components and subsystems perform as an integrated system. At the good faith discretion of IFA, pre-installation testing may be repeated as part of the Final Acceptance by IFA.

Design-Build Contractor shall develop and submit test plans and test procedures for each component and each subsystem for IFA review and comment. At 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. At 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 shall not commence without IFA'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. Test results shall be in CSV format.

17.5 Deliverables

Deliverables under this Section 17, a non-exhaustive list of which is set forth in Table 17-1, 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 17-1: Deliverables

Deliverable	Deliverables Schedule	TP Section
Fiber optic installation plan	With Stage 1 Review Submission, Stage 3 Review Submission, and Released for Construction Documents	17.3.3
ITS roll Plans	Prior to Stage 1 Review Submission	17.3.5
ITS plans	With Stage 1 Review Submission, Stage 3 Review Submission and Released for Construction Documents	17.3.5

Deliverable	Deliverables Schedule	TP Section
Special or unique test equipment	Prior to Final Acceptance	17.4
Test Plans	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)	Final Acceptance	Attachment 17-1
Manufacturers documentation for all equipment used in the Project	Final Acceptance	Attachment 17-1

18 RIGHT OF WAY

Design-Build Contractor shall perform all right of way Work in accordance with the PPA Documents, including the Project Standards, this Section 18 and its attachments; Governmental Approvals; and Governmental Rules.

18.1 Project ROW

18.1.1 Planned ROW Limits

The Planned ROW Limits shall have the meaning set forth in Exhibit 1 of the PPA. IFA is not acquiring ROW for this project.

18.1.2 Shawnee Golf Course

The Shawnee Golf Course has facilities within the existing Planned ROW Limits. The Design-Build Contractor shall sequence and commence Work such that the golf course facilities remain operational with no or minimal impact. The golf course facilities shall be protected in-place and/or replaced in-kind if disturbed. The requirements set forth in Section 12 (Maintenance of Traffic) shall be met.

18.1.3 Additional Properties

Should Design-Build Contractor require Additional Properties or additional property for temporary and/or easement interests necessary to complete the Work, Design-Build Contractor shall comply with the requirements of Sections 3.6.3, 6.1.3 and 6.1.4 of the PPA.

Any acquisition of Additional Properties shall comply with Project Standards.

18.2 Monument and Fence Construction

If monuments and/or fence are disturbed, then Design-Build Contractor shall design and construct limited access ROW fence, survey monuments, reference monuments, and any other items associated with non-limited access ROW monumentation in accordance with Project Standards.

Design-Build Contractor shall submit monument, fencing plan, types and locations to IF for review and approval.

18.3 Deliverables

Deliverables under this Section 18, a non-exhaustive list of which is set forth in Table 18-1, 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. The following are required in the event of Additional Property acquisition.

Table 18-1: Deliverables

Deliverable	Deliverable Schedule	TP Section
Environmental documents required by NEPA, if required	Prior to beginning of appraisal	18.1.1
Final ROW Plans for Additional Properties	Stage 3 Review Submission	18.1.1
Monument and Fencing Plan	Submit with Stage 3 Review Submission and Released for Construction Documents	18.2