

Appendix A – Scope of Services  
*Westfield Boulevard Connector*  
For the City of Westfield, Indiana  
May 9, 2016

## Introduction

### Project Description

Parsons Brinckerhoff, Inc. (PB), is the prime design Consultant to the City of Westfield (Owner) for the Westfield Boulevard Connector (the Project). The Project is defined as having two (2) parts: Part 1: the South Half which extends from north of the intersection of Union and 161<sup>st</sup> Street to a new intersection with 169<sup>th</sup> Street between US 31 and Union Street (from here forward referred to as South Half); and Part 2: the North Half which includes the new intersection at 169<sup>th</sup> Street and extends to the intersection of Poplar Street and SR 32 (from here forward referred to as North Half). PB shall be responsible for the management, coordination, traffic analysis, environmental documentation and permitting, topographic survey, design, geotechnical engineering, utility coordination, and right of way management efforts necessary to prepare an enhanced red flag summary for the South Half and an environmental clearance document as well as final construction documents and procurement for the North Half.

The designs shall be developed in accordance with the following documents in effect at the time the plans or reports are submitted: American Association of State Highway and Transportation Officials' "A Policy on Geometric Design of Highways and Streets"; Indiana Department of Transportation's Standard Specifications; Manual on Uniform Traffic Control Devices; Road, Bridge and Traffic memoranda and INDOT Design Manuals, except as modified by supplemental specifications and special provisions. The Consultant shall coordinate its designs with guidance from the Owner on scope, schedule, and design-related technical issues. A more detailed discussion of the Consultant's proposed services is described in the following specific sections:

Section	Description
Section 1:	Meetings, Management, and Design Build Procurement
Section 2:	Traffic Analysis
Section 3:	Environmental Document/Permits
Section 4:	Topographic Survey Data Collection
Section 5:	Drainage/Hydraulics/Storm Water Management
Section 6:	Road Design and Erosion Control
Section 7:	Bridge Design
Section 8:	Signal, Signs & Lighting
Section 9:	Geotechnical Engineering
Section 10:	Utility Coordination

Section 11:	Post Bid Services
Section 12:	Right of Way Plan Development
Section 13	Real Estate Services

### Assumptions

- 100% Design and Environmental Clearance tasks for the North Half will take 24 months.

## Section 1: Meetings, Management, and Design Build Procurement

This section describes the overall management and coordination efforts with the Owner throughout the Project to communicate and facilitate information, as well as identify conflicts and the process for their resolution. Additionally, PB has a recognized project management and quality control system documented in a Project Delivery Handbook (PDH) with an established series of tracking templates taken from the Project Management Institutes Project Management Book of Knowledge. It is through the PDH that PB manages its projects, facilitating the team's adherence to project scope, schedule and budget. PB's project manager will comply with our PDH procedures by preparing a project management plan and associated documents to guide the project from start to finish. PB is ISO 9001 certified. Monthly invoices will be prepared for submittal to the Owner.

### Activities/Deliverables

The activities/deliverables to be provided to the Owner are:

#### Meetings (South Half and North Half)

- Monthly Coordination meetings, 2 persons from team attending –estimated at twenty-four (24) for the length of the project.
- Six (6) Agency Meetings, 2 persons from team attending
- Design Meetings- Bi-weekly – estimated at forty-eight (48) for the length of the project
- Four (4) Stakeholder Meetings
- Three (3) Developer Coordination Meetings for the two (2) commercial entrance cuts
- Three (3) Detention Coordination Meetings
- CADD Coordination and Setup
- PROJECTSOLVE (secure collaborative website for project file storage and sharing amongst the team members only) - One (1) site for the whole corridor
  - ProjectSolve Setup
  - ProjectSolve Training
- Respond to 3rd Party Request

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Project Management (South Half and North Half)

- Project Manager Activities include coordination with the client, developer, regional detention team, agencies, stakeholders and project team, along with financial management, contract and subcontract setup.
- Deputy Project Manager assists the project manager with project management activities listed above.
- Project Financial Controls Administrator – project setup in Oracle, budget maintenance, and financial project controls
- Document Control Manager – ensures that the project is following the procedures defined in the firms Project Delivery Handbook per ISO 9001 certification requirements.

Procurement (North Half)

- Prepare Bid Docs for Advertisement
- Attend One (1) PreBid Meeting
- Attend Bid Opening
- Analyze Bids and Prepare Recommendation
- Attend Pre-Construction Meeting
- Supply data for Quarterly Report

## Section 2: Traffic Analysis

This section describes the Traffic Analysis effort assumed to be required for the project.

### Activities/Deliverables

The deliverables to be provided to the Owner under this section are:

#### Traffic Forecast (South Half and North Half)

- Peak hour turn counts (AM & PM, 5 intersections)
- Develop network of existing volumes (AM & PM)
- Trip generation based on projected development
- Distribution of new trips
- Coordinate with Westfield on growth rate
- Develop network of future volumes (AM & PM) - one design year

#### Capacity Analysis (South Half)

- Union and Westfield Boulevard Connector (proposed alt 1, proposed alt 2, QA/QC)
- Westfield Boulevard Connector and 169<sup>th</sup> (existing, proposed alt 1, proposed alt 2, QA/QC)

#### Capacity Analysis (North Half)

- Poplar and Park (existing, proposed alt 1, proposed alt 2, QA/QC)
- Poplar and Jersey (existing, proposed alt 1, proposed alt 2, QA/QC)
- Poplar and SR 32 (existing, proposed alt 1, proposed alt 2, QA/QC)

#### Summary Memo (South Half and North Half)

- Final Report –Electronically submitted in PDF format.
- Appendices–Electronically submitted in PDF format.
- QA/QC of report

### Section 3: Environmental Document/Permits

The proposed Scope of Work is to prepare the necessary Categorical Exclusion (CE) environmental documentation required under the National Environmental Policy Act (NEPA) and associated Federal Highway Administration (FHWA) and Indiana Department of Transportation (INDOT) requirements. The supplier team for this project includes Lochmueller Group who employs historians meeting the Secretary of the Interior Professional Qualification Standards for historical services and Cultural Resources Analysts, Inc. (CRA) who employs archaeologists meeting the qualification standards for archaeological services. The current alignment was identified in an engineering study (2014) which recommended an alignment from Poplar Street south to the intersection with 161<sup>st</sup> Street. It is anticipated that documentation of the alignment alternatives previously considered, and any refinements to the preferred alternative from the prior study will be a necessary element of the Categorical Exclusion.

#### Activities/Deliverables

##### Red Flag Investigation (South Half and North Half)

A Red Flag Investigation will be conducted within a radius of one-half mile surrounding the project area to identify potential areas of concern. The investigation includes a review of appropriate layers within the INDOT Geographical Information System (GIS) Library. In addition, the Indiana Department of Natural Resources (IDNR) State Historic Architectural and Archaeological Research Database (SHAARD) GIS information would be used to identify potential historic features within the one-half mile radius surrounding the proposed project. The Red Flag Investigation Report will be submitted to the INDOT Hazardous Materials Section for review of appropriateness and would be included as an attachment to the CE environmental document.

##### Site Visit (South Half and North Half)

The team will conduct site visits to visually inspect the project area, take photographs, and conduct other environmental studies as appropriate.

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Early Coordination (North Half)

Initial project information will be gathered and summarized in an Early Coordination packet that will be distributed to the appropriate agencies as required by NEPA and the current *INDOT Categorical Exclusion Preparation Manual*.

Section 106 Cultural Resources (North Half and South Half)

A full Section 106 review will be required for the proposed project activities. A coordination packet and invitation to serve as a consulting party will be sent to identified agencies and organization by Shrewsberry (North Half only). A Historic Property Report (HPR) will be researched and written by Lochmueller Group and submitted to the INDOT Cultural Resources Office (CRO), IDNR, Department of Historic Preservation & Archaeology (DHPA), and consulting parties for review and concurrence. It is anticipated that a long report with a historic context would be appropriate due to the Notable-rated resources, west of Poplar Street.

An archaeological record review and field reconnaissance, Phase 1a Records Check/Literature Review, will be conducted by CRA, Inc. The Phase 1a will be submitted to the INDOT CRO and IDNR DHPA for review and concurrence (North Half only).

Lochmueller will prepare an effects letter and exhibits describing the project and its effects on any identified historic features. This letter will be provided to the INDOT CRO (North Half only).

Lochmueller will then prepare the anticipated "No Historic Properties Affected" determination and supporting 800.11 (e) documentation for distribution to the INDOT CRO, IDNR DHPA, and consulting parties. A legal notice will be published, one time, in the local newspaper soliciting for public comments regarding the effects finding for a period of thirty days from publication (North Half only).

For this project, all work will be in accordance with Section 106, National Historic Preservation Act (NHPA) of 1966, as amended, CFR Part 800 (Revised January 2001) and Final Rule on Revision of Current Regulations, dated December 12, 2000, and incorporating amendments effective August 5, 2004.

Investigations and recommendations will be accomplished or directly supervised by a Qualified Professional meeting the standards set forth in 36 CFR 61 or the National Historic Preservation Act and 312-IAC-21 of the Indiana Administrative Code.

Wetland Determination/Delineation and Waters of the U.S.

Determination Addendum (South Half and North Half)

A field reconnaissance will be conducted during the growing season of April through October by a Shrewsberry wetland scientist to determine if wetlands are present within the study area not included in the previously completed Waters Delineation Report, dated August 7, 2015. The investigation will be conducted in accordance with the U.S. Army Corps of Engineers Wetland Delineation Manual of January 1987 and the August 2010 Midwest Regional Supplement Manual (Version 2.0). If wetlands are identified, a delineation of those areas would be conducted. In addition, waterways which are

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identified would be surveyed to determine if they meet the definition of a Waters of the U.S. A report of our findings will be completed for inclusion in the CE Document. If wetland mitigation is determined to be needed, an addendum to this scope of work would be necessary.

Phase I Environmental Site Assessment (ESA) (South Half and North Half)

Shrewsberry will conduct a Phase I ESA consistent with the ASTM International (ASTM) Standard E 1537– 13 and the Standards and Practices for All Appropriate Inquiry, 40 CFR 312 (AAI Rule) for the area of the preferred alternative. The purpose of this investigation is to identify recognized environmental conditions, as defined by ASTM, which could affect the scope, schedule, or cost of the project. The Phase I ESA (North Half only) would be submitted to the INDOT Hazardous Materials Unit for review and concurrence.

Based on the findings of the Phase I ESA, a Phase II Limited Subsurface Investigation may be warranted; however the Phase II ESA is not included in this scope. Additional information regarding the scope of the project and coordination with the INDOT Hazardous Materials Unit would be necessary to determine the scope of a Phase II ESA, if needed.

Noise Study – As Determined

Shrewsberry will conduct a noise analysis in accordance with FHWA 23 CFR 772 and the most recent version of the INDOT Traffic Noise Policy within the area of the preferred alternative. The existing land activities will be identified and traffic noise will be measured at four representative locations with sound level monitoring equipment in accordance with current FHWA procedures for highway traffic noise analysis. As a result of the field measurements, data analysis, proposed roadway alignments, and future traffic volumes, FHWA TNM 2.5 software will be used to identify noise impacts. If necessary, feasible traffic noise barriers will be evaluated to determine if the barriers meet INDOT's cost effectiveness criteria. A draft Noise Impact Analysis Report will be assembled for submission to INDOT. The final Noise Impact Analysis Report will be submitted for approval by the INDOT Noise Committee.

Air Quality (North Half)

As Hamilton County is identified as Nonattainment for Annual Particulate Matter (PM<sub>2.5</sub>), the proposed project should be included on the Indianapolis Metropolitan Planning Organization (IMPO) Transportation Plan (TIP) and the Indiana Statewide Transportation Improvement Program (INSTIP). In addition, the scope of the project is not included as an exempt project, as outlined in 40 CFR 93.126 Table 2, nor is it identified as a project of air quality concern, as defined in 40 CFR 93.123(b)(1). Therefore, through coordination with INDOT, it should be determined that a Hot Spot Analysis would not be necessary. Shrewsberry will provide a statement for inclusion in the environmental documentation for the project. If it is determined that a Hot Spot Analysis would be necessary for the proposed project, an amendment to this scope would be necessary.

The proposed project meets the Mobile Air Source Toxics (MSAT) Analysis Level 2 as the project does not qualify as a CE Level 1 or 2, is not exempt under the Clean Air

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Act 40 CFR 93.126, will have a meaningful impact on traffic volumes of vehicle mix, and the design year traffic levels do not exceed 40,000 AADT for an intersection, or 100,000 AADT for an arterial roadway. The Level 2 MSAT Qualitative Assessment Analysis will consider the factors outlined in the INDOT Procedural Manual and Shrewsberry will write a statement of the findings, with a discussion of information which is incomplete or unavailable. If through coordination with INDOT and FHWA or changes in the scope of the project, it is determined that a Quantitative MSAT Analysis is necessary, an amendment to this scope would be necessary.

Categorical Exclusion / Environmental Documentation (North Half)

The CE documentation includes gathering and documenting information applicable to the scope of the project and the resulting impacts to the natural and man-made environment. The draft CE Document will be submitted to the INDOT Greenfield District, INDOT Central Office Policy Section, and the FHWA for review.

Public Involvement (North Half)

As an excess of 0.5 acre of new permanent and/or temporary right-of-way would be required, a public notice would be *published* after INDOT releases the CE for Public Involvement. The notice will solicit the public for the possibility of a public meeting or hearing. After the appropriate comment period, the public involvement packet and CE cover sheet would be submitted to INDOT Public Involvement for review and signature/certification. If it is determined that a public meeting or public hearing would be necessary, an addendum to this scope of work would be necessary.

Approval of CE Document (North Half)

After final review and approval of the CE Document, Shrewsberry will distribute the approved environmental document as outlined in the current INDOT CE Preparation Manual and will provide PB with a spreadsheet containing the commitments to the project resulting from the NEPA process.

Permits (North Half)

Coordination will occur with the INDOT Waterways Permit Unit to determine the necessary permits in the form of a Permit Determination (PD) packet as defined in the Indiana Waterway Permits Manual. The appropriate submission will be made to obtain a 404 Nationwide Permit, 404/401 Regional General Permit, 401 permit with less than 0.1 acre of wetland impacts, and/or a Construction in a Floodway permit. If a 404/401 Individual Permit or wetland mitigation plan are necessary, an addendum to this scope of work would be necessary.

Assumptions

- The team assumes PB will provide plans with proposed project limits, existing and proposed alignments (with right-of-way shown), and maintenance of traffic diagrams.
- The team assumes aerial photographs depicting existing parcel outlines and ownership information can be obtained from the engineer or existing online GIS.

## Scope of Services

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- The team assumes public involvement (ex. public meeting or public hearing), will not be required.
- Based on the proposed project recommendations, described in the Introduction, it is assumed up to a Level 3 CE will be appropriate for this project.

#### Exclusions

Services which would be subject to a contract addendum include:

- Wetland and/or stream mitigation, including a Monitoring Plan
- 404/401 Individual Permit
- Any Section 4(f) or Section 6(f) impact documentation
- Cemetery Development Plan
- Drafting of a Memorandum of Agreement
- Consulting Party Meetings
- Section 106 finding of "Adverse Effect"
- Archaeological Phase II or Phase III Investigations or any tasks associated with the discovery of human remains
- Coordination and/or documentation regarding a "Likely to Adversely Effect" an endangered or threatened species
- Detailed assessment of a sole source aquifer
- Coordination and/or documentation regarding karst investigations
- Coordination and/or documentation regarding a "significant impact" to Prime Farmland
- Coordination and/or documentation Floodplain Impacts Category 3, 4, or 5
- Hot Spot Analysis
- Quantitative Mobile Source Air Toxics Analysis
- Phase II Subsurface Investigations
- Wetland Mitigation, including a Wetland Mitigation and Monitoring Plan
- Public Meeting or Public Hearing

## Section 4: Topographic Survey Data Collection

### Objective

Our survey subcontractor, Parsons, Cunningham, and Shartle Engineers (PCS Engineers) shall survey the project location. In general, the field survey will be conducted to a level detailed enough to provide adequate information to complete the final design plans.

### South Half

Full topographic survey coverage (5200 feet) for the limits of the section. The main line corridor begins 500 feet north of the intersection of 161st Street and South Union Street, thence northerly 1300 feet along Union Street, thence northwesterly 1500 feet to 150 feet southerly of the Yang property, thence northerly 1100 feet to a point; thence 800 feet, thence 250 to David Brown Road- A.K.A. 169th Street, which is the northerly termination point of South Half survey limits. The corridor's width will be a total of 200 feet (100 feet either side of the proposed alignment).

There are two small tributaries that will require thalweg profiles 500 feet u/s and d/s at 50 foot intervals. In addition, any crossing pipes or inlet structures should be located along Union Street and detailed as well.

Details of the existing pond +/- 600 feet south of David Brown Drive. This would include inlet and outlet pipes, and normal pool elevations. This survey fee does not include elevations of the bottom of the pond. If elevations below the surface of the water are required, this scope will need to be revised. Hydraulic cross-sections are not included in this scope, if hydraulic cross-sections are required this scope will need to be revised.

### North Half

Full topographic survey coverage (4600 feet) for the limits of this section. The main line corridor begins at David Brown Road (A.K.A. 169th Street), being the southerly termination point of the North Half. From this point northwesterly approximately 4600 feet to SR 32, which is the northerly termination point of Section four's survey limits. The corridors width will be a total of 200 feet (100 feet either side of the proposed alignment).

There are four tributaries that will require thlweg profiles 500 feet u/s and d/s at 50 foot intervals. The crossings of the "Anna Kendall Drain" will include stream thalweg profile (at 100 foot intervals) extending downstream to approximately 200 feet east of S. Union Street crossing - to approximately 200 feet upstream of proposed crossing site, this will be in addition to the over-all corridor width of 200 feet in this area. Profile grade (only) of any existing ditches along intersecting SR 32, approximately 300 u/s and d/s or crossing points, this will be in addition to the over-all corridor width of 200 feet in this area. Hydraulic cross-sections are not included in this scope, if hydraulic cross-sections are required this scope will need to be revised

The following items will be included into the scope for both the South Half and the North Half:

- Photographs of all structures surveyed – and of the upstream and downstream

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quadrants.

- Sketches showing all requested existing structure details (type, length, size, inlet and outlet treatments, wing walls, etc.) and elevations.
- CAD files which show requested profile and cross-section locations and elevations – and requested elevations of the cemetery pond.
- Sketches of all requested cross-sections showing overbank land usage.
- LCRS "Route Survey":
  - The Route Survey will include a total of 10,000 feet.
- Provide Horizontal Control. The Horizontal Control will be provided in SPC East 1302, NAD 1983, Coordinate system. (Primary control)
- Research the last deed of record for the current property owner.
- Plot all property lines obtained from deed analysis. Plot right of way as determined by the governing agency. If title work is required, this will be an additional fee.
- Plot all property owners obtained from current deed of record.
- Process field data and QA / QC before importation into the Civil 3D AutoCAD Release 2013.
- Plotting and drafting the Route Survey in Civil 3D AutoCAD Release 2013.
- Monument and reference centerline alignment at least every 1,000 feet, per INDOT standards.
- Notify appropriate property owners along the corridor, 6 owners to be notified. If there are additional property owners, this fee will need to be modified.
- Locate and reference Section Corners as needed.
- Prepare a field survey book complying with INDOT standards.
- Prepare a Route Survey Plat and Report complying with Rule 12, Title 865 IAC.
- Coordination with the design team Provide Vertical Control. The vertical control will based on Second Order Bench Mark "G-52" NGS, NAVD 88 DATUM. If said monument does NOT exist, then this fee will need to be modified.
- Coordinate with the utility companies to have the utilities marked. Provide client with names, address, and the contract person for each utility company. PCS Engineers can't guarantee the accuracy of the marked utilities. The utilities will be marked for the horizontal location only. The depth, size, or any other features will not be noted.
- Collect general topography within the specified survey corridor, including all marked utilities, sanitary, and storm structures. See above (scope description) for defined survey topographic limits. Only visible horizontal locations of any utilities will be shown.
- Detail all storm and sanitary structures within the survey corridor including inverts and pipe sizes. This fee is based on a maximum of 10 Structures total. This fee does not include structures considered confined space entry.
- Process field data and QA / QC before importation into the Civil 3D AutoCAD Release 2013, environment.
- Plotting and drafting the Topographic Survey in a Civil 3D, 2013 platform containing an XML file.

### Deliverable

PCS Engineers will provide the topographic data in electronic format, using Microstation, the submission for the Topographic Survey will be an electronic drawing only. Sheets with borders, title blocks etc. is NOT part of this survey fee. An electronic copy of the field book will be provided to PB for their use and review.

### Assumptions

- One (1) route survey for project limits (South Half and North Half)

## Section 5: Drainage/Hydraulics/Storm Water Management

This section describes the Drainage and Hydraulics effort assumed to be required for the project.

### Activities/Deliverables

The activities to take place under this section for the South Half and North Half are:

#### Reconnaissance

- Site Reconnaissance
- Review Site Survey
- Review FIS Cool Creek Floodplain Info (South Half)
- Review FIS Anna Kendall Drain Floodplain Info (North Half)
- Review Applicable Local Drainage Ordinances

#### Hydrologic Analysis of Existing Conditions

- Delineate watershed areas
- Calculate Runoff Coefficients/Runoff CNs
- Determine Times of Concentration
- Prepare hydrologic model
- Run and calibrate hydrologic model

#### Hydrologic Analysis of Proposed conditions

- Delineate watershed areas
- Calculate Runoff Coefficients/Runoff CNs
- Determine Times of Concentration
- Prepare hydrologic model
- Run and calibrate hydrologic model

#### Anna Kendall Drain Crossing (North Half only)

- Review and update FIS flood model for Anna Kendall Drain - develop corrected effective model
- Determine initial crossing parameters
- Develop proposed conditions flood model
- Perform iterative crossing analysis to meet IDNR surcharge requirements
- Determine required crossing parameters
- Perform scour analysis
- Prepare IDNR Construction in a Floodway permit application

- Submit and track IDNR permit application

#### Design Drainage Structures

- Layout stormwater management
- Initial sizing of storm drain system
- Initial sizing of culverts/ditches

#### Design Detention Facilities

- Determine allowable release rate(s)
- Calculate necessary storage volume
- Initial layout of detention facility up to (2) for South Half, and Regional for North Half (Offline Detention with Berm)
- Size outlet(s)
- Emergency overflow
- Develop reservoir routing model
- Verify allowable release rates

#### Evaluate Preliminary Design

- Define impacts of hydraulic structures on the key project elements.
- Provide iterations based on evaluation of proposed hydraulic changes

#### Report Preparation

- Prepare Stormwater Pollution Prevention Plan (SWPP)
- Prepare Hydraulic Analysis Report –Electronically submitted in PDF format.

#### Meetings

- Progress meetings (bi-weekly) –forty-eight (48) for length of the project
- Hamilton County Drainage Board (South Half – 2 Meetings, North Half – 2 Meetings)

## Section 6: Roadway Design and Final Contract Documents

This section describes the Roadway design effort assumed to be required for the project.

#### Activities/Deliverables

The deliverables to be provided to the Owner under this section are:

#### Roadway Stage 1 Plan Submittal (North Half)

#### NEPA Level (South Half)

- Title Sheet
- General Notes/Index Sheet
- Plat No. 1 (Base Map and Partial)
- Typical Cross Sections (approx. 110')
- Legend Sheet
- Plan & Profile
- Superelevation Diagram Sheets
- Intersection Details

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- Cross Sections
- Level One Checklist and corresponding design calculations – submitted electronically in PDF format
- Prepare Design Exceptions– submitted electronically in PDF format
- Opinion of Probable Cost– submitted electronically in PDF format
- Preliminary Specifications (North Half)– submitted electronically in PDF format
- QA/QC of plans and calculations
- Roadway Stage 1 plans will be electronically submitted in PDF format. Two (2) hard copies of the plans on 11" x 17" standard sheets will be submitted to the owner.

Pavement Design

- Develop Pavement Designs (South Half and North Half)
- Pavement Design Reports (North Half) – submitted electronically in PDF format

Preliminary Field Check Plans (North Half)

- Previous Reviews.
- Conformance.
- Title and Index Sheet.
- Plat Sheet.
- Plan and Profile Sheet.
- Details Sheets
- Traffic-Maintenance Details,
- Cross-Sections.
- Design Information

A preliminary field check meeting should be held after the Stage One review submission and prior to approximately 60% complete plan level. The preliminary field check meeting is not part of a review submittal. Plan sets should be distributed a minimum of two weeks prior to the meeting (reference Figure 14-1B in the IDM, Field-Check Notification). To hold the Preliminary Field Check meeting, plans should be approximately 40% complete.

Roadway Stage 3 and Final Plans Submittals (North Half)

- Title Sheet
- General Notes/Index Sheet
- Plat No. 1 (Base Map and Partial)
- Typical Cross Sections (approx. 110')
- Maintenance of Traffic
  - Traffic Analysis
  - Typical Cross Sections
  - Phasing Schematics
- Legend Sheet
- Plan & Profile
- Superelevation Diagram Sheets
- Intersection Details
- Drainage Detail Sheets

- Detention Details
- Guardrail Summary Table
- Wall Layout
- Approach Table
- Miscellaneous Tables
- Structure Data Table
- Cross Sections
- Finalize Design Exceptions– submitted electronically in PDF format
- Finalize Level One Checklist and corresponding design calculations – submitted electronically in PDF format
- Opinion of Probable Cost
- QA/QC of plans and calculations
- Final Specifications– submitted electronically in PDF format
- Roadway final plans will be electronically submitted in PDF format. Two (2) hard copies of the plans on 11" x 17" standard sheets will be submitted to the owner.

#### Assumptions and Notes

- Three (3) Plan Submittals
- Full pavement design and report for the North Half only.

The construction cost estimates will be based on PB's professional experience and judgment and shall be deemed to represent PB's opinion. PB has no control over the cost of labor, material, equipment and other relevant factors that could influence the ultimate construction costs. Thus, PB does not guarantee that proposals, bids, or the actual facility cost will be the same as PB's estimate of probable construction cost or that construction costs will not vary from its opinions of probable cost.

## Section 7: Bridge Design

This section describes the Bridge design effort assumed to be required for the project.

#### Activities/Deliverables

The deliverables to be provided to the Owner under this section are:

#### Stage 1 Submittal Westfield Blvd over Anna Kendall Ditch (North Half)

- Structure Size & Type Design
- Title / Index Sheet
- General Plan / Layout Sheets
- Summary Tables
- Management / Coordination
- 30% Design Calculations; Quantity calculations, Opinion of Probable Cost– submitted electronically in PDF format
- QA/QC of bridge plans and calculations

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- Stage 1 bridge plans will be electronically submitted in PDF format. Two (2) hard copies of the plans on 11" x 17" standard sheets will be submitted to the owner.

Final Plans Westfield Blvd over Anna Kendall Ditch (North Half)

- Resolution of Stage 1 Plans Comments
- Bridge Design Superstructure
- Bridge Design End Bents
- Screeds And Elevations
- Update Title / Index Sheets
- Update Layout / General Plans
- End Bent Details
- Bearing Details
- Superstructure Details
- Approach Slab Details
- Railing Details
- Drainage Details
- Summary Sheets
- Final Quantities– submitted electronically in PDF format
- Final Opinion of Probable Cost– submitted electronically in PDF format
- Final Special Provisions– submitted electronically in PDF format
- Management / Coordination
- QA/QC of bridge plans and calculations
- Final bridge plans will be electronically submitted in PDF format. Two (2) hard copies of the plans on 11" x 17" standard sheets will be submitted to the owner.

Assumptions and Notes

- Two (2) Plan Submittals

The construction cost estimates will be based on PB's professional experience and judgment and shall be deemed to represent PB's opinion. PB has no control over the cost of labor, material, equipment and other relevant factors that could influence the ultimate construction costs. Thus, PB does not guarantee that proposals, bids, or the actual facility cost will be the same as PB's estimate of probable construction cost or that construction costs will not vary from its opinions of probable cost.

Section 8: Signal, Signing and Lighting (North Half)

This section describes the Signal, Signing and Lighting design effort assumed to be required for the project.

Activities/Deliverables

The deliverables to be provided to the Owner under this section for are:

Signal Design – Westfield Blvd & 169th

- 30% Design
- 100% Design,
- Final Quantities,
- Opinion of Probable Cost,
- Final Specification,
- QA/QC of design

Sign Design

- 30% Design,
- 100% Design,
- Final Quantities,
- Opinion of Probable Cost,
- Final Specifications
- QA/QC of design

## Section 9: Geotechnical

This section describes the Geotechnical effort assumed to be required for the project.

Activities/Deliverables

The deliverables to be provided to the Owner under this section are:

South Half

- Plan & manage Geotechnical Investigation
- Subcontract management, scheduling and coordination with subconsultant.
- Part-Time Field QA and Logging Lab Samples
- gINT data entry, 13 logs
- Laboratory test assignments, laboratory data review, and summary tables.
- Conform logs to lab data, 13 logs
- Preparation of plans identifying borings as-drilled locations, with final coordinate locations and station and offsets.
- Geotechnical Report (Final Logs and Lab Data Only No Recommendations, Not for INDOT OGE Review) – submitted electronically in PDF format

North Half

- Plan & manage Geotechnical Investigation
- Subcontract management, scheduling and coordination with subconsultant.
- Part-Time Field QA and Logging Lab Samples
- gINT data entry, 7 logs (2 deep)
- Laboratory test assignments, laboratory data review, and summary tables.
- Conform logs to lab data, 7 logs (2 deep)
- Preparation of plans identifying borings as-drilled locations, with final coordinate locations and station and offsets.
- Subsurface Conditions at Bridge Structure (profile)

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- Geotechnical Report– submitted electronically in PDF format
- 2nd Submittal Geotechnical Report– submitted electronically in PDF format
- Geotechnical Review of Stage 3 Bridge and Roadway Plans
- Technical provisions - geotechnical
- Opinion of Probable Cost support

Assumptions

- One (1) mobilization for borings for project limits (South Half, North Half).
- Full geotech report for INDOT OGE review for the North Half only.

## Section 10: Utility Coordination

This section describes the Utility Coordination effort assumed to be required for the project.

### Activities/Deliverables

The deliverables to be provided to the Owner under this section are:

#### South Half and North Half

- Research and send initial notice to utilities
- (2) Field Visits
- (2) Initial Coordination Meetings
- Review utility files received
- Map existing locations and send verification to utilities
- Perform Preliminary Conflict Analysis

#### North Half

- Coordinate with designers on design alternatives
- Assist Utilities with Relocation plans
- Prepare for and attend PFC meeting
- Prepare permits
- Prepare agreements
- Prepare letting documents
- Manage relocation activities in the field
- Subsurface Utility Investigation – 5 Test Holes

### Assumptions and Notes

- One (1) mobilization for the SUE borings for North Half
- The fee does not include the design of utility relocations.

## Section 11: Post Bid

This section describes the Post Bid effort assumed to be required for the project.

### Activities/Deliverables

The deliverables to be provided to the Owner under this section are on-call services after the project is awarded to the contractor such as respond to RFIs, review Shop Drawings,

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answer questions as it pertains to the final contract documents. The fee does not include construction engineering or inspection services.

**Assumptions:**

PB's review of Contractor's submittals is only for the limited purpose of checking for general conformance with the design concept of the project. The review is not for the purpose of determining the accuracy and completeness of details or verifying dimensions and quantities. The approval of the shop drawings does not indicate PB's approval of Contractor's means and methods, technique, sequence or safety precautions and procedures.

**Section 12: Right of Way Plan Development**

This section describes the Right of Way Plan Development effort assumed to be required for the project.

Activities/Deliverables

The deliverables to be provided to the Owner under this section are

North Half (five parcels)

Right of Way Engineering

Preparation of all required right of way engineering documentation in compliance with the INDOT Right of Way Engineering Procedure Manuals (1975 and 1998) and Indiana Administrative Code 865 IAC 1-12, (Rule 12).

- Existing Property Line Layout
- Parcel Plats
- Legal Descriptions
- Right of Way Plans
- Area Computations
- Transfer Documents

**Section 13: Real Estate Services**

This section describes the Real Estate Services effort assumed to be required for the project.

Activities/Deliverables

The deliverables to be provided to the Owner under this section are

North Half

Right of Way Acquisition Management (five parcels)

Title Work

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Title and Encumbrance Reports will be prepared in accordance with INDOT minimum standards (20 year searches for fee simple acquisitions and last deed of record for temporary right of way only acquisitions)

- Residential (0)
- Ag/Commercial (4)
- Municipal (1)

Appraisal

Appraisals will be performed in accordance with the 2016 Real Estate Division Manual as developed by the Office of Real Estate of the Indiana Department of Transportation.

- Short Form (with damages) (2)
- Short Form (1)

Appraisal Review

Review Appraisals will be performed in accordance with the 2016 Real Estate Division Manual as developed by the Office of Real Estate of the Indiana Department of Transportation. This scope of work consists of both the appraisal review and the preparation of the appraisal problem analysis.

- Short Form (with damages) (2)
- Short Form (1)
- Appraisal Problem Analysis (3)

Negotiation (5)

Schedule

The project will be completed in accordance with the following schedule. This schedule is based on receiving prompt review and approvals from the INDOT CRO, IDNR DHPA, and INDOT Greenfield District:

<b><u>ACTIVITY</u></b>	<b><u>DURATION FROM NOTICE TO PROCEED</u></b>
<b>Red Flag Survey</b>	15 – 30 Days
<b>Early Coordination</b>	15 – 45 Days
<b>Environmental Site Visit</b>	15 – 45 Days
<b>Wetland Determination (within growing season)</b>	15 – 75 Days
<b>Archaeological Report/HPR</b>	60 – 90 Days
<b>Effect Finding</b>	120 – 180 Days

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<b>CE Document (Draft and Final)</b>	200 – 260 Days
<b>Permitting</b>	180 – 240 Days

<b><u>ACTIVITY</u></b>	<b><u>DURATION</u></b>
<b>Survey</b>	TBD from NTP (pending season)
<b>Roadway Line and Grade</b>	30 days from receipt of Survey
<b>Road and Bridge Stage 1 Plan Submittal</b>	90 days from receipt of Survey
<b>Geotechnical Report Submittal</b>	Following Stage 1 Plan Submittal Comments received prior to PFC. (Approval submitted with Stage 3)
<b>Road PFC</b>	90 days from Stage 1 Plan Comments returned
<b>Pavement Design Approval</b>	Prior to Stage 3 Plan Submittal (Approval Submitted with Stage 3)
<b>Road Stage 3 Plan Submittal</b>	75 days prior to RFC
<b>ROW Clear for Construction</b>	75 days prior to RFC
<b>Utility Clear for Construction</b>	75 days prior to RFC
<b>Road and Bridge Final Tracing Plan Submittal</b>	30 days prior to RFC