E&B PAVING, Inc

UNITED Consulting

DIGITAL COPY

I-65 SOUTHEAST INDIANA PROJECT

TECHNICAL PROPOSAL

Volume 2

SCOPE PACKAGE AND PRELIMINARY PERFORMANCE PLANS

E&B PAVING, INC

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APRIL 27, 2017

SUMMARY & ORDER OF PROPOSAL CONTENTS

Exhibit E

SUMMARY AND ORDER OF PROPOSAL CONTENTS

Technical Proposal – Volumes 1 and 2		
Technical Proposal Component	**Form (if any)**	**ITP Section Cross-Reference**
Volume 1		
A. Executive Summary		
Executive Summary **(Exclude price information)**	No forms are provided	Exhibit B, Section 3.1
B. Proposer Information, Certifications and Documents		
Proposal Letter	Form A	Exhibit B, Section 3.2.1
Authorization Documents	No forms are provided	Exhibit B, Section 3.2.1
Identification of Proposer and Equity Members	Form B-1	Exhibit B, Section 3.2.2
Information About Proposer Organization	Form B-2	Exhibit B, Section 3.2.2
Information About Major Participants and Identified Contractors	Form B-3	Exhibit B, Section 3.2.2
Letter accepting joint and several liability, if applicable	No forms are provided	Exhibit B, Section 3.2.2
Responsible Proposer and Major Participant Questionnaire	Form C	Exhibit B, Section 3.2.3
Industrial Safety Record for Proposer, Equity Members and Major Participants	Form D (as applicable)	Exhibit B, Section 3.2.4
Personnel Work Assignment Form and Commitment of Availability	Form E	Exhibit B, Section 3.2.5
Letter(s) Regarding Pre-Proposal Submittals	No forms are provided	Exhibit B, Section 3.2.6
Non-Collusion Affidavit	Form F	Exhibit B, Section 3.2.7
DBE Certification	Form G No forms are provided for the DBE Performance Plan or Job Training Plan	Exhibit B, Section 3.2.8

SUMMARY & ORDER OF PROPOSAL CONTENTS

Technical Proposal – Volumes 1 and 2		
Technical Proposal Component	**Form (if any)**	**ITP Section Cross-Reference**
Surety/Financial Institution Information	No forms are provided	Exhibit B, Section 3.2.9
Conflict of Interest Disclosure	Form H	Exhibit B, Section 3.2.10
Certification regarding Buy America	Form R	Exhibit B, Section 3.2.11
Certification regarding Equal Employment Opportunity	Form S	Exhibit B, Section 3.2.12
Use of Contract Funds for Lobbying Certification	Form T	Exhibit B, Section 3.2.13
Debarment and Suspension Certification	Form U	Exhibit B, Section 3.2.14
Insurance	No forms are provided	Exhibit B, Section 3.2.15
Confidential Contents Index	No forms are provided	Exhibit B, Section 3.2.16
C. Proposal		
Stipend Agreement	Form O	Exhibit B, Section 3.3
D. Proposal Security (Proposal Bond)		
Proposal Security	Form J (if in the form of a bond); no forms provided for certified check	Exhibit B, Section 3.4
Volume 2		
E. Scope Package(s)	Form K	Exhibit B, Section 4.0
F. Preliminary Performance Plans		
Preliminary Project Management Plan	No forms are provided	Exhibit B, Section 5.1
Preliminary Project Baseline Schedule for Design and Construction	No forms are provided	Exhibit B, Section 5.1.2
Completion Deadlines	Form L	Exhibit B, Section 5.1.2
Preliminary Design-Build Plan	No forms are provided	Exhibit B, Section 5.2

SUMMARY & ORDER OF PROPOSAL CONTENTS

Technical Proposal – Volumes 1 and 2		
Technical Proposal Component	**Form (if any)**	**ITP Section Cross-Reference**
G. Volume 1 Appendices		
Copies of Organizational Documents	No forms are provided	Exhibit B, Section 3.2.2
Proposer Teaming Agreement or Key Terms	No forms are provided	Exhibit B, Section 3.2.2
Executed Contracts or Term Sheets/Heads of Terms	No forms are provided	Exhibit B, Section 3.2.2
H. Volume 2 Appendices		
Key Personnel Resumes	No forms are provided	Exhibit B, Section 3.2.5
Technical/Design Drawings, Graphs and Data	No forms are provided	Exhibit B, Section 5.2

SUMMARY & ORDER OF PROPOSAL CONTENTS

Price Proposal – Volume 3
Proposers shall follow the order of the Price Proposal Checklist in their submissions. A referenced copy of this document shall be submitted with the Price Proposal.

Price Proposal Component	Form (if any)	ITP Section Cross-Reference
Price Form	Form I	Exhibit C, Section 2.0
Summary Cost Table Form	Form M	Exhibit C, Section 2.0
Scope Package	Form K	Exhibit C, Section 4.0

SCOPE PACKAGE AND PRELIMINARY PERFORMANCE PLANS

E. Scope Package

F. Preliminary Performance Plans

G. Volume 2 Appendices **(Separate Binders)**

FORM K

SCOPE PACKAGE

A. Proposer proposes to design and construct the following scope package in accordance with the PPA Documents (***must select only one Scope Package below***):

____Scope Package 1 (Section A)

____Scope Package 2.1 (Sections A+B)

____Scope Package 2.2 (Sections A+B+C1)

____Scope Package 2.3 (Sections A+B+C1+C2)

____Scope Package 2.4 (Sections A+B+C1+C2+C3)

____Scope Package 2.5 (Sections A+B+C1+C2+C3+C4)

____Scope Package 2.6 (Sections A+B+C1+C2+C3+C4+C5)

____Scope Package 2.7 (Sections A+B+C1+C2+C3+C4+C5+C6)

____Scope Package 3.1 (Sections A+B+C1+C2+C3+C4+C5+C6+D1)

____Scope Package 3.2 (Sections A+B+C1+C2+C3+C4+C5+C6+D1+D2)

____Scope Package 3.3 (Sections A+B+C1+C2+C3+C4+C5+C6+D1+D2+D3)

____Scope Package 3.4 (Sections A+B+C1+C2+C3+C4+C5+C6+D1+D2+D3 +D4)

____Scope Package 3.5 (Sections A+B+C1+C2+C3+C4+C5+C6+D1+D2+D3 +D4+D5)

____Scope Package 3.6 (Sections A+B+C1+C2+C3+C4+C5+C6+D1+D2+D3 +D4+D5+D6)

____Scope Package 3.7 (Sections A+B+C1+C2+C3+C4+C5+C6+D1+D2+D3 +D4+D5+D6+D7)

____Scope Package 4 (Sections A+B+C1+C2+C3+C4+C5+C6+D1+D2+D3 +D4+D5+D6+D7+E)

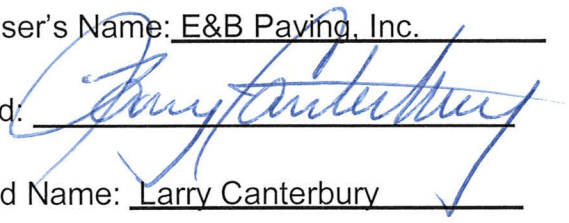
____Scope Package 5.1 (Sections A+B+C1+C2+C3+C4+C5+C6+D1+D2+D3 +D4+D5+D6+D7+E+F1)

____Scope Package 5.2 (Sections A+B+C1+C2+C3+C4+C5+C6+D1+D2+D3 +D4+D5+D6+D7+E+F1 +F2)

_X__Scope Package 6.1(Sections A+B+C1+C2+C3+C4+C5+C6+D1+D2+D3 +D4+D5+D6+D7+E+F1+F2+G1)

____Scope Package 6.2 (Sections A+B+C1+C2+C3+C4+C5+C6+D1+D2 +D3+D4+D5+D6+D7+E+ F1+F2+G1+G2)

Proposer's Name: E&B Paving, Inc.

Signed: 

Printed Name: Larry Canterbury

Title: President

Date: April 27, 2017

E&B Paving, Inc. (E&B Paving) appreciates the opportunity to submit its proposal and qualifications for the I-65 Southeast Indiana Project (Project). E&B Paving and our design engineer, United Consulting Engineers, Inc. (United), are recognized leaders in designing and building successful, high-profile infrastructure projects throughout the state of Indiana. Both firms have established a rich history of successful teaming ventures with each other and share a common philosophy of delivering excellence through innovative ideas, creative solutions, and cost-effective measures. Our team's previous projects exemplify our superior quality, extensive safety record, and ability to work together to deliver projects on time and within budget. Our team's available resources, knowledge of the project site, and experience working with INDOT on fixed price projects and Public Private Partnership (P3) projects puts us in a prime position to deliver the I-65 Southeast Indiana Project. E&B Paving desires to deliver this project for INDOT because it mirrors our core business elements, including asphalt and concrete paving, bridge construction, drainage, and earthwork. E&B Paving is proud to commit to completing Scope Package 6.1.

From humble beginnings in 1967, E&B Paving has grown to become a premier heavy highway and road construction company. The initial vision for E&B Paving was based in Indiana and has stayed that way for 50 years; simply put, Indiana is our home. With offices in 12 Indiana communities, 19 permanent asphalt plant locations, multiple portable asphalt and concrete plants, and the experience of being the prime contractor on over 900 INDOT projects since 1994, we are uniquely positioned to provide world-class solutions throughout Indiana.

Since 1994, E&B Paving has been the PRIME contractor on over 900 INDOT projects.

United is an Indiana-based, full-service civil engineering firm with the continuing goal to achieve excellence by providing every client with the highest quality of service. The combination of our quality service, superb employees, unquestionable integrity, and effective communication puts United in a position to achieve success. United currently has 96 employees with services focused on transportation, bridge, water and wastewater design, topographic survey, right-of-way engineering, land acquisition, environmental planning, traffic data collection and forecasting, and construction inspection and engineering. Additionally, United was selected by the Indiana Chamber of Commerce in 2015 for the "Best Places To Work in Indiana Hall of Fame."

Our proposal includes this symbol in areas where the E&B Paving Team brings added value to INDOT.

E&B Paving and United have begun the development of the documents which will ultimately comprise the final Project Management Plan and Design-Build Plan. The initial elements and the staff that will manage the delivery of the project are presented in the following sections.

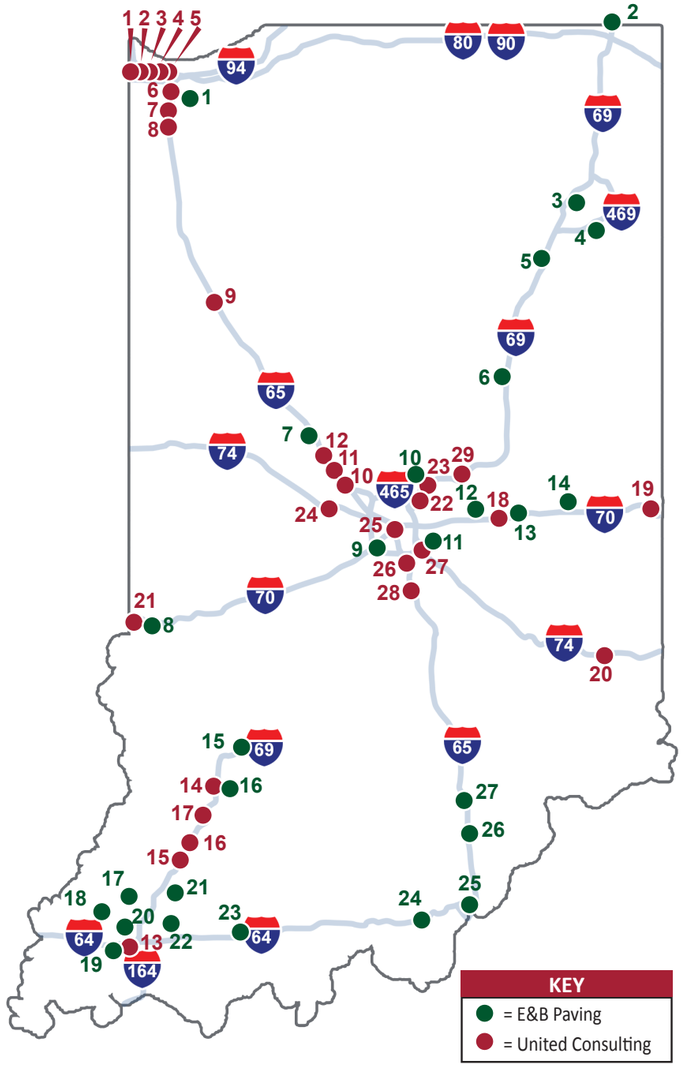
E&B Paving has delivered numerous large scale interstate projects for the state of Indiana and INDOT. Our Project Management Plan will be built based on best practices delivering these projects and lessons learned on our goal for continuous improvement. We understand INDOT's goals for this project and have a plan to achieve them.

FIGURE 5.1-1: ACHIEVING ADDED VALUE FOR INDOT'S GOALS

	INDOT GOAL	PLAN TO ACHIEVE AND ADD VALUE	
1	Improve the design service life of the pavement and shoulders through innovative design solutions within the project limits.	Our innovative pavement design exceeds the requirements of the TP.	✓+
2	Improve the design service life of the bridges and small structures within the project limits.	Our use of maintenance free details will prolong the life of the bridges.	✓+
3	Expand the northbound and southbound median shoulder width.	Our design meets the technical provisions requirement of widening the inside shoulders from four feet to 10 and 12 feet.	
4	Expand the northbound and southbound outside shoulder widths.	Our design meets the technical provisions requirement of widening the outside shoulders from 10 feet to 12 feet. The shoulders match the full depth mainline PCCP pavement.	✓+
5	Accommodate future added travel lanes.	E&B Paving is building and opening the added travel lanes.	✓+
6	Develop innovative solutions for the Project, including in connection with construction sequencing and maintenance of traffic during construction.	E&B Paving will use innovative "gate" openings in the barrier wall to allow safer access for haul trucks entering/leaving construction areas.	✓+
7	Provide a safe project for workers, INDOT employees, and the traveling public.	All major construction activities will be protected behind barrier wall or guardrail.	✓+
8	Provide a high quality, durable and maintainable facility.	Our concrete pavement increases the structural life of the pavement to 98 years.	✓+
9	Meet federal Disadvantaged Business Enterprises ("DBEs") goals.	E&B Paving will exceed the DBE goals for this project by $1 million.	✓+
10	Generate, where appropriate, additional Indiana-based permanent and temporary professional services and construction-related jobs.	E&B Paving's team is made up of Indiana - based corporations for the Lead Design and for nearly all construction services.	✓+
11	Seek private sector innovation and efficiencies, and encourage design solutions that respond to actual and anticipated environmental concerns, permits and commitments.	E&B Paving has teamed with an Indiana environmental DBE firm for storm water quality inspection and management.	✓+
12	Improve Level of Service (LOS) at the intersections of SR 58 and the I-65 ramp terminals as well as SR 58 and International Drive.	Our signal design meets the TP requirements.	

5.1.1 PROJECT MANAGEMENT APPROACH: E&B Paving and United have worked successfully with INDOT to deliver substantial interstate projects using design-build, fast-track, and design-bid build delivery. **Figure 5.1-2** represents some of the projects delivered by E&B Paving and United. We often ask our clients their impression of our work in an effort to continually improve. We have received a lot of helpful feedback. Often the best feedback is the response you get from your clients in their actions. INDOT has shown their trust in E&B Paving and United over the last decade by increasingly asking us to meet higher standards at accelerated schedules. In order to deliver these projects, E&B Paving has utilized successful Project Management Plans. The following pages include elements of our Project Management Approach.

FIGURE 5.1-2: INTERSTATES DELIVERED



KEY
- = E&B Paving
- = United Consulting

E&B PAVING, Inc
World-Class Solutions at a Local Level™

- 1 - I-65 from US 30 to I-80 and I-94
- 2 - I-69 from US 20 to SR 127 to SR 120
- 3 - I-69 at SR 1
- 4 - I-469 from Bridge over Feighner to US 27
- 5 - I-69 North of US 224
- 6 - I-69 from SR 32 to SR 26
- 7 - I-65 at SR 28
- 8 - I-70 from IL State Line to Terre Haute Corp Line (Bridge)
- 9 - I-70 from I-465 to I-65
- 10 - I-465 & I-69, I-69 at 96th Street
- 11 - I-465 @ I-74
- 12- I-70 at SR 9
- 13- I-70 EB Greenfield Rest Area
- 14 - I-70 from SR 109 to SR 3
- 15 - I-69 from Carmichael Road to Green / Monroe City Line Bridge
- 16 - I-69 from Patoka River to SR 61 (Bridge)
- 17 - I-69 at SR 68
- 18 - I-64 from SR 65 to US 41
- 19 - I-64 from US 41 to I-164
- 20 - I-64 to Southern RR and CXS RR
- 21 - I-69 North of SR 64 to Patoka River (Bridge)
- 22 - I-69 from I-64 via SR 57 to SR 70
- 23 - I-64 from SR 61 to SR 68 / SR 161
- 24 - I-64 from SR 66 to SR 135
- 25 - I-64 from SR 62/64 to Kentucky Line
- 26 - I-65 from SR 60 to SR 160
- 27 - I-65 North of SR 160 to SR 56

UNITED Consulting

- 1 - I-80/94 Borman Expressway Added Travel Lanes Phase II
- 2 - Grant / Broadway Interchange Modifications Phase III-A
- 3 - I-80/94 Borman Expressway Added Travel Lanes Phase III-B
- 4 - Clark, Harrison, Chase, & Georgia over I-80/94
- 5 - I-80/94 Interchange Modification at I-65
- 6 - I-65 in Lake County Added Travel Lanes Phase B
- 7 - I-65 in Lake County Added Travel Lanes Phase A
- 8 - I-65 Interchange Modification at US 30 Phase C
- 9 - I-65 Reconstruction in White / Tippecanoe Counties
- 10 - I-65 in Boone County Added Travel Lanes Part I
- 11 - CSX Railroad over I-65 in Boone County
- 12 - I-65 in Boone County Added Travel Lanes Part II
- 13 - I-69 New Construction Section 1 in Vanderburgh/Gibson/Warrick
- 14 - I-69 Section 3 Advanced Bridge Contract
- 15 - I-69 Section 2 White River Bridge
- 16 - I-69 New Construction Section 2 Segment 5
- 17 - I-69 New Construction Section 3 Segment 10/11
- 18 - I-70 Reconstruction in Hancock County
- 19 - I-70 Interchange Modification at US 27
- 20 - I-74 Interchange Modification at SR 229
- 21 - I-70 over the Wabash
- 22 - I-69 Added Travel Lanes in Marion and Hamilton Counties
- 23 - I-69 Interchange Modification at SR 37 and 116th Street
- 24 - I-74 Interchange Modification at Ronald Reagan Parkway
- 25 - I-65/70 South Split in Marion County
- 26 - I-465 Interchange Modification at I-65
- 27 - I-465 Interchange Modification at I-74
- 28 - I-65 in Johnson County
- 29 - I-69 in Hamilton and Madison Counties

5.1.1.a MANAGEMENT STRUCTURE & PERSONNEL: The E&B Paving Team's staff participation in the One-on-One Meetings initiated our plan to meet and exceed the I-65 Southeast Indiana project goals. The Key Personnel have been assigned due to their experience on similar projects and their availability to be fully committed.

Our team is an **all Indiana team**. E&B Paving and United both live and work in Indiana with INDOT as our largest and most important client. Continued success delivering projects for INDOT means our employees drive on safe roads and bridges. Just as important, it means INDOT has confidence in our firms' abilities, as indicated through both E&B Paving and United's consistent, repeat work with INDOT.

Scott O'Neil, Project Manager, and Brian Pierson, Lead Engineer and his design team have worked together to deliver challenging projects. This prior collaborating experience is an added value to INDOT as they know how to work together and have a history of successfully delivering.

E&B Paving has assembled the construction team. The team includes Scott O'Neil as Project Manager who has managed new I-69 corridor projects from Evansville to Bloomington.

Scott is joined by an approved list of Key Personnel including the Lead Engineer, Brian Pierson. The Key Personnel resumes are included in the Appendix. The Organization Chart on **Figure 5.1-3** and Key Personnel Table on **Figure 5.1-4** outline the organization and responsibilities of the E&B Paving Team.

FIGURE 5.1-3

5.1.1.a.i ORGANIZATION CHART: The Organization Chart that will be utilized for the Project is presented in **Figure 5.1-3**. The Organization Chart indicates the percentage of time Key Personnel will devote to the Project. We further describe the responsibilities and experience of the Key Personnel in Section 5.1.1a.ii.

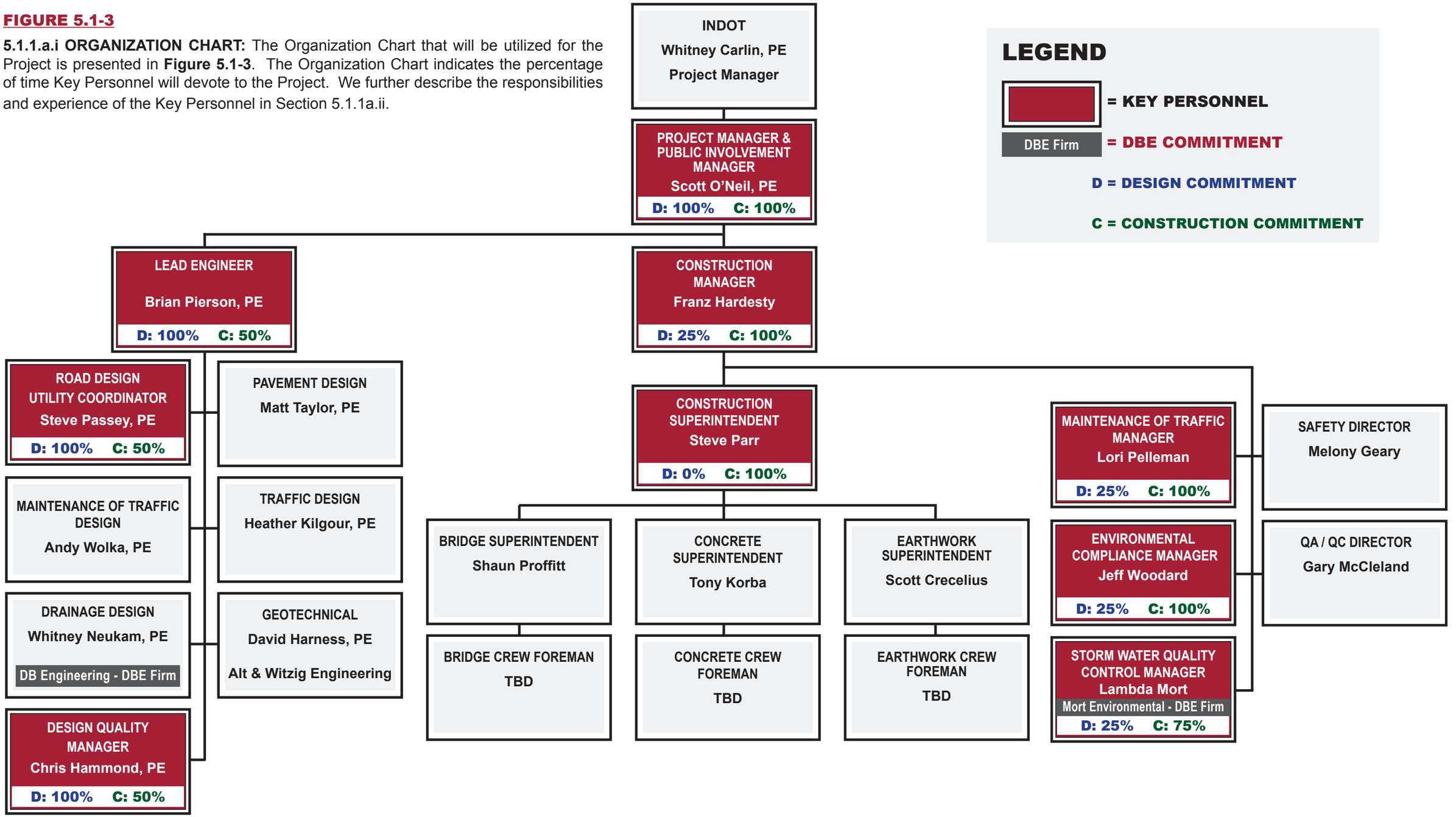


FIGURE 5.1-4

5.1.1.a.ii KEY PERSONNEL (FIGURE 5.1-4): E&B Paving and United have assigned experienced personnel with proven track records to this project. The Organization Chart in **Figure 5.1-3** describes the chain of command and lines of communication of these Key Personnel.

SCOTT O'NEIL, PE — D: 100% C: 100%

Project Manager & Public Involvement Manager

Scott will be the Project Manager and the Public Involvement Manager designating him as the single point-of-contact for purposes of overall administration of the project. Scott will be authorized to act with respect to contractual matters and for resolving any issues that arise during the progress of the work. Scott will update and maintain the project schedule. He will also be responsible for identifying public information issues and for formulating and implementing strategies to address issues relative to the public, public resource agencies, emergency service providers, businesses, media, and other interested parties. Scott will work with INDOT to respond to the communication needs of the project with availability by telephone and email, and he will be on-site everyday, full-time.

Relevant Experience: Project Manager I-69 Design Build I-64 to SR 68 / Project Manager I-69 Design Build SR 64 to Patoka River / Project Manager I-69 SR 445 to Harmony Rd

FRANZ HARDESTY — D: 25% C: 100%

Construction Manager

Franz will be the Construction Manager responsible for oversight and management of all construction and field activities. He will assist with updating and maintaining the project schedule.

Relevant Experience: Pavement Manager I-65 Ohio River Bridge Section / Pavement Manager I-65 Design Build Sellersburg to Memphis / OSHA 30 Certified / Traffic Control Superintendent Certified

STEVE PARR — D: 0% C: 100%

Construction Superintendent

Steve will be the Construction Superintendent responsible for supervising all construction and field activities. Steve will report to the Construction Manager Franz Hardesty.

Relevant Experience: Superintendent I-69 Patoka River to Petersburg / Superintendent I-69 Design Build SR 64 to Patoka River / OSHA 30 Certified / Traffic Control Superintendent Certified / INDOT Level 1 Storm Water Manager Certified

LORI PELLEMAN — D: 25% C: 100%

Maintenance of Traffic Manager

Lori will be the Maintenance of Traffic Manager responsible for coordinating all MOT activities to INDOT. Lori will implement traffic management strategies, and provide MOT reports to INDOT with each change in traffic phasing. These reports shall include expected queue lengths/delays and a summary of expected operations and MOT durations. Lori will be continually available during construction until final acceptance and removal of all temporary traffic control. Lori will supervise the Construction Worksite Traffic Supervisor (CWTS) and she will report to the Construction Superintendent Steve Parr.

Relevant Experience: MOT Supervisor I-65 Design Build Sellersburg to Memphis / MOT Supervisor I-65 Resurface Scottsburg to Henryville / OSHA 30 Certified / Traffic Control Superintendent Certified / INDOT Level 1 Storm Water Manager Certified / Flagger Certified

Mort Environmental LLC

LAMBDA MORT — D: 25% C: 75%

Storm Water Quality Control Manager

Lambda will be the Storm Water Quality Manager responsible for installation, inspection, maintenance, and removal of all required storm water quality management measures. Lambda will be focusing on the implementation of our Storm Water Quality Control Plan.

Relevant Experience: Lambda is the Owner/President of Mort Environmental LLC. She is formally of INDOT and was intricately involved with the extreme environmental challenges of the new corridor construction of I-69 Section 4 from US 231 to Bloomington.

JEFF WOODARD — D: 25% C: 100%

Environmental Compliance Manager

Jeff will be the Environmental Compliance Manager. Reporting directly to the Project Manager, he will be responsible for implementing all the designed features to satisfy the environmental and construction commitments identified in the final approved environmental documents and permits. Jeff will work closely with the Strom Water Quality Manager to ensure permitting compliance. Jeff will supervise at least one crew whose highest priority will be environmental feature installation and maintenance and have the authority to increase resources if necessary to achieve permit compliance. Jeff will be INDOT's primary contact for compliance issues.

Relevant Experience: Foreman I-69 Patoka River to Petersburg / Forman I-69 Design Build SR 64 to Patoka River / OSHA 30 Certified / Traffic Control Superintendent Certified / INDOT Level 1 Storm Water Manager Certified

BRIAN PIERSON, PE — D: 100% C: 50%

Lead Engineer

Brian will be the Lead Engineer and primary point-of-contact for design services. Brian will manage the delivery of all design service deliverables for the roadway, maintenance of traffic, drainage, signals, lighting, ITS, geotechnical, pavement, erosion and sediment control, and bridges. Brian will ensure that the different components of the design are coordinated and meet and in many cases exceed the Technical Provisions.

Brian specializes in managing high profile accelerated projects of significant importance. He takes pride in exceeding clients' expectations for project delivery and providing excellent communication through the project development process.

Relevant Experience: Road Design Project Manager – I-65 Added Travel Lanes Southport Road to Main Street / Lead Project Engineer - I-69 Operation Indy Commute from I-465 to SR 37 / Project Manager – Indianapolis Cultural Trail

STEVE PASSEY, PE, MS — D: 100% C: 50%

Certified INDOT Coordinator

Steve will be the INDOT Certified Utility Coordinator. Steve is an extremely experienced designer who has worked in urban and rural interstate environments and understands their unique challenges. Additionally, he successfully completed INDOT's Utility Coordinator Training and will coordinate all utilities throughout the design into construction to alleviate conflicts with the project delivery.

Steve's strengths are flexibility and common sense in solving engineering problems. As an Army Engineer Officer for 28 years, Steve had to quickly assess a situation, identify resources, and analyze alternatives before deciding on the appropriate engineering response.

Relevant Experience: Project Manager and Utility Coordinator – SR 25 Hoosier Heartland, Segment 4 / Project Manager and Utility Coordinator - I-70 Interchange Modification at US 27

CHRIS HAMMOND, PE — D: 100% C: 50%

Design Quality Manager

Chris will be the Design Quality Manager of all design work performed for the project. He will ensure that all quality control procedures are followed and assure and certify compliance. Chris has completed such services on multiple high-profile interstate projects over the last ten years. Currently, he provides such services for three different design teams including our Lead Engineer's team.

Chris is a great leader and communicator. He is passionate about quality and reviews every document that leaves the United Road Department — from a complex set of Final Plans to a Transmittal Letter. Chris has a special interest in Utility Coordination, where he has been certified through INDOT and serves as one of the presenters at the INDOT Certification Training sessions.

Relevant Experience: Deputy Project Manager – I-69 Sections 2 and 3 in Gibson, Pike, Daviess, and Greene Counties / Project Manager – I-74 Ronald Reagan Parkway

5.1.1.a.iii QUALIFICATION & EXPERIENCE REQUIRED FOR TASK MANAGERS: E&B Paving and United will staff the project with qualified individuals who will report to the project Key Personnel. The qualifications and experience of Task Managers is shown in **Figure 5.1-5**.

Figure 5.1-5: TASK MANAGER QUALIFICATION TABLE

Position	Qualifications	Experience	Name
BRIDGE SUPERINTENDENT	Construction Management Degree or technical training and/or equivalent experience	>8 years construction management/ supervision experience	Shaun Proffitt
EARTHWORK SUPERINTENDENT	Construction Management Degree or technical training and/or equivalent experience	>8 years construction management/ supervision experience	Scott Crecelius
CONCRETE SUPERINTENDENT	Adequate technical training and/or equivalent experience	>5 years construction experience	Tony Korba
CONCRETE /ASPHALT FOREMAN	Construction Management Degree or technical training and/or equivalent experience	>8 years construction management/ supervision experience	TBD
SAFETY DIRECTOR	Adequate technical training and/or equivalent experience	>5 years experience	Melony Geary
QC/QA DIRECTOR	Construction Management Degree or technical training and/or equivalent experience	>5 years construction experience	Gary McCleland PCCP Tom Partipillo HMA
PROJECT CONTROL	Adequate technical training and/or equivalent experience	>5 years experience	Melissa Abbot
ESTIMATOR	Adequate technical training and/or equivalent experience	>5 years construction experience	David Hardin, PE Clint Stroud
CWTS	Adequate technical training and/or equivalent experience	>5 years construction experience	TBD

5.1.1.a.iv CURRENT & PROJECTED WORKLOAD: E&B Paving and United are two of the largest Indiana companies for the scope of work required to deliver this project. Our team has an exemplary history of successfully delivering design-build contracts. Our current and projected workload and backlog is presented in **Figure 5.1-6**.

FIGURE 5.1-6: CURRENT AND PROJECTED WORKLOAD AND BACKLOG

	E&B Paving	United
Current Workload	Redacted per IC 5-14-3-4	
Backlog 2017		
Projected Workload 2017		
Backlog 2018		
Projected Workload 2018		
Backlog 2019		
Projected Workload 2019		

E&B Paving's large equipment fleet allows them to dedicate the equipment necessary for a successful project delivery and have contingency equipment available as needed. Additionally, E&B Paving has long-founded relationships with Cat Rental, Brandeis Machinery, and MacAllister Machinery that enables them to supplement their fleet of equipment if needed. E&B Paving has 1,500 employees, with the ability to leverage local Union Organizations for additional Laborers, Operators, and Teamsters.

EQUIPMENT HIGHLIGHTS INCLUDE:

- 1,800+ pieces of equipment
- 54 asphalt pavers
- 9 concrete mainline pavers
- 75+ earth moving pieces of machinery

E&B Paving's corporate, project management, and construction staffs are ideally structured to deliver maximum value for this Project. E&B Paving has successfully completed over 900 INDOT projects as the prime contractor since 1994. The extensive human resources, equipment resources, and vast INDOT experience might not all be necessary for this project; but given the scope of this project, the impact on the motoring public, and the necessary construction phasing, it is comforting to know extensive support is available.

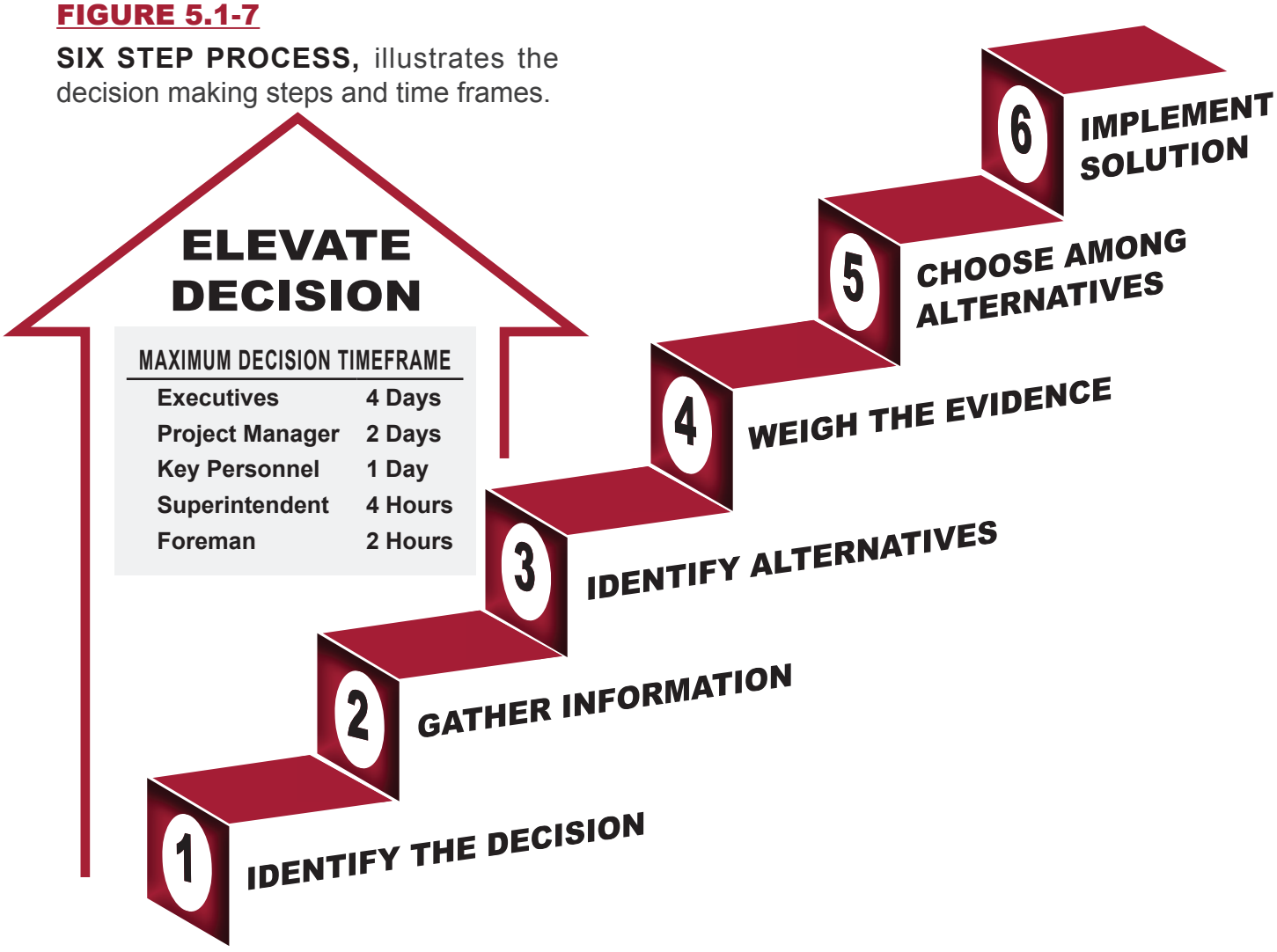
5.1.1.b INTERNAL ORGANIZATION SYSTEMS: E&B Paving's internal communications systems were established to define a process of clear communications and timely decision making. The majority of the project will be self-performed, therefore the procedures are well-known to employees working on the project. All sub-contractors will be informed on communication procedures for the project.

E&B Paving will self-perform all major construction activities.

5.1.1.b.i DECISION-MAKING PROCESS: E&B Paving has worked through design-build projects and learned that the planning decision responsibilities for project staff is essential. Protocols are in place for the lowest qualified staff to make decisions to continue making progress on the project and prevent impacts. Our process is broken down into the steps shown in **Figure 5.1-7** which ensure that the decisions made result in solutions that meet the Technical Provisions, Released for Construction plans, and PPA. The staff is also trained to understand when to escalate decisions. As important as making the decision is the amount of time necessary to find a solution. **Figure 5.1-7** specifies the maximum amount of time by each level of responsibility to render a decision.

FIGURE 5.1-7

SIX STEP PROCESS, illustrates the decision making steps and time frames.



5.1.1.b.ii METHODS & LINES OF COMMUNICATION & DOCUMENTATION: Communication is the essence of success. The meetings and communication outlined in **Figure 5.1-8** will facilitate project team communication and documentation. E&B Paving will have a project schedule developed with reoccurring meetings established for specific purposes and to achieve coordination and dissemination of information.

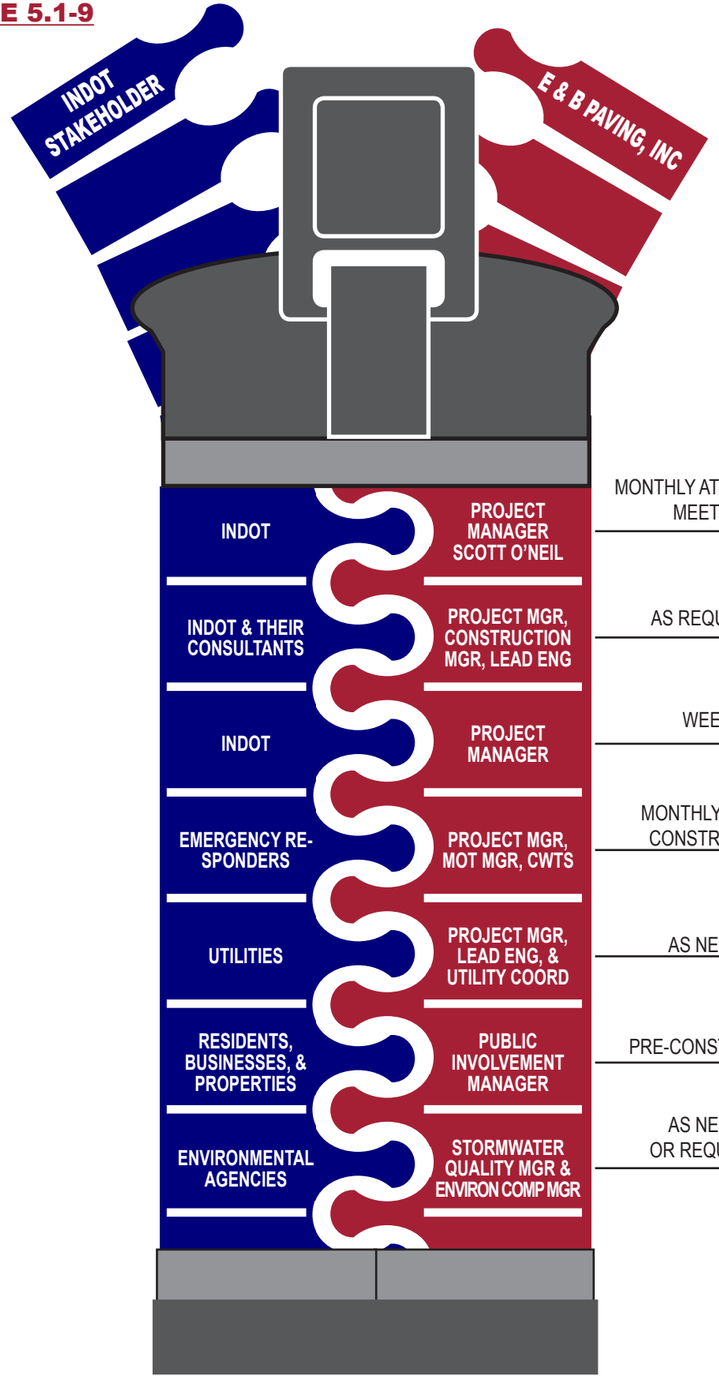
FIGURE 5.1-8: KEY INTERNAL MEETINGS

MEETING	KEY ATTENDEES	PURPOSE	DOCUMENTS	FREQUENCY
Partnering Workshop Kickoff	Executive Team, Key Personnel, Task Managers, Major Subcontractors	Describe project scope and reiterate INDOT's goals and expectations. Establish and distribute lines of communication, project processes, and guidelines, personnel routes, and responsibilities	Agenda & Minutes	Upon Award, Every Quarter
Daily Huddle	Construction Manager, Superintendents, Task Managers, and Workforce	Production: Review of work ahead. Discussion of previous performance of goals moving forward.	None	Daily
Toolbox Talks	Task Managers, Workforce, Major Subcontractors	Discuss safety issues and how to eliminate / minimize exposure to hazards. Identify required PPE. Discuss erosion and sediment control issues.	Signed Toolbox Talk Form	Weekly
Schedule Review	Project Manager, Construction Manager, Superintendents	Project schedule update.	Minutes	Bi-Weekly
Progress Meeting	Key Personnel Superintendents, Key Stakeholders	Review safety statistics and accident information, work recently completed, updated schedule, three week look ahead schedule. Update the issues log and review the status of estimates, change orders, and potential change orders.	Agenda & Minutes	Weekly
MOT / Incident Management	Project Manager, Construction Manager, MOT Manager, CWTS	Review MOT reports, incident reports, lessons learned, and opportunities for improvement using root cause analysis.	Minutes	Monthly
Utility Coordination	Project Manager, Construction Manager Utility Coordinator, Superintendents	Review utility progress and areas of concern to avoid conflicts.	Agenda & Minutes	As-Needed
Public Involvement Coordination	Project Manager, Construction Manager, Superintendents, MOT Manager, Safety Director, CWTS	Coordination of upcoming public information and outreach activities and publications.	Agenda & Minutes	Monthly
Design Coordination	Lead Engineer, Estimators, Project Manager, Construction Manager, Construction Superintendent, Design Quality Manager, Design Task Manager	Coordination and review of design process and identify and resolve potential conflicts between disciplines.	Agenda & Minutes	Bi-Weekly

5.1.1.b.iii INTERFACE WITH INDOT & OTHERS: E&B Paving looks forward to the Partnering process for this project. The intent would be to find solutions meeting the contract documents which create a win-win for the project partners. The zipper approach saves time and money because everyone knows their counterpart and has the opportunity to build relationships through our regular meeting schedule. By communicating and finding solutions through a zipper approach, the staff from the INDOT and E&B Paving team will coordinate with equivalent staff members and agencies. All communication will be completed as defined by the contract documents.

The team will communicate in accordance with **Figure 5.1-9**. The purpose of these project meetings will be to update status, resolve issues, and identify the next objectives to achieve.

FIGURE 5.1-9



MONTHLY AT PROGRESS MEETINGS →	E&B Paving and United will meet with INDOT and provide written reports of progress and performance.
AS REQUESTED →	INDOT and their consultants shall have relevant design reviews.
WEEKLY →	INDOT personnel are invited to all weekly progress meetings and information shall be provided as requested.
MONTHLY DURING CONSTRUCTION →	Emergency services will be invited to MOT / Incident Management meetings. Contact information of Key Personnel will be provided and notifications will be given prior to changes in MOT or access points.
AS NEEDED →	Identify and verify all utility interfaces to eliminate the risk of impact on utilities. Communicate, mark, and document relocations accurately. Coordinate through utility meetings and updates.
PRE-CONSTRUCTION →	Pre-construction (Town Hall) Meeting open to public to provide information and get feedback. Email, webpage, and social media for updates.
AS NEEDED OR REQUESTED →	Coordinate and communicate during design and as requested during construction.

E&B Paving found on the US 31 Hamilton County project that INDOT and the contractor being located in close proximity encouraged communication and resulted in a smoother project. E&B Paving is experienced at making co-location of field personnel translate into open communication.

5.1.1.b.iv PUBLIC INFORMATION STAFF & EXPERIENCE: It is important to not overlook the impact of proactive communication on building a positive project image with the public. Scott O'Neil will serve as our Public Involvement Manager and completely understands this. Scott has provided project information to the public on his previous projects. Scott will be joined in the effort by Brian Pierson.

Scott will also be responsible for developing the Public Involvement Plan (PIP). As part of the PIP, Scott will identify public information issues. He will formulate and implement strategies to address issues relative to the public, public resource agencies, emergency service providers, businesses, media, and other interested parties. Scott will work with INDOT to respond to the communication needs of the project. Scott's daily onsite presence will make him available in person or by phone or email.

Brian Pierson was involved in the Cultural Trail in downtown Indianapolis and the public involvement process. The project impacted a tremendous amount of residents and business owners. Brian's experience is an added value to this project.

5.1.1.b.v PRELIMINARY PUBLIC INVOLVEMENT PLAN (PIP): The Preliminary Public Involvement Plan will outline our process and procedures for communication of Project information between E&B Paving, INDOT, relevant stakeholders, and emergency responders. E&B Paving is committed to being proactive in sharing project information to local stakeholders and the public at-large. Timely and accurate communication will ensure the public is informed and will enhance motorists' safety. The steps in providing public information are as follows:

1. **Pre-Planning and Coordination with INDOT Public Involvement Office:** The purpose of the meeting will be to identify the clear roles of everyone involved in public involvement and establish clear lines of communication. We will coordinate this meeting with the INDOT Seymour District Public Information Officer, Harry Maginity. Our previous experience on Best Value Design-Build projects resulted in our team supplying INDOT with timely information to post on the state's project website. We will ensure that we clearly understand INDOT expectations for this project.
2. **Pre-Construction Public Information Meeting:** E&B Paving will set up and facilitate a pre-construction public information meeting. The meeting information will be published in local newspapers one week prior to the meeting date. The meeting will be held at a convenient location to the project. Contact information from all attendees will be gathered and they will be sent periodic construction updates through email and the established social media outlets of Twitter and Facebook. We will coordinate with Harry Maginity, to co-chair this meeting with E&B Paving.

3. **Develop Incident Management Plan:** E&B Paving will develop an Incident Management Plan that will engage all local emergency responders and follow commitments made in the Traffic Management Plan (TMP). We will provide them with a layout of our traffic control plan that will identify obstacles for access during each phase of construction. We will notify emergency responders two weeks in advance of any traffic pattern changes. Throughout the duration of this project, there will be continuous and open dialogue between E&B Paving and all local responders to identify better ways to enhance safety to motorists.

4. **Develop Social Media for INDOT Website:** E&B Paving has secured accounts with Twitter and FaceBook for a link to the INDOT's project website for interested parties to stay up-to-date on project information and updates.

For direct and clear project communication to the public, E&B Paving has secured:

Twitter: i65_southeast

FaceBook: I65_southeast

5.1.1.b.vi INFORMATION STORAGE PLAN: The development of the project will include maintaining access of the necessary information to all project partners including INDOT and their team. In order to achieve this, E&B Paving will maintain all documents electronically in the document management system, Citrix ShareFile. Our team intends for the majority of electronic files to be in Adobe, Microsoft Word, and Excel file formats. Additionally, the CAD files available in both AutoCAD Civil 3D and MicroStation will be stored in Citrix. ShareFile achieves security and control of access to documents to approved individuals from the project team and stakeholders. E&B Paving will work with Whitney Carlin and his INDOT team to determine individuals requiring access to specific information stored on ShareFile. The file structure will allow for public agencies to be given limited access to storage locations and maintain security to other stored sensitive information. The software also provides a safe backup as information is protected and stored in multiple locations for redundancy. The software will accelerate the access and the exchange of needed information, seamlessly.

CITRIX ShareFile

5.1.2 PRELIMINARY PROJECT BASELINE SCHEDULE: E&B Paving has developed the Preliminary Project Baseline Schedule with the following protocols:

1. Detailed analysis was completed on various sequencing options allowing for anticipated risk of: weather and water levels at the White River, production rates and resources, required traffic pattern changes and frequencies, and winter traffic pattern requirements. The resulting plan will maximize the use of resources while minimizing the inconvenience to the traveling public by utilizing a phased construction approach.
2. Adequate time was allowed for design activities, permit modifications, development of the Project Management Plans, and detailed Quality Control plans to satisfy project hold points. The result of these allowances is an attainable comprehensive schedule.

FIGURE 5.1-10: SUMMARY OF KEY COMPLETION DATES	
PRELIMINARY WORK AT SR 58, SIGNALS, AND ITS	11/1/2017
AREA 1* – NORTH OF ABLE CREEK	11/15/2018
AREA 3* – SOUTH OF WHITE RIVER	11/6/2019
AREA 2* – CONCRETE REHAB SECTION	8/17/2020
SUBSTANTIAL COMPLETION DATE	8/17/2020

* AREA 1, 2, and 3 are shown on **Figure 5.2-12.**

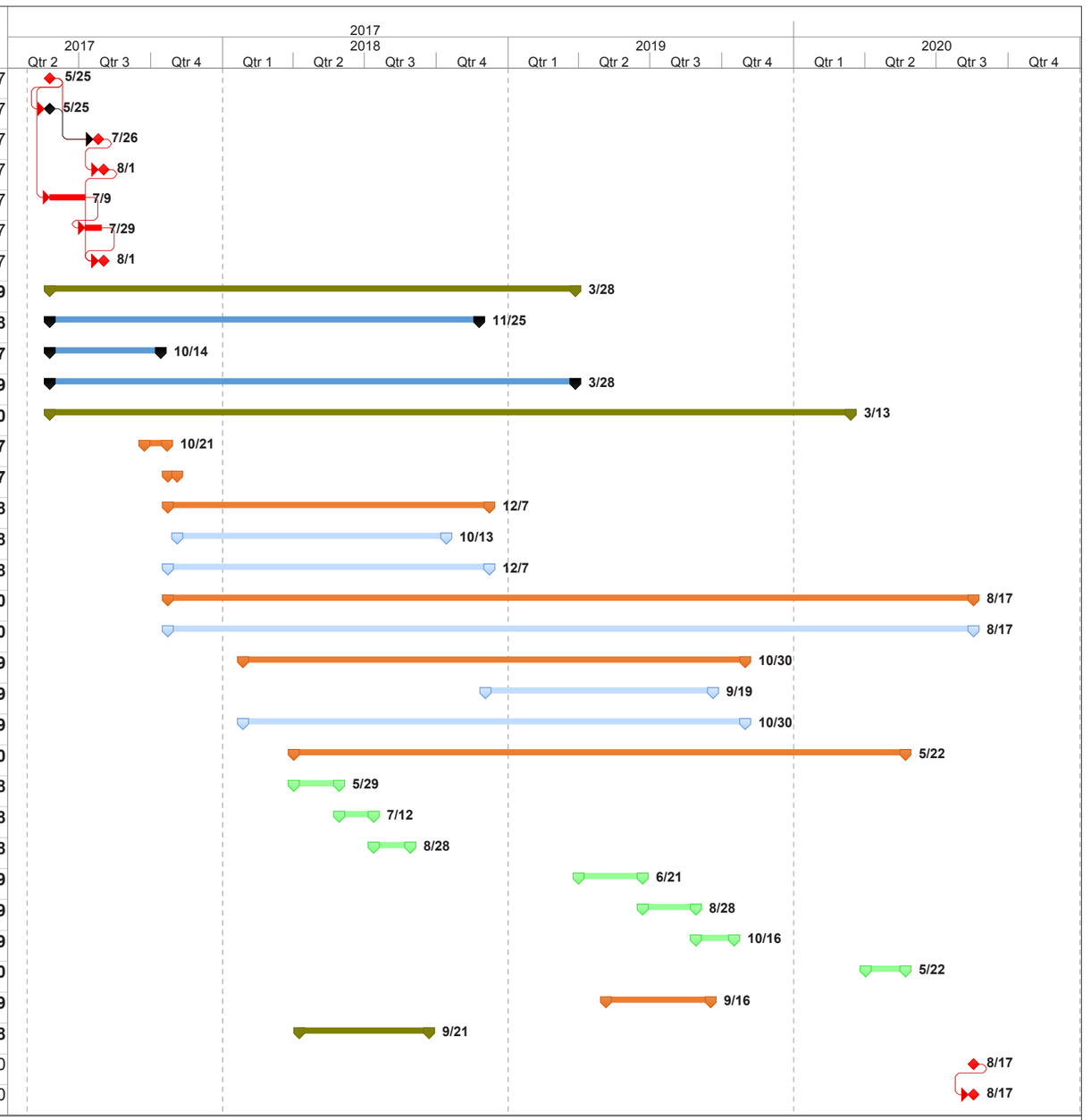
The E&B Paving team will complete the I-65 Southeast Indiana project 44 days early.

SCHEDULE OVERVIEW

As shown in **Figure 5.1-10**, E&B Paving will finish this project to a substantial completion 44 days early. This will be accomplished in phased construction of grade and drain operations and paving operations, while bridge construction will be proceeding continuously throughout the project. The schedule accounts for completing preliminary work involving SR 58 turn lanes, signal installations, and ITS camera installations to be completed by November 1, 2017 and then beginning construction on mainline I-65. To accomplish this, design activities and plan preparation will begin immediately upon being notified as the preferred proposer, so necessary hold points will be released in advance at the beginning of construction.

FIGURE 5.1-11: PRELIMINARY PROJECT BASELINE SCHEDULE:

ID	Task Name	Start	Finish
1	Chosen as Preferred Proposer	Thu 5/25/17	Thu 5/25/17
2	Begin design	Thu 5/25/17	Thu 5/25/17
3	Execute PPA	Wed 7/26/17	Wed 7/26/17
4	Notice to proceed	Tue 8/1/17	Tue 8/1/17
5	Draft Project Management Plan (PMP)	Thu 5/25/17	Sun 7/9/17
6	Approval of PMP	Sun 7/9/17	Sat 7/29/17
7	Public Information/Involvement Meeting	Tue 8/1/17	Tue 8/1/17
8	**Design Hold Points**	**Thu 5/25/17**	**Thu 3/28/19**
9	**Roadway Design**	**Thu 5/25/17**	**Sun 11/25/18**
51	**Geotechnical Report**	**Thu 5/25/17**	**Sat 10/14/17**
56	**Bridge Design**	**Thu 5/25/17**	**Thu 3/28/19**
102	**Construction Hold Points**	**Thu 5/25/17**	**Fri 3/13/20**
212	**Preliminary Construction**	**Sat 9/23/17**	**Sat 10/21/17**
216	**Phase 1 - Outside Shoulders Begin to End**	**Mon 10/23/17**	**Fri 11/3/17**
218	**Area 1 - North end to Concrete Rehab/Replace Section**	**Mon 10/23/17**	**Fri 12/7/18**
219	**Section 1 - North end to Smalls Creek - 2.67 miles**	**Sat 11/4/17**	**Sat 10/13/18**
258	**Section 2 - Smalls Creek to Concrete Rehab Section**	**Mon 10/23/17**	**Fri 12/7/18**
353	**Area 2 - Concrete Rehab/Replace Section**	**Mon 10/23/17**	**Mon 8/17/20**
354	**Section 3 - Concrete Rehab/Replace Section**	**Mon 10/23/17**	**Mon 8/17/20**
896	**Area 3 - Concrete Rehab/Replace Section to South end**	**Sat 1/27/18**	**Wed 10/30/19**
897	**Section 4 - Concrete Rehab/Replace Section to Mutton Creek**	**Mon 12/3/18**	**Thu 9/19/19**
938	**Section 5 - Mutton Creek to South end**	**Sat 1/27/18**	**Wed 10/30/19**
1091	**Overpass Bridges**	**Mon 4/2/18**	**Fri 5/22/20**
1092	**Overpass Bridge - Enos Rd**	**Mon 4/2/18**	**Tue 5/29/18**
1108	**Overpass Bridge - County Rd 800 N**	**Wed 5/30/18**	**Thu 7/12/18**
1124	**Overpass Bridge - Redding Rd**	**Fri 7/13/18**	**Tue 8/28/18**
1141	**Overpass Bridge - SR 11**	**Mon 4/1/19**	**Fri 6/21/19**
1164	**Overpass Bridge - Countyline Rd**	**Sat 6/22/19**	**Wed 8/28/19**
1182	**Overpass Bridge - County Rd 950 S**	**Thu 8/29/19**	**Wed 10/16/19**
1200	**Overpass Bridge - County Rd 625 S**	**Thu 4/2/20**	**Fri 5/22/20**
1217	**Section E Resurface**	**Mon 5/6/19**	**Mon 9/16/19**
1222	**I-65 over Denois Creek**	**Mon 4/9/18**	**Fri 9/21/18**
1225	As-built Drawings Submitted	Mon 8/17/20	Mon 8/17/20
1226	Substantially Complete	Mon 8/17/20	Mon 8/17/20



E&B Paving - United Consulting Design/Build Team
I-65 SE Design Build Best Value
Preliminary Project Baseline Schedule

Task — Milestone — Summary — Inactive Milestone — Inactive Summary — Manual Task — Duration-only — Manual Summary Rollup — Manual Summary — Start-only — Finish-only — External Tasks — External Milestone

The schedule is shown in **Figure 5.1-11** and the critical path is marked in red while the bars in the Gantt chart for other items are color coded for convenient analysis. This schedule was developed as a team effort integrating the strengths of the team members and leveraging the experience of all potential participants. Estimated quantities were calculated by designers and best practices and methods were discussed by all divisions of E&B Paving to decide on realistic productions rates and activity durations. Consideration was given to safety, quality, and maintenance of traffic. Therefore, the majority of construction activities will be protected behind barrier wall or guardrail. Our Maintenance of Traffic Plan and phasing has eliminated the need for a counter flow traffic pattern. Our MOT will allow for paving operations to use paved and unpaved haul roads.

The use of haul roads will significantly improve the integrity of the mainline subgrade and subbase and deliver a higher quality end product.

SCHEDULE MANAGEMENT

- The Baseline Project Schedule will be developed and submitted for approval per contract documents.
- The schedule will be updated continuously throughout the project and utilized in weekly progress meetings to generate three week look ahead schedules.
- These look-ahead schedules will be referenced for daily work plan scheduling by E&B Paving and subcontractors, and give INDOT the opportunity to plan resources to ensure inspection, quality assurance testing, and acceptance testing are coordinated in conjunction with the project goals.
- Formal submittals of the updated schedule will be generated monthly.

OPERATIONS & MAINTENANCE (O&M) DURING CONSTRUCTION

O&M services will be provided during construction; those services will include mowing, pothole repairs, roadway debris clean-up, maintaining existing site drainage and any necessary traffic signal repairs. E&B Paving will work closely with INDOT to monitor the roadway and project site and schedule any necessary repairs or services in order to keep the roadway free of hazards and the project site safe and functioning as required.

5.1.3 PRELIMINARY DBE PROJECT PLAN: E&B Paving works beyond a good faith effort to encourage, mentor, and train Disadvantaged Business Enterprises (DBE) to become successful. Our DBE Project Plan will include outreach, assistance, encouragement, and training which will result in exceeding the DBE goals for the project.

E&B Paving will exceed the DBE goals for I-65 Southeast by a minimum of $1 million.

E&B Paving will exceed INDOT's 7% DBE goals for the project, and upon award, we will comply with the DBE Performance Plan requirements of the PPA Documents. We will ensure that DBE's shall have an equal opportunity to participate in the performance of design, supply, and construction contracts for the project. As indicated in PPA Section 7.1.1.2, we will effectuate DBE performance requirements in every applicable subcontract that we are a party to and require these requirements in all applicable subcontracts at lower tiers so these provisions will be binding upon each applicable subcontractor. Furthermore, as requested in PPA Section 7.1.3.2, upon being selected as the successful proposer, we will include the following in our final DBE Performance Plan and EEO/Workforce Project Plan.

a. Our plan will specifically demonstrate how we will exceed the 7% DBE expenditure goal. We will identify our chosen certified DBE's, their scopes of work, potential dollar amounts, and percentage of total project. Examples will be provided of sub-agreements and procurement reports. Processes will be outlined for dispute resolution, bonding assistance, timely communication, performance reviews, feedback, and invoice/payment.
b. Scheduled time frames for the scope of work performed by DBE's will be included.
c. We will provide the qualifications of Melony Geary as our DBE Compliance Manager.
d. We will reinforce our commitment to working with INDOT to communicate and fully cooperate on DBE participation on this project.

5.1.3.a ACHIEVING DBE GOALS: To achieve INDOT's guidelines and exceed the established 7% DBE goal for this project, E&B Paving will look to trusted firms we have teamed with in the past. We are also actively seeking out and fostering new DBE partnerships. We have compiled a preliminary list of certified DBE firms, as well as those seeking certification, and we will ensure these firms will compete fairly for contracts. A preliminary estimate of how we will achieve the goal is illustrated in **Figure 5.1-12**.

FIGURE 5.1-12: POTENTIAL DBE PARTICIPATION

SCOPE	FIRM NAME	POTENTIAL DBE %
Resteel/SIP Metal Decking	Javier Steel	3.0%
ITS/Lighting	The Hoosier Co.	2.3%
Trucking	St. John Trucking / Shoshone Trucking / Columbus Trucking	3.0%
Storm Water Quality	Mort Environmental	0.2%
Design Services	DB Engineering / Metric Environment	0.3%
	ANTICIPATED TOTAL DBE PARTICIPATION:	8.8%

We will commit to exceeding the DBE goal by $1,000,000.

5.1.3.b ENCOURAGING DBE FIRM PARTICIPATION: Upon being selected as a short-listed proposer for this project, our DBE Coordinator, Melony Geary, began notifying certified DBE vendors of our intentions to bid the project and our goal to have them supply materials and provide services.

E&B Paving notified DBE's and Indiana DBE facilitators of our Outreach event and open forum, where our Key Personnel and Task Managers met with a variety of vendors to describe the Project and answer questions regarding subcontracting opportunities and certification concerns.

E&B Paving held a DBE Outreach event on March 29, 2017. The event was attended by 24 people from 16 different companies. Our team is committed to include DBE participation on both design and construction.

5.1.3.c DBE OUTREACH & ASSISTANCE APPROACH: E&B Paving commits to be a diligent mentor to potential firms who are eligible to become certified and participate as a DBE. We will enthusiastically offer our help at outreach events and through our web-based links. After identifying potential candidates, we will meet with them to define their intent and personalize a strategy for their certification process, and to provide assistance in completing the application procedure.

E&B Paving mentors K&S Engineering (DBE) to expand their core skills.

5.1.3.d MENTORING, TRAINING, & ASSISTANCE OF DBE FIRMS: DBE's face a variety of challenges and obstacles to grow their market share and expand their capabilities. We are dedicated to mentoring our DBE partners beyond the certification process with the following opportunities:

- Educational seminars/training, including OSHA Safety training, Awareness of Traffic Training, Weather Restrictions Training, Superintendent, Foreman, and Laborer Training.
- Technical assistance, including contract compliance, cash flow management, staffing, and overviews of insurance, bonding, and other financial challenges.

E&B Paving assisted our Key Personnel, Lamda Mort of Mort Environmental, LLC in obtaining their DBE status.

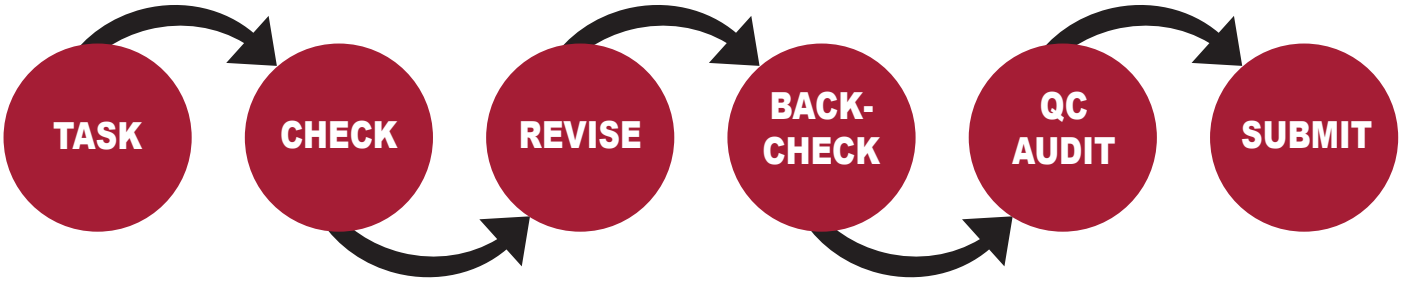
E&B Paving is committed to providing them meaningful work on this project.

5.1.4 QUALITY MANAGEMENT: E&B Paving and United are working together developing a design which will deliver a complete project that meets and exceeds the project goals including exceptional quality. Design-Build plan submissions can include plan sheets containing only the Hold Point released design information with other details still under development. These Hold Point design information sheets can be Released for Construction. Our team understands the importance of factoring in future design decisions into the advanced Hold Point design information to eliminate issues in the field between the present construction and future phases. Our reviewers understand this process. Additionally, we understand that release for construction plans must be posted before any construction begins. In the field, our team understands the importance of testing material to maintain the quality end product that E&B Paving takes pride in. The following sections outline the efforts taken in design and construction to execute our quality control and assurance.

5.1.4.a DESIGN QUALITY MANAGEMENT: United has a Quality Control Policy which will be incorporated and integrated into the project as the Design Quality Control Plan. The policy uses the following philosophy as illustrated in **Figure 5.1-13**:

- All deliverables are to be produced by a qualified professional staff member (designer).
- All deliverables are to be then checked by a qualified professional staff member (checker).
- Reviewed deliverables are returned to the designer for revision.
- Corrected deliverables are verified by the checker.
- Quality control audit will be performed.
- The final deliverables have the identification of the original designer and checker.

FIGURE 5.1-13: DESIGN QUANTITY CONTROL



Quality Control Audit: Prior to a document submittal, the Design Quality Manager, Chris Hammond, will review that the quality control procedure was followed and sign the Quality Control Form submitted with all INDOT plan and design submittals. If the Design Quality Manager identifies issues with the design quality control, a meeting between the Project Manager, Lead Engineer, Quality Control Manager, and INDOT's representative will be conducted to determine the appropriate corrective course of action.

5.1.4.b CONSTRUCTION QUALITY MANAGEMENT: Construction quality is the essence of a successful project. It is the culmination of all aspects of project management. Quality management does not happen independently. E&B Paving personnel are experienced, highly professional craftsmen that take pride in their work and customer satisfaction. When they have the information and tools they need, the result is always excellence. Therefore the result of integrating the pieces of the overall Project Management Plan will be to ensure the field personnel have clear objectives, have the equipment and materials they need, and have a safe and efficient environment in which to perform. For example, comprehensive scheduling, progress meetings, and daily work planning results in the prompt delivery of materials. Having the proper resources and equipment ensures they are adhering to realistic time frames. This provides the basis for quality workmanship. Similarly, developing a technically compliant constructable project design ensures that quality will not be compromised because of mechanical/logistical limitations or anticipated field conditions. Likewise, MOT, public involvement, safety, and environmental management plans provide a working environment and atmosphere that allows our people to focus on doing the task at hand and prioritize quality.

E&B Paving is consistently recognized for excellence in concrete paving.

E&B Paving has a long history of implementing best practices and procedures to achieve award winning results as shown in **Figure 5.1-14**. Also, E&B Paving has maintained a presence in multiple committees regarding pavement quality. For instance Mike Collard, Vice President and head of the Concrete Paving Division, is currently the VP of the Indiana Chapter of ACPA and board member of the Spec 500 Committee. INDOT has previously recognized E&B Paving as a leader in quality achievement. When INDOT (Ron Walker) partnered with the Indiana Chapter of ACPA (Mike Byers) to develop a "Best Practices" workshop for PCCP for Professional Development Hours for INDOT engineers, E&B Paving was chosen to develop and instruct the class. As a result of this recognition, E&B Paving appreciates the opportunity to assist in educating INDOT engineers and strives to maintain a reputation for quality worthy of such an honor.

FIGURE 5.1-14: E&B PAVING'S AWARDS & RECOGNITION

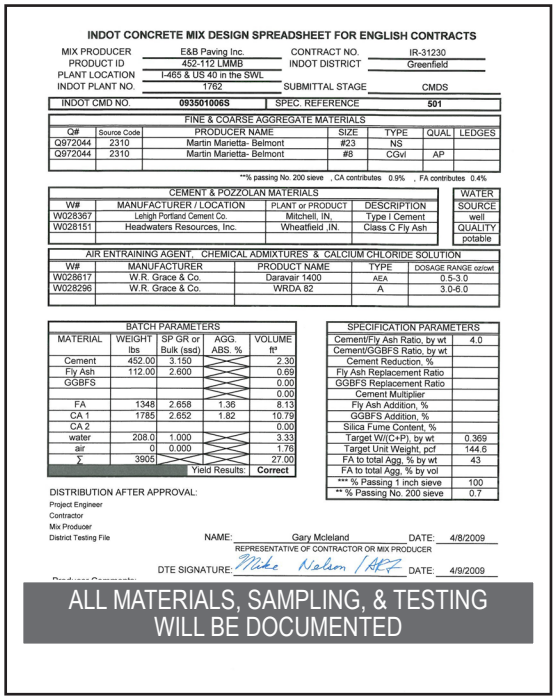
154	Quality in Construction Awards from National Asphalt Pavement Association
41	Quality Paving Awards from Asphalt Pavement Association of Indiana
50	Awards for Excellence in Concrete Pavement Awards from ACPA
8	Indiana Partnership for Transportation Quality Achievement Awards
14	INDOT Pavement Smoothness Awards
18	INDOT Excellence in HMA Plant Production Quality Achievement Awards
4	Outstanding HMA Producer State Awards
10	Concrete Pavement Awards, Indiana Ready Mix Association
67	Excellence in Concrete Pavement Awards, Indiana Chapter ACPA
6	Indiana Partnership for Highway Quality Achievement Awards

E&B Paving's Construction Quality Management Plan will result in full compliance of the PPA, contract documents, and INDOT specifications. Implementation of our Project Management Plan will ensure clear lines of communication and define responsibilities to deliver excellence in all phases of the project and all areas of quality control / quality assurance.

- **INTEGRATING WITH DESIGN:** E&B Paving's construction team will work closely with Chris Hammond, Design Quality Manager, and the United design team to ensure the most appropriate materials and methods are being incorporated into the project design. Constructability reviews have started and will be utilized in all phases of the design to streamline the project and avoid revisions as the design phase of the project transitions into construction. Additionally, E&B Paving has delivered several design / build projects for INDOT and is familiar with the process of constructing a project as hold points get released and plan sets develop. The E&B Paving Quality Management Plan will have detailed processes to log plan set versions and ensure the E&B Paving field personnel and INDOT are working from the latest approved sets of plans.

- **DOCUMENTING THE CONTROL OF MATERIALS**

In accordance with contract documents, all approved QC/QA plans will be followed, documenting material samples and logging test results. Approval of QC/QA plans will verify all mix designs, trial batches, maturity curves, coring procedures, and sampling will be in accordance INDOT methods and best practices. Results will be entered into the Document Management system, Citrix ShareFile for immediate access and feedback for appropriate personnel. Additionally, all materials used for this project will be in accordance with the INDOT approved material list, CAPP approved, or certified for consistency with the INDOT Standard Specifications and contract documents. All materials used on this project will have delivery tickets listing quantity, source, and appropriate product descriptions, and a copy will be made available to INDOT upon request. Also, as precast and fabricated materials are delivered to the site, they will be visually inspected for workmanship, damage from loading/shipping and compliance with shop drawings. If problems are identified, they will be addressed with approved repairs or replacement of material.



INDOT CONCRETE MIX DESIGN SPREADSHEET FOR ENGLISH CONTRACTS

MIX PRODUCER	E&B Paving Inc.	CONTRACT NO.	IR-31230
PRODUCT ID	452-112 LMMB	INDOT DISTRICT	Greenfield
PLANT LOCATION	I-465 & US 40 in the SWL		
INDOT PLANT NO.	1762	SUBMITTAL STAGE	CMDS
INDOT CMD NO.	093501006S	SPEC. REFERENCE	501

FINE & COARSE AGGREGATE MATERIALS

Q#	Source Code	PRODUCER NAME	SIZE	TYPE	QUAL	LEDGES
Q972044	2310	Martin Marietta- Belmont	#23	NS		
Q972044	2310	Martin Marietta- Belmont	#8	CGvl	AP	

**% passing No. 200 sieve , CA contributes 0.9% , FA contributes 0.4%

CEMENT & POZZOLAN MATERIALS

W#	MANUFACTURER / LOCATION	PLANT or PRODUCT	DESCRIPTION
W028367	Lehigh Portland Cement Co.	Mitchell, IN,	Type I Cement
W028151	Headwaters Resources, Inc.	Wheatfield ,IN.	Class C Fly Ash

WATER SOURCE: well; QUALITY: potable

AIR ENTRAINING AGENT, CHEMICAL ADMIXTURES & CALCIUM CHLORIDE SOLUTION

W#	MANUFACTURER	PRODUCT NAME	TYPE	DOSAGE RANGE oz/cwt
W028617	W.R. Grace & Co.	Daravair 1400	AEA	0.5-3.0
W028296	W.R. Grace & Co.	WRDA 82	A	3.0-6.0

BATCH PARAMETERS

MATERIAL	WEIGHT lbs	SP GR or Bulk (ssd)	AGG. ABS. %	VOLUME ft³
Cement	452.00	3.150		2.30
Fly Ash	112.00	2.600		0.69
GGBFS				0.00
				0.00
FA	1348	2.658	1.36	8.13
CA 1	1785	2.652	1.82	10.79
CA 2				0.00
water	208.0	1.000		3.33
air	0	0.000		1.76
Σ	3905			27.00
		Yield Results:		Correct

SPECIFICATION PARAMETERS

Cement/Fly Ash Ratio, by wt	4.0
Cement/GGBFS Ratio, by wt	
Cement Reduction, %	
Fly Ash Replacement Ratio	
GGBFS Replacement Ratio	
Cement Multiplier	
Fly Ash Addition, %	
GGBFS Addition, %	
Silica Fume Content, %	
Target W/(C+P), by wt	0.369
Target Unit Weight, pcf	144.6
FA to total Agg, % by wt	43
FA to total Agg, % by vol	
*** % Passing 1 inch sieve	100
** % Passing No. 200 sieve	0.7

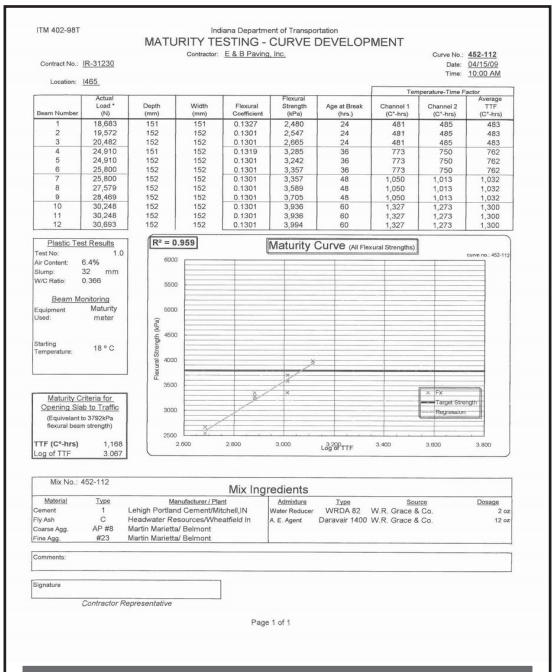
DISTRIBUTION AFTER APPROVAL:
Project Engineer
Contractor
Mix Producer
District Testing File

NAME: Gary Mcleland DATE: 4/8/2009
REPRESENTATIVE OF CONTRACTOR OR MIX PRODUCER
DTE SIGNATURE: Mike Nelson DATE: 4/9/2009

ALL MATERIALS, SAMPLING, & TESTING WILL BE DOCUMENTED

TESTING, INSPECTION AND MONITORING CONSTRUCTION ACTIVITIES

All QC/QA plans listed in the technical provisions will be submitted for approval to INDOT at least 30 days prior to the start of related operations. Pre-paving and Pre-pouring conferences will be held well in advance of related activities. Bridge decks will be dry run prior to placement of structural concrete. E&B Paving will provide all necessary submittals to satisfy the construction hold points listed in Section 2.1.2 of the Technical Provisions and will proactively work with INDOT should the need for more hold points be determined. To accomplish the testing sequence and frequencies outlined in our QC/QA plans, E&B Paving will rely on their experienced testing personnel reporting to Gary McCleland, Quality Control Manager. Technicians will take and log samples, perform testing, and compile data in accordance with INDOT standards and industry's best practices.



ITM 402-98T

Indiana Department of Transportation

MATURITY TESTING - CURVE DEVELOPMENT

Contractor: E & B Paving, Inc.

Contract No.: IR-31230

Location: I465

Curve No.: 452-112

Date: 04/15/09

Time: 10:00 AM

Beam Number	Actual Load * (N)	Depth (mm)	Width (mm)	Flexural Coefficient	Flexural Strength (kPa)	Age at Break (hrs.)	Temperature-Time Factor Channel 1 (C°-hrs)	Channel 2 (C°-hrs)	Average TTF (C°-hrs)
1	18,683	151	151	0.1327	2,480	24	481	485	483
2	19,572	152	152	0.1301	2,547	24	481	485	483
3	20,482	152	152	0.1301	2,665	24	481	485	483
4	24,910	151	152	0.1319	3,285	36	773	750	762
5	24,910	152	152	0.1301	3,242	36	773	750	762
6	25,800	152	152	0.1301	3,357	36	773	750	762
7	25,800	152	152	0.1301	3,357	48	1,050	1,013	1,032
8	27,579	152	152	0.1301	3,589	48	1,050	1,013	1,032
9	28,469	152	152	0.1301	3,705	48	1,050	1,013	1,032
10	30,248	152	152	0.1301	3,936	60	1,327	1,273	1,300
11	30,248	152	152	0.1301	3,936	60	1,327	1,273	1,300
12	30,693	152	152	0.1301	3,994	60	1,327	1,273	1,300

Plastic Test Results
Test No: 1.0
Air Content: 6.4%
Slump: 32 mm
W/C Ratio: 0.366

Beam Monitoring
Equipment Used: Maturity meter
Starting Temperature: 18 ° C

Maturity Criteria for Opening Slab to Traffic
(Equivalent to 3792kPa flexural beam strength)
TTF (C°-hrs) 1,168
Log of TTF 3.067

R² = 0.959

Maturity Curve (All Flexural Strengths)

curve no.: 452-112

Flexural Strength (kPa)

Log of TTF

Fx
Target Strength
Regression

Mix No.: 452-112

Mix Ingredients

Material	Type	Manufacturer / Plant	Admixture	Type	Source	Dosage
Cement	1	Lehigh Portland Cement/Mitchell,IN	Water Reducer	WRDA 82	W.R. Grace & Co.	3 oz
Fly Ash	C	Headwater Resources/Wheatfield In	A. E. Agent	Daravair 1400	W.R. Grace & Co.	12 oz
Coarse Agg.	AP #8	Martin Marietta/ Belmont				
Fine Agg.	#23	Martin Marietta/ Belmont				

Comments:

Signature

Contractor Representative

Page 1 of 1

ALL MATERIALS, SAMPLING, & TESTING WILL BE DOCUMENTED

The point needs to be made that quality is not simply a material testing issue, and E&B Paving's Quality Management plan will reflect this. E&B Paving employs surveyors, and grade checkers with state-of-the-art equipment to layout and verify the high quality materials get installed in the correct location, thickness, and elevation within tight tolerances to ensure quality and smoothness for the traveling public. Processes will be in place for daily checks of equipment, hubs, and string lines to ensure daily production results in meeting or exceeding the specified quality. Additionally, equipment maintenance is a source of pride with E&B Paving. Dave Christman, Equipment Manager, along with skilled mechanics work tirelessly to make sure the equipment will be extremely reliable at critical times to ensure quality.

In summary, E&B Paving's Quality Management Plan, at a minimum, will ensure embankments are installed and compacted to specification and the grade is checked within tolerance, drainage structures are placed with meticulous workmanship, subgrade treatment is installed with consistent application rates and expected strength gains, subbases and/or drainage layers are installed at precise thicknesses, and pavements are placed according to the QC/QA plans. Bridge construction will be monitored, tolerances verified, and best practices will be used to achieve smooth transitions onto approaches and decks at terminal joints. Also, subcontractors will be held to the highest standards for items like guardrails, underdrains, pavement markings, and ITS installation.

REPORTING PROCEDURES, METHODOLOGIES, AND CORRECTIVE ACTIONS

To ensure that all tests, reports, material certifications, and records are available for easy access and to ensure consistency in reporting, E&B Paving will implement very practical and effective reporting procedures.

E&B Paving will define these issues in detail in applicable QC/QA plans. Tests will be performed and results will be logged by technicians. The data will include but not limited to the date, time, material description, material location by station and offset, and current climate conditions. The testing logs will be maintained according to the Document Management Plan and placed in Citrix ShareFile for access and feedback for applicable INDOT and E&B Paving personnel. Testing logs will be labeled in the system to be conveniently identifiable and referenced. Test logs will be summarized and reported in INDOT approved formats for evaluation, and these reports will also be labeled and maintained in Citrix ShareFile.

The American Concrete Paving Association has bestowed their Excellence in Concrete Pavement Award upon E&B Paving 50 times.

If test results or inspections identify a problem with quality, corrective action will be taken. E&B Paving will partner with INDOT to achieve a mutually agreed upon solution. If modifications can be made to leave materials in place and retain an acceptable result meeting quality expectations, this would be the preferred option. However, E&B Paving is committed to providing a quality product meeting or exceeding quality expectations and therefore removing and replacing nonconforming work must always be considered. In the event this becomes an issue, a timely, in-depth investigation will be conducted to identify root causes of the problem and modifications in operations will be made to prevent reoccurrence.

INDOT INVOLVEMENT

Coordination and communication with INDOT is imperative to successful quality management. Per the Project Management Plan, weekly onsite progress meetings will be conducted and the project schedule will be continually updated. Progress meetings will include discussion of specific issues related to current and upcoming operations. In addition to updating the overall project schedule, E&B will provide three week look-ahead schedules to facilitate INDOT's ability to allocate resources and staff to anticipated construction operations. In accordance with the PPA, INDOT will provide oversight, inspection, quality assurance testing, and acceptance testing for the project. E&B Paving will coordinate and cooperate with INDOT to facilitate these activities. E&B Paving will provide safe and suitable access for INDOT to complete these activities.

5.1.5 SAFETY & ENVIRONMENTAL MANAGEMENT: E&B Paving shares INDOT's desire to design and construct a project that is safe and sensitive to the environment.

5.1.5.a SAFETY: "Safety is the responsibility of everyone" is a phrase that is frequently heard throughout E&B Paving. Our I-65 Southeast site specific safety plan will address the needs, concerns, and detailed steps to work towards a goal of achieving "zero injuries" for all site employees and the traveling public.

E&B Paving Health and Safety Manager, Mark Michael, has spent numerous years developing our six step program we utilize with our crews and on our projects. We have provided all crews the necessary training to recognize hazards and prevent them from occurring, including our weekly Tool-Box talks focusing on items we have found to be areas of needed improvement. Due to the commitment and high standards of our program, we have seen significant improvement in our safety numbers.

The EHS Safety Dashboard access will provide INDOT automatic notification of any incident alert on the project site.

Our onsite Safety Director, Melony Geary, will report directly to our Project Manager, Scott O'Neil, on her assessment of execution of the Site Specific Safety Plan. She will work directly with INDOT personnel to provide access to the E&B Paving Environmental Health and Safety Dashboard. Our EHS Dashboard is our tool to ensure safety is being monitored with real time information. By monitoring safety trends such as injury by body part, injury by job title, and injury by contributing cause, our safety teams are able to identify areas for training and focus, thus preventing future incidents. Since our implementation of our EHS dashboard, we have seen our Recordable Incident Rate (RIR) drop by 1.4 points, our Days Away from Work (DART) rate drop by 1.6 points, and multiple other indicator improvements. INDOT will be provided ability to provide feedback and receive results on all Root Cause Analysis investigations.

All crew foremen and key personnel on the project will be 30HR OSHA Certified. In addition, the foreman will be Traffic Control Supervisor certified, and First Aid CPR certified. Grade and drain foreman are all Competent Person certified in Excavation and Trenching. Prior to any employee access to the job site, they will have to attend a mandatory Safety Orientation where they will be trained in performing daily Pre-Hazard Assessments and documented in E&B Paving TRACK book program. These books will be made available to INDOT through the Safety Dashboard.

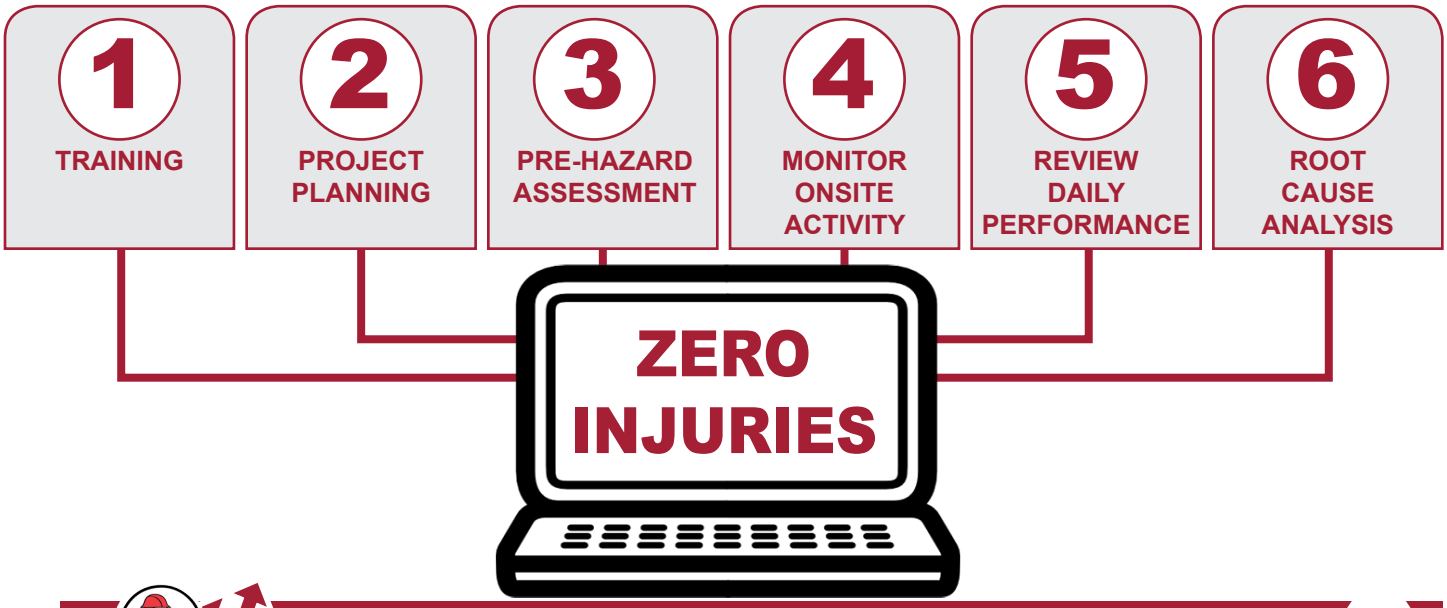


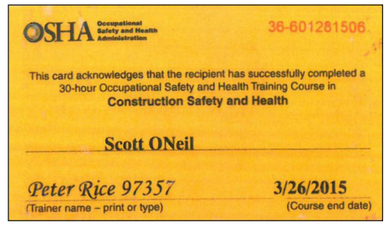
FIGURE 5.1-15: SIX STEP SAFETY PROGRAM

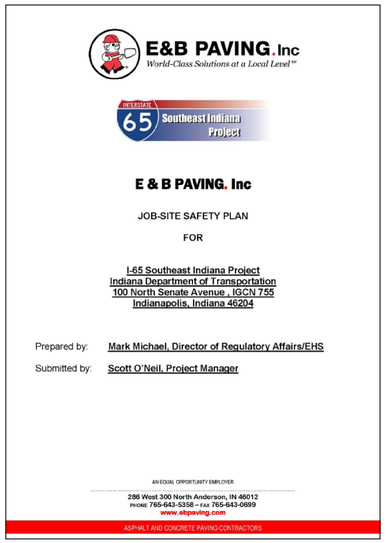
1 **TRAINING:** Proactive and continual training of the project personal including 30 HR OSHA Certified, Traffic Control Supervisor Certification, CPR First Aid Trained, Competent Person Excavating & Trenching. All Key Personnel receive 30 HR OSHA Certification.

2 **PROJECT PLANNING:** Our Safety Manager working with the Project Manager have developed a preliminary Site Specific Safety Plan. The plan will be finalized upon being selected as the Preferred Proposer. Additionally, Subcontractor's Site Specific Plans and required On-site Jobsite Orientation will be completed for the I-65 Southeast Indiana project.

3 **PRE-HAZARD ASSESEMENT:** Project personal are trained to **TRACK** which stands for:

Think though the task
Recognize the hazard
Assesstheconsequence
Control the hazard
Keep Safety first

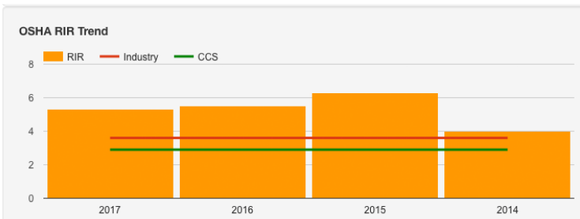

OSHA Occupational Safety and Health Administration
36-601281506
This card acknowledges that the recipient has successfully completed a 30-hour Occupational Safety and Health Training Course in
Construction Safety and Health
Scott ONeil
Peter Rice 97357 (Trainer name – print or type)
3/26/2015 (Course end date)


E&B PAVING, Inc
World-Class Solutions at a Local Level™
65 Southeast Indiana Project
E & B PAVING, Inc
JOB-SITE SAFETY PLAN
FOR
I-65 Southeast Indiana Project
Indiana Department of Transportation
100 North Senate Avenue , IGCN 755
Indianapolis, Indiana 46204
Prepared by: Mark Michael, Director of Regulatory Affairs/EHS
Submitted by: Scott O'Neil, Project Manager
AN EQUAL OPPORTUNITY EMPLOYER
286 West 300 North Anderson, IN 46012
PHONE 765-643-5358 – FAX 765-643-0699
www.ebpaving.com
ASPHALT AND CONCRETE PAVING CONTRACTORS

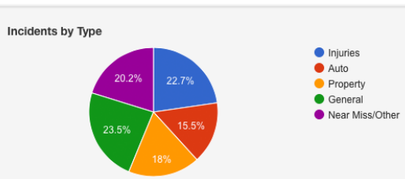
4 **MONITOR ONSITE ACTIVITY:** Our Onsite Safety Manager performs weekly audits of all onsite crews.

5 **REVIEW DAILY PERFORMANCE:** Monitor the safety performance with the E&B Paving propriety software Dashboard. The Dashboard documents project efforts through Toolbox Talks, incidents, hazard analysis, incidents reports, EZ Root Cause analysis, and injury recordkeeping. The purpose of the Dashboard is to track efforts for increasing safety, identify incidents, trends, and find solutions and areas where additional training is necessary.

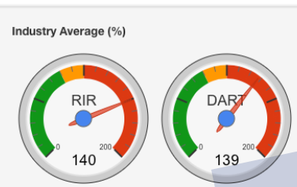
6 **ROOT CAUSE ANALYSIS:** This detailed investigative procedure is applied to methodically identify and correct the root causes of safety related events, after their occurrence, rather than simply addressing the symptomatic result. The ultimate goal of E&B Paving's root cause analysis is to prevent recurrence of similar events by determining what behaviors, actions, inactions or conditions need to be changed.



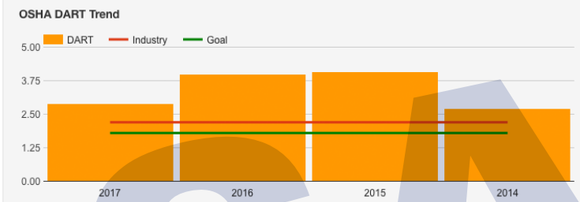
*The rolling annual OSHA Recordable Incident Rate (RIR) is the best indicator of frequency and overall injury risk.



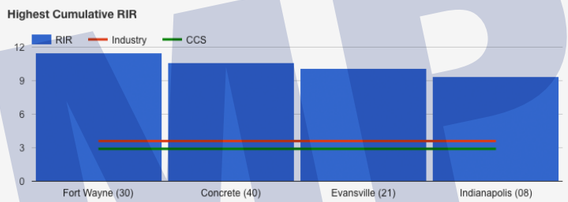
*Type of incidents reported during the previous rolling year.



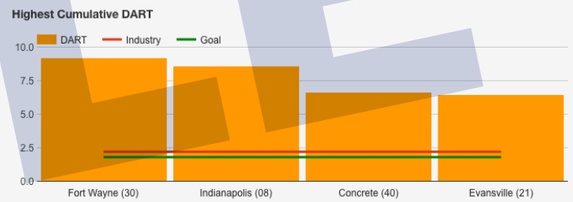
*Current rolling OSHA RIR and DART rate as a percentage of the industry average with 5% bounce error.



*The rolling annual OSHA DART rate is the best indicator of the frequency of serious incidents.



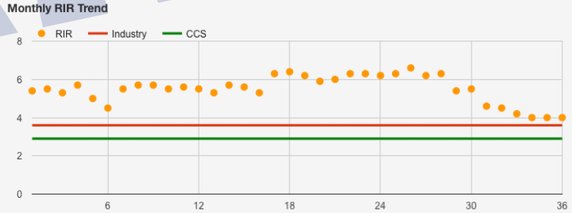
*Indicates the four locations with the highest risk of recordable incidents over the past three years.



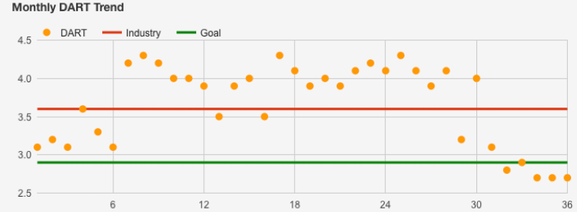
*Indicates the four locations with the highest risk of severe incidents over the past three years.

Last 5 Injuries

1. Noblesville (02) ▸ Injured foot/ankle stepping off equipment into pothole
2. Evansville (21) ▸ Chris Bailey twisted knee
3. Huntington (04) ▸ Stepped wrong
4. Noblesville (02) ▸ brian lough had a seizure while joint sealing
5. Bloomington (35) ▸ Rolled ankle in hole.



*The rolling monthly RIR trend shows monthly progress. The horizontal axis is the number of months from the present (0).



*The rolling monthly DART trend shows the randomness of severe incidents. The horizontal axis is the number of months from the present (0).

5.1.5.b ENVIRONMENTAL MANAGEMENT: Our team members have become very familiar with the environmental commitments and features of the project limits. Our approach to the project will be detailed in the Project Management Plan and will focus on proactive planning and implementation of protection measures.

Our team includes two key personnel with a focus on Storm Water Management and Environmental Compliance, however, the entire team shares the responsibility of making environmental commitments a priority.

5.1.5.b.i QUALIFICATIONS: Over the last several years of working on difficult new terrain projects, our team has developed a clear understanding of the effort necessary to minimize environmental risks. Our team includes:


JEFF WOODARD

Environmental Compliance Manager: Jeff Woodard will be on the project site full time and be responsible for the implementation of all environmental design, construction commitments, and conditions identified in the approved environmental document and permits. Jeff has worked in heavy highway since 1989 and understands the Indiana Storm Water Quality manual. Jeff has the authority to stop or redirect construction work as needed.


LAMDA MORT

Storm Water Quality Control Manager: Lambda Mort, CESSWI will be the Storm Water Quality Control Manager. Lambda will work with E&B Paving to develop a Storm Water Quality Control Plan which meets all requirements and works proactively to minimize environmental risks.

E&B Paving has hired Lambda Mort as the Storm Water Quality Control Manager.

She is an independent consultant who is tasked with working with INDOT and E&B Paving to protect the storm water quality.


MIKE OLIPHANT

Permits Manager: Mike Oliphant, AICP has 18 years of experience working with governmental agencies in the state of Indiana to deliver NEPA documents and permits for transportation projects. Mike will work with the team to make sure that the design includes all commitments and the permits include the appropriate construction method to deliver the project.


WHITNEY NEUKAM

Drainage and Erosion Control Lead Designer: Whitney Neukam, PE, CPESC has 11 years' experience designing hydraulics for transportation projects. Whitney has worked with our Project Manager, Scott O'Neil to deliver drainage, erosion and sediment control, and storm water pollution prevention plan (SWPPP) for design-build projects. Whitney will be tasked with working with the other key personnel to use best practices for minimizing environmental risks.

5.1.5.b.ii COMPLIANCE: Jeff, Lambda, and Mike will work together to draft the Environmental Compliance and Mitigation Plan which meets the requirements of the PPA, Technical Provisions, environmental commitments, and Project Baseline Schedule for INDOT approval.

Our team's environmental compliance goals include fulfilling INDOT's commitment of being a good environmental steward, minimizing negative effects on the built and natural environments, and completing the project with zero non-compliance with environmental permit requirements.

The specific goals with the environmental compliance and mitigation plan are listed below:

- Help create and implement tools that clearly communicate and document environmental compliance responsibilities for INDOT and the contracting team.
- Anticipate situations that could result in non-compliance events and implement preventative solutions.
- Eliminate situations that elevate the risk of non-compliance which can be avoided.
- Minimize impacts caused by unavoidable non-compliance situations.
- Have zero non-compliance incidents that result in "violations" from natural resource and permitting agencies.
- Provide support, training, and assistance to further the environmental success of the project.
- Identify corrective actions necessary to maintain environmental compliance

United will provide additional information on plan sheets specifying measurable rainfall data which ESC features are designed to accommodate. E&B Paving will install devices to measure rainfall and intensities to be able to accurately analyze the performance of installed features. This information has proven valuable on past high profile projects. Regulatory agencies appreciate the additional information when evaluating heavy rain events. It is beneficial to INDOT, the Design/Build team, and regulatory agencies to be able to demonstrate that even though features may have over topped, they were performing as designed/installed and the project is within compliance.

Heavy rainfall events create potential for significant impacts to infrastructure projects. In an effort to eliminate non-compliance, the plan sheets will include the design parameters for erosion and sediment control.

5.1.5.b.iii INSTALLATION & MAINTENANCE: Whitney Neukam, PE, CPESC and Mike Oliphant will design the erosion and sediment control measures for the project and complete the Storm Water Pollution Prevention Plan for the site specific conditions of the project and the different construction sequence phases. Whitney and Mike will work with Lambda Mort and Jeff Woodard to verify that the design meets the project requirements, can be installed correctly, and is able to be maintained.

Scott O'Neil and Construction Superintendent, Steve Parr, and Jeff Woodard, and Lambda Mort all have extensive experience working on extremely challenging projects through Karst environments where meticulous monitoring of ESC was imperative to the success of the project.

Scott O'Neil has worked through several challenging I-69 Section 4 projects. The projects have improved Scott's understanding of proactive measures of Erosion and Sediment control and will bring this experience to the I-65 Southeast project.

5.1.5.b.iv ENVIRONMENTAL RISKS: Design-Build projects have multiple elements that are on the critical path to successfully deliver the project. The completion of the Project Management Plan with the Environmental Compliance and Mitigation Plan will be a top priority. **Figure 5.1-16** outlines some of the known environmental risks and methods to mitigate.

FIGURE 5.1-16: ENVIRONMENTAL RISK AND MITIGATION TABLE

Environmental Element	Risk	Mitigation	
Wetland Impacts	Permitted area impacts	Widening to the median reduces impacts to outside ditches and existing wetlands.	✓
East Fork of the White River	Seasonal flooding	ATC No. 4 reduces work being completed in the East Fork of the White River	✓
Erosion and Sediment Control	Sediment Migration	Develop and follow our SWPPP and meet all environmental commitments.	
Permit Approvals	Schedule Delay	Build schedules with typical review times and proactively communicate.	
Seasonal Work Restrictions	Schedule Delay	Build schedules with restrictions maintained and seek waivers where unavoidable.	
Endangered, Threatened, Rare Species Encountered	Harm to Species	Educate workforce on the species and action required if encountered.	
Spill of Hazardous Material	Environmental Impacts	Develop and follow the Spill Prevention Plan.	
Work In and Around Wetlands, Waterways, and Floodplains	Environmental Impacts	Develop and follow our SWPPP and meet all environmental commitments.	

Added Travel Lanes and Design-Build projects in southeast Indiana are very familiar to E&B Paving. We are currently delivering the I-65 Added Travel Lane project in Clarksville, Indiana. The project has built a strong understanding of elements of projects that work well and how to continue to improve traffic operations and safety for INDOT, construction workers, and the traveling public. Additionally, E&B Paving has focused from the beginning on delivering three lanes of traffic in each direction and are committed to delivering Scope Package 6.1.

Our team has been looking for opportunities to provide cost savings and increased value to INDOT. The project includes significant pavement and bridge elements and the following sections will discuss the innovative ways E&B Paving has identified added value for INDOT and the state of Indiana.

5.2.1 PAVEMENT DESIGN: A good pavement starts with excellent materials. The pavement design requirements for the I-65 Southeast Best Value Design Build Project have challenged our team. We have risen to this challenge by using our knowledge of paving materials and construction experience to solve these uncommon requirements. From a materials standpoint, we used our knowledge of the geology of the southern Indiana quarries that will supply the aggregate materials used in our pavements to their best advantage. From a construction standpoint, we worked as a team to develop a commitment to providing superior pavement on Day One that will result in a long lasting solution for INDOT's customers and exceed the Technical Provisions.

The design philosophy that our team employs is the straight-forward approach that United Consulting uses for its INDOT design projects. It follows the Indiana Design Manual Chapter 304 as amended by our understanding of the current "state-of-the-practice" employed by INDOT pavement designers. Our team's value proposition is based on providing a superior product that we predict will provide nearly one century of pavement life and, with routine maintenance, can safely and efficiently transport our children and grandchildren. The traffic inputs used are summarized later, but are taken directly from the Traffic Forecast provided as TRAF-0.01 in the Reference Documents. We used these projections, vehicle distributions, and growth rates to establish our traffic load for the pavements. For the distribution of design vehicles into the design lanes, our team chose to avoid "playing games" with varying distributions in differing lanes. Our pavements are designed for 90% of the design vehicles for each direction of travel to be applied to each lane, this is a conservative assumption that yields a total traffic capacity of 270% of the forecasted traffic. Based on these distributions and traffic values, we ran designs to determine the point where the threshold minimum ESALS were reached. The design lives are summarized below in **Figure 5.2-1**:

INDOT will receive full depth PCCP shoulders matching mainline pavement.

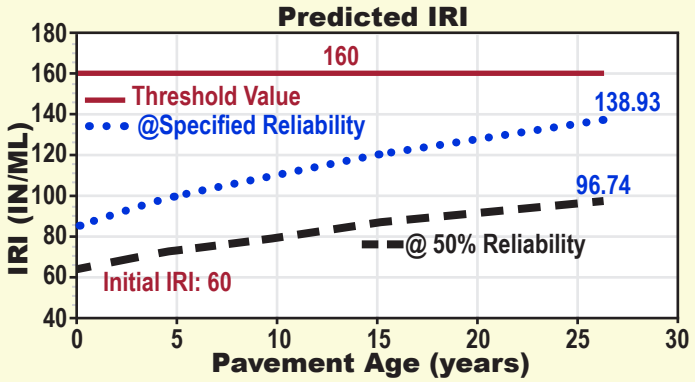
FIGURE 5.2 -1: PAVEMENT DESIGN LIFE			
Criteria	ESALs required	ESALS provided (as calculated by Pavement ME 2.0)	Design Life
Functional Failure	97,770,000	98,450,000	26 years
Structural Failure	499,350,000	501,300,000	98 years

A total of 1,503,900,000 ESALs is provided for each direction that exceeds the minimum requirement of 1,498,050 ESALs.

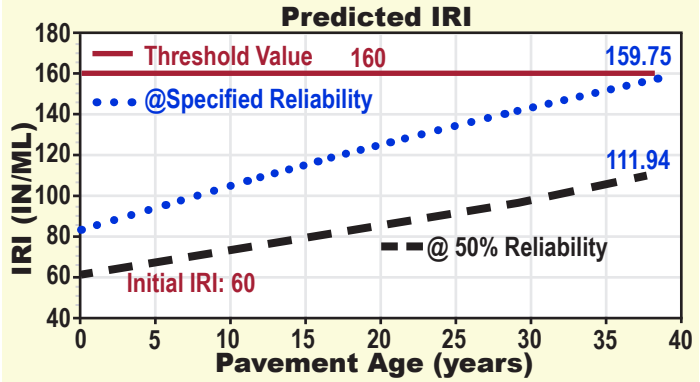
The first of two value additions that are proposed by E&B Paving is a commitment to lower initial International Roughness Index (IRI) for the proposed pavement. E&B Paving's pavement shall meet a maximum value of 60 inches per mile as measured by the inertial profiler at the project's open to traffic date. The default design value used is 70 inches per mile. The result of this commitment is a smoother initial pavement providing a more comfortable ride, lower fuel usage, reduced pavement noise, and longer time until the initial routine maintenance activities are required. As shown in **Figure 5.2-2**, by lowering the initial IRI, we are able to demonstrate that the pavement will meet the IRI requirement for an additional 12 years beyond the duration required to meet the ESAL threshold and 54,530,000 ESALs beyond the minimum requirement.

E&B Paving is committed to lowering the initial IRI to 60.

FIGURE 5.2-2



E&B IRI Performance at Functional Failure ESAL threshold (26 years) – 98,450,000 ESALs



E&B IRI Performance at Functional failure (38 years) – 152,300,000 ESALs

The second value addition that is proposed by E&B Paving is a commitment to use aggregate materials that are superior for concrete pavement construction. Through the pavement design process, our team identified the Coefficient of Thermal Expansion (CTE) as a critical value in the long term performance of the concrete pavement. The standard range of values given in the Indiana Design Manual is 4.7x 10-6 to 6.1x10-6. A study performed by the Texas Transportation Institute, Preliminary Characterization of Aggregate Coefficient of Thermal Expansion and Gradation for Paving Concrete, identified potential aggregate types and CTE values. Comparing Table 26 from the report (shown in **Figure 5.2-4**) with our knowledge of southern Indiana geology, we found that aggregate materials with a lower than default CTE values exist in nearby source quarries.

This information led the design team to perform further analysis that could be used to substantiate a claim of providing a lower CTE for use in the pavement design. E&B Paving contracted CTL Group to independently test aggregate from four aggregate sources that may be used for the project. The test method used was AASHTO T336-15: Standard Method of Test for Coefficient of Thermal Expansion of Hydraulic Cement Concrete. The results of these tests demonstrate these sources supply materials supportive of the use of the low end of the standard range (4.7x 10-6) as summarized in **Figure 5.2-3** with Test Report included in the Appendix.

FIGURE 5.2-3: CTE TEST RESULTS

Source	Sample	CTE (x 10-6)
Hanson Scott	A	4.23
Hanson Scott	B	4.21
Hanson Hayden	A	4.35
Hanson Hayden	B	4.53
Ward	A	4.77
Ward	B	4.80
US Aggregates	A	4.59
US Aggregates	B	4.56
Average		4.51

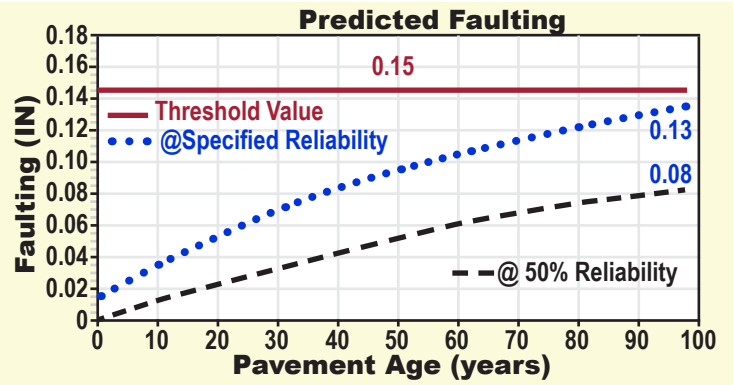
FIGURE 5.2-4: TABLE 26 A COMPREHENSIVE AGGREGATE CLASSIFICATION SYSTEM

Aggregates	Minerals (major)	Mineral wt%	Moh's Hardness	COTE (10^{-6}/°F)	Texture Index	Surface Free Energy	ASR Reactivity (E_a)
Pure Limestone	Cc	Cc-90-100	3	2.8-3.6		H	NR
Siliceous Limestone	Cc + Qtz ± Flsp	Cc — 80-90, Qtz — 10-05, Flsp — 0-5	4	3.8-5.0		H	NR-R
Siliceous River Gravel	Qtz ± Chdny ± Opal	Qtz — 60-70 Chdny — 20-30, Opal — 0-20	7	6.0-7.2	200	L	PR-R
Heterogeneous River Gravel (Siliceous Rocks +Some Other Type of Rocks)	Qtz ± Chdny ± Opal ± Cc ± Flsp ± Bt ± Amph ± Hem/Mt		5-6	50-6.5		L-M	PR-R
Calcareous River Gravel	Cc ± Qtz ±Chdny ± Opal ± Others		4-5	4.0-5.2		M-H	NR-R (depending on type of silica minerals)
Granite	Qtz ± Flsp ± Bt ± Amph ± Apt ± Hem/Mt		6-7	4.4-5.5		M	NR
Sandstone	Qtz ± Flsp ± Cc ± Hem/Mt ± Chl ± Amph		5-6	5-7.5		L-M	NR-PR

Cc = calcite, Qtz = quartz, Flsp = feldspar, Chdny = chalcedony, Bt = biotite, Amph = amphibole, Hem = hematite, Mt = magnetite, Apt = apatite, Chl = chlorite.

By decreasing the CTE of the pavement, we are able to reduce the construction cost of the pavement which translates into the construction of additional scope components. The pavement as designed has a structural life that performs beyond the predictive capabilities of the Pavement ME software. At the required ESAL threshold, the pavement has a reserve of 0.02 inches of faulting and a PCC Cracking reserve of 5.75%. By extrapolating the Mean joint faulting curve, we estimate a design life of 120 years, however Pavement ME limits the analysis to 100 years.

FIGURE 5.2-5



E&B Paving IRI Performance at Structural ESAL threshold (98 years) – 501,300,000 ESALs

E&B Paving is committed to using superior aggregate materials with improved Coefficient of Thermal Expansion (CTE).

5.2.2.a PAVEMENT REHABILITATION: E&B is including Section C – Replacement of I-65 PCCP Pavement (Des. No. 0501212) in their proposed scope of work. Section C includes pavement replacement from 2411+09 to 2530+50. As a result, no rehabilitation of concrete mainline pavement will be included in the scope of work. E&B is also including Section E – Pavement Rehabilitation – SR 58 to SR 46 (Des. No. 1296263) in their proposed scope of work. The pavement design used for Section E is given in the Technical Provisions Attachment 8-6. During the project development, United's Pavement Design professionals will survey the roadway and develop a patching table for the Section E limits then submit it for approval. The patching table will incorporate recommendations for full depth and partial depth patching based on the details for patching included in Technical Provisions Attachment 8-6. Full depth concrete patches will be used where necessary and will place concrete up to the existing surface elevation to allow more patches to be constructed in a single lane closure period to shorten the patching construction duration. The top of the patch will be milled and overlaid with the final surface rehabilitation to provide a consistent and smooth pavement surface.

I-65 (Section E) Mainline, Inside Shoulders and 2 ft of Outside Shoulder Resurfacing:
Mill 1.5" then
165#/SYS QC/QA-HMA, 4, 76, Surface 9.5mm-SMA

I-65 (Section E) remaining Outside Shoulder Resurfacing:
Mill 1.5" then
165#/SYS QC/QA-HMA, 3, 70, Surface 9.5mm

FIGURE 5.2-6: FULL DEPTH PCCP PATCHING

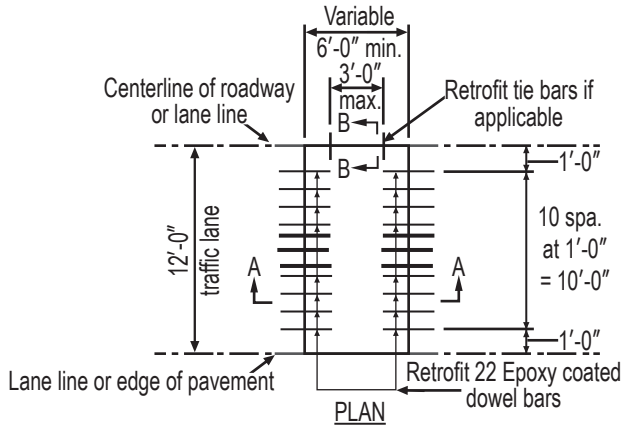
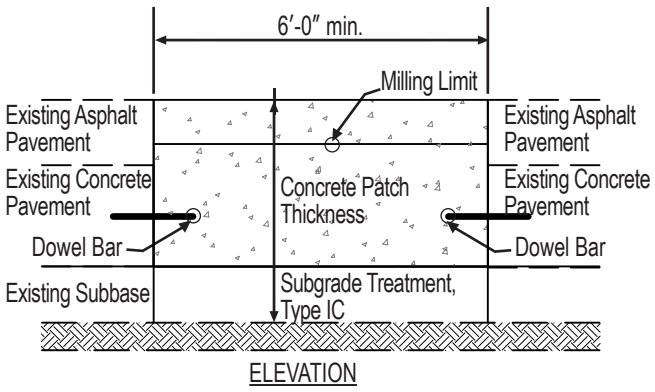


FIGURE 5.2-7: FULL DEPTH PCCP PATCHING



Technical Provision 1.3.1.4 of the project's scope of work includes the preventative maintenance treatment of the ramps at the SR 11 and SR 58 interchanges. The preventative maintenance treatment will include partial depth patching, where required, and a surface treatment. The proposed treatments are as follows on the next page.

Figure 5.2-8 summarizes the inputs for the analysis of the rehabilitation section used in Pavement ME 2.0 in the design of the pavement sections:

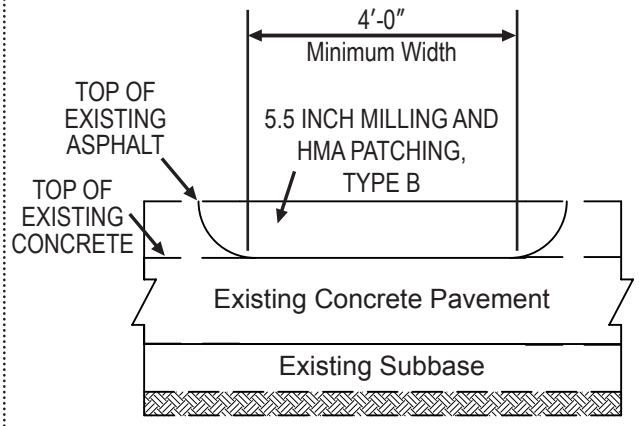
FIGURE 5.2-8: PAVEMENT REHABILITATION DESIGN INPUTS		
	SR 58	Notes
Functional Classification	Rural Collector	
AADT 2019	11,360	
Growth Factor	2.43%	
% of Trucks, #	5%	
Design Speed	55	
Water table, ft	5	
HMA Rehabilitation, (Level 3), Pavement rating	Good	
HMA Rehabilitation, (Level 3), rut depth, in	0.1	Assumed value
Existing HMA Depth, inches	13.5	value shown does not reflect milling
Existing Concrete Depth, inches	0	
Existing Concrete Resilient Modulus, psi	na	
Soil Classification	A-4	
Resilient Modulus, psi (Treated)	6,000	
Resilient Modulus, psi (Natural)	4,000	

SR 11 Ramp Partial Depth Patching
HMA Patching, Type C consisting of:
Variable Depth Milling, (4 inch maximum or to existing concrete), then
Variable depth HMA Type C, Intermediate (415#/sys minimum, 440#/sys maximum) on Existing Pavement

SR 58 Partial Depth Patching
HMA Patching, Type C consisting of
Variable Depth Milling, (4 inch maximum or to existing concrete), then
Variable depth HMA Type C, Intermediate (305#/sys minimum, 440#/sys maximum) on Existing Pavement

SR 11 and SR 58 Ramp Rehabilitation
For use from mainline S-Line edge of pavement to back of gore on each ramp:
Mill exisiting pavement 1.5" then
165 #/SYS QC/QA-HMA, 3, 70, Surface, 9.5mm

FIGURE 5.2-9: FULL DEPTH PATCHING



Following the milling of the existing pavement all visible cracks wider than ¼" will be filled with PG64-22. The cracks shall not be overbanded nor shall emulsions be used as filler material.

5.2.2.b PAVEMENT WIDENING: Technical Provision 1.3.1.7 of the project's scope of work includes the widening and strengthening of the existing shoulders for right turn lanes from SR 58 onto the I-65 entrance ramps. Our team will perform this strengthening by replacing the existing pavement with a new HMA pavement and shoulder. The pavement was designed for a 20 year service life in accordance with IDM Chapter 304. **Figure 5.2-10** summarizes the inputs for the analysis of the rehabilitation section used in Pavement ME 2.0 in the design of the pavement sections:

FIGURE 5.2-10: PAVEMENT WIDENING DESIGN INPUTS

	SR 58	Notes
Functional Classification	Rural Collector	
AADT 2019	11,360	
Growth Factor	2.43	
% of Trucks, #	5 %	
Design Speed	45	
Resilient Modulus, psi (Treated)	6,000	
Resilient Modulus, psi (Natural)	4,000	
Subgrade Type	IB	
Water table, ft	5	

Widening on SR 58:
For use along SR 58 at right turn lanes for entrance ramps
165#/sys QC/QA-HMA, 3, 70, Surface, 9.5 mm on
330#/sys QC/QA-HMA, 3, 70, Intermediate, 19.0 mm on
605#/sys QC/QA-HMA, 2, 64, Base, 25.0 mm (2 lifts) on
Subgrade Treatment, Type IB (14" chemical modification)

Shoulders on SR 58:
For use along SR 58 at right turn lanes for entrance ramps
165#/sys QC/QA-HMA, 3, 70, Surface, 9.5 mm on
330#/sys QC/QA-HMA, 3, 70, Intermediate, 19.0 mm on
5.5" Compacted Aggregate, No. 53, Base on
Subgrade Treatment, Type IB (14" chemical modification)

5.2.2.c PAVEMENT RECONSTRUCTION: Technical Provision 1.3.1.2, 1.3.1.3, and 1.3.3 of the project's scope of work includes the widening and replacement of I-65. E&B's pavement section uses commonly specified concrete pavement and drainage layers that avoid uncertainties in the performance of Coarse Aggregate, No. 43, as well as concerns with availability of the No. 43 gradation. By providing easily obtained No. 8 coarse aggregate, we remove risk from the pavement construction and performance. **Figure 5.2-11** summarizes the inputs for the analysis of the rehabilitation section used in Pavement ME 2.0 in the design of the pavement sections:

FIGURE 5.2-11: PAVEMENT RECONSTRUCTION DESIGN INPUTS

	I-65	Notes
Functional Classification	Rural Interstate	
AADT 2019	44,310	
Growth Factor	1.11%	
% of Trucks, #	30 %	
Design Speed	70	
Resilient Modulus, psi (Treated)	6,000	
Resilient Modulus, psi (Natural)	4,000	
Subgrade Type	IB	
Water table, ft	5	

<u>New I-65 mainline, shoulders and ramps:</u>
For use along I-65 in Bartholomew County
12" QC/QA-PCCP (15' joint spacing, 1.5" bars @ 12" spacing) on
3" Coarse Aggregate, No. 8 on
Geotextile separation layer on
Subgrade Treatment, Type IB (14" chemical modification)

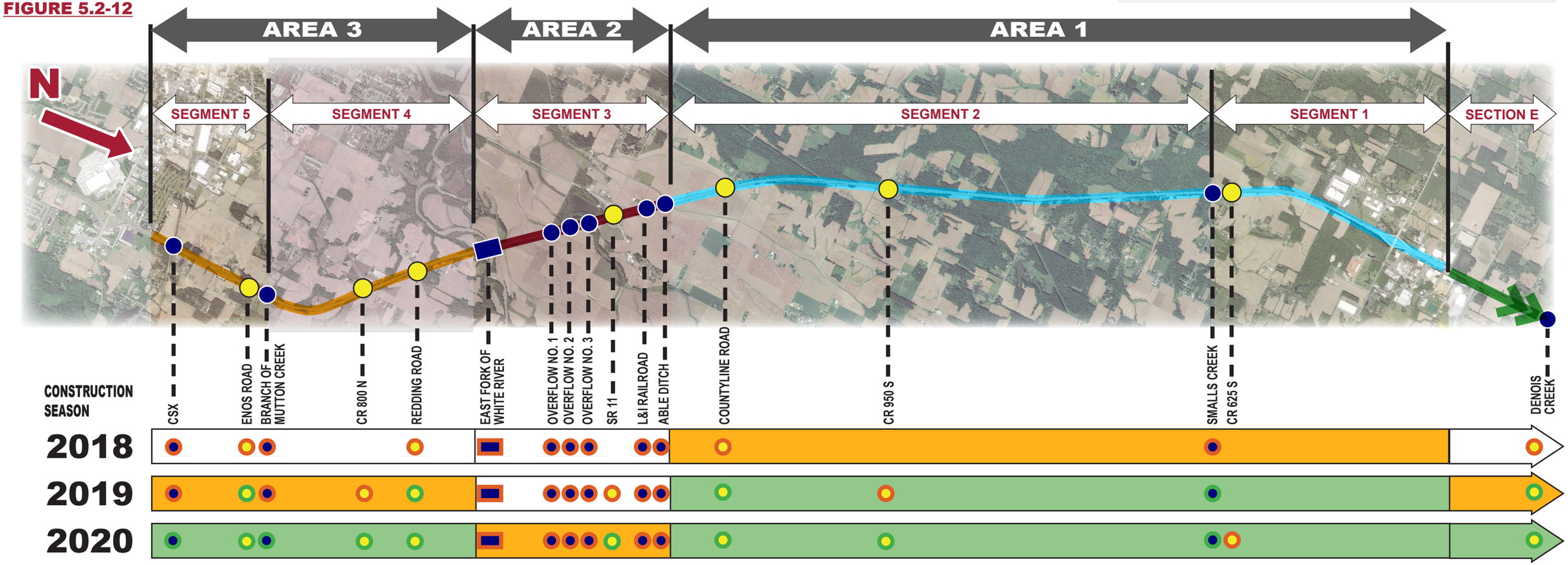
E&B Paving will be using the proven Coarse Aggregate #8 rather than the newly used Coarse Aggregate # 43.

<u>New I-65 mainline, shoulders and ramps:</u>
For use along I-65 in Jackson County
12" QC/QA-PCCP (15' joint spacing, 1.5" bars @ 12" spacing) on
3" Coarse Aggregate, No. 8 on
Geotextile separation layer on
Subgrade Treatment, Type IB (14" chemical modification – cement only)

E&B Paving's PCCP mainline pavement exceeds the ESAL requirements of the Technical Provisions.

5.2.2 TRAFFIC MANAGEMENT PLAN: The Traffic Management Plan for I-65 Southeast was developed to protect construction workers and INDOT personnel, meet driver expectancy, maximize construction production, incorporate bridge construction, and ensure the travel lanes meet the winter shutdown requirements. The Traffic Management Plan will focus on meeting the requirements of the project and exceed them in areas to improve project safety.

FIGURE 5.2-12



5.2.2.a CONSTRUCTION SEQUENCING: At the completion of the initial intersection, signal, and ITS improvements, the mainline reconstruction of I-65 will be delivered through three primary areas which are subdivided into five segments as illustrated in **Figure 5.2-12**. The purpose of the different areas is to allow the bridge construction to not be included in the critical path with the exception of the I-65 over Smalls Creek Bridge. The entire project limits will have southbound outside shoulder strengthening in 2017, MOT Phase 1.

2017-2018 Construction Seasons: Area 1 will start construction with Segment 1 and the accelerated construction on the I-65 over Smalls Creek Bridge. As the I-65 over Smalls Creek Bridge is completed, Area 1, Segment 2 will begin construction. Concurrent with the Area 1 construction, the remaining eight bridges in the project will begin upon approval of the design Hold Points. The advanced start to bridge improvements outside Area 1 allows for contingencies for potential loss of construction time due to high water levels and unworkable ground conditions. The six sets of bridges in Area 2 will have a two year head start. Full access will be maintained to the SR 58 interchange ramps through phased construction. The overpass bridges construction will start.

2019 Construction Season: Area 3 will start roadway construction with the completion of the I-65 over CSX Railroad and Branch of Mutton Creek Bridges. Construction will continue on the six bridges in Area 2. We will complete Section E and resurface I-65 from SR 58 to SR 46. The overpass bridges construction will continue.

2020 Construction Season: Area 2 will start roadway construction with the completion of the I-65 over East Fork of White River, East Fork of White River Overflow No. 1, East Fork of White River Overflow No. 2, East Fork of White River Overflow No. 3, L&I Railroad, and Able Ditch bridges. Full access will be maintained to the SR 11 interchange ramps through phased construction. The overpass bridges will be completed.

The sequencing minimizes the risk of bridge construction schedule delays due to weather by maximizing duration for construction.

5.2.2.a.i OVERALL TRAFFIC MANAGEMENT: Our designers and construction staff spent a tremendous effort looking at methods to construct the project as efficiently as possible. We evaluated building the project half at a time with more temporary widening to reduce the amount of temporary median barrier necessary. We evaluated building the project inside out with counter flow traffic to reduce MOT phases and a run of temporary median barrier. We also evaluated solutions with some temporary pavement widening where we could eliminate a run of barrier and maintain a construction clearzone.

While one of the above options would have required less barrier wall and been less expensive, in the end, we determined that the two runs of temporary median barrier created the **SAFEST** construction zone for INDOT, construction workers, and the traveling public through positive separation. The segments are intended to be built in four phases as described below and shown in **Figure 5.2-13**.

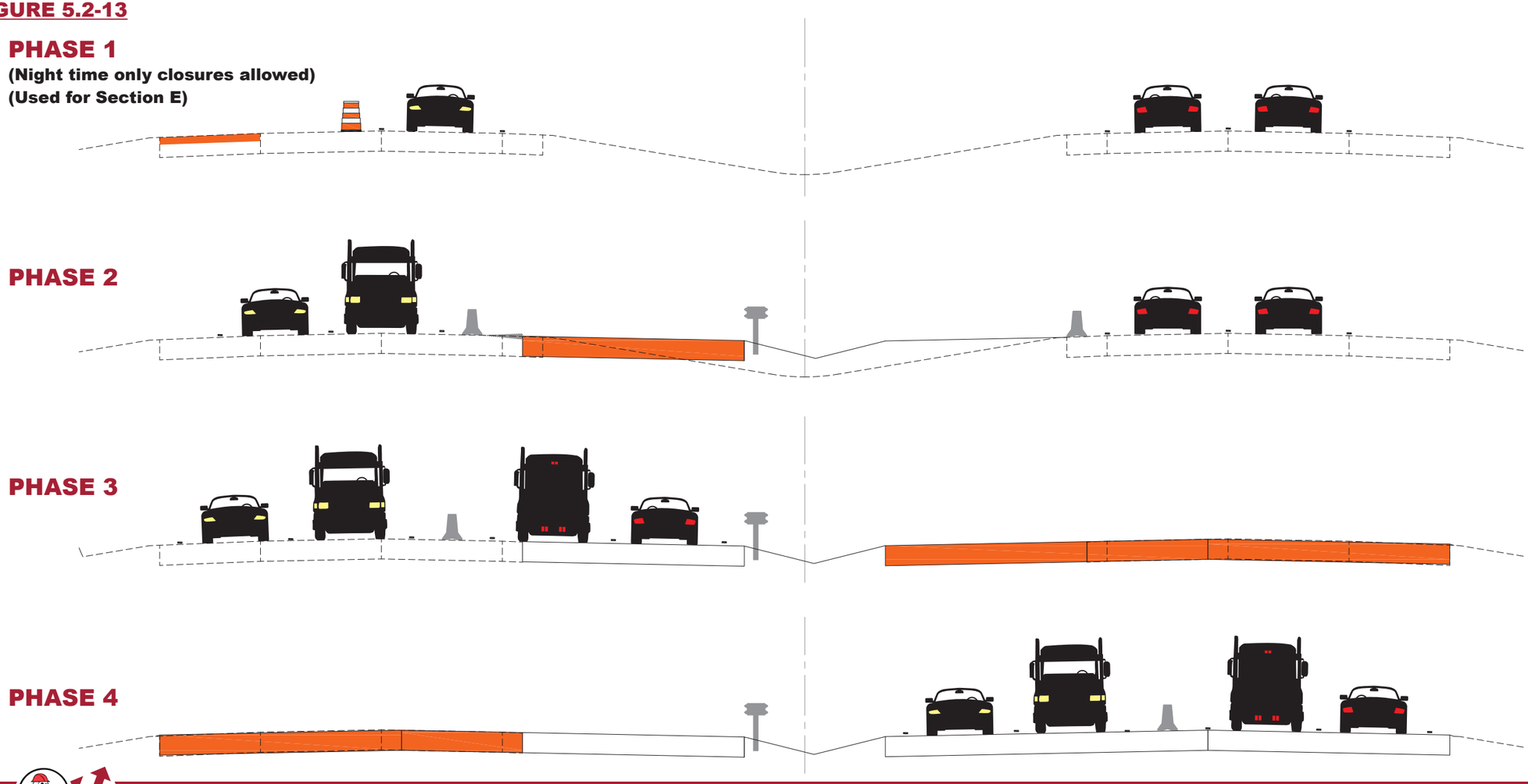
PHASE 1: Outside Southbound Shoulder Strengthening: Mill the rumble strips off the southbound outside shoulders and strengthen with an overlay during a night-time lane closure. Section E will be completed using night-time closure to mill and resurface the limits.

PHASE 2: Median Southbound Widening Construction: Shift existing southbound lanes onto the outside shoulder and install temporary concrete median barrier. Construct new southbound added travel lane and inside shoulder with the paved two foot offset for the double-face guardrail.

PHASE 3: Northbound Construction: Push southbound traffic out and crossover all northbound traffic to southbound side. Separate northbound reconstruction from traffic with new double-faced guardrail. Construct northbound travel lanes and shoulders.

PHASE 4: Southbound Construction: Push northbound traffic out and crossover all southbound traffic to northbound side. Separate southbound reconstruction from traffic with new double-faced guardrail. Construct southbound right two lanes and outside shoulder.

FIGURE 5.2-13

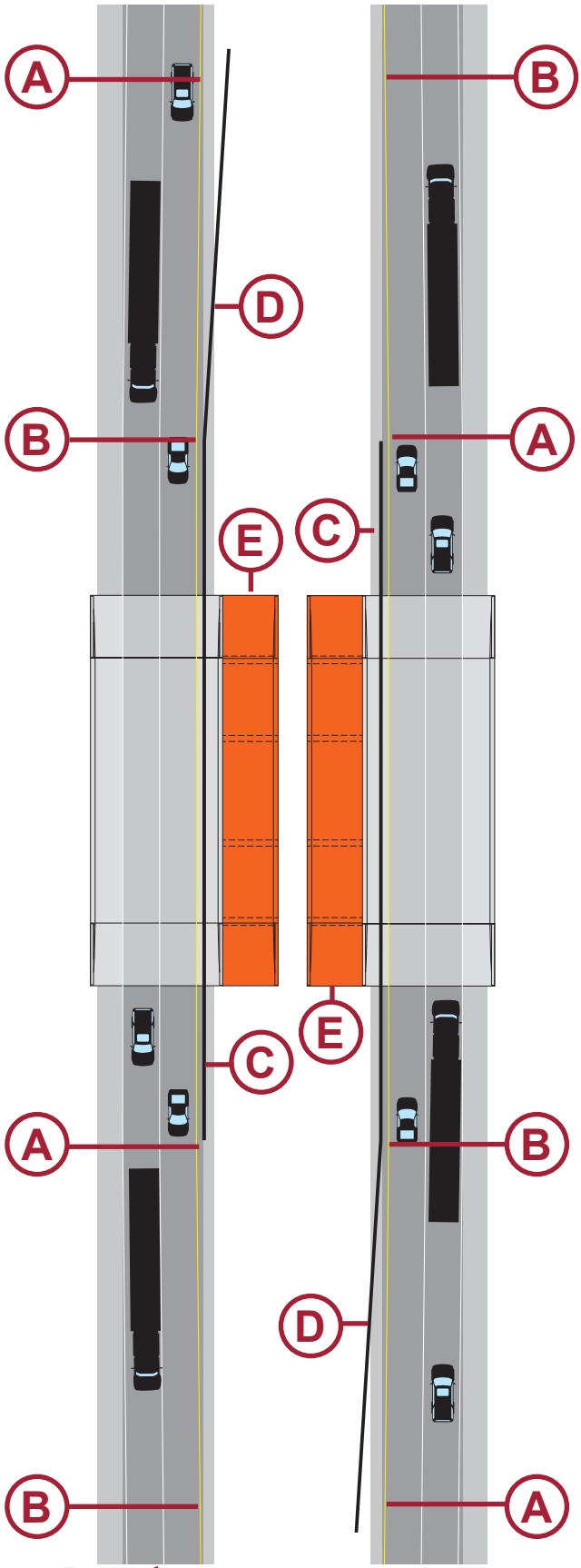


Positive protection will exist on the majority of construction activities increasing safety.

The Level One Design Exception for MOT shoulder width is not used for our MOT Plan between US 50 and SR 58.

MOT traffic on permanent pavement are on full depth PCCP shoulders. No damage occurs on the shoulders and is there for future use.

FIGURE 5.2-14



5.2.2.a.i OVERALL TRAFFIC MANAGEMENT: Working from the north on mainline I-65 allows for advanced work to be completed on the mainline bridge structures in Areas 1 and 2. E&B Paving has been working on a schedule that allows the bridge median work to be completed in advance of the median road construction. It is anticipated that work will begin concurrently on the bridges throughout the project. It will be accomplished through slight lane shift tapers to allow for removal of the inside bridge rail and bridge widening. It is anticipated that the phasing of the bridges will follow this sequencing. The typical layout is shown in **Figure 5.2-14**. As you will notice from the figure, the MOT impact to the traveling public is very minor.

Bridge phasing allows median bridge construction to be separated from the critical path and completed early. This approach reduces risk to our team and INDOT.

LEGEND

- (A) BEGIN LANE SHIFT TAPER 100:1
- (B) END LANE SHIFT TAPER 100:1
- (C) TEMPORARY MEDIAN BARRIER WALL
- (D) BARRIER TAPER RATE 16:1
- (E) CONSTRUCTION AREA

5.2.2.a.ii CONCEPTUAL CONSTRUCTION STAGING: The SR 11 interchange and the overflow bridge structures and the SR 58 interchange required special attention to maintain interchange ramp access, complete the phased construction, and provide construction access. In order to accomplish this, E&B Paving has planned the following staging:

FIGURE 5.2-15: SR 11 AND SR 58 RAMP ACCESS

MOT PHASE 1: All ramp movements are maintained unchanged.

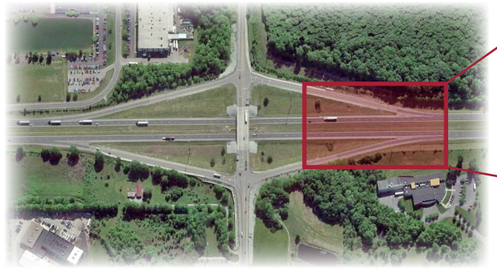
MOT PHASE 2: All ramp movements are maintained unchanged. Temporary ramp connections for future phases are constructed.

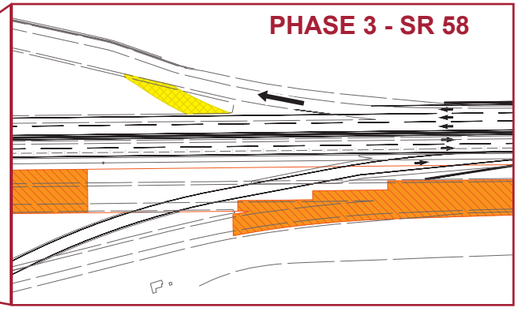
MOT PHASE 3 AND 3A: The SB ramp access for SR 11 and SR 58 are maintained in the current locations using the strengthened shoulders. NB ramps are phased through the construction zone. All ramps maintain the required acceleration and deceleration lengths. The northwest quadrant loop ramp is closed with traffic detoured to the southwest directional ramp through a temporary signal.

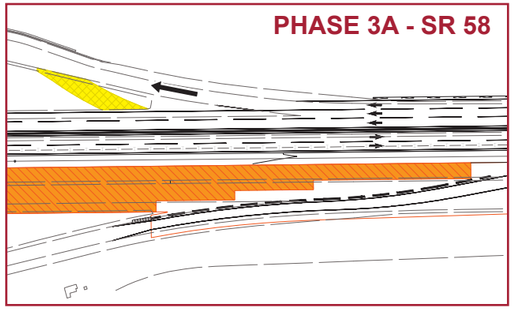
MOT PHASE 4 AND 4A: The NB ramp access for SR 11 and SR 58 are maintained in the current locations on the newly constructed infrastructure. SB ramps are phased through the construction zone. All ramps maintain the required acceleration and deceleration lengths. The southeast quadrant loop ramp is closed with traffic detoured to the northeast directional ramp through a temporary signal.

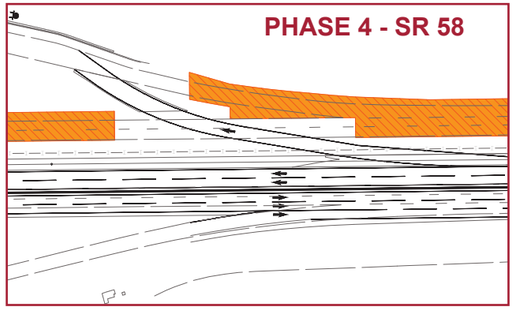
This figure demonstrates the phasing for SR 11's south half of the interchange and SR 58's north half of the interchange. The opposite half of the interchanges follow similar phasing methodology. The SR 11 temporary signal configuration is shown for the westside of the interchange. A similar methodology is planned for the eastside of the interchange.

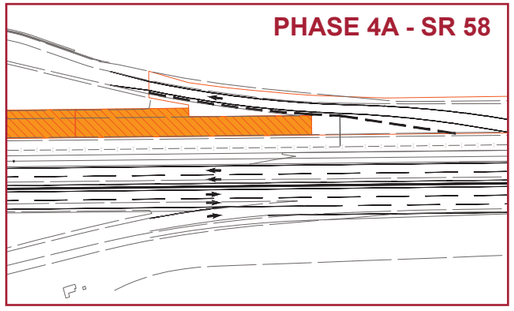
SR 58 INTERCHANGE

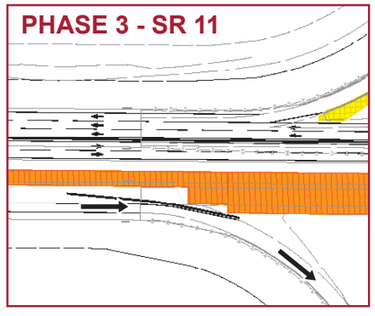


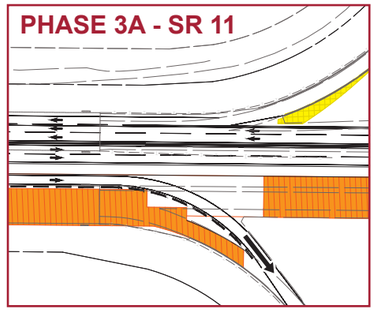


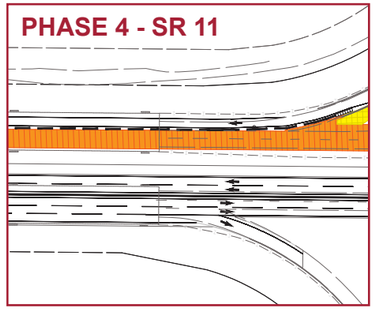


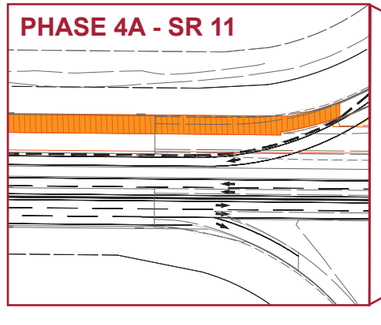




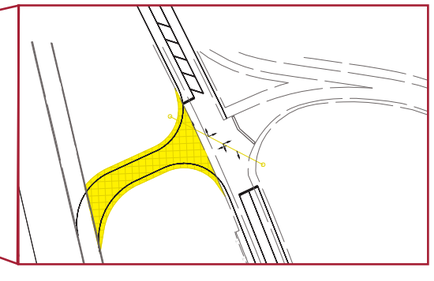








SR 11 INTERCHANGE



MAJOR DRAINAGE STRUCTURES: E&B Paving has evaluated the existing drainage culverts and determined that all culverts to be replaced will be installed through an open cut. The only complicated phase of installation will be MOT Phase 2, where temporary sheeting will be necessary between the existing southbound lanes and the newly constructed added travel lane and inside shoulder. The remainder of the installation will not require any retention.

5.2.2.a.iii ACCESS TO BUSINESS AND RESIDENTAL PROPERTIES: Our team has developed a plan to complete construction with minimal impact and restrictions to the existing number of travel lanes and interchange access during construction with our maintenance of traffic plan. Although minimal, adjacent businesses and residents do exist and the project has significant businesses moving commerce through this section of I-65.

Additionally, as part of our Public Involvement Plan as described in Section 5.1.1.b.v, E&B Paving will inform the businesses and residential properties of upcoming changes in construction sequencing and have a method for any concerns to be voiced and addressed.

During the development of the cost proposal, we have identified there was the potential to include the overpass bridge construction scope at Enos Road, CR 800 N, Redding Road, SR 11, Countyline Road, CR 950 S, and CR 625 S. In order to accomplish the rehabilitation, detours will be necessary. It is our intent to not close adjacent overpasses at the same time. All routes have detour routes available with the plan to minimize any disruption to traveling public. We understand responsibility for all Governmental Approvals.

E&B Paving will reduce the detour duration from 75 to 55 days.

5.2.2.a.iv MINIMIZING IMPACTS: Our Project Baseline Schedule is developed to minimize disruptions and impacts to the environment, communities, third parties, and traveling public while still meeting the requirements of the PPA. The Project Baseline Schedule is further described in Section 5.1.2.

Environmental Impacts: Our Key Personnel and staff members are working on the draft Environmental Compliance and Mitigation Plan which meets the project requirements. Two of our Alternative Technical Concepts have significant environmental benefits.

Our ATC No.2 reduces environmental impacts through using the recycled asphalt as aggregate on the project rather than as off-site waste.

Communities: Our construction will work to minimize impacts to the communities living and working in the project limits by not having significant mainline construction on-going between the SR 58 and SR 11 interchanges at the same time as between the SR 11 and SR 50 interchanges. This approach will allow for the local community to use SR 11 to access I-65 and miss portions of the project limits.

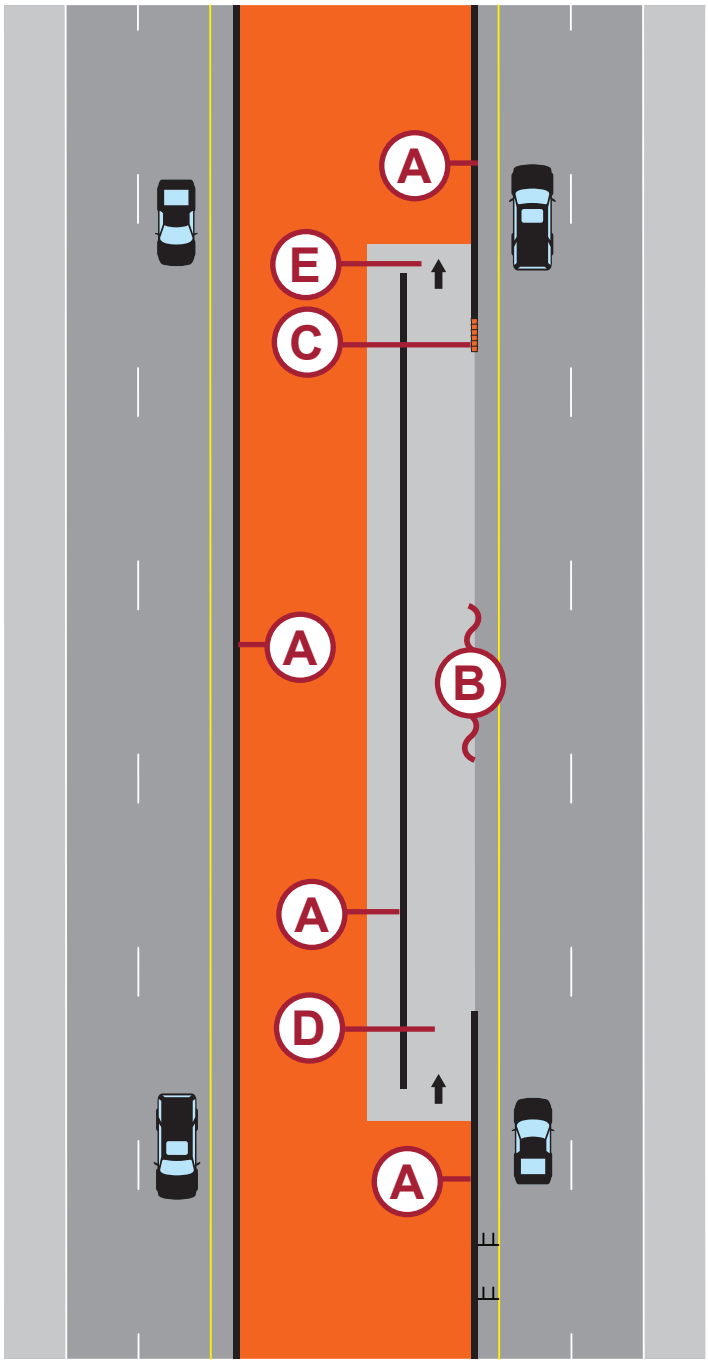
Third Parties: Our Transportation Management Plan (TMP) group will continue throughout the project construction as a method for INDOT, emergency responders, local school corporations, trucking associations, and other interested stakeholders to engage the design and construction team. The engagement will allow for information to be disseminated, schedules to be coordinated, and concerns to be voiced and addressed. Additionally, our Public Involvement Plan will allow interested individuals or parties to join our project Twitter and Facebook accounts and email distribution list for timely updates on the project.

ATC No.4 significantly reduces the environmental impacts of the pier construction for the East Fork of White River as shown on Figure 5.2-20.

Traveling Public: Our team has successfully used an effective and safe method for construction traffic access to and from the work site. The construction access will improve the safety of the traveling public. We will be implementing Construction Access Gates to ensure construction traffic can merge at speed with traffic and decelerate safely into the workzone.

The Construction Access Gates provides an offset barrier wall and 1200' length of pavement for construction traffic acceleration and deceleration.

FIGURE 5.2-16: ACCESS GATE DETAIL



Ryan Gossom, PE of Kentucky Transportation Cabinet, Division of Construction, "This design (Gate Access) worked well on both projects and allowed for vehicles to enter and exit the workzone at free flow speed and did not hinder interstate traffic." (See Endorsement Letter in Appendix.)

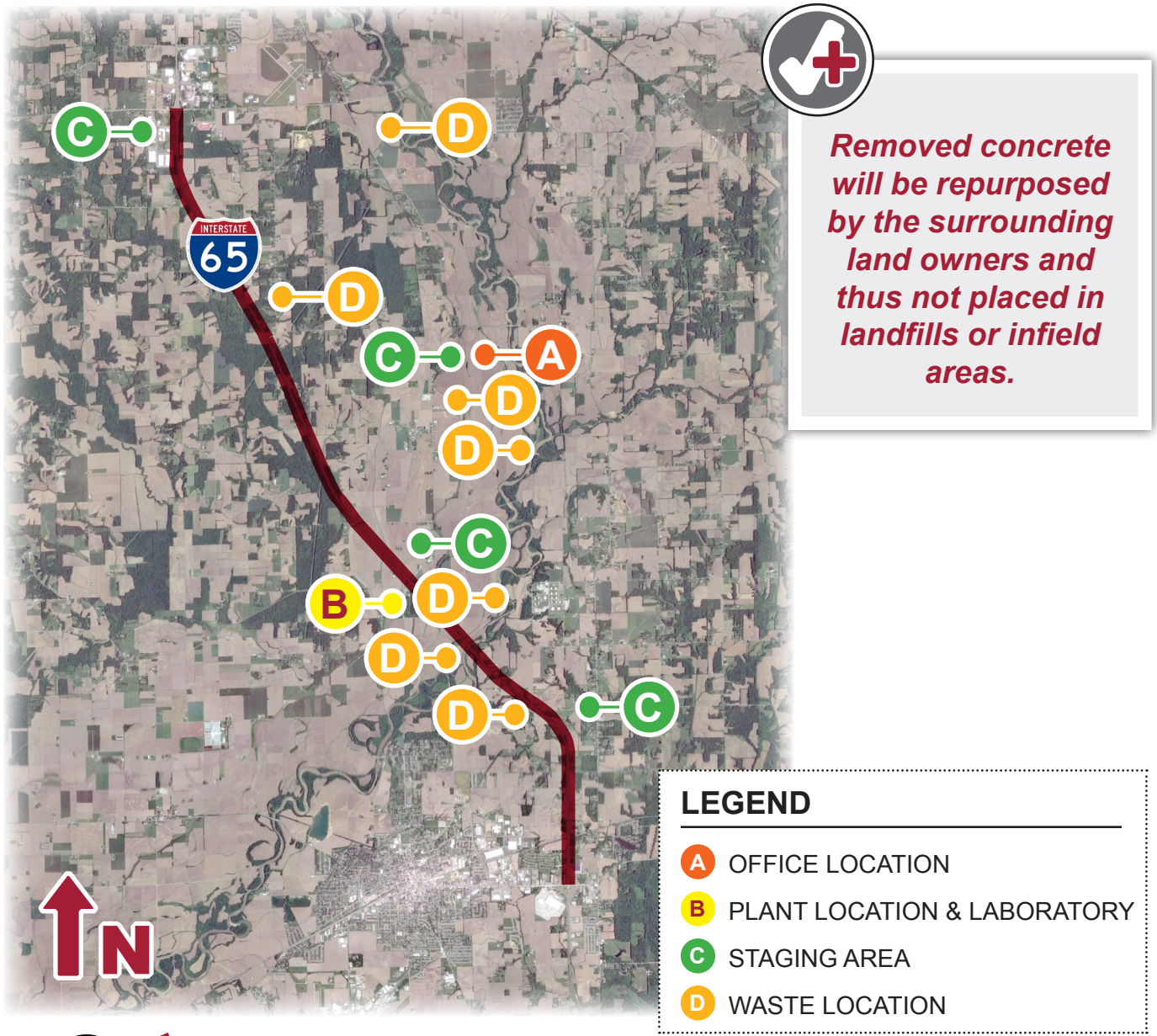
LEGEND

- (A) TEMPORARY MEDIAN WALL
- (B) GATE ACCESS OPENING 1200' (ACCELERATION & DECELERATION)
- (C) IMPACT ATTENUATOR
- (D) CONSTRUCTION ACCESS TO INTERSTATE
- (E) CONSTRUCTION ACCESS TO WORKZONE

5.2.2.a.v STAGING AREAS: The project length requires multiple locations to be used for staging and laydown areas. E&B Paving has currently located a potential location for the office. We have identified the concrete plant and laboratory locations and four staging areas. In addition, we are further evaluating numerous waste locations. The potential locations are identified in **Figure 5.2-17**. The concrete material removed from the project has been requested by local property owners. They have obtained the necessary permits to allow them to use the removed concrete from I-65 for personal purposes. The majority of the asphalt material removed will be placed in the project limits to minimize environmental impacts.

All wetland and environmentally sensitive areas will be delineated before construction begins in the area. All staging and laydown areas are included in this delineation to protect these environmental sensitive areas and minimize any construction impacts. All materials removed and placed in waste locations away from the project limits will be disposed in permitted locations.

FIGURE 5.2-17: CONSTRUCTION PLANNING AREAS



5.2.2.b BEST MANAGEMENT PRACTICES: E&B Paving has developed a plan to implement the contract requirements and our team's best practices to develop a safe work site for the travelling public and accelerated incident identification and mitigation.

Building safe work sites for the travelling public includes maintenance of traffic plans which meet and exceed the project requirements. In order to achieve exceeding the project requirements, our MOT phasing was reviewed to identify opportunities for improvement for the travelling public traversing the workzone.

While the public is travelling through the workzone, the Construction Access Gate discussed in Section 5.2.2.a.iii and **Figure 5.2-16** uses a proven method which increases safety for construction traffic and the travelling public to interact. The provided acceleration and deceleration length allows construction traffic to merge and diverge at construction zone speed limit. It allows material to be delivered or removed with increased safety.

When incidents occur, the contract documents require that the six closed-circuit television cameras (CCTV) be operational before construction begins on I-65 mainline. The CCTV in concert with the four portable changeable message signs (PCMS) will monitor and alert the traveling public of incidents, while E&B Paving and INDOT execute the Incident Management Plan. The travelling public being aware of incidents will increase safety. The plan for emergency responders and wreckers for incidents will be discussed in advance with the Incident Management Task Force.

5.2.2.c UTILITZING AND RECONSTRUCTING THE EXISTING SHOULDERS: The use of the existing outside shoulder will exist in MOT Phase 2 for southbound traffic only. In order to mill the corrugations and strengthen the shoulder, the outside lane will be closed at night in accordance with the Technical Provisions. Once strengthened, the outside shoulder will be utilized to support non-truck traffic southbound to construct the median.

E&B Paving is not using the counter-flow lanes or the approved Level One Design Exception for MOT shoulder widths between US 50 and SR 58.

MOT Phase 2 utilizes a 6-foot outside shoulder for SB and 10-foot outside shoulder for NB. The outside shoulders exceed the Technical Provisions.

All lane shift and crossover tapers will exceed the rate requirement of the Indiana Design Manual.

Increased Driver Expectancy: Our MOT phasing keeps northbound and southbound traffic together in all phases.

5.2.3 ROADWAY ELEMENTS: Our team of E&B Paving and United Consulting have been meeting for nearly a year talking through strategies for interstate added travel lane projects which have been successful. We are drawing on our collective experience on other design-bid-build, design-build, and best value design-build projects. Our discussions started with construction methods with the most efficiencies and improvements learned from past interstate project designs.

The minimal design completed upfront left a completely open canvas to begin with. It took significant effort to create a baseline design meeting the Level 1 design criteria. With the Level 1 design established, our designers began on refinements.

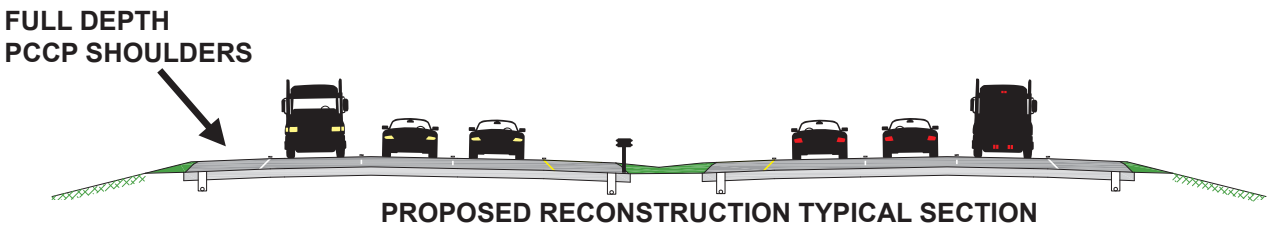
We reviewed the typical cross sections included in the Reference Information Documents (RID) for establishing the construction limits for environmental impacts. The roadway typical cross section widened the outside shoulder two feet to the outside. We identified this created two adverse impacts, more environmental impacts and lane shifts at the bridges. Therefore, our team held the existing outside shoulder edge and widened the typical section to the median; thereby matching the roadway with the bridges for the reconstruction limits. The typical sections are shown in **Figure 5.2-18**.

In order to identify cost savings, we evaluated the option of retaining existing infrastructure that meets current standards. One example is the existing guardrail. The majority of the project limits has existing guardrail. It is our team's intent to use the existing guardrail that is in good condition and meets standards. The cable rail will be salvaged and delivered as required by the Technical Provisions.

Eliminated RID design lane shifts onto and off each mainline bridge. The bridges are only to be widened to the median based on the TP. The roadway typical section matching the RID documents would maintain the existing lane lines and thus introduce a two-foot lane shift entering and exiting every bridge. E&B Paving shifted the crown of the roadway two feet towards the centerline to match the bridge widening.

Reduces Environmental Impacts Significantly. The construction limits are minimized by not widening the shoulder to the outside and chasing the side slope. We estimate a significant reduction of wetland impacts.

FIGURE 5.2-18: PROPOSED TYPICAL SECTION



PROPOSED RECONSTRUCTION TYPICAL SECTION

5.2.3.a MATERIAL SELECTION: Our roadway materials will primarily consist of our typical cross section elements of concrete, aggregate, and subgrade treatment. All materials will meet the project requirements and will be confirmed with testing. Our pavement section was determined through evaluating the material properties to meet the Technical Provision requirements. The material properties of our pavement are discussed more in Section 5.2.1.

Our signing, lighting, signals, and ITS materials were selected to meet the Technical Provisions.

5.2.3.b GEOTECHNICAL RELATED ISSUES: The geotechnical information provided has been reviewed by Alt & Witzig Engineering. They have worked to identify any additional information that will need to be completed for the project. In the RID, areas were identified with sand/silt content and characteristics in the near soils. It was estimated 60% of the subgrade treatment area may require cement rather than lime.

Additionally, our ATC No. 4 may require additional borings for the single median pier for the East Fork of the White River and L&I Railroad bridges. Our team will develop the additional investigations needed to deliver the project as required by the PPA and Technical Provisions.

5.2.3.c MAINTAINED AND PROTECTED: The project site will be maintained and the surrounding properties protected through the full implementation of our Project Management Plan. Construction activities impacting the project site will protect the environment through the use of our approved plan for the erosion and sediment control measures. These measures will be maintained and repaired during the duration of the project.

The project impacts to the surrounding properties and traveling public will utilize these practices:

- Night-time construction activities will limit light pollution through properly directing light toward the ground and construction activities.
- Noise will be minimized through well-maintained construction equipment.
- Dust will be controlled through the water trucks which can be effective for hours or days depending on the weather conditions.
- The enforcement of speed controls for the travelling public and construction equipment will reduce noise and dust.
- Vibrations will be controlled in sensitive areas through alternate compaction techniques and construction sequencing.

5.2.3.d PRELIMINARY ROAD PLANS: The Preliminary Road Plans have been prepared in 11” x 17” plan sheets which indicate the work to be completed. The plans are included in the Appendix. The plan set include the requirements for plan sheets for:

- Section **5.2.3.d.i ROAD PLANS**
- Section **5.2.3.d.ii SIGNING, LIGHTING, AND SIGNAL PLANS**

5.2.4 BRIDGE STRUCTURES, RETAINING WALLS, NOISEWALLS AND OTHER STRUCTURES: There are 17 bridges within the project limits which will undergo varying degrees of rehabilitation as part of this contract. Eight twin bridges will carry mainline I-65 over rivers and creeks, two twin bridges over railroads, and seven bridge overpasses of I-65. All rehabilitation work will be in accordance with Technical Provisions Sections 13.1, 13.2, and 13.3. **Figure 5.2-19** provides a brief description and scope of work for each bridge included in the contract.

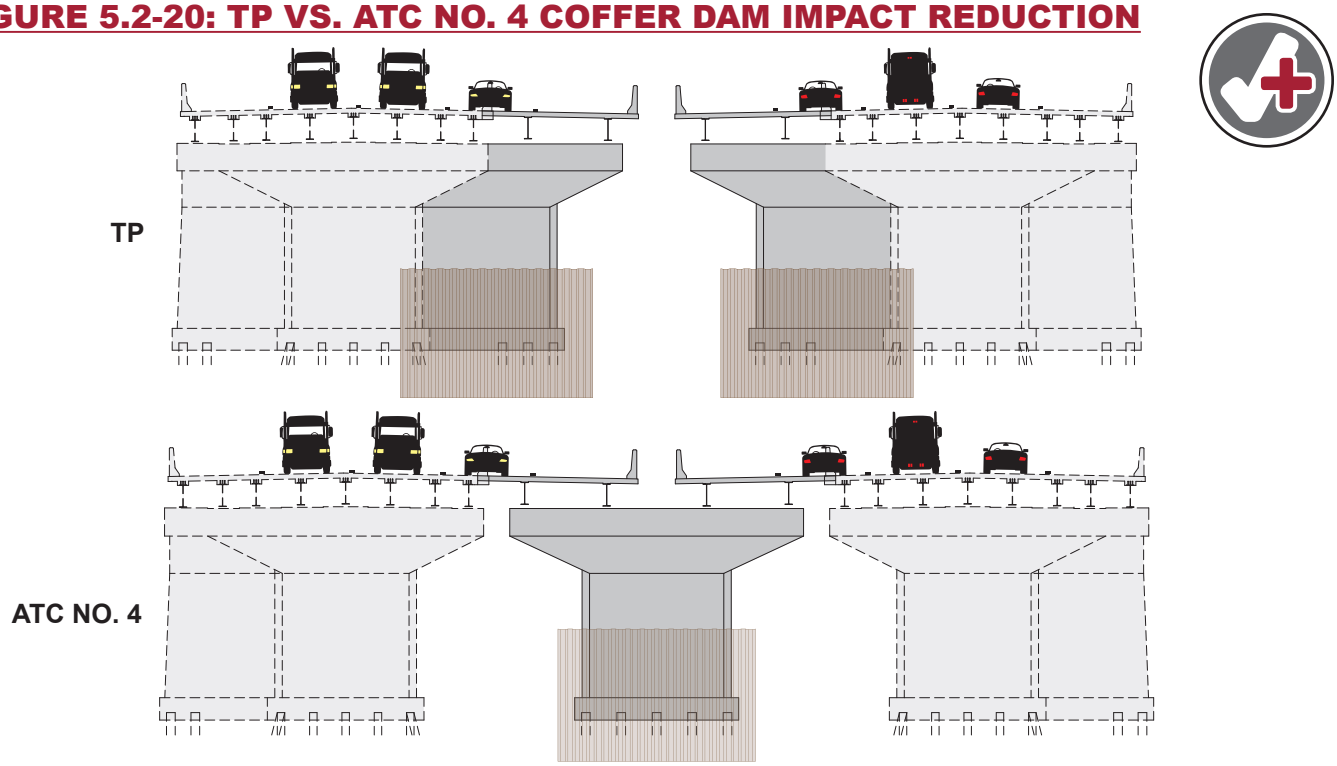
LEGEND
- MAINLINE BRIDGES
- OVERPASS BRIDGES

FIGURE 5.2-19 MAINLINE AND OVERPASS BRIDGE TABLE

BRIDGE NO.	LOCATION	SPANS	CLEAR ROADWAY	SCOPE
3 & 4	I-65 NB/SB over CSX Railroad	3 Spans	62'-11 ½" NB/SB	Remove existing barrier rail on NB bridge to increase clear roadway. Widen SB bridge to the median providing a 1" joint between the NB and SB bridges. Install a polymeric overlay on both bridge decks and replace the approach slabs.
6 & 7	I-65 NB/SB over Branch of Mutton Creek	3 Spans	62'-10 ½" NB/SB	Widen SB bridge to the median providing a 1" joint between the NB and SB bridges. Replace the existing bridge railing and approach slabs. Existing overlays will be removed and replaced with new variable depth latex modified concrete overlays.
10 & 11	I-65 NB/SB over East Fork White River	20 Spans	58'-0" NB/SB	Widen NB and SB to the median side providing a 58'-0" clear roadway. Remove and replace the existing polymeric overlay. Replace joint seals and extend joints. Replace the existing bridge railing and approach slabs. Place Class I riprap at all piers.
12 & 13	I-65 NB/SB over East Fork of White River Overflow No. 1	7 Spans	58'-0" NB/SB	Widen NB and SB to the median side providing a 58'-0" clear roadway. Remove and replace the existing polymeric overlay. Replace joint seals and extend joints. Replace the existing bridge railing and approach slabs. Place Class II riprap at all piers.
14 & 15	I-65 NB/SB over East Fork of White River Overflow No. 2	7 Spans	70'-0" NB/SB	Widen NB and SB to the median side providing a 70'-0" clear roadway. Install a polymeric overlay on both bridges. Replace the existing bridge railing and approach slabs. Place Class II riprap at all piers.
16 & 17	I-65 NB/SB over East Fork of White River Overflow No. 3	4 Spans	70'-0" NB/SB	Widen NB and SB to the median side providing a 70'-0" clear roadway. Install a polymeric overlay on both bridges. Replace the existing bridge railing and approach slabs.
19 & 20	I-65 NB/SB over L&I Railroad	3 Spans	58'-0" NB/SB	Widen NB and SB to the median side providing a 58'-0" clear roadway. Convert existing bents to semi-integral. Place a variable depth latex modified concrete overlay on both bridges. Replace the existing bridge railing and approach slabs.
21 & 22	I-65 NB/SB over Able Ditch	3 Spans	58'-0" NB/SB	Widen NB and SB to the median side providing a 58'-0" clear roadway. Place a variable depth latex modified concrete overlay on both bridges. Replace the existing bridge railing and approach slabs.
25 & 26	I-65 NB/SB over Smalls Creek	3 Spans	62'-9" NB/SB	Widen SB bridge to the median providing a 1" joint between the NB and SB bridges. Existing overlays will be removed and replaced with new variable depth latex modified concrete overlays. Replace the existing bridge railing and approach slabs.
5, 9, 23, 24, & 27	Enos Road over I-65 ; Redding Rd over I-65 ; Countyline Rd over I-65 ; CR 950 S over I-65 ; CR 625 S over I-65	4 Spans	EXISTING	Existing overlays will be removed and replaced with new variable depth latex modified concrete overlays. Existing bents will be converted to semi-integral. Piers, superstructure and undersides of deck will be patched as necessary to repair all delamination and spalling. Existing approach slabs will be replaced. Railing and copings will be surface sealed. Approach pavement will be transition milled at any bridge with a change in profile grade. Concrete slopewalls will be installed at Bridge 23.
8 & 18	CR 800 N over I-65 SR 11 over I-65	4 Spans	EXISTING	Existing overlays will be removed and replaced with new variable depth latex modified concrete overlays. Piers, superstructure and undersides of deck will be patched as necessary to repair all delamination and spalling. Existing approach slabs will be replaced. Railing and copings will be surface sealed. Approach pavement will be transition milled. The existing bridge joint expansion material on Bridge 8 will be replaced with Structural Expansion Joint Sealing System.
30 & 31	I-65 over Denois Creek	3 Spans	EXISTING	Existing overlays will be removed and replaced with new variable depth latex modified concrete overlays. Bridge joint expansion material will be replaced with Structural Expansion Joint Sealing System. Piers, superstructure and undersides of deck will be patched to repair all delamination and spalling as necessary. Existing railings and copings will be surfaced sealed.

The pier construction we have proposed in our Alternative Technical Concept No. 4 (ATC) improves safety during construction, reduces environmental impacts and reduces future maintenance for INDOT. As shown in **Figure 5.2-20**, the ATC pier will be constructed as an independent pier in the median and will support the widened superstructures of the both the Northbound and Southbound lanes. Bridges 10 & 11 carrying I-65 over East Fork of White River and Bridges 19 & 20 carrying I-65 over L&I Railroad will both take advantage of this method of pier construction. Constructing independent piers in the median allows this construction to be completed with reduced impact to I-65 traffic. Traffic will be allowed to stay in the existing lane configuration for a longer period of time which results in improved safety for motorists. The ATC pier will have less impacts to the stream because the cofferdam construction will have a smaller footprint compared to widening each of the existing piers to the median side. Environmental impacts will be further reduced due to faster construction of the ATC pier by reducing the number of cofferdams and formwork required at each pier location. Erosion control measures will be reduced because the contractor will be dewatering half of the number of foundation excavations.

FIGURE 5.2-20: TP VS. ATC NO. 4 COFFER DAM IMPACT REDUCTION



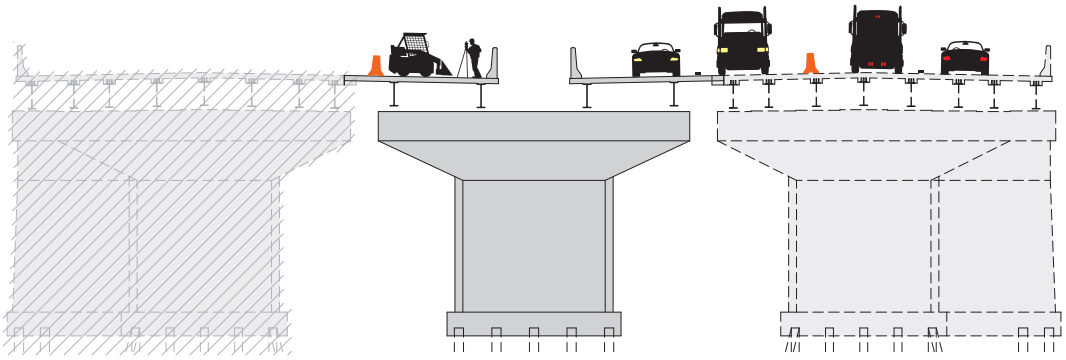
Faster construction is also a great benefit at Bridge 19 & 20 which span the L& I Railroad. A single pier will require less temporary shoring along the railroad and will take less time to construct. This will allow the contractor to get his crews out of the railroad corridor and start working on the superstructure faster which means less time for the Railroad to have a flagman on site during construction.

Future maintenance will be reduced because the ATC Pier reduces the number of substructure units resulting in less total surface area to maintain. Another benefit of constructing an independent pier is it does not require the placement of galvanic anodes to mitigate the concerns of advanced corrosion due to differences in chemistry at the interface of the old and new concrete for a conventional widening.

The ATC Pier configuration provides an added benefit for the future reconstruction of the bridges. As shown in **Figure 5.2-21**, the ATC Pier, in conjunction with one of the existing piers, would allow for two lanes of traffic to be maintained in each direction while the other existing pier is reconstructed. The added benefit of the ATC Pier is that it can support a construction access which could be used for the contractor to stockpile materials or to efficiently transport crew and materials over a 1500' long span without disrupting traffic.

The overall savings in both construction material and time, realized through the implementation of this ATC, has allowed our team to expand the scope of this project providing added value to INDOT.

FIGURE 5.2-21: ATC NO. 4 ADVANTAGE FOR FUTURE REHABILITATION



5.2.4.a SELECTION OF MATERIALS: All of the mainline bridges will be widened to match the new cross section of I-65 and will also receive additional rehabilitation with the goal of extending their service life with a goal of minimizing future traffic disruptions for future rehabilitation. Bridge decks will receive a polymeric or latex modified concrete overlay as indicated in the Technical Provisions to extend the service life of these structures. Superstructures and substructures to be widened will be widened in kind.

5.2.4.b BRIDGE PLANS: The Preliminary Bridge Plans have been prepared in 11" x 17" plan sheets which indicate the work to be completed. The plans are included in the Appendix.

5.2.4.c RETAINING WALLS: The project limits currently have not identified the need for any retaining walls. Should a retaining wall be identified as necessary in the final design, the retaining wall will be submitted for review.

5.2.4.d NOISE WALLS: The project limits currently have not identified the need for any noise walls. The original scope for the project did not include added travel lanes. E&B Paving is proposing to open I-65 to added travel lanes and will complete a noise wall analysis and abatement as part of the environmental services. A review of the project limits does not identify any dense receptors for noise and it is anticipated that the analysis will demonstrate that noise walls are not reasonable or feasible. The noise analysis will be completed and submitted for review.

5.2.5 DRAINAGE DESIGN AND CULVERT REPLACEMENT/REHABILITATION: E&B Paving and United have approached drainage design for the project with a focus on maintaining the existing drainage patterns for the proposed improvements while not increasing the impacts downstream. Furthermore, our teams approach is to maximize the life remaining in the existing infrastructure, replace existing structures beyond their useful life, and add new structures as necessary to account for the additional impervious areas. We have reviewed the Technical Provisions, RID, Attachment 9-1, and Attachment 9-3 to identify the structures that require replacement or lining.

Our drainage features for the project include the median inlets and pipes, pavement underdrains, cross culverts, roadside ditches, and detention basins. The detention basins will be coordinated with the Jackson County Surveyor's Office and the Bartholomew County Surveyor's Office.

5.2.5.a ASSUMPTIONS: The assumptions made for the structural capacity of each culvert followed the requirements defined in the Technical Provisions Section 9. We evaluated Attachment 9-3 on the condition ratings and followed TP 9.2 regarding the culvert treatment and a verification of the hydraulic capacity.

5.2.5.b METHODS OF REPLACING/REHABILITATING THE CULVERTS: Maintaining and improving the existing culverts drainage patterns is important to the success of the project. Our team has extensive experience with the installation of new culverts and the rehabilitation of existing culverts on interstate projects. We understand that all unlined and lined culverts with a Barrel Rating less than 5 shall be replaced. Unlined culverts with a Barrel Rating greater than 5 and less than 9 may be lined provided it meets the hydraulic requirements or have improvements made to meet the hydraulic requirements.

Installation of New Culverts: Due to the nature of the project and the pavement replacement, E&B Paving is intending to open cut the new culverts rather than jacking and boring them. The open cut of the culverts will work seamlessly with the maintenance of traffic developed for the project.

Rehabilitation of Existing Culverts: The existing unlined culverts within the project limits will be rehabilitated through a variety of methods as identified in the Hydraulic Review approval including:

- Cured-in-place (CIPP) liner
- High Density Polyethylene (HDPE) pipes

5.2.5.c CAPACITY AND CRITERIA: All culverts will have the hydraulic capacity completed in accordance with the Indiana Design Manual. United has recently worked through a similar project where hydraulic reports were submitted and approved for all culvert replacements and liners, storm sewers, inlet spacing, and detention. We are confident that this experience will add value to INDOT through an optimized design meeting all INDOT and TP requirements.

5.2.6 UTILITY RELOCATION AND ADJUSTMENT WORK ELEMENTS: E&B Paving's plan for the utilities is to avoid impacts and coordinate necessary adjustments to minimize risk for schedule impacts. Our team has evaluated all the known utilities as described in Utility Conflict Matrix located in the Volume 2 Appendix. We will verify the matrix and coordinate with the following procedure:

1. The first task in the Utility Coordination will be for E&B Paving, with United Consulting, to schedule a meeting with INDOT and the utility companies to review the initial coordination that has been performed and to establish the expectations for the utilities and for the design/builder team.

2. Following the initial meeting, United will review any additional information that is provided by the utility companies and will investigate opportunities to avoid potential utility conflicts. These conflicts will include issues with the constructed elements and also conflicts with construction activities. Our initial investigations have determined that many utilities, whether they are underground or overhead facilities, will have minor impacts with design solutions.

3. The third task will be to set up a monthly call-in for each utility during the development of the project. The purpose of these call-ins is twofold: 1. Formalize a schedule for communication and 2. Reinforce the expectation of progress without the additional time required for a face-to-face meetings and that require more attention than email correspondence.

During these call-ins the status of the project's design, utility relocation design (as needed), adjustment and relocation planning, construction schedule and any new issues will be discussed. The expected attendees shall include the project's Utility Coordinator and utility representatives. The attendees will also include representatives from the design team and construction team, and may include INDOT personnel.

4. The fourth task will be to develop reimbursement agreements between E&B Paving and the utility. This step will be performed concurrently with the design of the utility adjustments, relocations and/or protections.

5. The fifth task will be to verify the location, prior to installation, of the new facilities. Given the effort that will be made to ensure timely adjustment and relocation of the utility facilities, the team wants to avoid delays and issues that arise from the duplication of relocations. After relocation and adjustment activities are completed, the utilities will issue a letter acknowledging that the construction activities are completed.

6. The final step in the utility coordination is to protect the relocated facilities during the remainder of construction activities.

RAILROAD COORDINATION: In addition to the utilities in the corridor, Louisville & Indiana and CSX Railroads will require coordination throughout the design and construction of the overhead bridge work. We understand the existing horizontal and vertical clearance must be maintained, crash wall design requirements, and drainage shall be directed away from the railroad right-of-way. Our team will meet the requirement of TP Section 15.

FORM L

COMPLETION DEADLINES

INDOT Last Allowable Dates:

Milestone	Deadline
Baseline Substantial Completion Deadline	September 30, 2020
Partial Acceptance Deadline	March 1, 2021
Final Acceptance Deadline	May 30, 2021

Proposal Commitment Dates (cannot exceed the above table):

Milestone	Deadline
Baseline Substantial Completion	August 17, 2020
Partial Acceptance Deadline	March 1, 2021
Final Acceptance Deadline	May 30, 2021

Key Personnel Resumes

Please refer to information provided in separate Binder for Volume 2 Appendices - 3.2.5 Key Personnel Resumes tab .

Pavement Design

Please refer to information provided in separate Binder for Volume 2 Appendices - 5.2 Pavement Design tab.

Preliminary Project Baseline Schedule for Design and Construction

Please refer to information provided in separate 11x17 bound Volume 2 Appendices.

Technical Design and Drawings

Please refer to information provided in separate 11x17 bound Plan Sets.