REDACTED COPY

RESPONSE TO THE REQUEST FOR PROPOSALS TO DESIGN AND CONSTRUCT THE

I-65 NORTHWEST INDIANA

MAJOR MOVES 2020 EXPANSION PROJECT

SUBMITTED BY: THE WALSH DESIGN-BUILD TEAM

1260 EAST SUMMIT STREET

CROWN POINT, IN 46307

PRELIMINARY
PERFORMANCE PLANS

WALSH PARSONS Walsh & Kelly Inc.

TECHNICAL PROPOSAL VOLUME 2

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
Surety/Financial Institution Information	No forms are provided	Exhibit C, Section 2.1

Technical Proposal – Volumes 1 and 2		
Technical Proposal Component	**Form (if any)**	**ITP Section Cross-Reference**
Conflict of Interest Disclosure	Form H	Exhibit B, Section 3.2.9
Certification regarding Buy America	Form R	Exhibit B, Section 3.2.10
Certification regarding Equal Employment Opportunity	Form S	Exhibit B, Section 3.2.11
Use of Contract Funds for Lobbying Certification	Form T	Exhibit B, Section 3.2.12
Debarment and Suspension Certification	Form U	Exhibit B, Section 3.2.13
Insurance	No forms are provided	Exhibit B, Section 3.2.14
Confidential Contents Index	No forms are provided	Exhibit B, Section 3.2.15
C. Proposal Security (Proposal Bond)		
Proposal Security	Form J (if in the form of a bond); no forms provided for certified check	Exhibit C, Section 2.2
D. Proposal		
Stipend Agreement	Form O	Exhibit B, Section 3.3
Volume 2		
E. Omitted	Form K	
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
G. Volume 1 Appendices		
Copies of Organizational Documents	No forms are provided	Exhibit B, Section 3.2.2

Technical Proposal – Volumes 1 and 2		
Technical Proposal Component	**Form (if any)**	**ITP Section Cross-Reference**
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 2.0

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
Proposal Price Form	Form I	Exhibit C, Section 2.0
Summary Cost Table Form	Form M	Exhibit C, Section 2.0

Preliminary Performance Plans

TECHNICAL PROPOSAL

VOLUME 2

Preliminary Performance Plans

WALSH PARSONS Walsh & Kelly

PRELIMINARY PROJECT MANAGEMENT PLAN

PRELIMINARY PROJECT MANAGEMENT PLAN

WALSH PARSONS Walsh & Kelly

PRELIMINARY PROJECT MANAGEMENT PLAN

The Walsh Design-Build Team (Walsh DBT) is committed to improving safety and mobility along the I-65 Northwest Indiana Major Moves 2020 Expansion Project (Project). We will build upon local relationships and experience working together to implement a successful management structure and internal organization systems to deliver this key Project to the Indiana Department of Transportation (INDOT), the citizens of Lake and Newton Counties, and the thousands of motorists that travel this stretch of I-65 each day.

The Walsh DBT is led by Walsh Construction II, LLC and incorporates Parsons Transportation Group, Inc. (Parsons), for design and Walsh & Kelly, Inc. (Walsh & Kelly) as a major pavement subcontractor. INDOT will benefit from this unified team that has an integrated approach to safety, schedule, cost, risk management, quality, environmental management, and diversity efforts.

THE WALSH DESIGN-BUILD TEAM

The Walsh DBT includes Major Participants with in-depth knowledge from working along the I-65 corridor, established local relationships, and experience working together on design-build projects.

LEAD CONSTRUCTION/ DESIGN-BUILD FIRM:
Walsh Construction Company II, LLC
ENR Top 5 U.S. transportation and highway contractor and **Indiana's largest contractor.**

LEAD ENGINEER:
Parsons Transportation Group, Inc.
Lead Engineer on over 106 design-build transportation projects in North America, **including 6 completed in Indiana**.

EXCLUSIVE SUBCONTRACTOR (ASPHALT PAVEMENT):
Walsh & Kelly, Inc.
One of Northern Indiana's largest civil contractors, with over 80 years in the state.

The Walsh DBT identifies significant benefits to INDOT throughout this Technical Proposal with the Walsh DBT plus icon (+).

The Walsh DBT Best Value Components and Benefit(s)

Experienced Lead Personnel and Vast Resources

+ Added-value personnel assigned and committed to lead safety, construction quality, environmental, design-build coordination, and project controls.
+ Assigned and committed Discipline Lead Engineers.
+ Assigned and committed Task Managers for public information, DBE, and worksite traffic supervision.
+ Key Personnel and Task Managers involved during the pursuit continuing into Project development.
+ Indiana-based team with significant personnel, equipment, and facility resources.

Integrated Team and Experienced Firms

+ Approach to internal organization based on proven methods from 19 INDOT alternative delivery projects.
+ Partnering (or "no surprises") approach to external communication with INDOT, federal/state/local agencies, local police and fire departments, utility owners, the public, and other stakeholders.
+ Parsons design quality meets ISO 9001:2008 standards.
+ Public information firm, Borshoff, with experience providing complex public outreach for major INDOT projects.

Expert Planning and Execution

+ Well-developed plan for team coordination.
+ Schedule early completion by October 1, 2018.
+ DBE plan commitment to exceed goals.
+ Comprehensive Quality Management Plan (QMP) that incorporates design QMP and construction QMP.
+ Effective and creative Project-specific safety planning and training.
+ Comprehensive Environmental Compliance and Mitigation Plan to ensure all necessary approvals are received and environmental obligations and commitments are met.

Committed to partnering with INDOT every step of the way. The Walsh DBT is familiar with INDOT's requirements and expectations, brings world-class experience and ability with a local touch, and will be a true partner to INDOT to accomplish the Project goals along one of Indiana's busiest corridors.

Project Management Approach

The Walsh DBT has worked with INDOT on 19 alternative delivery projects and many other bid-build projects in Northwest Indiana and throughout the state. As a local team whose member firms have partnered with INDOT on similar projects over the past 26 years, we have a thorough understanding of INDOT's expectations for this Project. We have developed our management structure and internal organization systems based on successful practices used on major public-private partnerships (P3) and design-build projects in Indiana and throughout the U.S. In brief, these practices include:

- Assigning project management professionals to collaborate with INDOT from the early planning stages through construction completion
- Committing personnel with the experience and qualifications to match Project requirements
- Providing a clear organizational structure for simplified contact with INDOT
- Implementing a project management plan that adheres to INDOT's requirements

During the one-on-one meetings, INDOT met several of our assigned personnel, including Project Manager Marc Arena, Lead Engineer/Design Manager Toby Randolph, Design-Build Coordinator Junell Richert, and several Discipline Lead Engineers. This team will continue to partner with INDOT during Project development to provide continuity and consistent application of INDOT's priorities.

Management Structure and Personnel

The Walsh DBT includes companies with in-depth knowledge from working along the I-65 corridor in Lake County, established local relationships, and experience working together on design-build projects. Our organization has stability, capacity, and a proven track record of working as a unified team. The Walsh DBT is shown in **Figure F.1-1**.

ORGANIZATION CHART AND ROLES AND RESPONSIBILITIES

The Walsh DBT's firm organization chart (**Figure F.1-2**) identifies the relationships among firms and defines roles and responsibilities. Our personnel organizational structure is shown in **Figure F.1-3**. Resumes for all personnel listed on the organization chart are included in the Volume 2A Appendices.

KEY PERSONNEL

INDOT-approved Key Personnel were selected for their technical expertise and proven ability to communicate, cooperate, and collaborate. They have all worked in Indiana and are familiar with P3 and design-build projects. **Figure F.1-4** highlights our Key Personnel and their functions and responsibilities. Each key person will be dedicated to the Project 100% of the time required to perform their job functions.

TASK MANAGERS

The Walsh DBT has selected qualified and experienced personnel for Task Manager positions, as presented in **Figure F.1-5**. Many of these individuals have been working with the integrated team during this pursuit, which will benefit INDOT by having a highly efficient team right from the start.

Figure F.1-1 I-65 Experts. Walsh DBT major participants have designed and constructed 25 projects along the I-65 corridor. In addition, our knowledge of the Project through our work on the Illiana pursuit and as regular commuters along this stretch of highway will be a benefit to the Project and INDOT.

LEAD CONSTRUCTION/DB FIRM
Walsh Construction Company II, LLC
(Walsh Construction)

13 I-65 PROJECTS

LEAD ENGINEER/DESIGN FIRM
Parsons Transportation Group, Inc.
(Parsons)

5 I-65 PROJECTS

EXCLUSIVE SUBCONTRACTOR
Walsh & Kelly, Inc.
(Walsh & Kelly)

7 I-65 PROJECTS

Figure F.1-2 Firm Organization Chart.

INDIANA DEPARTMENT OF TRANSPORTATION

LEAD CONSTRUCTION/DESIGN-BUILD FIRM
Walsh Construction Company II, LLC

- Serves as the single point of contact for INDOT
- Provides design and construction of I-65 rehabilitation and widening
- Ensures operations are carried out in accordance with the PPA's safety, quality, and schedule requirements
- Offers bid opportunities to local subcontractors
- Commits necessary manpower/equipment to maintain Project schedule
- Provides diversity management
- Supports public information efforts
- Provides maintenance during construction

Subconsultant Agreement

EXCLUSIVE SUBCONSULTANT
Borshoff (WBE)
Public Information

Subcontractor Agreement

EXCLUSIVE SUBCONTRACTORS
Walsh & Kelly, Inc.
Pavement

The Heritage Group, LLC
Pavement Advisor

Design Agreement

LEAD ENGINEERING FIRM
Parsons Transportation Group, Inc.

- Delivers Project design in accordance with Technical Provisions and approved ATCs
- Provides comprehensive, innovative design that maximizes durability and minimizes the need for maintenance work
- Coordinates the acquisition of all necessary governmental permits and approvals

Subconsultant Agreement

EXCLUSIVE SUBCONSULTANTS
Earth Exploration
Geotechnical

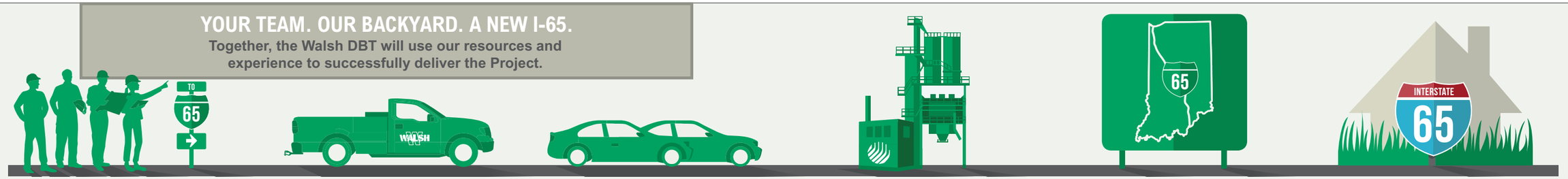
Durham Engineering, Inc. (DBE)
Survey/Engineering Design

Features and benefits of firm organization and composition

- Simple and clear lines of reporting and responsibility
- Streamlined Project delivery that minimizes risk at all levels
- Integrates complementary skills to address the complex design and construction needs of the Project

YOUR TEAM. OUR BACKYARD. A NEW I-65.

Together, the Walsh DBT will use our resources and experience to successfully deliver the Project.



Collectively, the **Walsh DBT** can enlist resources from over **897 INDIANA-BASED PROFESSIONALS** to support design and construction efforts.

Lead Contractor, **Walsh Construction**, brings experience on over **45 ALTERNATIVE DELIVERY** transportation projects nationwide valued at over $10 billion.

Lead Engineer, **Parsons**, has served or is serving this same role on **10 DESIGN-BUILD TRANSPORTATION** projects in Indiana.

Exclusive Subcontractor, **Walsh & Kelly**, owns and operates **5 ASPHALT MIX PLANTS** located specifically in Northern Indiana.

Collectively, the **Walsh DBT's** major participants have delivered **25 PROJECTS ON THE I-65 CORRIDOR** throughout Indiana for INDOT.

The **Walsh DBT** was developed to specifically address **COMMUNITY, STATE, AND INDOT GOALS** for the I-65 Corridor, located in **our backyard**.

Figure F.1-3 Personnel Organization Chart.

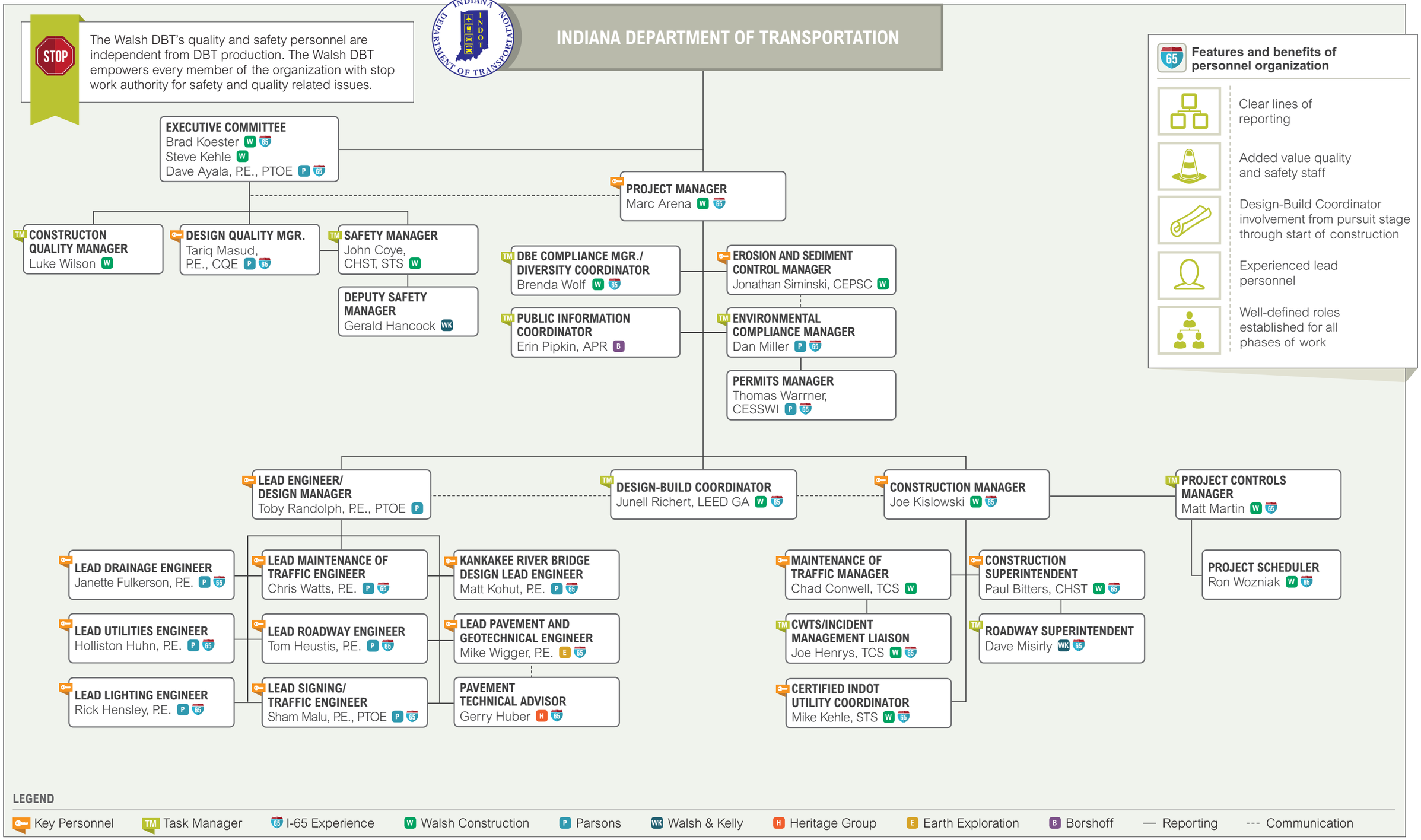


Figure F.1-4 Key Personnel. Our qualified Key Personnel have clear responsibilities. **All key personnel are devoted to the project 100% of the time necessary to fulfill their role.**

PROJECT MANAGER
Marc Arena

23 Years' Experience | INDOT DB Experience

Responsible for team performance of design and construction. Ensures quality, safety, environmental, and DBE compliance, and administration are integrated, align with the PPA, and accommodate stakeholders. Single point of contact in all matters on behalf of the Walsh DBT.

LEAD ENGINEER/ DESIGN MANAGER
Toby Randolph, P.E., PTOE

17 Years' Experience | INDOT/DB Experience

Leads design team. Manages and certifies that design work is complete and conforms to requirements of the TP and PPA. Provides timely flow of design information and approves final design. Actively participates in design task force meetings and progress meetings with INDOT.

MAINTENANCE OF TRAFFIC MANAGER
Chad Conwell, TCS

10 Years' Experience | INDOT/DB Experience

Implements traffic management strategies and supervises the Certified Worksite Traffic Supervisor, ensuring the proper installation and maintenance of traffic control devices. Communicates upcoming MOT with the public information team.

CONSTRUCTION MANAGER
Joe Kislowski

26 Years' Experience | INDOT DB Experience

Leads construction team, is accountable for construction and O&M during construction, and provides constructability reviews during design. Oversees superintendents and field staff while working with INDOT's project engineer. Available around the clock for immediate response.

EROSION AND SEDIMENT CONTROL MANAGER
Jonathan Siminski, CEPSC

7 Years' Experience | INDOT DB Experience

Responsible for the installation, inspection, maintenance, and removal of stormwater management measures to minimize sediment damage to water quality and aquatic habitats. Implements the Stormwater Quality Control Plan. Ensures compliant erosion control measures.

CERTIFIED INDOT UTILITY COORDINATOR
Mike Kehle, STS

16 Years' Experience | INDOT DB Experience

Identifies utility conflicts and is responsible for developing and maintaining the Utility Conflict Matrix. Oversees construction/connection of new utility services, scheduling and facilitating utility meetings, and addressing utility concerns.

CONSTRUCTION SUPERINTENDENT
Paul Bitters

30 Years' Experience | INDOT DB Experience

Oversees work crews and foremen. Assures quality control and safety during construction operations. Manages subcontractor coordination, schedules construction activities, and assists with maintaining the schedule. During design, provides input during constructability reviews.

DESIGN QUALITY MANAGER
Tariq Masud, P.E., CQE

21 Years' Experience | DB Experience

Responsible for design QA/QC, including design changes during construction and the production of Record Drawings. Certifies that design QC checks are completed for each design submittal, and that design changes resulting from such checks are incorporated.

KANKAKEE RIVER BRIDGE DESIGN LEAD ENGINEER
Matt Kohut, P.E.

14 Years' Experience | INDOT DB Experience

Design responsibility for the Kankakee River Bridge and all other Project structures. Releases design documents for construction, reviews construction documents related to the bridge and structures, and certifies that all released-for-construction documents conform to requirements.

DISCIPLINE LEAD ENGINEERS

Each of our seven experienced Discipline Lead Engineers reports to Lead Engineer/Design Manager, Toby Randolph, coordinates the design effort for his or her discipline, and leads task force meetings to align efforts with construction, quality, third parties, and INDOT. Discipline Lead Engineers seal reports, plans, and specifications related to his or her discipline. **Discipline Lead Engineers will be dedicated 100% during design and as-needed during construction.**

LEAD MAINTENANCE OF TRAFFIC ENGINEER
Chris Watts, P.E.

16 Years' Experience | INDOT DB Experience

LEAD UTILITIES ENGINEER
Holliston Huhn, P.E.

8 Years' Experience | INDOT DB Experience

LEAD ROADWAY ENGINEER
Tom Heustis, P.E.

6 Years' Experience | INDOT DB Experience

LEAD LIGHTING ENGINEER
Rick Hensley, P.E.

31 Years' Experience | INDOT DB Experience

LEAD PAVEMENT AND GEOTECHNICAL ENGINEER
Mike Wigger, P.E.

16 Years' Experience | INDOT DB Experience

LEAD SIGNING/ TRAFFIC ENGINEER
Sham Malu, P.E., PTOE

13 Years' Experience | INDOT DB Experience

LEAD DRAINAGE ENGINEER
Janette Fulkerson, P.E.

33 Years' Experience | INDOT DB Experience

Figure F.1-5 Task Managers. The Walsh DBT has selected the following personnel to fill important task manager positions for our team. Task Managers report to Key Personnel. Resumes are provided in the Volume 2A Appendices.

REQUIRED QUALIFICATION AND EXPERIENCE

Each assigned Task Manager will have the requisite qualifications and experience to achieve the position's functions. Personnel will continuously receive training and performance reviews to achieve the standards for their position.

- **Identify Position**
  - PPA Requirement
  - DBT Requirement
- **Prepare Job Description**
  - Required experience
  - Required qualifications and certifications
  - Required education
- **Identify and Evaluate Potential Candidates**
  - Existing personnel
  - External recruitment
- **Select Final Candidate and Assign to Project**
  - Based on suitability of qualifications and experience

PPA-REQUIRED POSITIONS

INDOT has identified several management roles beyond the Key Personnel positions listed in the ITP. For these positions, we have followed the PPA requirements to evaluate candidates, making sure such personnel meet INDOT expectations.

PUBLIC INFORMATION COORDINATOR
Erin Pipkin, APR

17 Years' Experience | INDOT Experience

Experience leading public information (PI) efforts and serving as INDOT's PI contact on projects such as the New US 31 projects. Experience coordinating media and public involvement activities with INDOT, including developing maps, charts, and other visual images.

DBE COMPLIANCE MANAGER/ DIVERSITY COORDINATOR
Brenda Wolf

20 Years' Experience | INDOT DB Experience

Assisted teams to meet or exceed DBE goals on over 30 projects in Indiana in the past 10 years. Led DBE and EEO efforts for the Ohio River Bridges East End Crossing P3 and other design-build projects. Has established excellent working relationships with INDOT compliance staff.

CERTIFIED WORKSITE TRAFFIC SUPERVISOR
Joe Henrys, TCS

9 Years' Experience | INDOT DB Experience

Experience monitoring daily MOT activities and monitoring the installation and maintenance of traffic control devices. Served in a similar role on the I-65/SR 26 Design-Build project and the I-80 Interchange Modification project, both urban corridors requiring significant MOT.

ADDED VALUE, DBT-REQUIRED POSITIONS

The Walsh DBT has identified positions we require for a successful team and a safe and quality project. For these positions, we have established expectations and reviewed experience to assign highly qualified, value-added personnel.

CONSTRUCTION QUALITY MANAGER
Luke Wilson

16 Years' Experience | INDOT DB Experience

Experience establishing and maintaining Project and Quality Management Plans. Served in quality management roles on the Ohio River Bridges East End Crossing P3 and Milton Madison Bridge Design-Build projects and has in-depth knowledge of INDOT quality requirements.

SENIOR SAFETY MANAGER
John Coye, CHST, STS

20 Years' Experience | INDOT DB Experience

Experience managing safety on major highway projects, such as the Ohio River Bridge Downtown Crossing Design-Build and Hoosier Heartland SR 25 project. Has developed, maintained, and managed Project-specific health and safety plans on numerous projects.

ENVIRONMENTAL COMPLIANCE MANAGER
Dan Miller

14 Years' Experience | INDOT Experience

Experience leading environmental teams and complying with environmental commitments and conditions. Prepared environmental documents for over 150 INDOT projects. Experience managing NEPA process on large transportation projects. Experience securing permits.

DESIGN-BUILD COORDINATOR
Junell Richert, LEED GA

14 Years' Experience | INDOT DB Experience

Experience managing the coordination between construction and design teams on projects such as the I-65/SR 26 Design-Build and multiple other design-build pursuits. Strong ability to effectively direct design and construction teams to finding cost-effective, quality solutions.

ROADWAY SUPERINTENDENT
Dave Misirly

27 Years' Experience | INDOT Experience

Experience managing asphalt operations on the I-65 corridor and providing roadway oversight for projects throughout Northwest Indiana. Proven ability to direct crews on high-profile, high-volume interstates with tight schedules and phasing.

PROJECT CONTROLS MANAGER
Matt Martin

19 Years' Experience | INDOT DB Experience

Experience providing oversight of scheduling, logistics, and document control on large-scale projects including the Ohio River Bridges East End Crossing P3. Experience with major INDOT projects, such as I-465/I-70 Design-Build and I-70 Fast-Track.

TM

CAPACITY AND RESOURCES

Each Major Participant has evaluated its current and projected workload and backlog (**Figure F.1-6**) to ensure adequate capacity for the Project.

Figure F.1-6 Workload and Backlog
The Walsh DBT is financially sound and resourced for successful Project completion.

Participant	Current Workload	Projected Workload	Current Backlog
Walsh Construction Company II, LLC	$376M	$1.379B	$1.795B
Parsons Transportation Group, Inc. (U.S. Only)	$425M	$825M	$1.5B
Walsh & Kelly, Inc.	$85.2M	$105M	$76M

The Walsh DBT will dedicate the necessary personnel, equipment, and facilities to deliver a quality Project ahead of schedule. Benefits of our team include:

Indiana-Based Personnel: Our team is local, with offices in Crown Point, Griffith, Anderson, and Indianapolis. We have long-standing relationships with unions, an established workforce, and existing relationships with subcontractors and material suppliers.

The Walsh DBT is committed to creating Indiana-based jobs and growing our workforce. In Indiana, Walsh Construction employs 1,500 employees, with over 4.6 million trade hours worked in the past three years. In addition to Walsh Construction's personnel, Walsh & Kelly provides an experienced workforce of 290 management and trade personnel familiar with local conditions and standards. Parsons' Indiana office is leading the design. With 92 professionals located in Indiana and 550 personnel in the Midwest, Parsons can fill specialty needs and meet critical design deadlines.

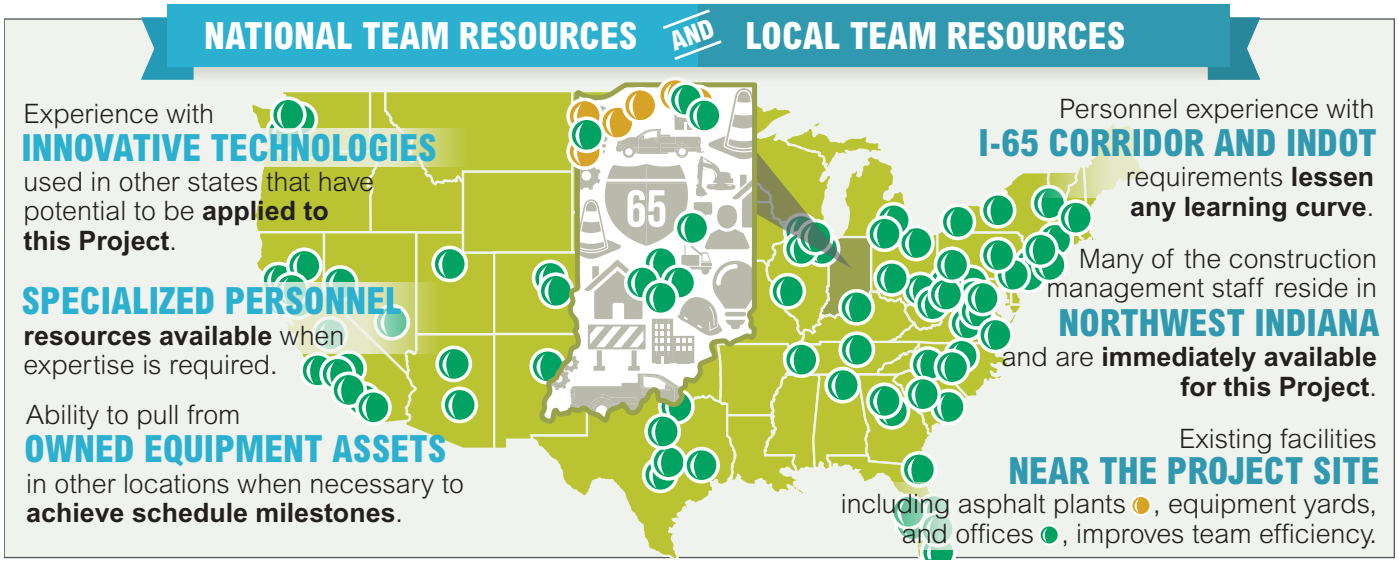
Large Equipment Fleet: We have substantial equipment resources ready to mobilize for this Project. Our equipment resources include:

- $460 million of owned equipment
- 8,250 pieces of equipment
- 1 portable and 4 permanent asphalt plants
- 1,075 pieces of earth moving and paving equipment

The Walsh DBT will schedule equipment using Walsh Construction's integrated equipment management system to allocate resources and provide alerts for preventative maintenance. This system enables us to have functional equipment on-site as required to complete scheduled activities.

Local Facilities: Walsh Construction's Indiana Regional Office and equipment yard is located within one mile of the Project limits. Likewise, our dedicated Project office will be located within one mile of the Project limits. Walsh & Kelly's office and asphalt plant in Lake County is also included in our local facilities that will ease mobilization for the Project.

Benefits of the Walsh DBT: A Local and National Team. The Walsh DBT has the national depth of experience and resources to incorporate proven, leading edge innovations, while still providing a strong local team with personnel, equipment, and facilities readily available to commit to this Project.



Internal Organization Systems

Our experience working with INDOT on design-build projects has taught us the value of having a detailed plan for roles and responsibilities, decision-making, and both internal and external communication and document control. Successful use of similar plans on past projects, including the Ohio River Bridges East End Crossing P3, enabled effective communication and cooperation. We present highlights of our internal organization plan for this Project in these next sections:

DECISION-MAKING PROCESS

Walsh DBT Key Personnel and Task Managers at every level will be empowered to make decisions. Decisions are made and issues are resolved quickly at the lowest possible level where implications of the issue are best recognized. Only if these concerns cannot be resolved are they escalated to the next level. This process ensures correct and timely issue resolution to minimize the risk of adverse impacts on cost, schedule, or quality. We have illustrated this decision-making hierarchy in **Figure F.1-7**.

INTERNAL COMMUNICATION AND DOCUMENTATION

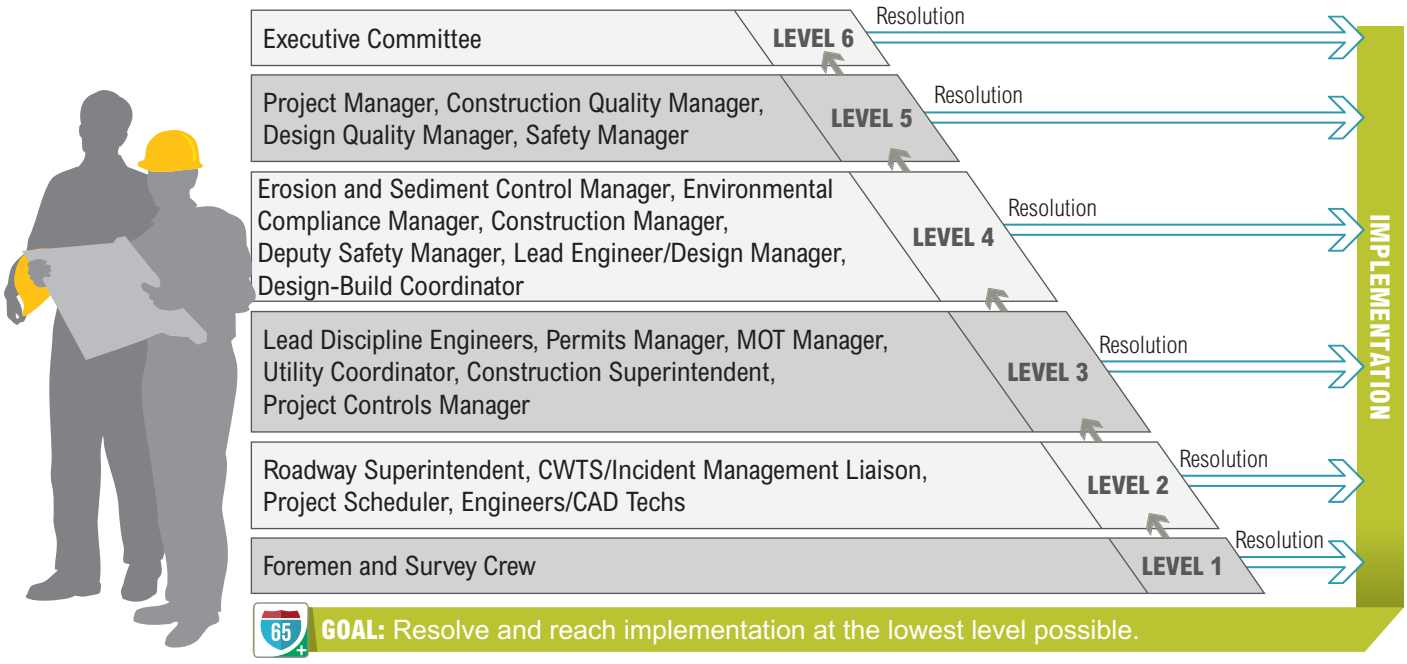
The Walsh DBT has an effective process and structure for team collaboration, communication, and decision making during both the design and construction phases as described in more detail below:

Location of Designers: Design staff will work primarily out of Parsons' office in Indianapolis. There, designers will benefit from immediate access to shared resources, meeting spaces, and colleagues. Discipline Lead Engineers will be dedicated to the Project through Released for Construction (RFC) plans and will be available for over-the-shoulder reviews or on-site meetings.

Remote Design Integration: Design subconsultants will report directly to Lead Engineer/Design Manager Toby Randolph and attend task group meetings with the Discipline Lead Engineers. Designers will be kept informed through frequent web or teleconferences, e-mails, and in-person team meetings.

Project Controls: Control of drawing changes and revisions is necessary in a fast-paced design-build environment with multiple user access. Design drawing production will be coordinated using the ProjectWise software. This software allows the control of the design files while our engineers follow the INDOT standard plan revision process and numbering system. This combination ensures the most current design plans are always issued to the field in a timely manner.

Figure F.1-7 Decision-Making Approach. With an integrated approach to decision making, consensus is reached or issues are escalated to expedite decisions and avoid adverse Project impacts.



Documentation and Data: Project documentation and data will be stored electronically and shared via SharePoint, providing a centralized source for accurate information and sharing between parties. Access will be provided to all authorized members of the team.

Progress Reports: The quality team will consolidate progress reports and review findings with Key Personnel and Task Managers, enabling them to make informed decisions. Report templates will be distributed to provide pertinent information in a format that is consistent with INDOT's expectations.

Coordination Meetings: Efficient meetings are necessary to keep team members informed of the schedule, any changes, and active areas of work. **Figure F.1-8** highlights some of the proposed meetings that will provide project controls, support effective communication, and facilitate decision making.

Figure F.1-8 Internal Coordination Meetings. The Walsh DBT will implement and manage the direction of design and construction through coordination meetings to ensure integration, collaboration, and communication. We will encourage INDOT participation in these meetings.

Team Coordination Meetings

As the Project progresses, the Walsh DBT will evaluate the need to alter the frequency of these meetings, add participants, or add other internal coordination meetings to keep the Project on track and team members informed.

	Executive Committee	Project Manager	Constr. Quality Manager	Design Quality Manager	Safety Manager	Construction Manager	Design-Build Coord.	Lead Eng./Design Manager	Discipline Lead Engineer	PI Coordinator	E&SC Manager	Env. Compliance Manager	MOT Manager	Constr. Superintendent	Utility Coordinator	Project Controls Manager	Project Foremen	Subcontractors
1 Technical Working Group		○	○	○			●	◎	◎		○	○	○	◎	○			
2 Leadership Task Force		●	◎	◎	◎	◎	◎	◎										
3 MOT Coordination		◎	○		◎	◎				◎	○	○	●	◎	○	◎	○	◎
4 Progress Meeting		○	◎		◎	●	○	○		○	◎	◎	◎	◎	◎	◎		◎
5 Foreman First Meeting			○		◎												●	
6 Toolbox Talks			○		○	○					○	○	○	◎	○		●	◎
7 Schedule Status Meeting		●	○		○	◎	◎	○		○	◎	◎	◎	○	◎	◎		◎
8 Executive Committee Review	◎	●	◎	◎	◎	◎	○	○										

Meeting Descriptions

Legend: ● Meeting Leader; ◎ Participant; ○ As Needed

1 Technical Working Group
Frequency: Every other week (design)
Documents: Agenda/minutes
Purpose: Assess interdisciplinary design for constructability and design and construction needs

2 Leadership Task Force
Frequency: Weekly
Documents: Agenda/minutes
Purpose: Review issues, questions, or conflicts, and provide direction for immediate team implementation

3 MOT Coordination
Frequency: Every other week
Documents: Agenda/project documents
Purpose: Discuss Project issues, upcoming Project needs, coordination, and schedule

4 Progress Meeting
Frequency: Weekly
Documents: Agenda/project documents
Purpose: Assess progress; Assess and coordinate staffing, equipment, and material needs

5 Foreman First Meeting
Frequency: Weekly
Documents: Project documents
Purpose: Review safety, quality, and overall performance of crews.

6 Toolbox Talks
Frequency: Weekly
Documents: THA and TQA worksheets
Purpose: Instruct on daily schedule, quality, and safety requirements for the current shift's tasks

7 Schedule Status Meeting
Frequency: Monthly
Documents: Agenda/project documents
Purpose: Review updated schedule, adjust design and construction activities as necessary

8 Executive Committee Review
Frequency: Quarterly
Documents: Agenda
Purpose: Provide high-level update, discuss any critical Project plans or activities

EXTERNAL INTERFACES

The Walsh DBT is committed to partnering with INDOT. The INDOT project team, along with their consultants, will be included in progress and planning meetings, fostering a "no surprises" approach in the development of the Project. Our approach to external coordination is shown in **Figure F.1-9**.

Regular schedule updates will be provided to INDOT on maintenance of traffic (MOT) switches, detours, and any other restrictions that may affect the public or third party stakeholders. Additionally, coordination and staff for public meetings and Project-specific displays will be provided upon request. These responsibilities, along with notification of emergency events, will be handled through our Public Information Coordinator, Erin Pipkin, through her interaction with MOT staff.

Before work commences, the Walsh DBT will contact school transportation officials and local emergency responders, including police and fire departments, to discuss the Project. We will provide safety and advance information plans and contact information for key Project staff.

PUBLIC INFORMATION AND COMMUNITY OUTREACH STAFF

Public relations firm, Borshoff, will provide public information (PI) that supports INDOT's PI team. Borshoff has had success managing public outreach for INDOT projects, such as the New US 31 Plymouth to South Bend, New 31 Hamilton County, 465/69 Northeast, and Project 421 Gateway to Madison. Borshoff has worked with Walsh Construction, Parsons, and leadership in INDOT's LaPorte District.

Erin Pipkin, Public Information Coordinator, will be INDOT's point of contact regarding methods to inform the public or obtain resident feedback. Before joining Borshoff, Erin worked in INDOT's Office of Communications, handling resident inquiries, special events, and media relations for the LaPorte, Fort Wayne, and Greenfield Districts. Erin is uniquely qualified to serve as an extension of INDOT's communications team to develop, implement, support, and maintain the Public Information Plan (PIP).

MOT Manager, Chad Conwell, and Certified Worksite Traffic Supervisor, Joe Henrys, will each support PI efforts and provide accurate, up-to-date information on lane closures, detours, emergency events, or schedule changes. Other management staff will support PI efforts as needed through attendance at public meetings and communication of Project details and schedules to the PI team.

PRELIMINARY PUBLIC INVOLVEMENT PLAN

The PIP is a living document that the Walsh DBT will develop and maintain in coordination with INDOT.

Figure F.1-9 External Coordination. In the spirit of partnership, the Walsh DBT will foster a "no surprises" approach to working with INDOT, governmental agencies, police and fire departments, utilities, and stakeholders.

Groups	Key Contact	External Communication Methods
INDOT and INDOT Representatives	Project Manager, Construction Manager	INDOT and its representatives will have early and frequent involvement through over-the-shoulder design reviews and weekly Project updates. They will be encouraged to attend Coordination Meetings including: Technical Working Group, MOT Coordination, Toolbox Talks, and Schedule Status.
Federal, State, and Local Agencies	Environmental Compliance Manager, Construction Manager, Erosion and Sediment Control Manager	Agencies will work with our Environmental Compliance Manager and his staff during design to establish final permits. Our Construction Manager and Erosion and Sediment Control Manager will manage all permit-related construction issues.
Local Police and Fire Departments	Maintenance of Traffic Manager, Construction Manager	Our Construction Manager will be the primary contact for emergency responders. Meetings regarding traffic shifts and other upcoming maintenance of traffic changes will be coordinated through our Maintenance of Traffic Manager.
Utility Owners	Lead Utilities Engineer, Construction Manager	Design coordination will be with our Lead Utilities Engineer. Construction related issues will be managed through our Construction Manager.
Public, Residents, and Other Local Stakeholders	Public Information Coordinator	INDOT will be supported by the Public Information Coordinator in communicating Project updates including detours, traffic shifts, and emergency events.

The PIP will identify PI responsibilities, procedures for information delivery, contact information, and the process for coordinating with the Traffic Management Plan (TMP). The Walsh DBT's sample PIP is provided in the Volume 2A Appendices.

The Walsh DBT's PI Role: The Walsh DBT will support INDOT's efforts to keep the general public and affected stakeholders informed through effective and purposeful communication. Our goal is to minimize potential impacts and reinforce positive public perception of the Project, INDOT, other relevant agencies, and our crews.

Information Delivery Procedures: Erin will work with INDOT to evaluate materials needed for effective and accurate communication. Central to this effort, and as directed by INDOT, we will:

- Draft key messages for use by INDOT for media relations, social media, and online outreach
- Provide advance information to emergency responders, school transportation leaders, local elected officials, and affected businesses
- Provide timely notice of road or lane closures or restrictions in accordance with the PPA documents
- Create and maintain an emergency response plan, including contact information for constant access to our PI team and process to provide timely notification to INDOT of emergency events 24 hours a day, seven days a week
- Develop an effective project fact sheet, informational maps, and other communication collateral
- Coordinate all media requests, public inquiries, and other PI activities with INDOT's LaPorte District Communications Director
- Coordinate and host public information meetings to inform the public of lane closures, alternative routes, detours, or other concerns

Information Delivery. The Walsh DBT will assist INDOT by writing content and providing graphics for use on social media, through traditional media, and at public meetings to reach the widest-possible audience.

Building Community Relationships. The Walsh DBT works closely with local emergency response personnel to ensure public safety on our projects. Joe Henrys, our Certified Worksite Traffic Supervisor, is seen here presenting the Lafayette Fire Department a saw to aid in emergency rescue.

Coordination with TMP: The PIP will include a TMP section that describes the process and procedure for communicating traffic-related information. The inclusion of our Certified Worksite Traffic Supervisor, Joe Henrys, on the PI team will simplify our ability to communicate MOT work to the public before implementing traffic shifts, detours, or alternate routes.

Effective communication is part of providing a safe environment for our workforce and the public. The Walsh DBT will work with INDOT and emergency services in the Incident Management Task Force to prepare for potential emergency events during construction and lessen any possible impact to services or public safety. Joe Henrys, as the Incident Management Liaison, will develop Incident Management Plans and coordinate such messaging with Erin and INDOT. Erin will interface with Joe and other appropriate staff to make sure we provide up-to-the-minute details during critical events.

DOCUMENT MANAGEMENT

In accordance with the PPA, the Walsh DBT will adhere to INDOT protocols and procedures regarding document management. Personnel will be trained to operate any INDOT data management system that is required on the Project. The Walsh DBT will also provide SharePoint training to INDOT Project team members as requested. A jobsite file server will provide a location for authorized users to securely share files. The Project Management Plan will detail the document management system, including unique coding of files and a detailed description of procedures and protocols. In addition, Project-related documents will be stored on the secure Project SharePoint site, which will be hosted and backed up daily in Microsoft's offsite data centers.

Preliminary Project Baseline Schedule

The P6 Project Baseline Schedule will be used as a tool to communicate expectations to all parties—INDOT, subcontractors, third-party utilities, and others. We will use the schedule to manage design and construction activities, and achieve early substantial completion and even earlier interim completion dates.

The Walsh DBT will **achieve substantial completion 57 days early** and achieve even earlier interim completion dates to keep Northwest Indiana traffic flowing.

Segment A: Northern limits to 109th open to traffic by 10/31/17	392 days early
Segment B: Open to traffic by 10/1/18	57 days early
Remainder of Segment A and Segment C: Open to traffic by 9/1/18	87 days early
Substantial completion achieved by 10/1/18	**57 days early**

Summary-Level Preliminary Project Baseline Schedule

The Walsh DBT commits to achieving early substantial as shown in our summary schedule (**Figure F.1-10**, on the following page). Our complete Preliminary Project Baseline Schedule using Primavera P6 is provided in the Volume 2B Appendices.

SCHEDULE STRUCTURE

The Walsh DBT developed the schedule with achievable design milestones and accounting for the availability of labor, equipment, and material needs. The schedule's division into three segments (A, B, and C) reflects INDOT's three distinct segments. Each segment was scheduled taking into account complex design and permitting requirements, as well as the Technical Provision requirements.

Each segment is subdivided into multiple phases to allow maintenance of traffic (both vehicular and pedestrian) and business access. Each phase is then divided into smaller units. Each item in the Project Baseline Schedule contains activities showing the design approval process, preconstruction activities, material procurement, and construction.

Execution of Design, Construction, and O&M During Construction

The Walsh DBT developed the Preliminary Project Baseline Schedule using comprehensive activity sequencing throughout the Project duration for each of the Project's main phases.

INTEGRATED DESIGN AND CONSTRUCTION

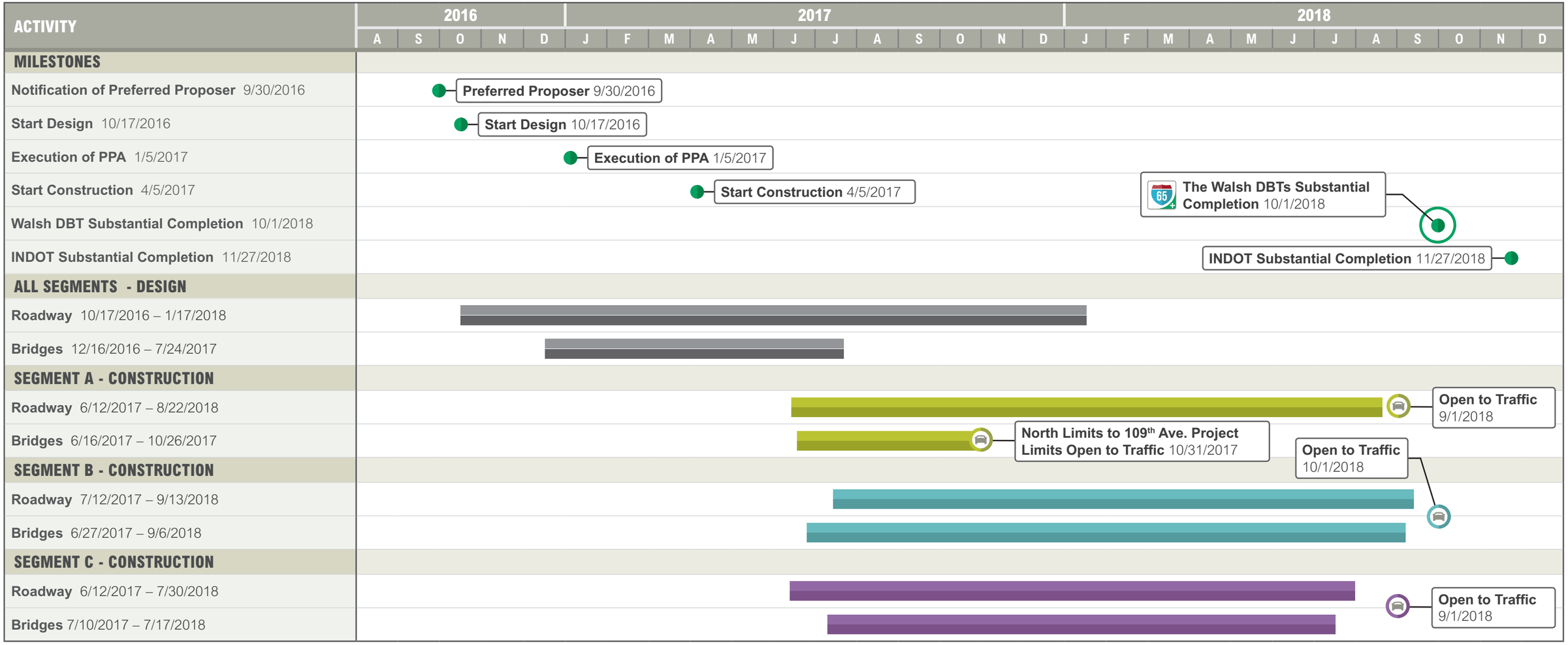
The Project Baseline Schedule incorporates design packages to achieve design schedule milestones, including hold points and witness points, and support the start of construction activities. Each design package is defined with a set of activities that include quality, INDOT, and third party reviews. Each of the design elements in the schedule are sequenced to match the scheduled construction dates. Design submittals will be ready for INDOT review at NTP1. The Walsh DBT will schedule the Design Workshop as detailed in the Technical Provisions to establish timelines and the review process. The Preliminary Project Baseline Schedule uses a 14-day review period for INDOT review in order to maintain the Project schedule.

ITS Requirements: Design activities for ITS project components will be prioritized in order to allow for substantial material lead times. In order to meet INDOT requirements of having CCTV camera sites installed prior to lane closures, the Walsh DBT will install temporary wireless communications. Permanent ITS components will be installed in phase with roadway construction wherever feasible. The Walsh DBT will work closely with INDOT through integration and testing to ensure that Project requirements have been satisfied.

Local Roads: To minimize the impact to drivers using local road overpass bridges, the Walsh DBT has scheduled the completion of overpass bridges so that no two consecutive overpasses are constructed at the same time. We have also scheduled to avoid closures during times of higher traffic volumes such as the Lake County Fair and restrictions during the school year.

Mainline I-65: For construction operations of mainline I-65, the Walsh DBT will begin with the resurfacing of the outside shoulders in Segment C for the use during the remaining phases in this segment. This work will be completed using nightly lane closures.

Figure F.1-10 Summary Preliminary Project Baseline Schedule.



LEGEND: Milestone Dates | Segment A Construction | Segment B Construction | Segment C Construction | Open to Traffic

Start Design

- Submit portions of Project Management Plan
- Submit Environmental Compliance and Mitigation Plan
- Provide Environmental Compliance Training Program materials
- Submit Draft Transportation Management Plan
- Identify design units
- Approve design review plan and schedule

Notice to Proceed (NTP)

- Submit Public Information Plan (prior to NTP)
- Submit insurance policies
- Submit payment bond and performance security
- Establish Project office including phone services
- Submit Utility Conflict Matrix
- Host utility owner meetings
- Submit Project Baseline Schedule
- Submit Draft Temporary Traffic Control Plan (30 days after NTP)
- Submit Work Vehicle Traffic Control Plan (90 days after NTP)

Start Construction

- Submit Final Transportation Management Plan (30 days prior to start of construction)
- Submit appropriate portions of Construction Quality Management Plan
- Submit Final Temporary Traffic Control Plan (30 days prior to start of construction)

FORM L

COMPLETION DEADLINES

INDOT Last Allowable Dates:

Milestone	Deadline
Baseline Substantial Completion Deadline	November 27, 2018
Partial Acceptance Deadline	June 28, 2019
Final Acceptance Deadline	October 15, 2019

Proposal Commitment Dates (cannot exceed the above table):

Milestone	Deadline
Baseline Substantial Completion	**October 1, 2018**
Partial Acceptance Deadline	**April 30, 2019**
Final Acceptance Deadline	**August 15, 2019**

At completion of the shoulder resurfacing, traffic will be switched for Phase A1 construction in Segment A and Phase C2 construction in Segment C. Each segment will be scheduled and constructed independent of the others with the exception of coordinating MOT operations with the other Segment.

During Segment A Phase A1, we will construct the outside new shoulder while Segment C will construct the new inside lane and shoulder. Construction of these two segments were scheduled simultaneously in order to optimize the use of material excavated from Segment A as fill material in Segment C. Once this work is completed, the remaining resurfacing of Segment C will be completed during nighttime lane closures or during daytime operations when the allowable clear zone can be maintained per the Technical Provisions.

Segment B is the construction of the new Kankakee River Bridge. This structure will be constructed in three phases with the southbound structure being constructed in two halves then placing both directions of travel on the southbound structure allowing the northbound structure to be completed in it entirety. Since this structure is approximately five miles south of the southernmost limits of Segment C, the Walsh DBT has the ability to schedule the construction of the bridge separate from Segments A and C.

O&M DURING CONSTRUCTION

O&M services during construction will include mowing, pothole repairs, and roadway debris clean-up. This work will be provided as needed rather than scheduled.

Local Resources for Expedited Schedules. Walsh has ample local resources to mobilize management, crews, and equipment to complete projects on time or early. On the ORB Downtown Crossing DB, Walsh optimized the project schedule to reduce MOT phases and the overall project duration, enabling the project to be on track to achieve substantial completion a full 18 months earlier than the RFP requirement.

Walsh DBT will work with INDOT to monitor the roadway and schedule repairs in order to keep the roadway free of hazards to the traveling public.

SCHEDULE MANAGEMENT

For scheduling, we follow the simple philosophy of "plan the work, work the plan" and monitor progress daily, weekly, and monthly (**Figure F.1-11**). The detailed critical-path method (CPM) Project Baseline Schedule will be created with input from stakeholders. We will meet with stakeholders early in the process to define and agree upon expectations. Activity durations will be based on proven production rates. The schedule will include activities for submittals, reviews, and material procurement needs, and will primarily be driven by utility requirements.

Figure F.1-11 Schedule Management.

During design and construction, we will monitor performance against the Project Baseline Schedule. Detailed three-week and six-week look-ahead schedules will be created and updated weekly with construction activities, including fabrication, to stay on or ahead of schedule. They will then be reviewed with INDOT at weekly progress meetings in order to allow timely coordination of inspection activities. This look-ahead will be reviewed daily to control the work. The Walsh DBT's member firms have used this proven method to deliver similar projects on or ahead of schedule.

The Walsh DBT will update the Project Baseline Schedule monthly to maintain an accurate reflection of ongoing design and construction work. We will analyze the critical path and address outstanding schedule issues in the updated CMP schedule.

Subcontractor Activities: We will use the Project Baseline Schedule to manage all work — self-performed and subcontracted alike. Operations for major subcontractors and suppliers will be created as activities and logically sequenced in our Project Baseline Schedule. Work activities will be subdivided into the same level of detail as our self-performed work. Subcontractors will participate in schedule coordination meetings and weekly subcontractor meetings. At these meetings, we will discuss material fabrication and delivery requirements, and each subcontractor will review their upcoming interrelated work based on the current three-week look-ahead schedule.

Managing Resources and Activities: The schedule will be used to track major material procurement and delivery. Construction submittals, material procurement, and engineering review activities will be created and tied to the correlating construction activity in the Project Baseline Schedule, accurately calculating the float and necessary submittal dates for each activity. We will proactively communicate delivery dates to suppliers, update as needed, and regularly monitor that the expected delivery dates are met. A detailed material submittal log will be maintained to review against upcoming submittals and prioritize reviews.

Schedule Recovery: As the CPM schedule is updated, if we experience a negative trend, a recovery schedule will be developed. We will review our operations to identify contributing factors, develop, and implement a recovery plan. We will optimize resource deployment based on trends seen in the updated schedule. During our weekly subcontractor meetings, we will communicate trends in the schedule with subcontractors and confirm their plans for recovery. These recovery plans could include additional resources directed to the areas that are experiencing delays. Another method of recovery could be double shifting operations to bring the activities back on schedule.

The Walsh DBT's History of Early Completion. Several of the Walsh DBT's same Key Personnel and Task Managers proposed for this Project have served similar roles on large-scale projects that have or are on track to achieve early completion.

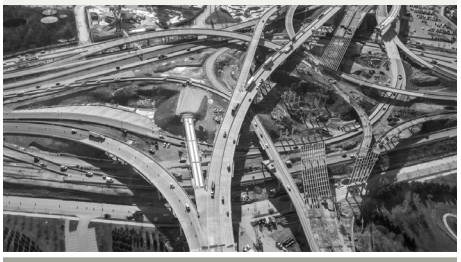
US 30/I-65 DESIGN-BUILD

Key Personnel on Project: Marc Arena, Joe Kislowski, Paul Bitters

COMPLETED 33 DAYS AHEAD OF SCHEDULE EARNING THE MAXIMUM EARLY COMPLETION BONUS.

OHIO RIVER BRIDGES DOWNTOWN CROSSING DESIGN-BUILD

Key Personnel and Task Managers on Project: Paul Bitters, Mike Wigger, Sham Malu, Rick Hensley, John Coye



ON TRACK TO ACHIEVE SUBSTANTIAL COMPLETION **18 MONTHS AHEAD OF SCHEDULE DEADLINE IN RFP.**

OHIO RIVER BRIDGES EAST END CROSSING P3

Key Personnel and Task Managers on Project: Paul Bitters, Chad Conwell, Jonathan Siminski, Mike Wigger, Sham Malu, John Coye, Brenda Wolf, Matt Martin, Luke Wilson

ON TRACK TO MEET SUBSTANTIAL COMPLETION DATE **FOR THE PROJECT'S ACCELERATED SCHEDULE.**

Preliminary DBE Project Plan

The Walsh DBT's Disadvantaged Business Enterprise (DBE) Performance Plan (sample provided in the Volume 2A Appendices) will guide our team in implementing a comprehensive, aggressive approach to DBE participation on the Project. We commit to exceed the 10% DBE goal with an additional $500,000 in participation.

Achieving DBE Goals

Drawing from our successful experience achieving DBE goals on other Indiana projects, we will use the following key strategies to maximize participation and exceed the DBE goal:

Leadership Commitment: The Walsh DBT's DBE effort is led and delivered by Brenda Wolf, DBE Compliance Manager/Diversity Coordinator. Brenda has 11 years of experience as Walsh Construction's Indiana Regional DBE/EEO Coordinator. She has built positive relationships with INDOT, understands the INDOT DBE process, and has supported over 30 projects to meet or exceed DBE goals. Brenda most recently led DBE efforts on the I-65 Design-Build project in Lafayette and the Ohio River Bridges (ORB) East End Crossing P3 Project. Both projects are on track to achieving their respective DBE goals.

Brenda will report to and be empowered by Project Manager, Marc Arena. Marc will provide the resources and time to allow Brenda to conduct regular training of jobsite staff to ensure that DBE efforts are coordinated and communicated.

Proactive Outreach and Community Engagement: Brenda will recruit companies to participate in the Project and identify firms as candidates for entry into the DBE program through outreach events. She will coordinate this outreach with INDOT's staff and consultants, and involve the participation of local organizations such as:

- INDOT, Economic Opportunity Division
- Indiana Department of Administration
- Local Unions with Signatory DBE Firms
- Indiana Minority Supplier Development Council

Dividing Work: The Walsh DBT will tailor scope packages to meet the capabilities or prequalification restrictions of DBE firms. We can divide a DBE's scope into smaller packages to allow small businesses to participate in a larger overall scope, which fosters their business growth and increases their skills. We have successfully used this approach on other projects, including the ORB East End Crossing P3.

Proactive Outreach. The Walsh DBT hosted a DBE Outreach and Networking Event for this Project on June 8, 2016. Outreach during the project pursuit provides an opportunity to introduce our team, the Project, and the design-build process to the DBE community.

DBE Participation from Major Subcontractors: The Walsh DBT's subcontract agreements will define subcontractor responsibilities and requirements regarding DBE participation. These agreements hold major subcontractors accountable to INDOT's expectation for DBE participation.

Tracking and Accountability: Brenda is responsible for the overall implementation and management of the DBE Performance Plan, including submitting monthly reports to INDOT and the Walsh DBT Executive Committee. These monthly reports will summarize recruitment strategies and results, provide the details of current DBE participation, discuss program status and progress, and outline future strategies to achieve our stated goals.

Encouraging DBE Participation

Brenda will work with our estimating and Project staff to identify potential scope areas and communicate opportunities to DBE firms through e-mail blasts and direct solicitation. She will facilitate meetings with DBE firms to clarify bid specifications, details, and ensure the correct scope of work is being bid. Brenda will use Walsh Construction's proven process in encouraging DBE participation (illustrated in **Figure F.1-12**).

The Walsh DBT has engaged DBE firm Durham Engineering (Durham). Durham will provide staff to work out of Parsons' Indianapolis office and get

support and mentoring from Parsons senior engineering staff. We anticipate additional DBE participation from the following scopes:

Potential Scope	Potential Participation
MOT	2%
Rebar Furnish and Install	0.5%
Trucking	2%
Electrical/ITS	2%
Underdrain	2%
Guardrail	2%
Milling	0.5%

Brenda will regularly monitor and evaluate our DBE Performance Plan results using the monthly DBE status report as a tool to summarize current participation, payment schedule, and percentage of goal met. Our jobsite personnel will work with DBE firms concerning job planning and scheduling, including discussing means and methods to accomplish construction tasks and monitoring DBE performance for commercially useful function and contract compliance.

Outreach and Assistance for Potential DBEs

The Walsh DBT has identified companies that have potential to perform work on this Project and future projects. Walsh will work to guide them to certification and prequalification. We are actively reaching out to the local business community, and hosted an outreach meeting on June 8, 2016, to identify DBE and potential DBE firms for this Project.

The Walsh DBT will continue outreach in conjunction with INDOT DBE Certification Manager, Derrick Casson, and local organizations, including the Indiana Minority Supplier Development Council and the Indiana Department of Administration, to discuss methods to identify and engage non-certified firms who meet the 49 CFR Part 26 criteria as candidates for the DBE program.

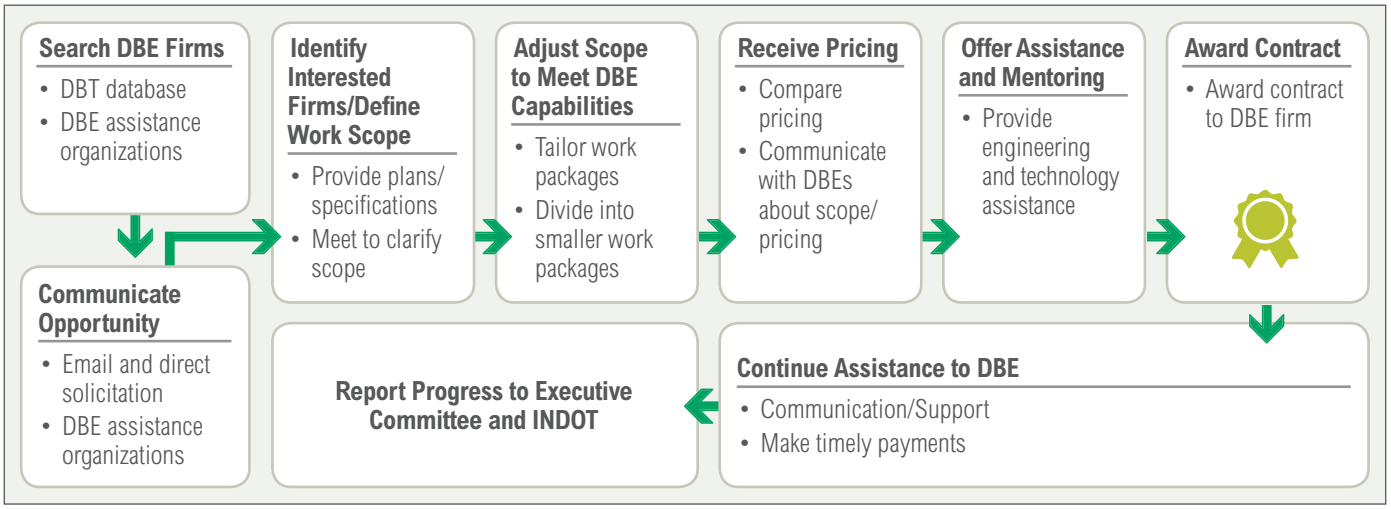
Expanding DBE Capabilities

The Walsh DBT commits to offering assistance and mentoring services to expand DBE firm capabilities and increase participation in future projects. We will offer no cost, in-house training for DBE firms. Topics will include safety training, federal contractor compliance training, jobsite-specific training, superintendent and foreman training, crane awareness, and quality best practices.

To help navigate common barriers to DBE participation, we will also offer individualized assistance to DBE firms through:

- Partnering with community agencies and organizations to provide resources and assistance with items like material purchasing and bid preparation
- Reimbursing bonding costs or modifying bonding requirements, as needed
- Providing technological assistance with software, the internet, or other onsite help
- Providing engineering assistance through both onsite personnel and third-party firms

Figure F.1-12 DBE Process to Encourage Maximum Participation. The Walsh DBT will use this process to engage DBE firms as we have done on many other projects, including the ORB East End P3 project that is on track to exceed the original RFP requirements with DBE participation of 9.23%.



Quality Management

The Walsh DBT is committed to providing INDOT and stakeholders a high-quality, durable, and maintainable facility. The Quality Management Plan (QMP) will guide our team in this effort. The QMP is predicated on the following principles:

	**UNDERSTAND** Understand INDOT's quality requirements
	**DO IT RIGHT** Do it "Right the First Time"
	**CHECK AND DOCUMENT** Check and document results
	**IMPROVE** Continuously improve quality
	**OVERSEE** Respond to INDOT quality oversight

The QMP has two complementary parts for design (DQMP) and Construction (CQMP) (shown in **Figure F.1-13**). Each plan will define specific quality procedures for its respective portion of work.

Design Quality Manager (DQM) Tariq Masud, and Construction Quality Manager (CQM) Luke Wilson, compose the Quality Management Team. Each reports to the Executive Committee, ensuring quality independence from the production design and construction staff. The Quality Management Team will oversee Project quality, implement quality planning, and manage the Walsh DBT quality management processes. They will also be responsible for: developing, reviewing, approving, implementing, and maintaining the QMP; communicating design and construction requirements to the entire Project team; and conducting initial training and follow-up training for team members including subconsultants, subcontractors, and suppliers.

Design Quality

Parsons' ISO 9001:2008 certified quality policies and procedures will form the basis of our DQMP tailored to meet INDOT's goals and PPA requirements. Parsons will produce the final released-for-construction (RFC) design plans, in compliance with the approved DQMP. The design will be administered by Lead Engineer/Design Manager Toby Randolph. DQM Tariq Masud will oversee design quality and ensure that design quality assurance (QA) is performed on each Project deliverable prior to submission to INDOT.

The DQMP will provide the processes and procedures describing how Parsons will manage design quality. The DQMP will specify the level, frequency, and method for checking the design adequacy of the Project. It will outline comprehensive, discipline-specific checklists that must be completed and submitted to the DQM as part of the quality control (QC) documentation for design submittals. The DQMP will link together the design team by defining consistent procedures and lines of communication between those involved disciplines working on the design.

DESIGN DELIVERABLE PROCESS

The design will be prepared and submitted as a series of work packages that are organized and sequenced for delivery in accordance with the Project schedule. Effective communications will be implemented through a series of collaborative meetings as follows:

Technical Working Group Meetings: Our proactive QC strategy for design includes a collaborative approach. These meetings provide a means to achieve consistency, constructability, and compliance with contract requirements in our design.

Over-the-Shoulder (OTS) Reviews: The DQM and INDOT attend these pre-submittal review meetings to gain a thorough understanding of the design and offer feedback in advance of formal submittals. The meetings are organized and presented by the Discipline Lead Engineers. This allows the DQM and INDOT to stay current on the design, facilitating resolution of any issues that could impede a QA review or INDOT review of the formal submission.

Design Submittals: Design calculations, drawings, and other related documents will be packaged into the buildable design units. To enable early construction, the design team will issue early design packages. The design QA/QC process for both early and normal design packages will remain standard, in accordance with the DQMP. Once a submittal has been designed, checked, back-checked, corrected and verified, the DQM will conduct formal Stage 1, Final (100%), and RFC QA reviews for each defined buildable unit segment.

Figure F.1-13 Quality Management Plan.

WALSH TEAM QUALITY MANAGEMENT ELEMENTS

Each element is implemented throughout the DQMP and CQMP process.

UNDERSTAND
Understanding INDOT's quality requirements

DO IT RIGHT
Doing it "Right the First Time"

CHECK
Checking and documenting results

IMPROVE
Continuous improvement

OVERSEE
INDOT quality oversight

PLAN DESCRIPTIONS

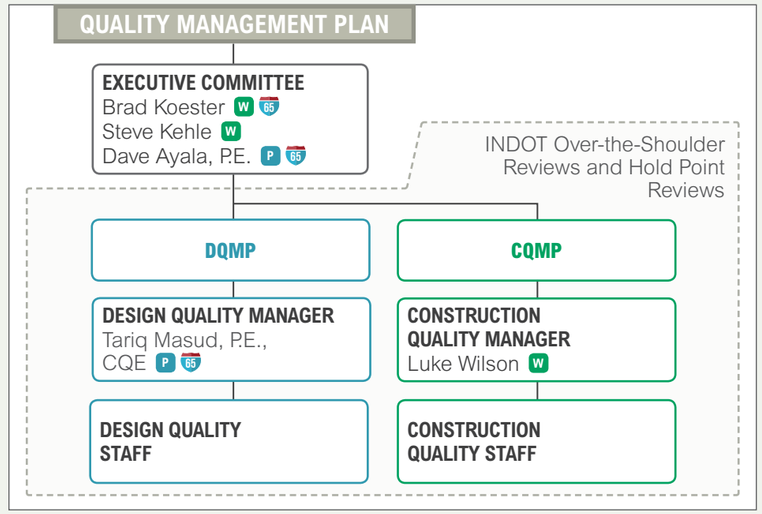
PHASE 1: Design | **Design Quality Management Plan (DQMP)**

- Provides the processes and procedures describing how the Walsh Team will manage design quality (both QA and QC).
- Specifies the level, frequency, and method for checking the design adequacy of the Project.
- Outlines comprehensive, discipline-specific checklists that must be completed and submitted to the Design Quality Manager as part of the quality control documentation for all design submittals.
- Links together the design team by defining consistent procedures and lines of communication between all involved disciplines working on the design.
- Specifies procedures for conducting and documenting critical design quality practices: Task Force Meetings, Interdisciplinary Reviews, and Constructability Reviews
- Clearly defines the roles of the designer, contractor, and INDOT in the quality process.

PHASE 2: Construction | **Construction Quality Management Plan (CQMP)**

- Documents the evaluation and selection of subcontractors and suppliers according to contract requirements.
- Specifies material receiving inspection, storage, and control of approved materials.
- Clearly defines roles of designer, contractor, INDOT in the quality process.
- Plans and executes the construction/O&M activity using 3 Phase Control.
- Details inspection and test requirements for construction units/ maintenance cycle using INDOT approved methods, frequencies, and comprehensive checklists.
- Stipulates the control, trending, and corrective/preventive actions of nonconformances.
- Itemizes post-installation requirements for maintenance and preservation of work.
- Catalogs the collection, preservation, and reporting of quality documentation and records Project activities.
- Defines internal auditing, training, and management review processes for continuous improvement.

QUALITY TEAM STRUCTURE AND MANAGEMENT



QUALITY PROCESS

1. **Plan** — Discipline leads prepare basis of design manual to identify relevant codes, standards, and requirements for each piece of work.
2. **Prepare** — Discipline leads review design and perform design checks as reports, calculations, plans, checklists, and specifications are prepared.
3. **Review Design** — Discipline leads and design group managers perform interdisciplinary and constructability reviews.
4. **Audit & Certify** — QA audit verifies the QC process is complete followed by proper documentation.
5. **Submit to INDOT** — INDOT/stakeholders perform design reviews and prepare written comments.
6. **Comment Resolution** — INDOT and discipline leads review comments and agree upon resolution.
7. **Revise Design** — Discipline leads review design and perform design checks as comments are incorporated.
8. **Check & Review** — Discipline leads perform interdisciplinary and constructability reviews.
9. **Audit & Certify** — QA audit verifies the QC process has been completed followed by proper documentation.
10. **Release for Construction** — Discipline leads perform final reviews and stamp drawings.
11. **Develop Work Plan** — Work plan is developed by PM, Superintendents, Project Engineers, and CQM.
12. **Preparatory Meeting** — PM, Superintendents, and CQM review work plan with foreman and INDOT.
13. **Production** — Foreman and crew use work plan and initial inspection comments daily to execute scheduled tasks.
14. **Task Quality Analysis** — Foreman reviews work plan with crew to achieve involvement and crew constructs mock-up.
15. **Follow - Up** — Ensure compliance with contract documents.
16. **Audit/Review** — Review and revise weekly and provide to field crew.

Project Complete — Project is complete and meets quality goals.

LEGEND: Design Process | Construction Process | Hold Points

Comment Resolution: The DQMP will provide detailed procedures for comment resolution. A comment resolution form is the medium for recording, responding to, and resolving comments generated by INDOT. The DQM uses this log along with the check prints of drawings and calculations for the QA audit. The DQM will verify that the action items in the resolution form have been adequately addressed. The DQM will verify that the entire submittal package includes the elements described above, and that identified comments have been successfully resolved before issuing formal QA certification.

DESIGN REVIEW INTERNAL PROCESS

Design QA/QC Training: Formal design QA/QC training will be provided to design personnel on the Project at the start of the Project and prior to the development of any deliverable.

Design Checks (QC): The design team will be responsible to check, back-check, and verify designs, plans, specifications, and calculations/reports, and to identify applicable design criteria. The designers will use design checklists to document that design plans have been reviewed and meet the technical requirements of the contract. Independent design checks may also be performed for select sections of design, separate from the Discipline Lead Engineer. The DQM will perform a QA audit of the independent design checks for the select, pre-determined elements of complex design work before issuing QA certification.

Design Quality Assurance (QA): The DQM will audit the design team to verify it has performed the required QC reviews, checking, and back-checking in accordance with the approved DQMP. The DQM will prepare and submit required audit reports to the Executive Committee. The results of formal QA audits will be documented in the form of QA certification issued for the design submittals.

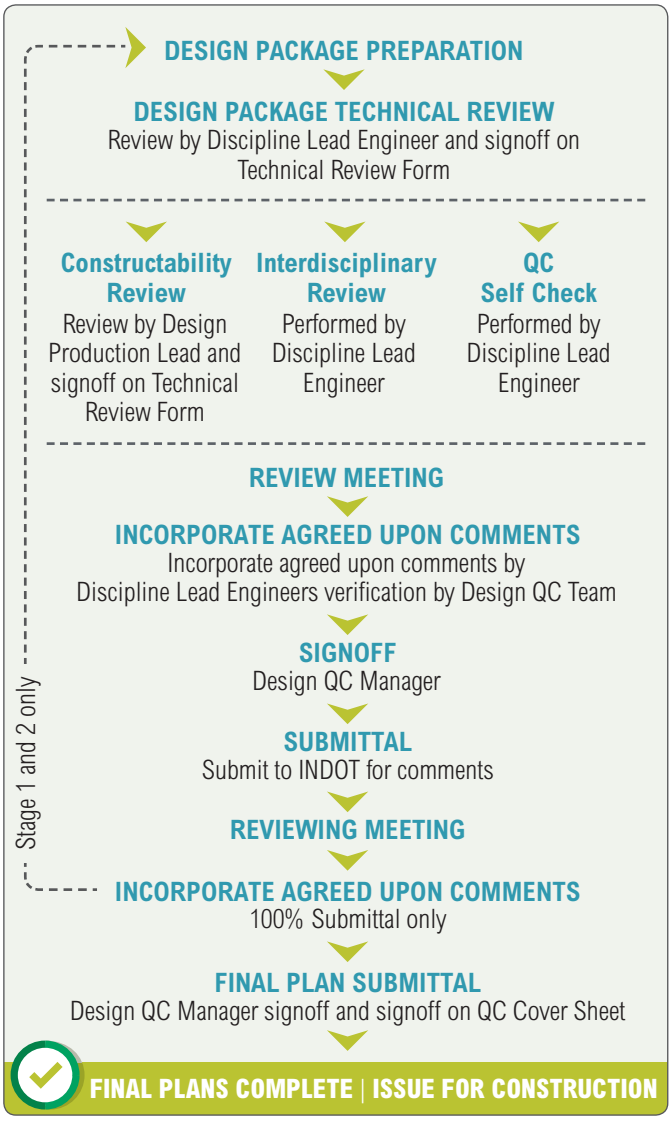
Interdisciplinary Reviews: Interdisciplinary reviews are a formal requirement of our DQMP. Discipline Lead Engineers must conduct formal reviews of every submittal, including drawings, reports and other deliverables prepared by the production teams. These reviews ensure consistency across design deliverable packages, employ correct standards, and minimize any conflicts if they arise in the field.

Constructability Reviews: Reviewers will use a constructability guide checklist for standard items, and look for other items that could cause issues in the field. Constructability reviews are a critical component of the DQMP, providing a high level of assurance that unconstructable designs do not make it to the field. Constructability review comments will be resolved with the Discipline Lead Engineers and provided to the Lead Engineer/Design Manager for review and concurrence.

QA/QC FUNCTIONS

Figure F.1-14 summarizes the design QA and QC process, from the start of design through the issuance of plans for construction.

Figure F.1-14 QA/QC Functions.



INDOT INVOLVEMENT

INDOT will be highly involved in the design quality process. The DQMP provides procedures and guidelines for design activities such as conducting various meetings, deliverable submissions, submittal reviews, comment resolution, design revisions, and working drawings. INDOT will be involved in each process, and their role and anticipated level of involvement will be described in the DQMP. In addition to their day-to-day involvement in these activities, the Walsh DBT anticipates that INDOT will conduct periodic audits of our design quality practices, to confirm adherence to our approved DQMP for both QC and QA activities.

REPORTING RELATIONSHIPS AND RESPONSIBILITIES

The DQM is functionally independent from design production and reports directly to the Executive Committee. The DQM is responsible for design quality assurance, continually auditing and reporting on the design QC process. In addition, the DQM has the following responsibilities:

	**PREPARES** design check report and submits reports to INDOT.
	**CONDUCTS** a design check of major temporary components that may affect the safety, quality, and durability of the permanent components.
	**CERTIFIES** the following: ✔ Design checks have been completed ✔ Work conforms to requirements of the PPA ✔ Any deviations or design exceptions have been approved, in writing, by INDOT ✔ Design QC activities follow the DQMP ✔ Outstanding issues or comments from design reviews have been resolved to INDOT's satisfaction.
	**IDENTIFIES** work not prepared in conformance with DQMP policies.
	**TRACKS, MONITORS, AND REPORTS** on the status of outstanding design-related non-conformance reports.

On a semi-annual basis, the DQM will have an independent design audit performed in order to verify the effectiveness of the DQMP. INDOT will be given advance notice of such audits in order to participate.

CONFORMANCE WITH FEDERAL OVERSIGHT REQUIREMENTS

Since this is an FHWA oversight project, we anticipate the FHWA will have early involvement in the planning and review of our QMP, PMP, and other up-front documents that become the overall construction plans of this Project. As the design progresses, FHWA will be invited to attend our planning meetings, Technical Working Group meetings, and progress meetings, as coordinated through INDOT.

DOCUMENTING DESIGN QUALITY MANAGEMENT

The DQMP will specify the level, frequency, and method for checking the design adequacy of the Project; outline comprehensive discipline-specific checklists that must be completed and submitted to the DQM as part of the QC documentation for design submittals; and specify the procedures and processes for design reviews, both internal and external. Documentation of the design quality process will include:

- Check prints of plans and calculations
- Completed checklists that demonstrate compliance with project requirements and standards
- Records of interdisciplinary, constructability, and INDOT reviews with comment resolution forms
- DQM and Lead Engineer/Design Manager sign-offs and certifications
- Audit reports

CORRECTING DESIGN DEFICIENCIES

Any design deficiency will be documented and corrected. During the design phase, corrections will be made as part of ongoing design development or, when significant, made immediately with the plans being reissued for review.

Should a design deficiency be detected after the release of final design documents, it will be necessary to follow a design change notice process. Disciplines and parties affected by the design change will be notified and the design correction will be processed through established QC procedures, including formal audit certifications by the DQM.

Construction Quality

The Walsh DBT is committed to delivering a Project in full compliance with PPA requirements for quality assurance, quality control, oversight, inspection, and

testing. CQM, Luke Wilson, will ensure that these requirements are considered during design development and work with the other construction staff to see that approved methods are implemented during construction.

Quality control plans will be submitted for INDOT approval on the following: construction hold points, grading, PCCP and HMA paving, erosion and sediment control, and structural steel painting. The Walsh DBT will provide inspection, sampling, testing, quality control, and QA as approved in the CQM and the Project documents.

INTEGRATING DESIGN QUALITY WITH CONSTRUCTION QUALITY

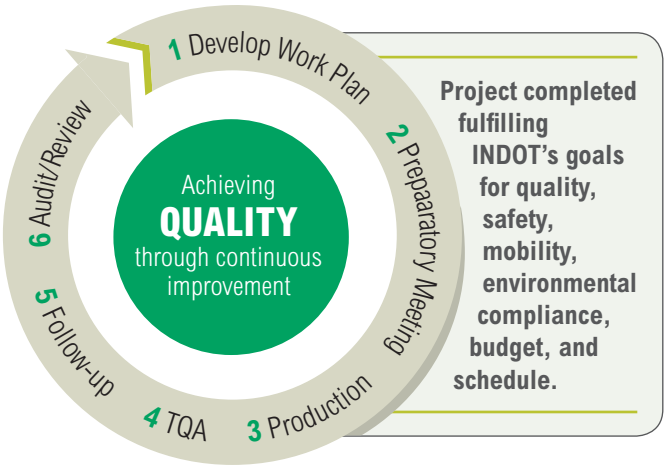
Constructability reviews will be used during design development to incorporate practical construction methods into the plans. Leveraging the experience of the Walsh DBT, this allows construction staff to reduce rework and ease the transition from design into construction.

Concurrent with final stages of design, the Construction Manager and Construction Superintendent will work together to identify major definable features of the work (DFOWs). For each DFOW, a construction Work Plan will be prepared that includes the scope and sequence of work, equipment and work tool needs, material requirements, applicable drawings and specifications, quality control requirements, safety and production reporting, schedule, and general information such as pertinent contact information.

Prior to start of the work, a Preparatory Meeting will be held to review the Work Plan and ensure that requirements are being met and confirm progress for each of the planning items. INDOT's involvement during these meetings will support the Walsh DBT's "no surprises" approach, where the full team agrees on the documented plan. At this stage, management will also confirm that required submittals have been approved.

At Production, the foreman will review the full Work Plan with the tradespeople performing the work, adding any important comments from the group. On a daily basis, foremen will refer back to the Work Plan to fill out the Task Quality Analysis (TQA) worksheet, which will then be reviewed in the field with the crew. This additional step works as a daily planning tool and quality check. Any comments will be added to the

Figure F.1-15 Work Plan Cycle. To achieve INDOT's quality goals through continuous improvement, construction implements a 6-step work plan process.



form as necessary. Work Plans will then be updated weekly with any comments or revisions to ensure that quality performance is achieved through continuous improvement. A sample TQA worksheet and Work Plan are provided in the Volume 2A Appendices.

In addition, weekly Quality Toolbox Talks, led by Luke Wilson, will be performed. These talks serve as an educational tool for Project tradespeople, introducing Quality Management initiatives and best practices.

DOCUMENTING CONTROL OF MATERIALS

Following INDOT's standard practice, Walsh will use the INDOT approved materials list to ensure quality and consistency with INDOT's standard specifications. When INDOT approved materials are not available or an alternative source is requested, Walsh will use a material submittal process to obtain INDOT approval. Materials will be ordered based on these material approvals to ensure only approved materials are delivered to the site. When materials are delivered to site, Walsh will verify that received materials are approved, are of the required workmanship, and have sufficient certifications per INDOT frequency manual and standard specification. The material certification will be provided to INDOT to confirm conformance of materials to the plans and specifications. Materials will be handled, stored and delivered per the requirements of the manufacturer and specifications.

TESTING, INSPECTION, AND MONITORING OF CONSTRUCTION ACTIVITIES

Luke Wilson, CQM, will oversee testing, inspection, and monitoring to ensure that Project requirements

are met or exceeded. The Walsh DBT understands the importance of early coordination regarding quality-related hold points and commits to submitting QA/QC plans for both HMA and PCCP paving two months in advance of the associated work. Project-specific QC plans for erosion and sediment control and structural steel painting will also be prepared for INDOT approval. Two sample QC plans have been included in the Volume 2A Appendices.

Testing, inspection, and monitoring of HMA and PCCP will meet or exceed INDOT requirements for QA/QC. Material suppliers will perform duties in accordance with the Technical Provisions. On-site checks will be performed regularly to verify reporting and sampling procedures are in line with INDOT expectations. Quality reports will be transmitted to INDOT and made available on the SharePoint site.

REPORTING PROCEDURES, METHODOLOGIES, AND CORRECTIVE ACTIONS

The Walsh DBT will control and maintain documents and records related to quality within the SharePoint site. INDOT personnel will have full authority to access construction quality documentation. Project procedures will be in accordance with the approved QMP. Construction quality records, including hard copies and electronic files, will be uploaded to SharePoint once reviewed by the responsible team member.

For any issue requiring formal corrective action, the Walsh DBT will partner with INDOT to develop an agreed-upon solution in the form of a Field Design Change. Based on approved redline drawings and associated comments, field work will proceed while a revised versions of the associated sheets are developed. Using this protocol, a fully updated as-built set of drawings will be maintained throughout the Project. A drawing log will be maintained on the project SharePoint site, listing each drawing and the associated revision dates. Email notifications will be sent to Project staff when revised drawings are made available. As an additional precaution, the management team will perform weekly checks to verify that field employees, including subcontractors, are utilizing the most current drawing versions.

INDOT INVOLVEMENT

Project success requires a partnership between INDOT and the Walsh DBT. Throughout design, planning, and construction, INDOT will be encouraged to attend regular meetings. Owner feedback and buy-in during early stages will help ensure that construction operations progress toward achieving our goal of "Right the First Time."

Quality Testing on ORB East End Crossing P3.

Walsh DBT is dedicated to continually improving its Quality Management program. Luke Wilson will meet with INDOT's Project Manager on a regular basis and seek feedback as to the overall level of quality delivered. This feedback will allow us to analyze the root of any complaint and take appropriate action to prevent recurrence.

CONSTRUCTION DOCUMENTATION AND CORRECTION

Construction Manager Joe Kislowski will provide weekly written project updates to INDOT that detail activities that have been performed, including Nonconforming Work status, proposed corrective actions, and corrective actions completed.

In the event that work is found to be nonconforming, the Walsh DBT will partner with INDOT to identify a plan to bring the issue into an acceptable state. Any changes in design of the in-process or permanent works will be reviewed and approved by the engineer of record. Final disposition will be recorded and filed on the Project SharePoint site.

The Walsh DBT will also implement use of Quality Incident Reports (QIRs), which are tools to report, track, and learn from our mistakes to continuously improve. QIRs are to be reported for any substantial field or office activities in which an element of work has to be modified, reworked, removed, replaced, or adjusted through any means other than an INDOT approved change. This internal tracking of rework will allow the project team to identify issues and enact measures to prevent incident recurrence.

Safety Management

The Walsh DBT is focused on "No One Gets Hurt!" Our greatest responsibility is the safety of both our workforce and the motorists who use I-65 every day. The I-65 corridor's heavy traffic and tight conditions during construction present unique safety challenges that our team is prepared to address through:

- **Skillful Safety Leadership:** John Coye serves as the Walsh DBT's Safety Manager. John holds the designation of Certified Health and Safety Technician (CHST), which ensures a consistent level of leadership and technical skill. Deputy Safety Manager, Gerald Hancock, will support John in safety leadership with a particular focus on paving operations.
- **Innovative Maintenance of Traffic (MOT) Design:** The Walsh DBT's approach to safety is driven by MOT design as well as crew involvement and communication. Our MOT plan enhances motorist safety by providing eight signed emergency pull-off areas, an on-site tow truck to improve incident response, and law enforcement officers as determined by construction operations.
- **Effective Jobsite Safety:** The Walsh DBT will use creative and effective methods to increase safety awareness and performance on the jobsite. One such method is requiring new employees and trainees to wear blue hardhats for their first six months on the job. This alerts experienced staff to the new employees who may need guidance or assistance.

SAFETY RESPONSIBILITY

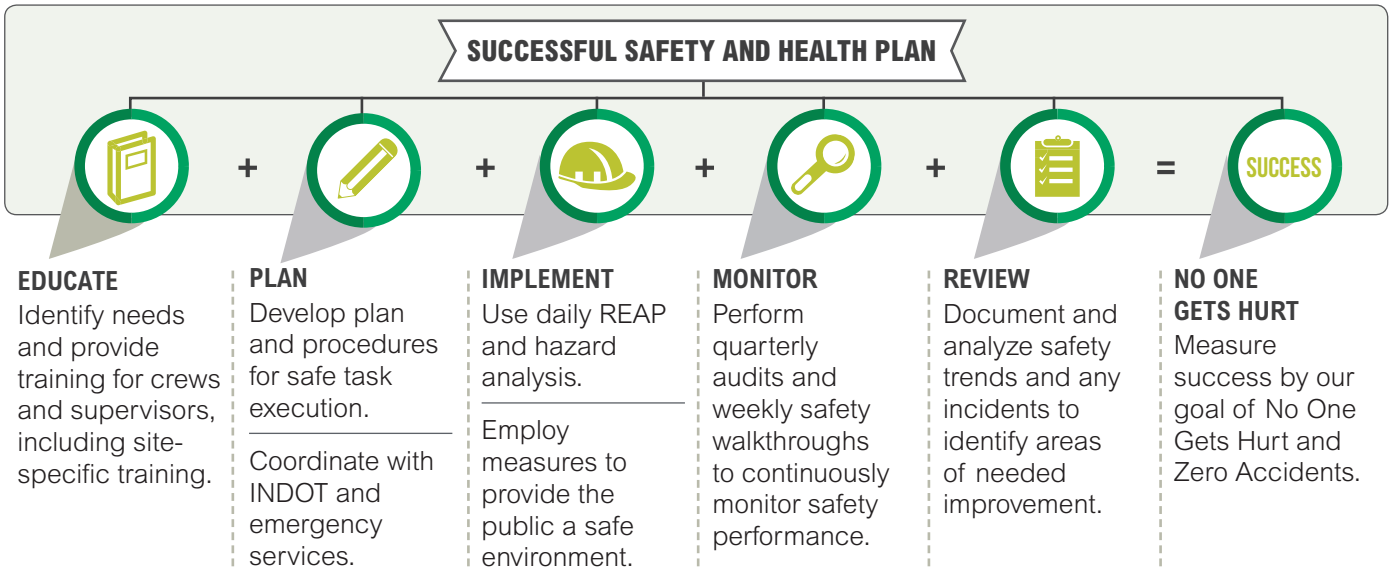
As Safety Manager, John will report directly to the Executive Committee to maintain safety independence from production, and will work alongside Project Manager, Marc Arena, to prioritize safety in Project planning and activities. John and Gerald will support safe work practices through coordination with Construction Manager, Joe Kislowski, MOT Manager, Chad Conwell, and Construction Superintendent, Paul Bitters. John and Gerald will oversee training, advise on safety issues during design and construction, and implement our Safety Plan.

Safety is a coordinated effort between these supervisors and employees at all levels. All employees are responsible for safety and are empowered to stop work if they observe unsafe work practices. We promote and expect a high level of employee engagement and involvement in safety as part of our successful behavior-based observation process called REAP (Review Employee's Actions and Performance). The program focuses on daily employee interaction, coaching, and recognition to promote safety.

COMPREHENSIVE SAFETY PLAN

The Walsh DBT will develop a comprehensive, site-specific Safety Plan based on the core components of Walsh Construction's successful safety program (**Figure F.1-16**). The Safety Plan will describe work practices and measures to keep the public and our crews safe, and also will describe the work site

Figure F.1-16 Core Safety Components.



controls for monitoring safety performance and reviewing safety practices for continuous improvement. The Walsh DBT provides a sample Safety Checklist in the Volume 2A Appendices.

Our plan will comply with the Technical Provisions, OSHA requirements, AASHTO's Highway Safety Design and Operations Guide, and INDOT's Work Zone Safety Manual.

TRAINING PROGRAMS

The Safety Plan will detail how the Walsh DBT will provide employees the support, tools, resources, and training needed to perform work safely while being alert to potential hazards. All supervisors are required to have updated CPR/First Aid training, as well as 30-hour OSHA certification. Personnel will attend an orientation and training before being allowed on the Project. Prior to the start of construction, we will also arrange an incident management training session, led by INDOT, for key personnel, superintendents, and lead foreman to become familiar with the Project's incident management procedures.

Training will always include the theme of "No One Gets Hurt" to reinforce the Walsh DBT's high expectations. Training provides the tools and skills necessary to meet this goal. John and Gerald will direct safety training, including any training specifically for the Project. Training will be customized for each person's responsibilities, and may include confined space, crane safety awareness, American Traffic Safety Services Association (ATTSA) supervisor training, and others.

Additional training needs will be evaluated during pre-planning of construction and maintenance activities, where supervisory personnel perform hazard analyses to identify safety risks. This hazard analysis will be performed on both a job level, through jobsite hazard analysis (JHA), and at a task level, through task hazard analysis (THA). Supervisory staff will review JHAs and THAs with personnel, management, and safety staff to confirm training needs.

INCIDENT MANAGEMENT AND RESPONSE PLANS

The Walsh DBT commends INDOT's implementation of incident management initiatives on this Project to ensure a coordinated, efficient response in emergency situations between our team, INDOT, and the various emergency response agencies. Joe Henrys will act as the Incident Management Liaison for the Walsh DBT. Other key staff, such as Marc Arena, Joe Kislowski, and John Coye, will participate in the Incident Management Task Force meetings.

Industry Leaders in Safety. Walsh Construction and Parsons each participate as sponsors in the construction industry's yearly "Safety Week." This program increases safety awareness and includes on-site activities such as this safety demonstration.

The Walsh DBT will work with INDOT and emergency services in the Incident Management Task Force to prepare for potential emergency events, make sure emergency vehicles have quick access to incident areas, and lessen possible impacts to services or public safety. In the event of a major incident during construction, the Walsh DBT will assist as required to establish road or ramp closures to isolate the incident. Our heavy equipment can also be used to assist in moving debris or realigning barriers to enable the roadway to return to normal traffic operations.

COMMUNICATION AND COORDINATION WITH INDOT

In addition to his responsibilities for the Incident Management Task Force, Joe Henrys will coordinate incident response requirements with the designated INDOT personnel, prepare and distribute incident management maps, and meet with local fire and police department representatives ahead of changes to MOT patterns to coordinate response plans.

Our Safety Plan will address procedures for immediately notifying INDOT of all incidents arising out of or in connection with the work. Employees will receive training on communication protocol. Public Information Coordinator, Erin Pipkin, will be available to communicate information to the public, as requested by INDOT.

Environmental Management

The Walsh DBT is dedicated to protecting our environment and sensitive community resources while delivering high-quality infrastructure. We have reviewed all of the documentation provided in the PPA documents and environmental approvals, including the NEPA documents, draft permits, and project commitments, to identify sensitive environmental resources located within and adjacent to the Project area. Our team commits to providing:

- **Risk Mitigation:** Proactive identification of environmental risks and feasible mitigation solutions.
- **Innovative Design:** Reduced impacts to the environment with a design that requires less tree clearing, minimized work in the waterways, and limited outside ditch work for stormwater detention.
- **Erosion Control Implementation:** Environmental team that provides seamless coordination between design and field experts. Ability to revise work based on field activities and rain events.
- **Stakeholder Relationships:** Environmental team with well established relationships with permitting review staff.

ENVIRONMENTAL TEAM

The Walsh DBT has organized a well-qualified environmental team (**Figure F.1-17**). This team has been working closely with our design and construction staff to ensure environmental requirements are understood and followed, and that impacts to environmental resources are minimized. The team includes:

- **Dan Miller, Environmental Compliance Manager.** Dan will coordination with agency stakeholders, perform conformance reviews of permit applications, and manage the environmental design staff's day-to-day operations. Dan's experience preparing, reviewing, and managing all aspects of the NEPA process will also help our team to navigate the NEPA process on this Project.
- **Jonathan Siminski, Erosion and Sediment Control Manager.** Jonathan, a Certified Professional in Erosion and Sediment Control (CPESC), will implement the E&SC plans to ensure that stormwater is controlled onsite and does not impact other environmental resources (such as Waters of the U.S.) or permits (Section 404/401).
- **Thomas (TJ) Warrner, Permits Manager.** TJ, a Certified Erosion, Sediment, and Storm Water Inspector (CESSWI), will design E&SC plans. He will obtain the Construction in a Floodway (CIF) permits, required permit modifications, and any additional environmental mitigation.

Figure F.1-17 Environmental Team Qualifications.
Complete resumes for the environmental team are provided in the Volume 2A Appendices.

ENVIRONMENTAL COMPLIANCE MANAGER
Dan Miller
14 Years' Experience | INDOT DB Experience
Experience leading environmental teams and complying with environmental commitments and conditions. Prepared environmental documents for over 150 INDOT projects. Experience managing NEPA process and securing permits.

EROSION & SEDIMENT CONTROL MANAGER
Jonathan Siminski, CEPSC
7 Years' Experience | INDOT DB Experience
Experience managing environmental compliance and sediment control on the Ohio River Bridges East End Crossing project. Developed and maintained project-specific erosion control plans.

PERMITS MANAGER
Thomas (TJ) Warrner, CESSWI
11 Years' Experience | INDOT DB Experience
Experience securing permits from state, local, and federal regulatory agencies, including permits on large-scale INDOT projects, such as the I-69 Interstate Expansion Project and the I-65 Added Travel Lanes Design-Build Project.

ENVIRONMENTAL COMPLIANCE AND MITIGATION PLAN

The Walsh DBT has identified environmental resources and requirements from the PPA Documents and environmental approvals. Upon Project award, the Walsh DBT will prepare the Environmental Compliance and Mitigation Plan (ECMP). The ECMP will include a checklist of identified environmental resources, commitments, and other requirements including permit conditions. The ECMP will describe:

- Methods to comply with requirements
- How and where impacts to environmental resources have been avoided and minimized, and where impacts have occurred
- Environmental compliance process, structure, and organization location
- Documentation, communication, and QA/QC processes and procedures
- Corrective-action process required to maintain environmental compliance

Our environmental team will continue to work with our design and construction staff to minimize impacts to environmental resources and monitor compliance with permits and other Governmental Approvals through plan reviews and field checks. The Walsh DBT will follow a strict QA/QC process throughout the design stage, where our environmental team reviews the plans during development to avoid impacts or minimize to the greatest extent possible. During construction, our team will ensure that requirements are being followed, and will immediately act to correct any issues identified onsite.

EROSION AND SEDIMENT CONTROL DEVICES

As a CESSWI, TJ Warner will design the E&SC Plans, and CPESC, Jonathan Siminski will ensure the control measures are installed correctly and identify appropriate changes that need to be made to handle unexpected on-site conditions. E&SC devices (such as silt fence, sediment traps, erosion control blankets, check dams, seeding, mulching, etc.) will be installed where appropriate to proactively control stormwater. Our environmental team will work closely with design and construction staff to ensure adequate measures are installed correctly and maintained to avoid any potential off-site sedimentation and/or violation of any of the Project's permits.

Erosion and Sediment Control Expertise. On the ORB East End Crossing P3, Erosion & Sediment Control Manager, Jonathan Siminski, developed and maintained erosion control plans and ensured compliance with 401/404 Clean Water Acts.

ENVIRONMENTAL RISK MITIGATION, ELIMINATION, OR REDUCTION

Since environmental services are often critical path project development elements, the Walsh DBT has identified potential environmental risks and discussed how the team will mitigate and manage these risks. The Environmental Risk Matrix, presented in **Figure F.1-18**, documents environmental resources, risks, and commitments located within the Project area.

Figure F.1-18 Environmental Risk Matrix.

Resource	Potential Risk	Mitigation
Waters of the U.S./State (Permitted impacts to 9,485 acres of wetland/212 linear feet of streams/14.23 acres of credits)	Permit Modifications; Additional Impacts = Additional Mitigation; Project Delays	The Walsh DBT will minimize and reduce impacts to jurisdictional waters throughout the Project limits by eliminating grading on the outside shoulders and avoiding impacts, where possible, in the detention design.
Grand Kankakee Marsh Trail (Section 4(f) Resource)	"Use" of a Section 4(f) Resource	The Walsh DBT will minimize impacts through allowable closures and maintain frequent coordination with officials with jurisdiction.
Jurisdictional Floodways	Design-Build Contractor must obtain CIF Permits. Potential Off-Site Floodway Mitigation.	The Walsh DBT's Environmental Staff has been working with our Design Staff to reduce floodway impacts where possible. By being involved throughout the process, our staff is ready to deliver the time-critical CIF permits to keep the Project on track.
Erosion & Sediment Control	Off-Site Sedimentation; Violating Rule 5, Section 404/401, & CIF Permit Conditions	The Walsh DBT includes CPESC and CESSWI certified staff, who will ensure that adequate E&SC control devices are designed, work, and are maintained after installation.

PRELIMINARY DESIGN-BUILD PLAN

PRELIMINARY DESIGN-BUILD PLAN

WALSH PARSONS Walsh & Kelly

PRELIMINARY DESIGN-BUILD PLAN

The Walsh Design-Build Team (Walsh DBT) understands the I-65 Northwest Indiana Major Moves 2020 Expansion Project's (Project) current conditions as frequent drivers of this stretch of I-65 and through our initial design work as a shortlisted team for the Illiana pursuit. Our proposal presents our ability and commitment to design and construct a high-quality, best-value Project through optimizations outlined in the table below and throughout our Preliminary Design-Build Plan.

The Walsh DBT Component		The Walsh DBT Benefit(s)
Maintenance of Traffic	Use 4-foot MOT shoulders. (Phases B1, B2, C1 and C2)	+ Enhances safety and driver expectancy with wider shoulders during construction.
	Use 10-foot inside shoulder in Segment A through restriping I-65. Places a portion of traffic onto the existing 14-foot inside shoulder.	+ Enhances safety with restriping and provides additional buffer space between vehicles and the work zone.
	Increase shoulder width to two feet on bridges during MOT. (US 231 crossover, Kankakee crossover, 109th Ave.)	+ Enhances safety and driver expectancy with wider shoulders during construction.
	Increase taper rate for lane shifts to 60:1 during MOT for bridge locations. (SR 2, Wirtz Ditch, US 231, 109th Ave.)	+ Enhances safety and driver expectancy with a flatter taper rate consistent with the final design criteria.
	Increase distance between traffic and the work zones throughout roadway construction. (Phase C-FS-1; Phase B1/C1/C2; Phase B2; Phase A1)	+ Enhances safety with wider clear zones increasing the distance between motorists and construction activities.
	Increase the 8-foot construction clear zone to 14 feet. (SR 2, Wirtz Ditch, US 231, 109th Ave)	+ Enhances safety by increasing the distance between motorists and workers.
	Outside shoulder pavement placed for MOT remains in-place as the final paved shoulder.	+ Eliminates a construction phase to reduce construction duration and enhance driver expectancy.
Kankakee River Bridges (KRB)	Use a single-span bridge with MSE Walls for KRB.	+ Reduces square footage and future maintenance costs.
	Use integral end bents.	+ Reduces long-term maintenance costs.
	Eliminate bridge piers for KRB.	+ Eliminates channel work and scour/drift accumulation.
	Use existing turnouts, where possible, and use concrete curbs to carry water to turnouts away from the bridge.	+ Minimizes environmental impacts and diverts water away from the MSE wall backfill and TGB transition posts to reduce future erosion.
	Eliminate bridge deck drains.	+ Eliminates all deck drain related maintenance and clogging.
Roadway/Pavement Design	Use compacted aggregate/recycled asphalt millings in the median.(Segment C).	+ Eliminates median grass cutting and inlet blockage risk due to grass clippings.
	Reconstruct a portion of concrete median barrier north of US 231 with optimized geometric design between Segments A and C.	+ Eliminates lane shift at the same location as ramp entrance to provide a safer, more driver-friendly design.
	Use optimized pavement design with thicker SMA surface layer for full-depth HMA pavement. (Segment C)	+ Provides a thinner overall pavement section to reduce construction duration and achieve desired performance.
	Provide pavement approach to address vertical clearance issues on I-65 beneath 137th Ave. and 153rd Ave.	+ Allows mill and overlay to achieve required vertical clearance beneath overpasses and reduces amount of milling (2.5 inches), overlay, and depths.
	Use thicker aggregate drainage layer beneath the full-depth HMA pavement.	+ Allows overall optimized pavement section to match existing adjacent composite section and facilitate drainage and reduce the construction duration.

The Walsh DBT identifies significant benefits to INDOT throughout this Technical Proposal with the Walsh DBT plus icon (+).

Traffic Management Plan

The Walsh DBT's Traffic Management Plan (TMP) is focused on constructing the Project efficiently and safely, while satisfying the Project Goal of developing innovative solutions to sequencing and maintenance of traffic (MOT). Key benefits of our plan include:

- **Improved driver safety** with minimized lane shifts
- **Exceeded Project standards** for shoulder widths, construction clear zone, and lane shift tapers
- **Enhanced safety features** including eight signed emergency pull-off areas, on-site tow truck and law enforcement officers to improve incident response
- **Maintained access** to local roads and businesses
- **Proactive communication** with stakeholders and emergency responders

The TMP incorporates simple and effective solutions to minimize closures and lane shifts as the first step in creating a safe environment for workers and motorists alike. Our TMP exceeds INDOT standards and Manual on Uniform Traffic Control Devices (MUTCD) guidance to provide a consistent design that meets drivers' expectations and addresses PPA and Technical Provisions requirements. We visited every bridge and Segment within the Project limits to identify and develop an individualized plan for traffic maintenance and protection during design, construction, and maintenance for each site.

Construction Staging and Traffic Control and Sequencing

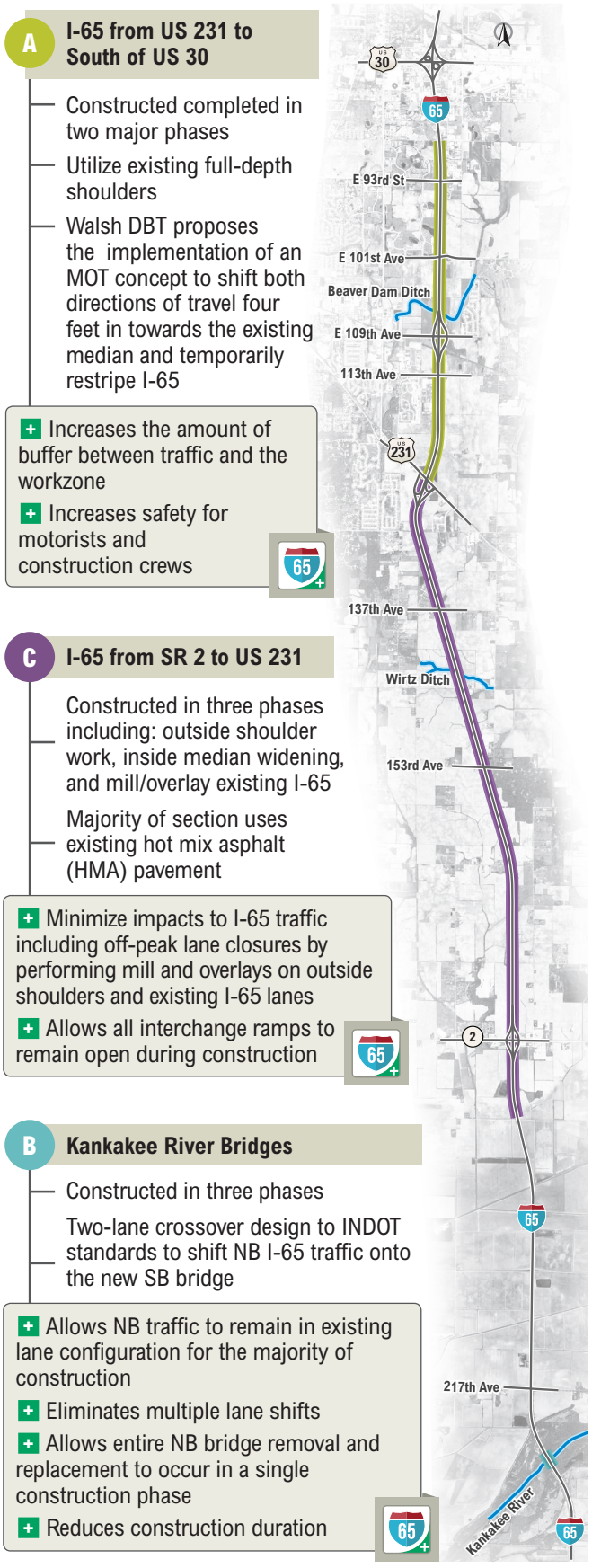
Our traffic control approach conforms to the Technical Provisions while incorporating opportunities to add value. We designed geometric features within the work zone to 60 mph criteria and provided positive protection where warranted. The following sections describe our plan in greater detail.

TRAFFIC MANAGEMENT AND CONTROL AND SEQUENCING APPROACH

Our approach simplifies the sequence of construction in each Segment (Segments A, B, and C). Our TMP allows a significant amount of construction during each configuration, thereby minimizing lane shifts and meeting driver expectancy. With our plan, drivers are not required to continually learn new patterns and operations, as described in **Figure F.2-1**.

The three I-65 interchanges within the Project limits require safe and efficient access during construction.

Figure F.2-1 Construction Staging Highlights.



Each interchange has unique challenges we have addressed as described below:

I-65 and SR 2:

- Outside shoulder work staged to avoid impact to existing ramps
- All ramps remain open during construction
- Acceleration lanes provided for all on-ramps during construction

I-65 and US 231 (Figures F.2-2 and F.2.6):

- Heavy truck traffic on I-65 impacts performance of northbound on-ramp from US 231
- The Walsh DBT approach utilizes northbournd single-lane crossover and acceleration lane for northbound on-ramp

I-65 and 109th Avenue:

- MOT strategy at Beaver Dam Ditch bridge allows all ramps to remain open (**Figure F.2-6**)

The Technical Provisions define an 8-foot construction clear zone. We propose to increase this distance to between 9 and 18 feet and maximize the construction clear zone during each construction phase of construction. This increase to the clear zone enhances safety by increasing the distance between motorists and construction activities.

Providing safe work areas on bridges often requires the use of temporary concrete barrier (TCB) as a means of positive protection. Our proposal includes increasing safety by extending TCB past the project-defined, 8-foot construction clear zone to a distance of 14 feet when terminating barrier without an impact attenuator.

We have developed a construction sequence that limits impacts to the traveling public by maximizing construction efficiency. Our plan to work concurrently in the median of Segment C and the outside of Segment A is evidence of this approach. This strategy also pushed us to design an overlay for the outside shoulders of Segment C that can be used during construction, and meet the Project requirements when left in place as the final surface. This eliminates a phase of construction that would be required to re-mill and overlay the shoulder at the conclusion of the Project.

Figure F.2-2 I-65 and US 231 Intersection. Value added through innovative MOT strategy.

THE WALSH DBT PLAN
Use crossover to provide acceleration lane for on-ramp.

- Existing bridge width cannot accommodate three lanes of traffic (two through lanes + on-ramp acceleration lane).
- Utilize crossover to place one NB through lane onto the proposed SB bridge
- This allows the NB on-ramp to enter I-65 in an exclusive acceleration lane

Provides best and safest geometric access to NB I-65 from US 231 during construction.

ELIMINATED OPTION
Use available existing bridge width.

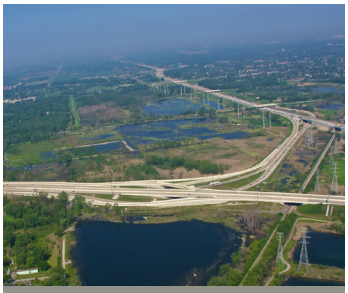
- The existing bridge width can only accommodate two lanes during construction
- I-65 must maintain two through lanes during construction
- The NB on-ramp would be under stop/yield control and without necessary acceleration length to enter I-65

Very unsafe, results in stop condition for on ramp, and causes major impacts to mobility.

CONCEPTUAL CONSTRUCTION STAGING DIAGRAMS

The Walsh DBT's phasing maps (**Figure F.2-3** to **Figure F.2-6)** provide an overview of our team's overall TMP, which was developed based on INDOT's Project goals. We have sequenced work between the three Segments to provide optimal efficiency. Phasing within each Segment has been devised to maximize the amount of work completed during each traffic shift. Detailed drawings are provided in the Volume 2B and 2C Appendices.

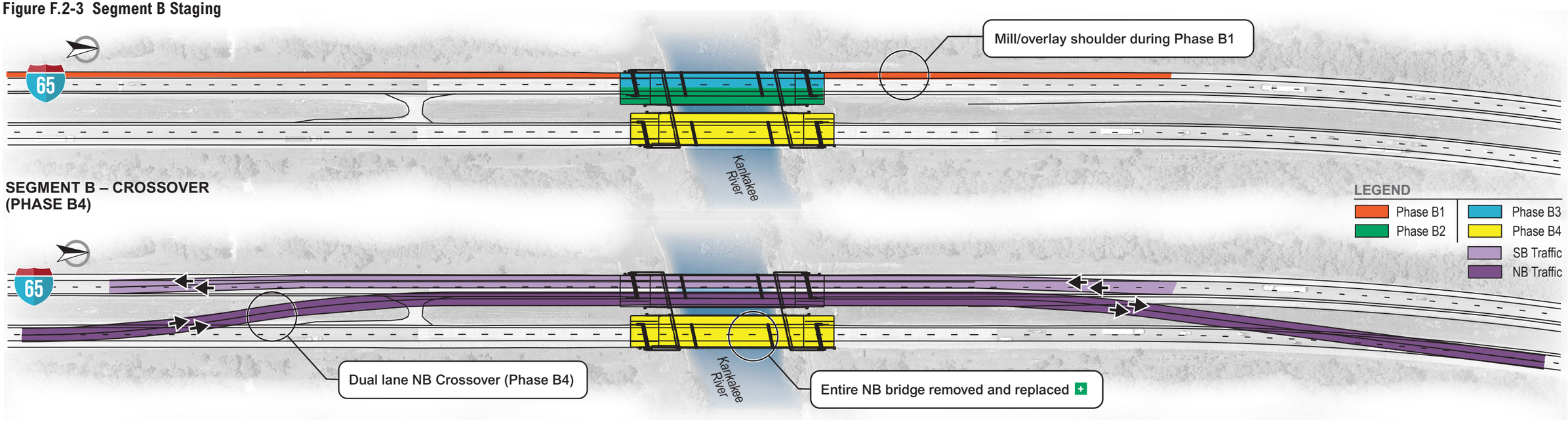
The Walsh DBT's **experienced local workforce** has delivered many projects in Northwest Indiana.


I-65/I-80 Interchange

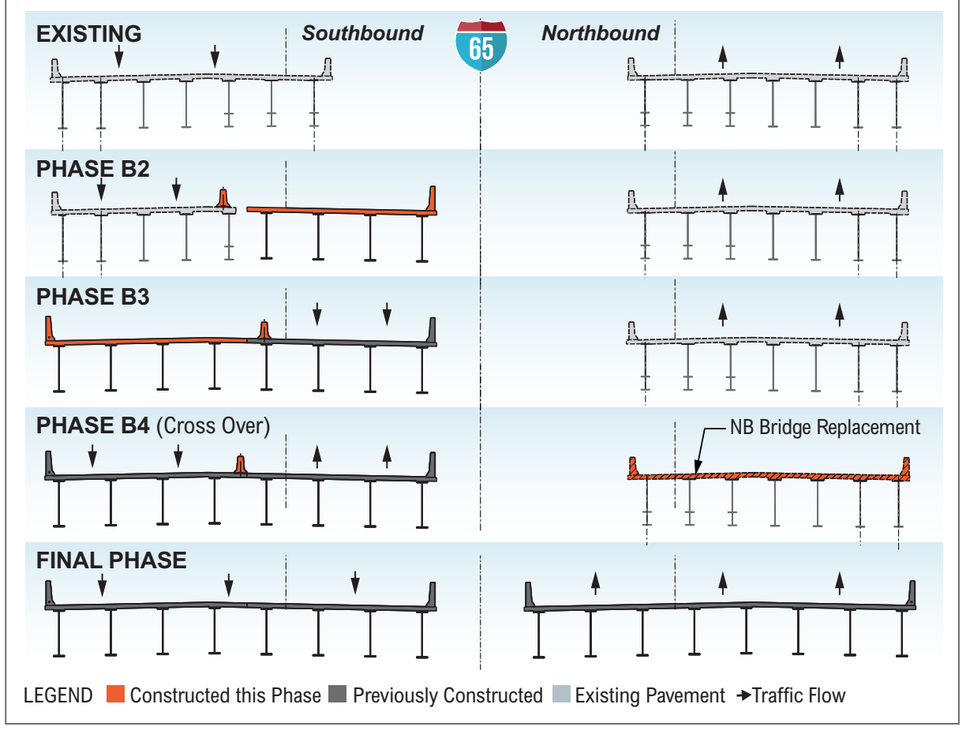

I-80 Interchange Modifications


US 31, South Bend

Figure F.2-3 Segment B Staging



MOT I-65 SEGMENT B TYPICAL



SEGMENT B PHASING HIGHLIGHTS

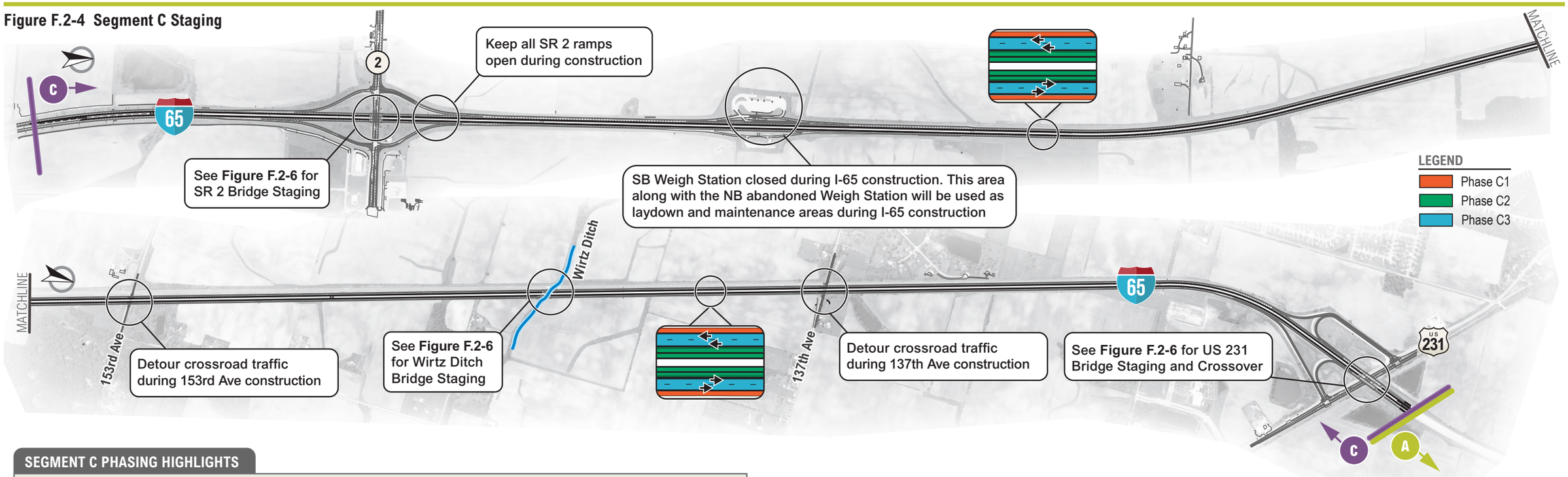
The Walsh DBT explored several phasing strategies to construct the new Kankakee River Bridges. Our proposed approach maximizes value by reducing construction duration and providing maximum safety.

- **Phase B1:** Mill and overlay outside SB shoulder during off-peak nighttime lane closures.
- **Phase B2:** Build inside of proposed SB bridge, and the temporary pavement for the crossover. NB traffic remains on existing I-65.
- **Phase B3:** Build outside of proposed SB bridge. NB traffic remains on existing I-65.
- **Phase B4:** Utilize two-lane crossover to place NB traffic onto the new SB bridge. Remove and completely construct the new NB bridge.
- Two lanes of traffic on I-65 are maintained during peak hours.
- NB traffic remains in the existing lane configurations for the first three phases of the project. This adds value by maximizing driver expectancy and safety by maintaining wide lanes and shoulders.

SEGMENT B CROSSOVER HIGHLIGHTS

- The proposed two-lane crossover was designed with guidance from INDOT Standard Drawing E 801-TCCO.
- The INDOT Standard Drawing was modified to provide a 60mph design speed. This meant providing larger radius entry and exit curves for the crossover, which adds value by increasing driver expectancy and safety.
- The NB and SB directions of travel will be separated by Type 1 Temporary Concrete Barrier (TCB) while in the crossover.
- The TCB terminates outside of the crossover when it is no longer within the construction clear zone of the opposing traffic. The Walsh DBT has added value to the project by extending the construction clear zone to 14' (IDM, Figure 82-4B, 60mph) as opposed to the 8' as defined in the project standards.
- The NB traffic in the two-lane crossover utilizes 12' lanes and 2' shoulders while adjacent to SB traffic. This additional width over and above the project standard minimum widths adds value by mitigating driver expectancy concerns in the crossover.

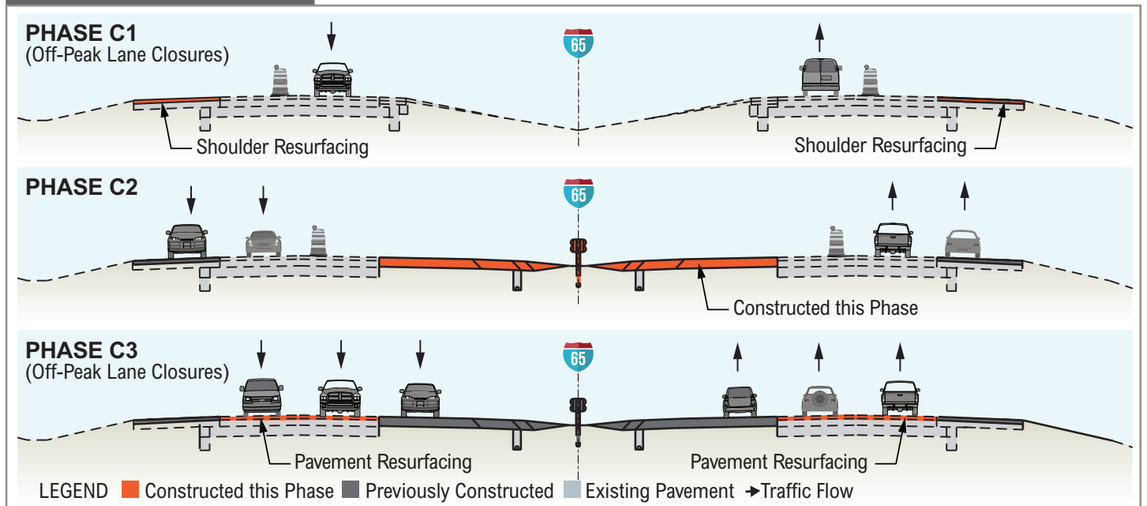
Figure F.2-4 Segment C Staging



SEGMENT C PHASING HIGHLIGHTS

- The outside shoulders are milled and overlayed during off-peak nighttime lane closures during Phase C1. Traffic will utilize these shoulders during Phase C2.
- A single lane crossover is utilized at US 231. This allows the Walsh DBT to provide an acceleration lane for traffic entering NB I-65 from US 231.
- The Walsh DBT has proposed temporary lane shifts using 60:1 tapers. This exceeds the 30:1 taper required per MUTCD, and adds value by providing a safer design that meets driver expectancy.

MOT I-65 SEGMENT C TYPICAL



SEGMENT C – SHORT-TERM CROSSROAD DETOURS

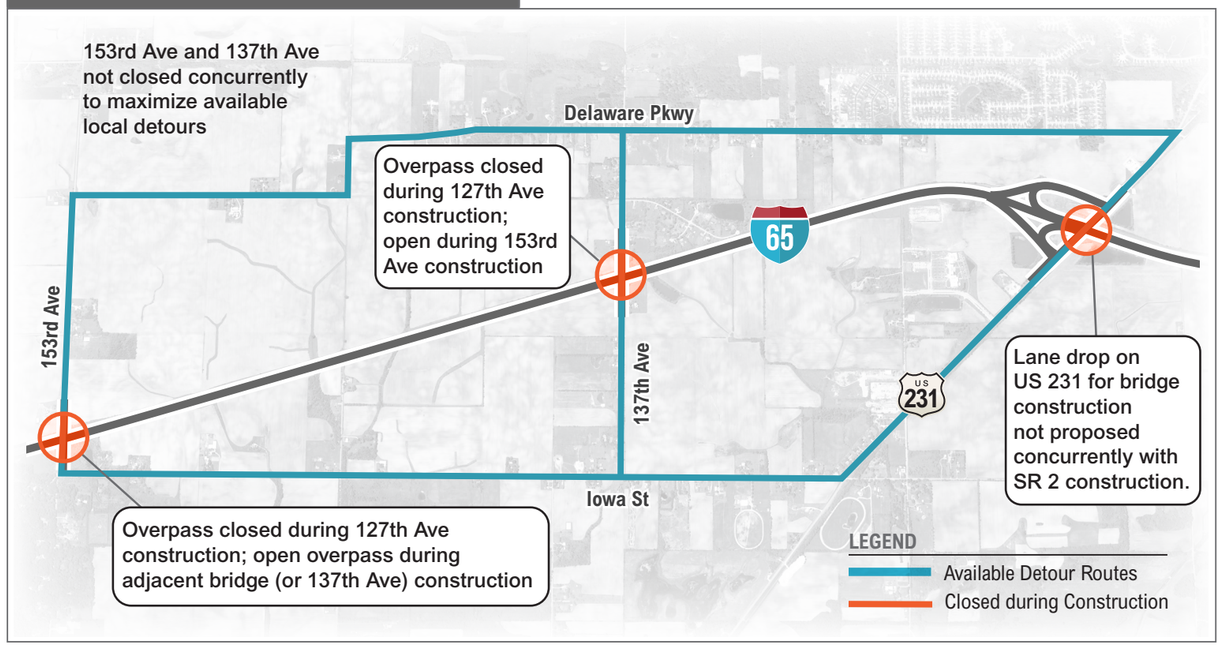
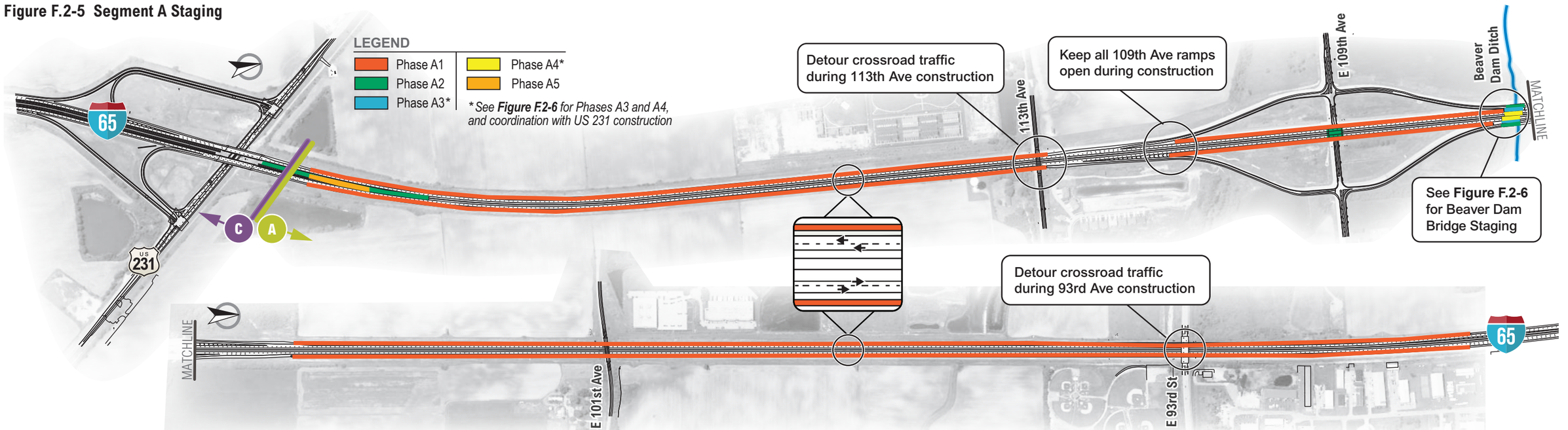


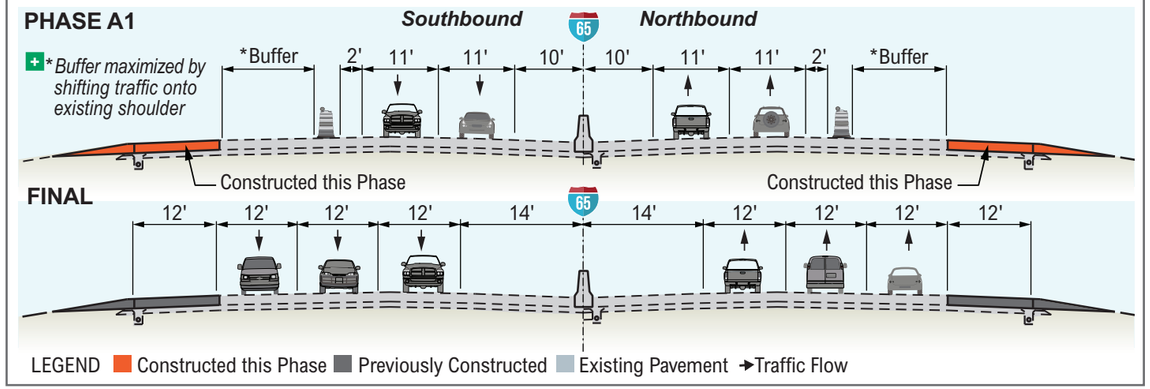
Figure F.2-5 Segment A Staging



SEGMENT A PHASING HIGHLIGHTS

- I-65 is temporarily restriped during Phase A1 to shift traffic onto the existing inside shoulder and increase safety by maximizing the buffer distance to the outside work area.
- 113th Avenue and 93rd Avenue construction will be performed under short-term closures. This will reduce impacts to residences and businesses by reducing construction duration.
- All ramps at the US 231 and 109th Avenue interchanges remain open during construction, and with acceleration lane lengths which meet design criteria.
- Two lanes of I-65 traffic remain open at all times during construction. Additionally, pedestrian access across 93rd Avenue is provided at all times during construction.

MOT I-65 SEGMENT A TYPICAL



SEGMENT A – SHORT-TERM CROSSROAD DETOURS

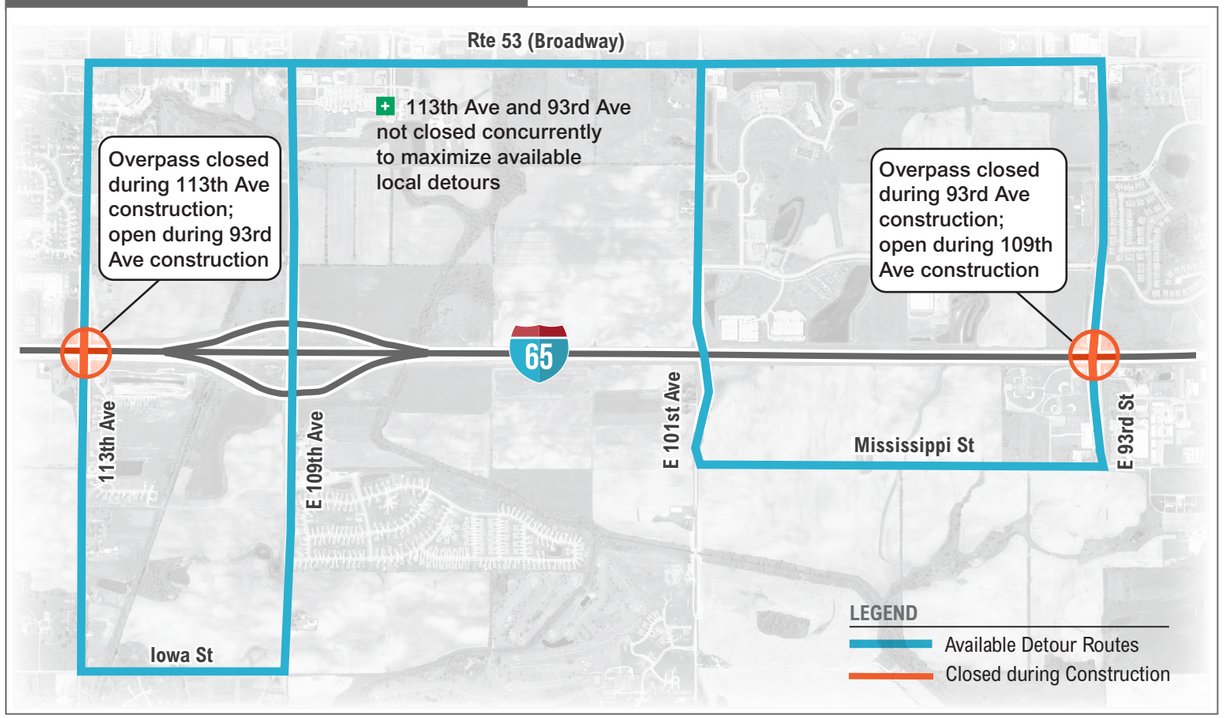


Figure F.2-6 Bridges Staging

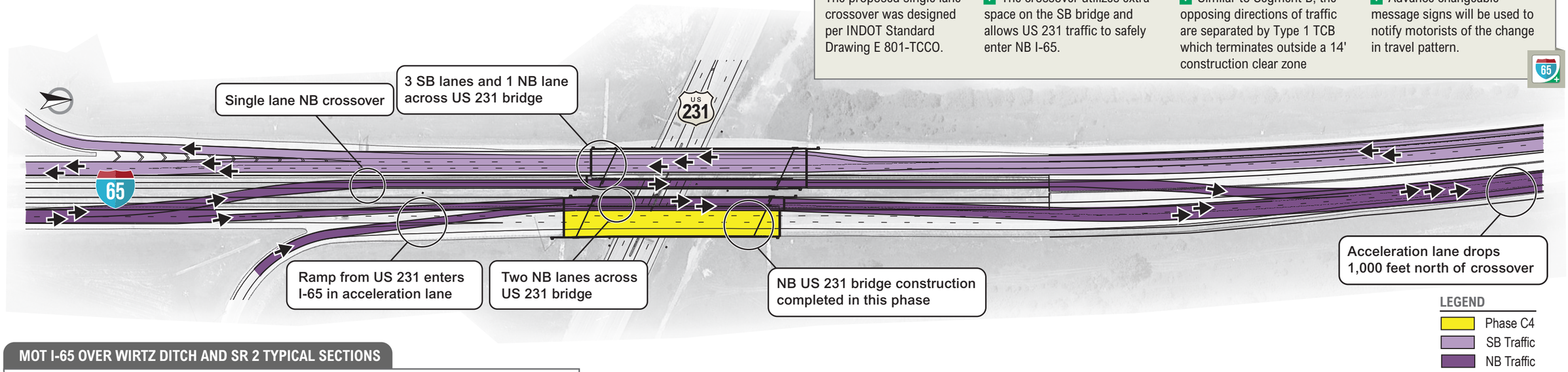
SEGMENT C - US 231 CROSSOVER HIGHLIGHTS

The proposed single lane crossover was designed per INDOT Standard Drawing E 801-TCCO.

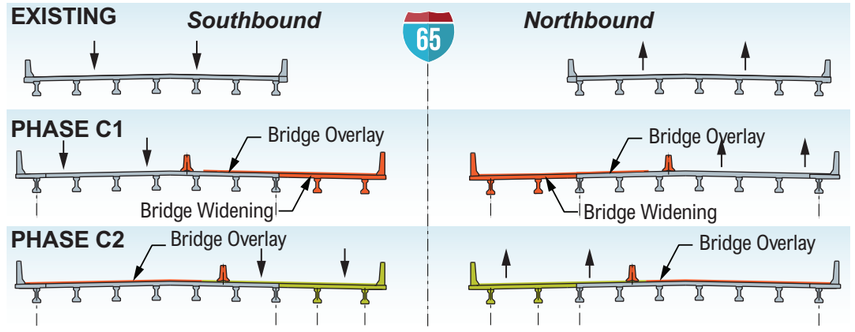
+ The crossover utilizes extra space on the SB bridge and allows US 231 traffic to safely enter NB I-65.

+ Similar to Segment B, the opposing directions of traffic are separated by Type 1 TCB which terminates outside a 14' construction clear zone

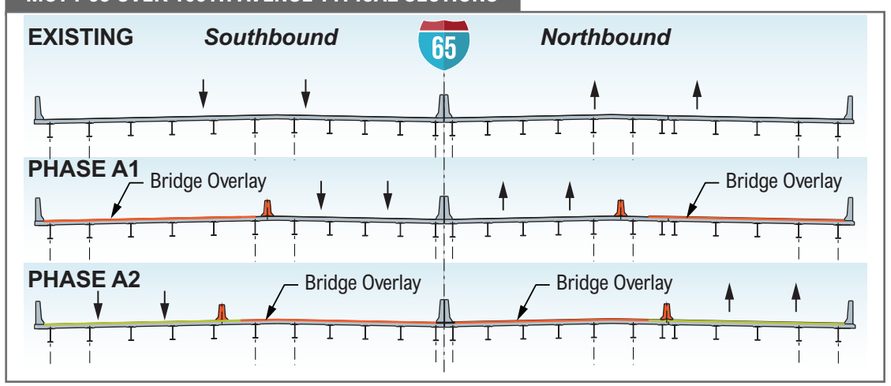
+ Advance changeable message signs will be used to notify motorists of the change in travel pattern.



MOT I-65 OVER WIRTZ DITCH AND SR 2 TYPICAL SECTIONS

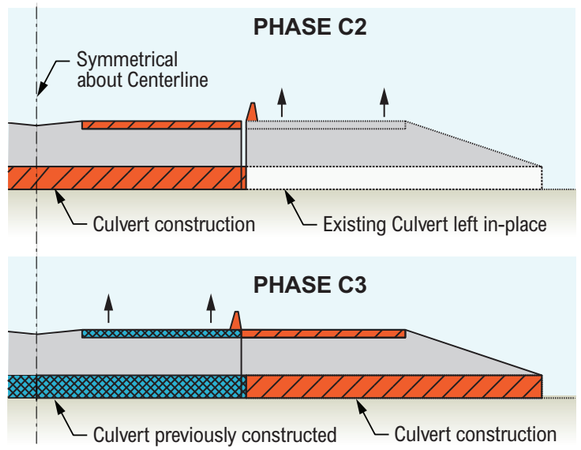


MOT I-65 OVER 109TH AVENUE TYPICAL SECTIONS



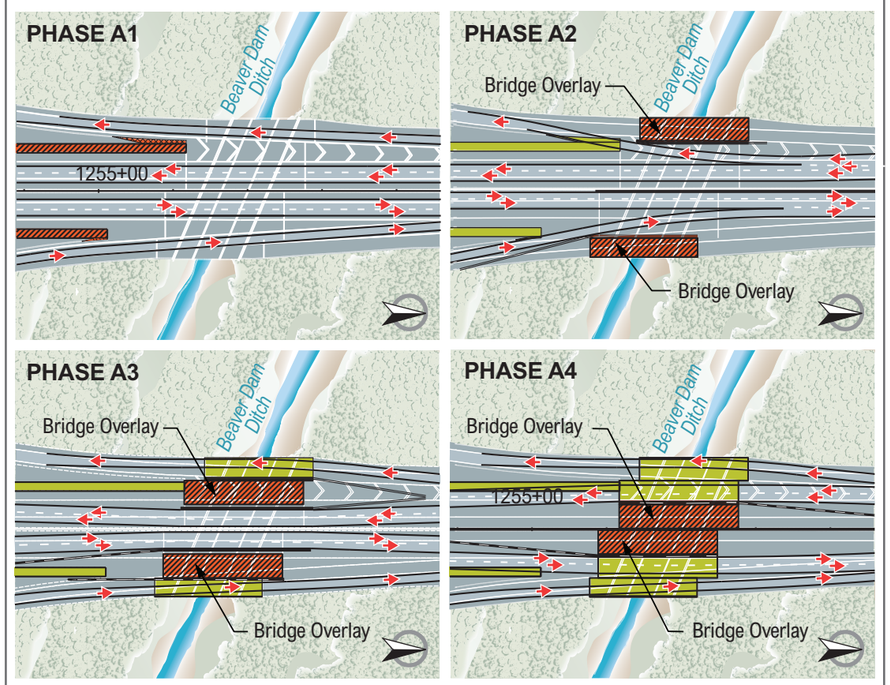
LEGEND Constructed this Phase Previously Constructed Existing Pavement → Traffic Flow

SEGMENT C - TYPICAL CROSSROAD CULVERT CONSTRUCTION



- The Walsh DBT has identified several crossroad culverts beneath I-65 to be replaced via open excavation.
- These culverts will be constructed in two phases symmetrical about the centerline shown.
- Two lanes of traffic will be maintained on I-65 by utilizing temporary sheeting to construct the maximum amount of pipe possible during the first phase of construction.

MOT BRIDGE BEAVER DAM DITCH



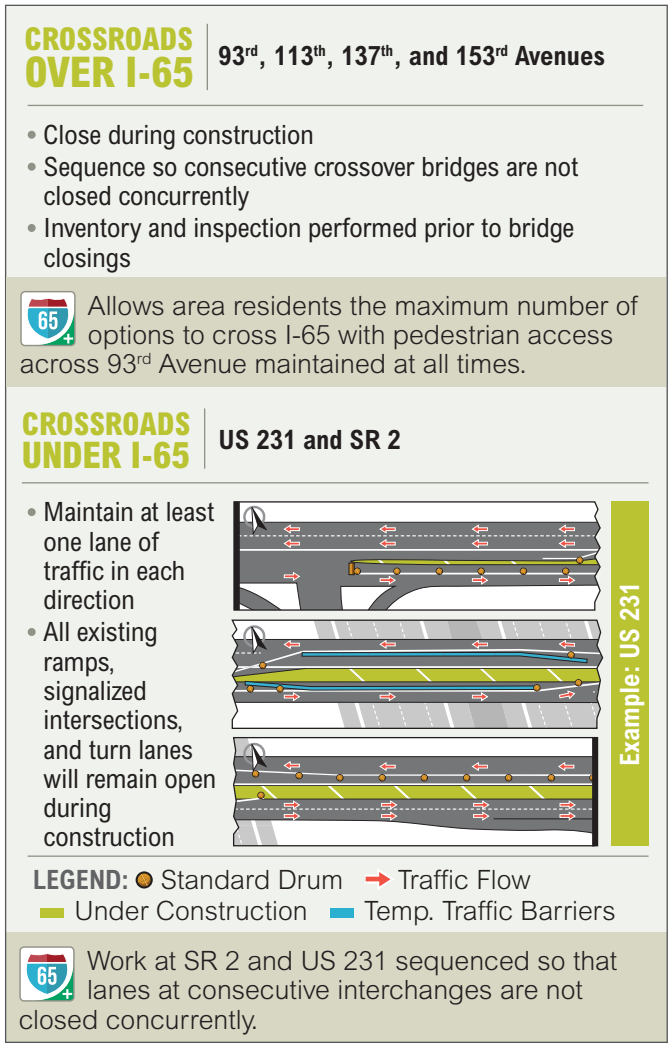
LEGEND Constructed this Phase Previously Constructed Existing Pavement → Traffic Flow

BUSINESS AND RESIDENTIAL PROPERTIES ACCESS

Maintaining access to businesses and residential properties is a priority for our team. The Project will impact several crossroads throughout Segments A and C, and the Walsh DBT will address these crossroads as shown in **Figure F.2-7.**

The Walsh DBT will inform the public and stakeholders of lane closures or construction activities that may impact them. Our team will provide emergency responders with detour information prior to any roadway closures to allow for proactive re-routing of emergency vehicles. Additionally, the construction sequencing approach will maintain multiple clear and efficient alternative routes during closures. We will also continually work with emergency responders to identify turnarounds for response vehicles and access points for emergency entry.

Figure F.2-7 MOT approach at crossroads.



CONSTRUCTION SCHEDULE AND SEQUENCE TO MINIMIZE IMPACTS

The Walsh DBT has developed scheduling and sequencing strategies to minimize the impact of traffic changes on the environment, communities, third parties, and the traveling public:

Environment: Temporary traffic plans will include erosion and sediment controls per phase of construction. Construction activities associated with staged construction, such as demolition, saw cutting, and concrete removal, have already been planned using measures to control construction debris from entering waterways. The Preliminary Project Baseline Schedule ensures that in-water work near the Kankakee River will be minimized, while identifying an appropriate time-frame to construct the bridge within the allowable traffic control restrictions and construction season.

Communities: Most work will be performed during normal working hours to eliminate significant night and weekend noise impacts. Work zone areas and signage will be placed in a way that is unobtrusive to residents and businesses. Additionally, our TMP includes full closures for crossroads over I-65. The bridge overlay work associated with these closures will be completed as quickly as possible to minimize the impact on adjacent residents and businesses and crossroad closures will be sequenced so that no two adjacent bridges are closed concurrently.

Third Parties: The Walsh DBT's formal TMP will include a Traffic Operations Plan, a Temporary Traffic Control Plan, and a coordination process with the Public Involvement Plan. During both design and construction, the Walsh DBT will conduct MOT task force meetings to facilitate coordination between INDOT's public information staff, law enforcement, emergency responders, INDOT's engineering and construction staff, and our Public Information Coordinator to provide schedule updates, address safety concerns, and identify access points.

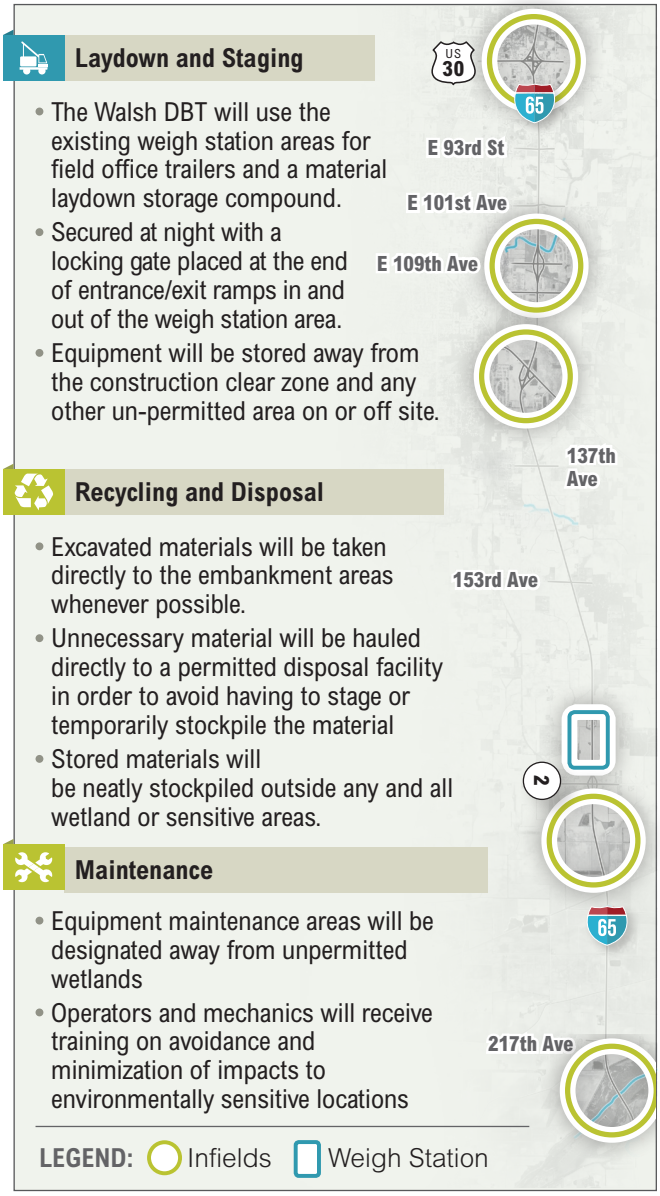
Traveling Public: The Walsh DBT's construction plan and schedule has been developed to reduce construction time and maximize the amount of work completed in each phase of construction. Our team will proactively inform the public and stakeholders regarding construction activities or lane closures.

CONSTRUCTION LOGISTICS LOCATIONS

Figure F.2-8 details the Walsh DBT's proposed locations for laydown, staging, disposal, and maintenance during construction. Temporary erosion and sediment control measures will be installed prior to construction to protect environmentally sensitive areas. Project staff will undergo early training to understand Project requirements. All areas will be restored to original condition at the Project's conclusion.

Excavated materials will be recycled within Project limits wherever possible. Any stockpiled material will be outside of wetland or environmentally sensitive areas. Project haul-off will be transported directly to a permitted disposal facility.

Figure F.2-8 Construction Logistics Locations.



Innovative Best Management Practices

The Walsh DBT plans on using an automated Work Zone Information System (WZIS). This innovative technique augments the stakeholder engagement and public outreach process. The WZIS will provide valuable advance information to inform the public of congestion on I-65. WZIS and similar systems have the ability to provide up-to-the-minute information to the traveling public, allowing enhanced mobility within the Project corridor, while also delivering important safety messages regarding incidents or queuing.

Parsons recently was the lead designer on the I-70 Columbia Bridges Design-Build project in Columbia, Missouri. This Missouri Department of Transportation project incorporated WZIS technology as a means to further protect the public in the instance of congestion forming on the interstate. We are prepared to use this experience on the I-65 Project.

Existing Shoulders

The Walsh DBT intends to use the existing I-65 outside shoulders in Segment C during construction. The first step in using the shoulders will be to mill and overlay them in accordance with the Technical Provisions. This work will be done at night during off-peak hours, with the I-65 outside lane closed during construction. Our team has developed a pavement design for this outside shoulder work that allows the mill and overlay placed during Phase C1 to remain as the final pavement, which eliminates the need for an additional phase of construction.

The Walsh DBT will also overlay a portion of the existing inside shoulders in Segment B. These shoulders will be used to carry traffic while the crossovers are being used. Similar to Segment C, these shoulders will be overlaid with a pavement suitable for both the temporary and final conditions.

Lastly, the existing full-depth concrete inside shoulders in Segment A will be used during construction. Traffic will be shifted four feet toward the existing median barrier to create a 10-foot inside shoulder during construction. This will maximize the distance provided between the travel lane and the work zone during outside shoulder construction.

Pavement Design

The Walsh DBT spent significant time optimizing the pavement design and the predicted pavement functional life and structural life. Optimization was in accordance with the Technical Provision requirements. Our resulting pavement design incorporates innovations to meet or exceed the Technical Provision requirements, while providing an efficient Project delivery. **Figure F.2-9** shows the major pavement sections on the Project and that our design meets or exceeds the functional and structural life requirements.

Pavement Rehabilitations

The Walsh DBT pavement design adds value by exceeding the required structural life of 50 years for each pavement section. The concrete pavement sections in Segments A, B and C are very similar. Each segment has 14-inch-thick jointed plain concrete pavement (JPCP). The existing joint spacing in Segment A and C is 18 feet, while the existing joint spacing in Segment B is 20 feet. In all segments, the pavement is in generally good condition with only minor cracking that has been sealed. The existing HMA pavement in Segment C is in good condition from a 2014 resurface project. Partial and full-depth patching is not warranted. Rehabilitation strategies for each segment are discussed in detail in **Figure F.2-10** on the next page.

Pavement Widening Sections

The IDM, Section 304-12.0 defines pavement widening as widening that is five feet or less. According to this description, the only segment requiring widening is the outside shoulder at the south end of Segment A. This pavement will be constructed at the same thickness and joint spacing as the full depth PCCP in Segment A.

Quality Paving. The Walsh DBT's proven local workforce has provided quality asphalt and concrete pavements on many projects throughout northwest Indiana, including I-65 over 109th Street, shown below.

Full-Depth Reconstruction and Newly Constructed Pavement Sections

For full-depth reconstruction and newly constructed pavement sections, the Walsh DBT has implemented innovative designs that reduce pavement thickness while exceeding the design life and desirable structural life. The design of the PCCP pavement in Segments A and B is controlled by the depth of the adjacent pavement. The proposed pavement will match the existing pavement in thickness with joint spacing according to current guidelines. In Segment C, the HMA pavement design was controlled by the required Initial Roughness Index (IRI). Our plan is discussed in detail in **Figure F.2-11** on page F.2-11.

Figure F.2-9 Innovative Pavement Strategy. The Walsh DBT's pavement strategy provides added value to INDOT.

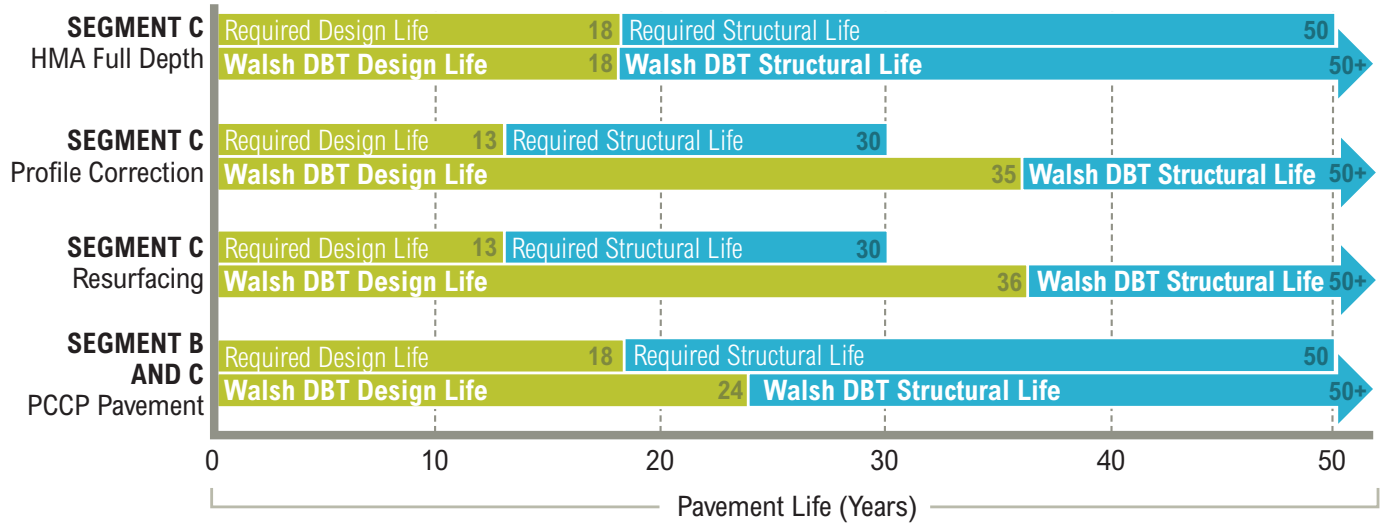


Figure F.2-10 Pavement Rehabilitations, by Segment.

LEGEND:
Segment A · Segment C · Segment B
Profile Correction · Resurfacing

SEGMENTS A AND B

Concrete pavement in Segments A and B are similar. Each segment has 14-inch-thick jointed plain concrete pavement (JPCP). The existing joint spacing in Segment A is 18 feet, while the existing joint spacing in Segment B is 20 feet. In both segments, the pavement is in generally good condition with only minor cracking that has been sealed.

A Rehabilitate the existing JPCP pavement in accordance with the patching table and pavement design in the RID.

B Rehabilitate the existing JPCP pavement. Jointly inspect the pavement condition with INDOT to determine extent of PCCP rehabilitation.

WORK IN BOTH SEGMENTS A AND B:

- Patch JPCP full-depth where indicated in jointed concrete pavement
- Match patch thickness to the adjacent concrete thickness but not be less than 15 inches
- Remove and backfill unsuitable or soft subgrade materials with subgrade treatment type IC
- Tie patches to the adjacent pavement with deformed bars per ISS 506
- Follow the Technical Provisions for full-depth patches
- Patch using ISS 506 in areas of partial-depth patching indicated for joint distresses

JOINTS FOR BOTH SEGMENTS A AND B:

D-1 joints spaced at 15 feet with 1½-inch dowel bars at

12-inch spacing on existing/repaired subbase

#6 retrofitted tie bars installed at 3-foot spacing

SEGMENT C

Since the existing pavement is in good condition from a 2014 resurface project, partial and full-depth patching is not necessary.

OVERLAY FOR EXISTING HMA: Most Locations Throughout Corridor

We used INDOT's pavement design methodology to prepare an overlay for the existing HMA pavement that meets the 13-year service life and exceeds the desired 30-year structural life.

OVERLAY:
Milling: 1.5-inch asphalt milling
Pavement: 165 lb/yd² QC/QA-HMA, 4, 76 Surface, 9.5 mm SMA
Base: Existing pavement

36 | 50+

Design provides a functional and structural life that exceeds the Technical Provision requirements.

PROFILE CORRECTION: Bridges at 137th Avenue and 153rd Avenue over I-65

The roadway profile must be lowered by an inch at the bridges for 137th Avenue and 153rd Avenue over I-65 to achieve the desired bridge clearance of 16 feet.

OVERLAY:
Milling: 2.5-inch asphalt milling
Pavement: 165 lb/yd² QC/QA-HMA, 4, 76 Surface, 9.5 mm SMA
Base: Existing pavement

35 | 50+

Design provides a functional and structural life that exceeds the Technical Provision requirements.

RESURFACING: I-65 Bridge over SR 2 and the I-65 Bridge over Wirtz Ditch

These two short sections require resurfacing over the concrete pavement adjacent to the I-65 bridge over SR 2 and the I-65 bridge over Wirtz Ditch.

OVERLAY:
Pavement: 165 lb/yd² QC/QA-HMA, 4, 76 Surface, 9.5 mm SMA
Base: Existing concrete pavement

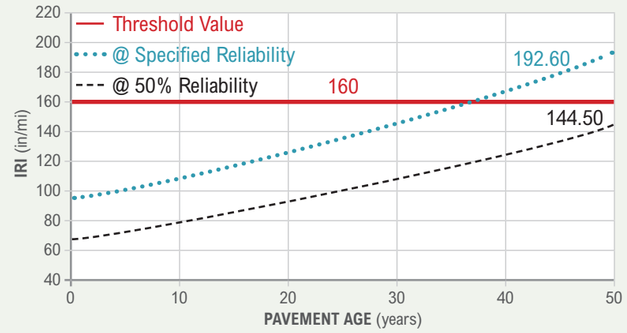
36 | 50+

Design provides a functional and structural life that exceeds the Technical Provision requirements.

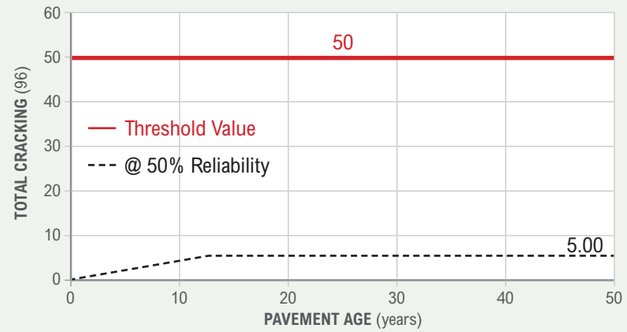
DISTRESS PREDICTION CHARTS

The distress prediction charts demonstrate that the proposed overlay will provide a functional life of 36 years and a structural life exceeding 50 years, which exceeds the Technical Provision requirements.

PREDICTED IRI



TOTAL CRACKING
(Reflective + Alligator)



PREDICTED RUTTING
(Permanent Deformation)
at 50% Reliability

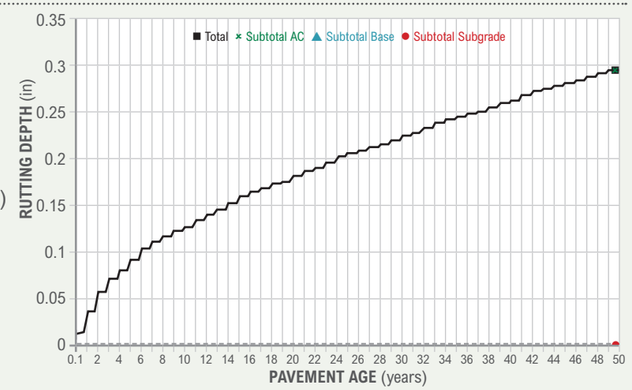


Figure F.2-11 New or Reconstructed Pavement, by Section

LEGEND:
Segment A | Segment C | Segment B

SEGMENT A

NEW PCCP SHOULDER CONSTRUCTION

The shoulder design will match the adjacent pavement thickness and joint spacing. Additionally, the PCCP shoulder will be tied to the outside lane to extend its longevity.

PAVEMENT DESIGN (matches adjacent pavement):

- Remove compacted aggregate, while protecting geotextile
- QC/QA-PCCP, 14-inch
- D-1 joints spaced at 18 feet with
- 1½-inch dowel bars at 12-inch spacing on
- Existing/repaired subbase
- #6 retrofitted tie bars installed at 3-foot spacing

25 — 50+

Design provides a functional and structural life that exceeds Technical Provision requirements and the Project Goal.

SEGMENT B

PAVEMENT RECONSTRUCTION AND NEW CONSTRUCTION

With a reduced bridge length, the existing two lanes around the bridge will be reconstructed.

PAVEMENT DESIGN (matches adjacent pavement):

- 14-inch PCCP with 15-foot joint spacing on
- Subbase for PCCP on
- Subgrade Treatment IB
- #6 retrofitted tie installed at 3-foot spacing

24 — 50+

Design provides a functional and structural life that exceeds Technical Provision requirements.

SEGMENT C

NEW HMA PAVEMENT CONSTRUCTION: This innovative design reduces the pavement thickness while meeting the desired design life. Due to the MOT scheme, the difference in surface thickness between the overlay and the added travel lane will be constructable.

A third travel lane will be added toward the median along the existing composite pavement in this section. The existing pavement is approximately 9.5 inches of existing HMA over 10 inches of fractured JPCP over 5 inches of crushed stone. To preserve the drainage of the subgrade, the added travel lane thickness must match the existing pavement thickness.

FULL-DEPTH HMA PAVEMENT DESIGN:

- 330 lb/yd² (3-inch) QC/QA HMA, 4, 76, Surface, SMA, 12.5 mm on
- 275 lb/yd² QC/QA HMA, 4, 76, Intermediate, 19.0 mm on
- 275 lb/yd² QC-QA HMA, 4, 64, Base, 19.0 mm on
- 250 lb/yd² QC-QA HMA, 4, 76, Intermediate OG, 19.0 mm on
- 330 lb/yd² QC-QA HMA, 4, 64, Base, 19.0 mm on
- 11-inch Aggregate, #43 on
- Subgrade Treatment Type IB

18 — 50+

Design provides a functional and structural life that meets the requirements in the IDM.

NEW PCCP CONSTRUCTION

A short section of PCCP requires the addition of an added travel lane toward the median south of US 231. This newly constructed pavement will be PCCP in order to match the adjacent pavement.

PAVEMENT DESIGN (matches adjacent pavement):

- QC/QA-PCCP, 14-inch
- D-1 joints spaced at 18 feet with
- 1½-inch dowel bars at 12-inch spacing on
- Existing/repaired subbase
- #6 retrofitted tie bars installed at 3-foot spacing

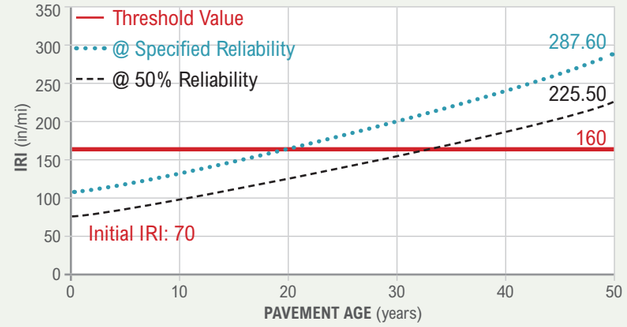
25 — 50+

Design provides a functional and structural life that exceeds the Technical Provision requirements.

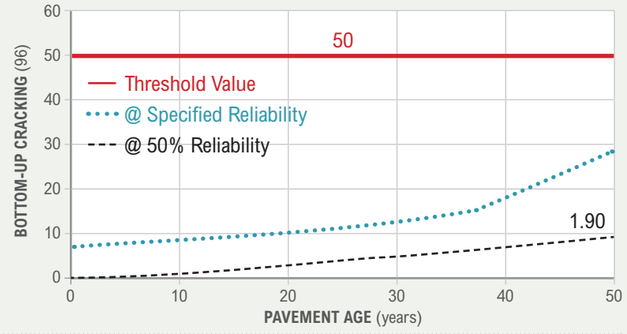
DISTRESS PREDICTION CHARTS

The distress prediction charts demonstrate the proposed HMA pavement will provide a functional life of 18 years and a structural life exceeding 50 years, which exceeds the Technical Provision requirements.

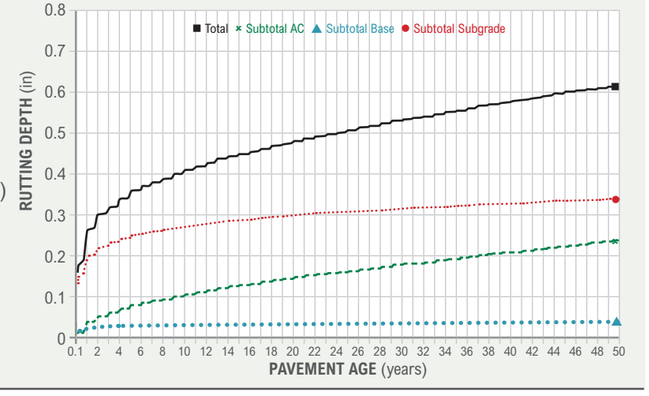
PREDICTED IRI



PREDICTED AC BOTTOM-UP CRACKING (Alligator)



PREDICTED RUTTING (Permanent Deformation) at 50% Reliability



Kankakee River Crossing

The existing I-65 bridges over the Kankakee River each have three spans with variable-depth plate girders. After weighing construction cost, environmental impacts, and future maintenance considerations of various bridge options, the Walsh DBT proposes to use single-span bridges with steel plate girders. The structures will include MSE wall abutments and fully span the Kankakee River from bank to bank. **Figure F.2-12** shows the comparison between the existing three-span structures and the Walsh DBT proposal for single-span structures.

This new single-span structure will provide INDOT a 75-year service life, with lower life cycle costs than a three-span bridge. The single-span structure has significant maintenance advantages (**Figure F.2-13)** over a three-span structure, such as:

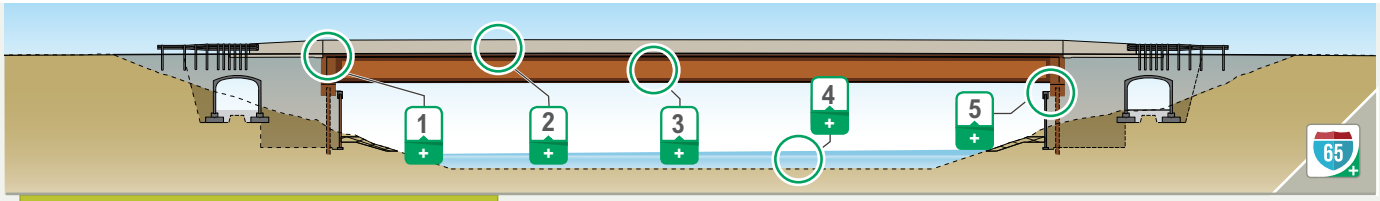
- **Eliminates scour and drift accumulation** issues since there will be no piers in the Kankakee River
- **Minimizes quantity of new bridge bearings,** with none over waterway
- **Eliminates over 9,000 square feet of bridge deck,** reducing maintenance
- **Provides easier, land-based maintenance** with MSE abutments instead of cast-in-place concrete abutments and piers in the waterway

To maintain the north access road, a three-sided structure will be placed to accommodate the existing condition. A three-sided structure will also be placed on the south side of Kankakee River to accommodate the 12-foot by 12-foot clearance requirement for the future access road. The MSE walls will be protected with riprap so that scour will not impact MSE wall foundations. An additional measure of scour protection will be provided by using the existing articulated block mat that runs along the shoreline. Preliminary field investigations were performed to determine the extent and condition of the articulated block mat. Reinforced concrete bridge approaches will be used and will match the approach roadway width.

We will splice beams in the field under nighttime closures and set the beams with cranes located behind the newly constructed MSE abutment walls using conventional installation techniques. The nighttime construction schedule will minimize disruption to motorists. Cranes for girder installation will be located in an area of strengthened, engineered MSE fill material directly upon pads specifically sized for the operation.

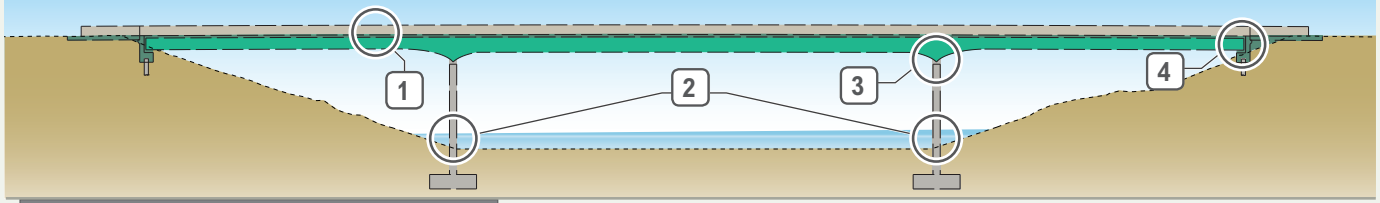
The Walsh DBT understands the importance of delivering individual work packages so hold points can be achieved. Work packages will be submitted to account for the construction schedule and Technical Provisions. For example, the load rating summary must be approved prior to the steel girder shop drawing submittal. This will require the Walsh DBT to obtain the entire approved superstructure package (steel girders and bridge deck) so that the load rating can be completed before the steel girders are fabricated.

Figure F.2-12 I-65 Over Kankakee River Bridge - Single Span Versus Three Span Comparison



THE WALSH DBT'S SINGLE-SPAN BRIDGE

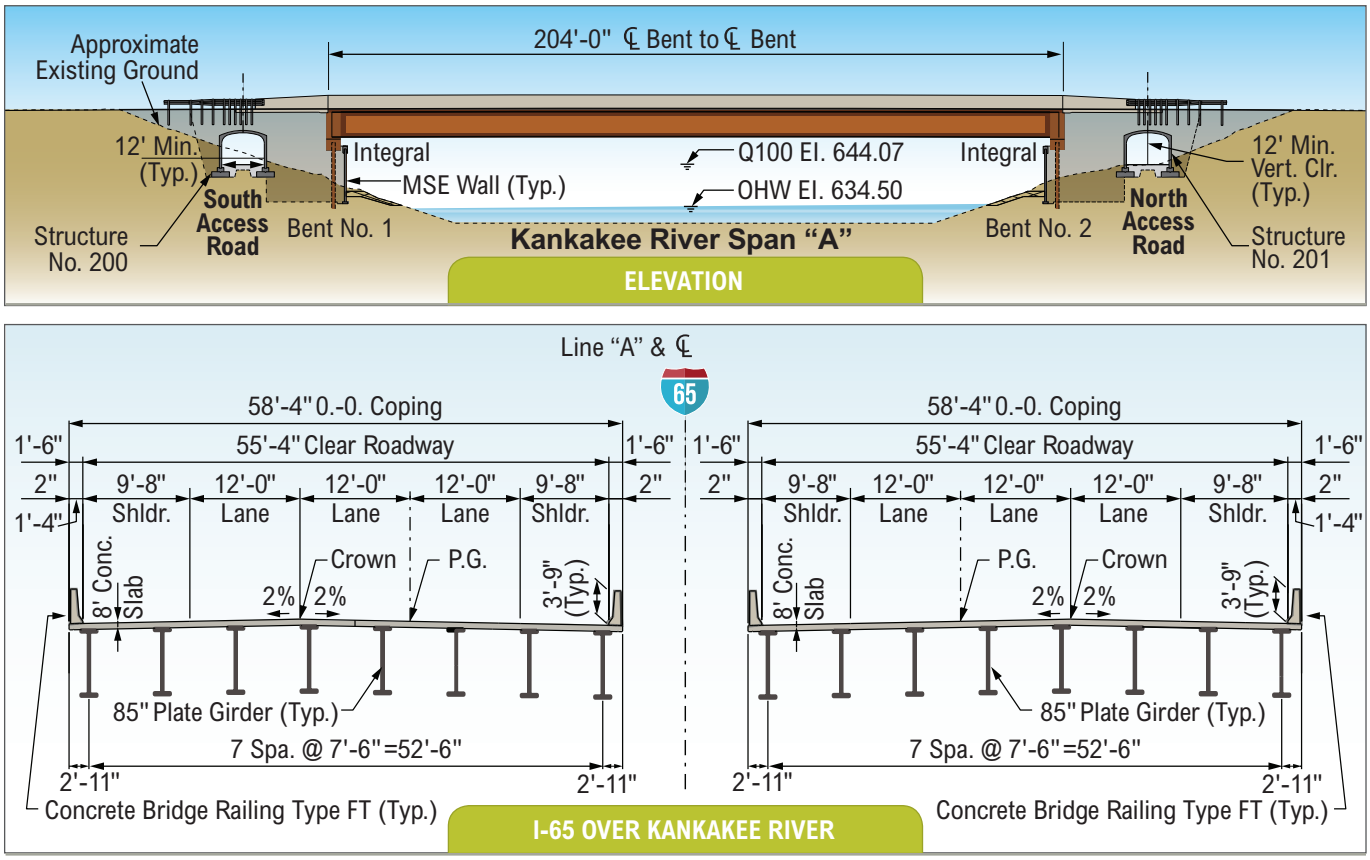
1. Integral end bents eliminate expansion joints
2. Shorter bridge provides less bridge deck area to maintain
3. Low maintenance weathering steel girders
4. Lack of obstructions in waterway prevents drift and scour issues
5. Minimizes the number of bearings, with none over the waterway



TRADITIONAL THREE-SPAN BRIDGE

1. Longer bridge results in an additional 9,000 square feet of bridge deck to maintain
2. Potential scour and drift accumulation around piers
3. More costly to maintain or rehabilitate bearings over waterways
4. Expansion joints at end bents generate higher maintenance costs

Figure F.2-13 I-65 over Kankakee River Bridge Features.



Layout	Single Span: 204' - 0"
Alignment Skew	12° Left
Number of Lanes	3 - 12' - 0" Lanes; 9'-8" Shoulders
Superstructure Type	Plate Girders (Grade 50W and 70W)
Deck Type	8" Reinforced Concrete Deck with SIP Deck Forms
End Bend Foundations	Integral with MSE Walls; Steel H-Piles Driven to Rock
Safety Barrier	INDOT FT Bridge Railing
Construction Method	Conventional
Access Roads/Trails	(2) 3-Sided Structures; 12' Span, 12' Rise

THE WALSH DBT ADDED-VALUE ELEMENTS AND LOW MAINTENANCE FEATURES	
HIGHLY REDUNDANT SUPERSTRUCTURE	No fracture critical members.
WEATHERING STEEL	Inspection and cleaning are the only maintenance requirements.
NO DECK DRAINS	Eliminates maintenance operations related to deck drains.
NO CONSTRUCTION JOINT	MOT sequence allows NB structure to be constructed in one phase.
3-SIDED STRUCTURES	Provides the required vertical and horizontal clearance.
INTEGRAL END BENTS	Provides a "jointless" bridge which eliminates expansion joints.
EXISTING RIPRAP TURNOUTS	Minimizes environmental impacts where possible.
CONCRETE CURBS	Used to carry water to riprap turnouts

Material Selection

The Walsh DBT has selected materials for the Kankakee Bridges to meet the requirements of the PPA using our team's knowledge and experience to make appropriate choices. Members of the structures team visited the site to inspect the existing structure and analyze how the proposed structure will be incorporated into the site. From this investigation and in-depth analysis of the location, the Walsh DBT has developed the following Project parameters to adhere to INDOT standards, while maximizing benefits to durability and maintainability of the Project's overall life cycle:

- Place concrete riprap/articulated block in front of MSE walls for scour protection
- Use weathering steel for the plate girders that eliminate long-term costs associated with painting
- Use high performance grade 70 steel flanges for the new girders, decreasing weight
- Use integral end bents
- Place surface seal on all new concrete
- Eliminate deck drains
- Install riprap drainage turnouts outside the limits of the MSE wall structural backfill limits
- Use #8 stone behind the MSE walls instead of structure backfill (free draining material)

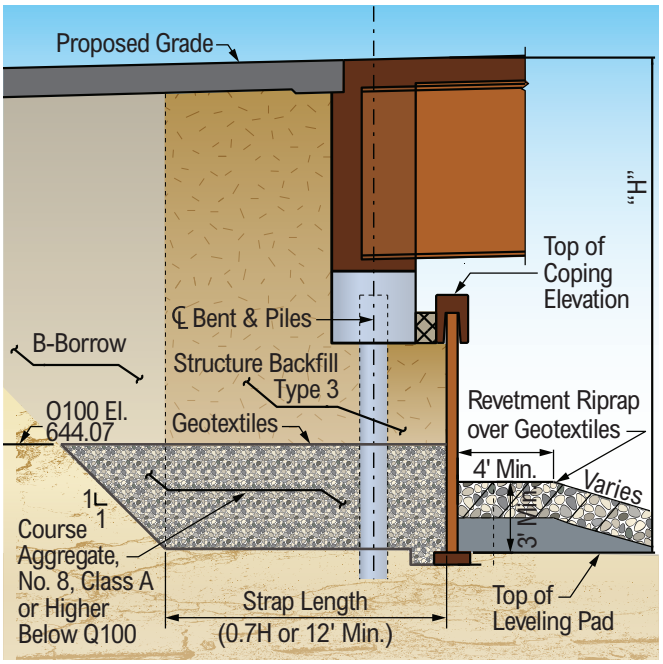
Bridge Plans

The bridge plans will conform to IDM guidelines and are provided in Volume 2B and 2C Appendices.

Retaining Walls

The wall layout sheets will conform to IDM guidelines and are provided in Volume 2B and 2C Appendices. The MSE walls will have a 4-foot minimum bench in front of the face panels and the leveling pad will be placed at least one foot above the ordinary high-water elevation per IDM requirements. Riprap or existing articulated block mat will be located in front of the MSE walls panels to prevent the banks from scouring and compromising the walls. No. 8 stone will be placed behind MSE walls in lieu of structure backfill up to Q100. A layer of geotextile will be placed on top of the No. 8 stone and then structure backfill and B-borrow will be installed above this elevation. The No. 8 stone allows the MSE walls to be free-draining when water levels rise or fall. **Figure F.2-14** shows how the Walsh DBT plans to design and construct the MSE walls adjacent to the Kankakee River.

Figure F.2-14 MSE Wall Typical Section Surrounding Waterways



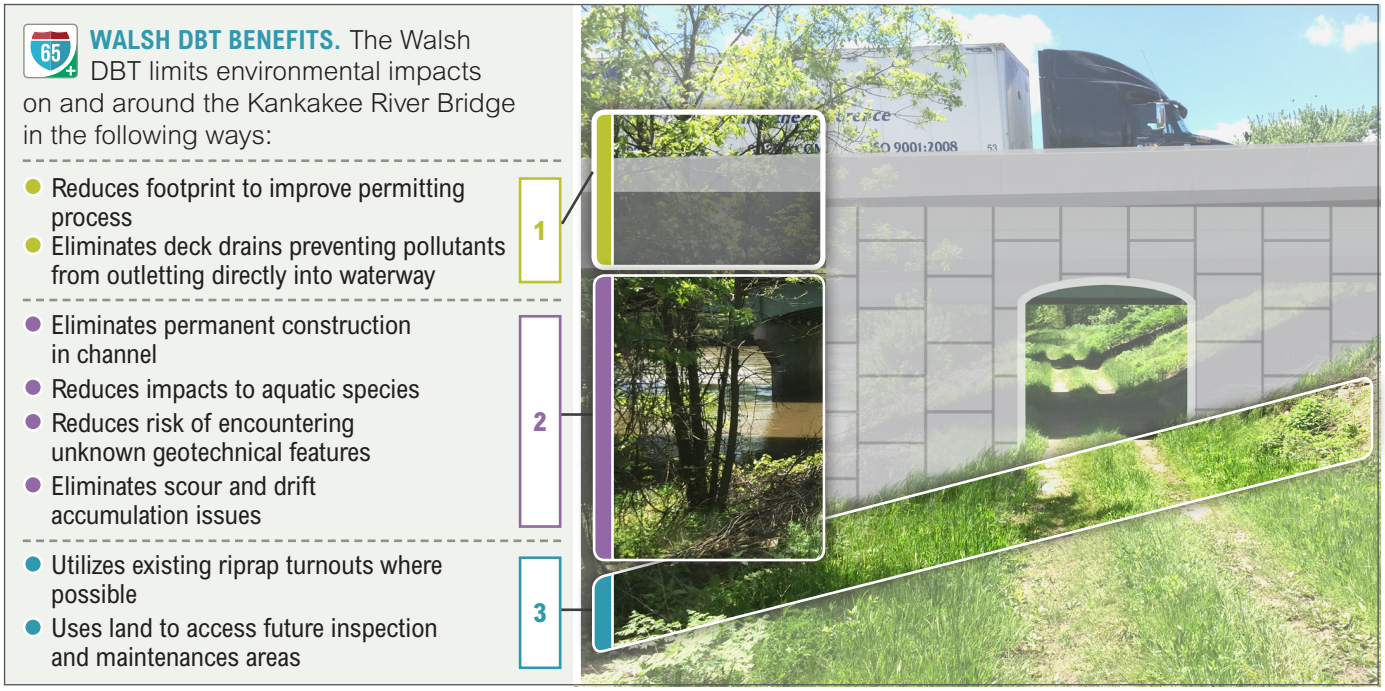
Environmental Requirements

The Kankakee River is an Outstanding River (per the Indiana Register) that flows through the Project limits. The Grand Kankakee Marsh is present along the north bank of the river. An access trail (Section 4(f) resource) runs under the I-65 bridges. The Walsh DBT's proposed bridges over the Kankakee River reduce the environmental impact and footprint, as well as minimize the environmental permitting required (**Figure F.2-15, on the next page**). We will work with Lake County Parks, the Official with Jurisdiction over the Grand Kankakee Marsh Trail, to communicate construction activities with all parties, and to ensure no "use" of the Section 4(f) property.

Geotechnical Issues for the Kankakee River Bridges

For the medium-dense saturated sand present below the bottom of the MSE fill, the bearing resistance and resistance to global instability are anticipated to require longer strap lengths. In conjunction with MSE wall and pre-cast structure suppliers, the Walsh DBT will design the MSE mass to conform to the geometry and also satisfy external stability. Additionally, the proposed three-sided structures will be supported on spread foundations located on existing or new embankment fill.

Figure F.2-15 Walsh DBT Environmental and Permitting Advantage.



Settlement of the underlying clay will potentially induce significant downdrag on the piles. We anticipate that HP14x117 piles will be required to satisfy an estimated nominal driving resistance of 942 kips. Piles will be driven to rock in order to achieve the nominal pile resistance. To verify resistance, pile driving analyzer testing will be used. The Walsh DBT anticipates that a hammer with a rated energy in excess of 100 foot-kips will be required. To reduce the risk of settlement of the wall due to vibration (and densification of the natural underlying sand), the piles will be installed before the MSE wall construction.

Future Investigations

Given the Walsh DBT's approach to the Kankakee River crossing, a supplemental geotechnical effort will be required to identify the strength and deformational characteristics of the granular and cohesive soils and provide innovative solutions for support of the MSE walls, access roads, and embankment fill. Exploratory field and laboratory efforts are anticipated to include mud-rotary techniques, vane shear, Menard pressuremeter, cone penetrometer test, triaxial compression, and consolidation. Since the depth to rock is well documented, the Walsh DBT has confidence in the available nominal pile resistances to support the bridge. The performance of the soil above the rock will also be critical to accurately and competently predict the performance of the structures. We will present all of this supplemental information and our conclusions in a supplemental geotechnical report.

Upon preliminary review, floodway mitigation is not required. Therefore, a tree count survey will not be performed to determine the number of trees to include in the mitigation plan.

Roadway Elements

The Walsh DBT has refined and optimized the roadway design to lower construction costs and provide the best value for INDOT. Using our team's combined years of experience and innovative strategies for roadway design, our proposed design shows value in safety, operations and maintenance, and sustainability.

Before initiating the process of refining the design, our team investigated the roadway corridor for all Level 1 and Level 2 design criteria, which is essential in establishing a "base design" from which we would continue to refine and refer back to throughout the process. After reviewing the Project requirements and the I-65 corridor, all Level 1 and Level 2 design criteria can be met for this Project (excluding the previously-approved Level 1 design exception for median shoulder width). The existing outside

side slopes will be retained in-place throughout the Project corridor. We do not anticipate work being required to the existing ramp geometry at the SR 2, US 231, and 109th Street interchanges. Using the Project requirements, the proposed design exception for median shoulder width, and the design requirements of IDM Chapter 54, our team has developed the proposed typical sections for the Project, shown in **Figure F.2-16.**

One key location for roadway design innovation is the transition between Segment C and Segment A, just north of US 231. At this location, the existing roadway median converts from a depressed grass median to a concrete median barrier. Our team identified two possible solutions for transitioning the added travel lanes from the median to the outside of the roadway. We chose the option that will provide the best geometric layout, driver experience and safety, and cost savings (**Figure F.2-17**).

Guardrail: Roadside guardrail in both the median and outside shoulders is present throughout the nearly 13-mile Project corridor. Our team understands the need to protect roadside hazards, but also understands that guardrail itself can be a hazard for vehicles. Our approach will minimize the opportunity for vehicular collisions or run-offs by placing guardrail in Segment C directly in the middle of the median (**Figure F.2-18** on the next page). A median placement of double-face

Figure F.2-17 Roadway Design Innovation. The Walsh DBT's plan offers the safest transition between Segments C and A.

THE WALSH DBT'S PLAN
Use existing wide median and reconstruct concrete barrier.

- Existing lanes already shift from a 60-foot median to a 30.5-foot median over approximately 1,100 feet.
- Uses this distance to shift from a proposed 36-foot median to the existing 30.5-foot median.
- Reduces the existing shift in travel lanes.
- Eliminates the need to re-grade the outside slopes.
- Replaces concrete median barrier and concrete pavements that do not meet required cross slopes for traffic.

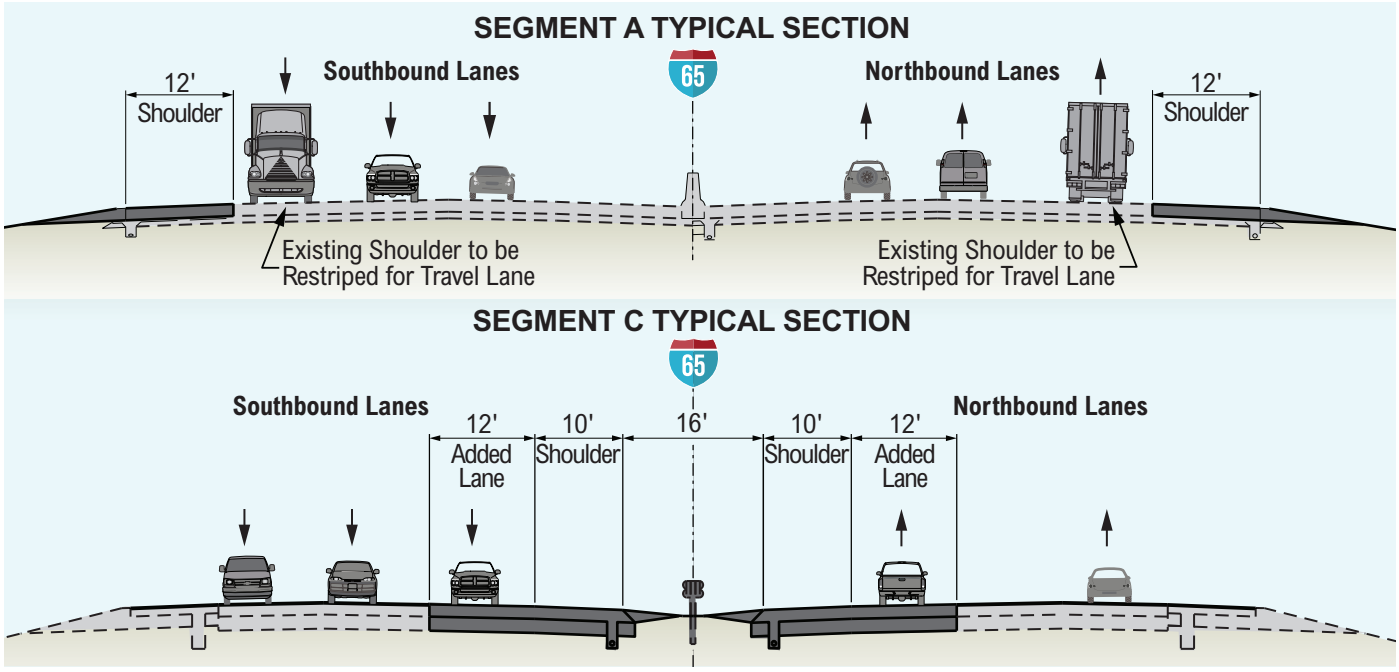
Provides the best geometric layout, driver experience and safety, and cost savings.

ELIMINATED OPTION
Shift lanes to use previously constructed pavement.

- Introduces a lane shift in the roadway during merge/diverge of ramp traffic from the loop ramps, which occurs at the beginning of a superelevated curve.
- Creates a potentially unsafe, confusing driver experience. The combination of ramps entering the highway at the beginning of curve is already complex for motorists.
- Results in the need to re-grade the existing outside embankments, potentially impacting the roadside wetlands in the southbound direction.

Confusing, potentially unsafe, and costly design that does not provide best value.

Figure F.2-16 Proposed Typical Sections



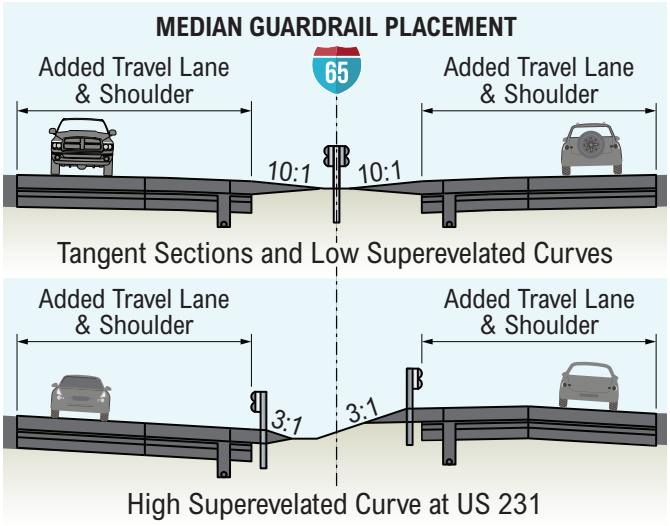
guardrail, in combination with the appropriate 10:1 slopes, provides the safest roadway typical section for the traveling public. For the sharp curve located just south of US 231, this median guardrail placement will transition from one double-face run down the center of the median to dual single-face runs at the edges of the shoulder in order to maintain a suitable drainage cross section through the curve.

We will assess the condition of existing guardrail throughout the Project corridor, and will re-use any materials in good condition that meet Project standards. Even though the outside shoulder will not be widened and existing guardrail will not be impacted, any guardrail along the corridor will be evaluated to verify it meets the requirements of the Technical Provisions, including the requirements of IDM Chapter 49. As required in the Project documents, any new guardrail will be placed so that the top of the rail is at a minimum of 30 inches above the pavement edge. New guardrail placement is anticipated to protect stormwater detention areas, bridge approaches, and overhead sign structures within clear zone.

Signing: The Walsh DBT has audited the existing signing along the Project corridor, and created an inventory that will be used as the basis for the design. After analyzing the existing signs and creating a plan for signing layout, the Walsh DBT has concluded that we are able to meet all the required roadway signing guidelines from the Technical Provisions. All signs on mainline I-65 impacted by the widening will meet the required "freeway" font size and will meet current Indiana standards. In addition, the Walsh DBT will coordinate with Indiana Business Logo Group for all the existing logo signs. Logo signs impacted by the widening will be relocated on new supports. All new sign supports will meet Project standards.

Lighting: Our team has completed a preliminary photometric analysis at each interchange along I-65 to confirm that the required illumination levels are maintained with the addition of a third travel lane in each direction. We have concluded that the existing high mast towers at the US 231 interchange provide adequate illumination and will remain. The majority of the roadside conventional lighting poles at the SR 2, US 231 and 109th Street interchanges will not be impacted as a result of the widening and satisfy illumination requirements for the respective interchange and can remain in place. Two poles at

Figure F.2-18 Guardrail Locations. The location of guardrail in the median is a critical to protect drivers from roadway hazards, including the guardrail itself.



the SR 2 interchange on the northbound exit ramp will be revised (one relocation and one replacement) to satisfy illumination requirements. One pole at the 109th Avenue interchange will be relocated since the widening impacts the foundation.

The existing lighting systems are high-pressure sodium (HPS) light sources and, since only a few poles will have to be relocated or replaced, our design will maintain HPS as the lighting source for the interchanges. Additionally, existing underpass lighting at SR 2 and US 231 interchanges will not be directly impacted by bridge structure widening and will be maintained in place.

Geotechnical Issues for Roadway

Knowing INDOT's expectations for pavement, we understand the importance of placing new fill and pavement on a suitable foundation. The performance of pavement is directly related to adequate preparation and compaction of the subgrade and of any new fill placed below the subgrade. From a geotechnical perspective, our focus will be subgrade preparation and improvement for support of the pavement. Based on our thorough review of the RID, we do anticipate exposing soil with a high moisture content, and we have a plan to address that condition by using traditional methods of disking and drying for improved compaction, chemical modification, chemical drying, and undercutting and replacement. Understandably, the best method to address each individual condition requires detailed observations during construction

based on actual subgrade performance as it relates to the provisions of the contract. Additionally, from our review of the RID, we anticipate exposing soil with organic matter in excess of three percent in some areas. We are aware of the requirement in ISS 207 to address soil with organic matter that is within the range of subgrade treatment.

Maintain and Protect Project ROW and Adjacent Roads and Properties

The Walsh DBT will proactively maintain and protect right-of-way and adjacent roads and properties, while mitigating construction impacts. We will accomplish this through the measures outlined in **Figure F.2-19.**

Preliminary Roadway Plans

The Walsh DBT's preliminary roadway plans are provided in the Volume 2B and 2C Appendices.

Structures

The Walsh DBT has decades of experience designing and constructing highway bridge structures, retaining walls, noise walls, and other structures according to INDOT standards and specifications. Our overall approach in design, material selection, and construction is to deliver durable structures that maintain aesthetic standards, provide a long service life, improve in-service performance, reduce life cycle costs, and improve user safety. **Figure F.2-20**, on the next page, illustrates the locations and treatments for each of the Project's structures.

A scour analysis will be required for I-65 over Beaver Dam Ditch and I-65 over Wirtz Ditch to determine appropriate scour countermeasures. The Walsh DBT understands that for bridges being widened over waterways, INDOT's preference is that piles be driven per Q500 requirements. This initiative is being driven by INDOT Geotechnical Services on more recent design-build projects. Our team is prepared to meet this initiative in order to provide a long-term and stable substructure.

The Walsh DBT will provide vertical clearance of 16 feet at all bridges over I-65. Since the overpass bridges at 137th Avenue and 153rd Avenue do not currently meet the 16-foot requirement, we will mill 2.5-inches of the existing pavement underneath these bridges and replace with a 1.5-inch QC/QA-HMA (SMA) to achieve the preferred vertical clearance.

Figure F.2-19 Minimizing Construction Impacts.

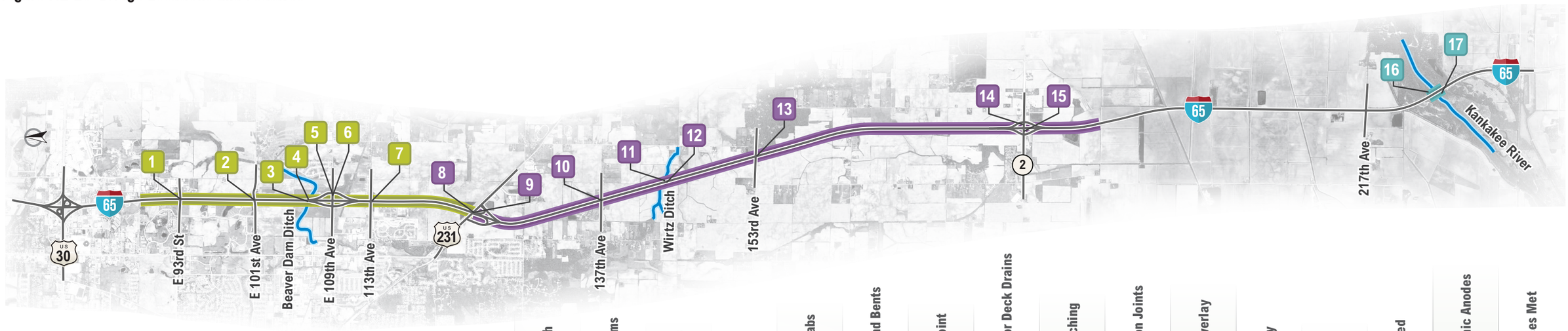
Impact	Preventative or Protection Measures
Noise	• Schedule high noise level operations during day shift in areas near residences • Maintain exhaust systems on equipment
Vibration	• Schedule pile driving operations near residences during day shift
Light	• Schedule night operations away from residences • Use low light pollution lamps for night work near traffic
Dust	• Have water truck on-site as needed • Implement dust control monitoring plan
Erosion	• Implement stormwater pollution prevention plan (SWPPP) • Install and maintain temporary erosion control measures in advance of work • Install permanent erosion control measures prior to construction • Maintain construction entrance points to reduce sediment tracking onto public roads
Local Road Damage	• Use I-65 mainline for haul routes • Use corridor for preliminary haul routes to keep construction traffic off local roads
Right-of-Way Fence	• Minimize ground disturbance • Reduce construction limits • Replace any fence damaged during construction

The Walsh DBT has identified the following added-value components that relate to the structures within the Project limits.

- Our research indicates that the railroad still owns the right-of-way along the abandoned railroad parallel with US 231. The Walsh DBT proposes to use a shorter, heavier beam for bridge widening. This adds value by achieving a 23-foot vertical clearance, which provides adequate clearance should railroad tracks be installed in the future.

- Stormwater will be carried by concrete curb outside the limits of the closely spaced guardrail posts in the TGB transition. This will allow stormwater to be carried past these guardrail posts of the transition to alleviate the erosion seen on other bridges in these locations. Existing riprap drainage turnouts will be used where possible, minimizing land disturbing activities and environmental permitting.

Figure F.2-20 Bridge Locations and Features



Bridge Locations	H-Pile	Pipe Pile	Added Deck Width	New Precast Beams	New Steel Beams	New Bridge Deck	New Approach Slabs	(Semi) Integral End Bents	Type 1A Bridge Joint	Eliminate Need for Deck Drains	Substructure Patching	Replace Expansion Joints	Latex Modified Overlay	Polymeric Overlay	Hydrodemolition	ITS Conduits Added	Embedded Galvanic Anodes	Vertical Clearances Met
1 93rd Avenue over I-65											●			●				●
2 101st Avenue over I-65 (No Work)																		
3 I-65 NB over Beaver Dam Ditch											●			●		●		
4 I-65 SB over Beaver Dam Ditch											●			●		●		
5 I-65 NB over 109th Avenue											●			●		●		●
6 I-65 SB over 109th Avenue											●			●		●		●
7 113th Avenue over I-65											●	●						●
8 I-65 NB over US 231		●	●		●	●	●	●	●	●	●					●	●	●
9 I-65 SB over US 231		●	●		●	●	●	●	●	●	●					●	●	●
10 137th Avenue over I-65							●				●	●	●		●			●
11 I-65 NB over Wirtz Ditch		●	●	●			●	●	●		●					●	●	
12 I-65 SB over Wirtz Ditch		●	●	●			●	●	●		●					●	●	
13 153rd Avenue over I-65											●	●	●		●			●
14 I-65 NB over SR 2		●	●		●		●	●	●	●	●					●	●	●
15 I-65 SB over SR 2		●	●		●		●	●	●	●	●					●	●	●
16 I-65 NB over Kankakee River	●				●	●	●	●	●	●						●		●
17 I-65 SB over Kankakee River	●				●	●	●	●	●	●						●		●

Material Selection

Members of our structures team visited the site to inspect each existing structure and analyzed how the proposed structures will be incorporated into the site. From this investigation and analysis, we have developed the following parameters to adhere to INDOT standards. The parameters improve durability and maintainability of the overall life cycle:

- Uses integral/semi integral end bents
- Eliminates deck drains where possible
- Uses a shorter, heavier beam on US 231
- Places new approach slabs at all widened bridges
- Places ITS conduit in the new bridge railings or along the outside face of existing bridge railings
- Installs curb to carry stormwater to riprap drainage turnouts past the closely spaced TGB transition posts

Bridge Plans

The Walsh DBT's bridge plans are provided in the Volume 2B and 2C Appendices. The bridge plans will conform to the IDM guidelines.

Retaining Walls

Beyond the Kankakee River bridges, there are no other retaining walls proposed for the Project.

Noise Walls

The Walsh DBT has reviewed the approved Noise Study and performed preliminary reviews of the Project area. Per the approved Noise Study, no noise walls were determined to be reasonable or feasible. Therefore, noise walls are not being proposed for the Project. Upon award of the Project, the Walsh DBT will provide technical memorandum verifying that existing travel lane alignments are not adjusted more than eight inches vertically and/or four feet horizontally.

Drainage Design and Culvert Replacement/Rehabilitation

The Walsh DBT's approach to drainage maintains primary drainage patterns to improve the hydraulic efficiency of conveyance structures and provides water quantity control through stormwater detention facilities. Within Segment C, there are six legal drains (tributary to Bryant Ditch, branch of Stony Run, tributary to Stony Run, Stony Run (Wirtz Ditch), and two tributaries to Niles Ditch). The Walsh DBT will notify the Lake County Surveyor of work that will impact these legal drains prior to commencement of construction. In addition, work required on the legal drains at the Kankakee River and Beaver Dam Ditch will include appropriate notification to Lake and Newton Counties prior to construction.

Drainage features include ditches, stormwater detention basins and conveyance structures (large and small cross culverts, median inlets and drainage pipes, slotted drains, and underdrains). Culverts with a waterway opening diameter less than 36 inches will be replaced with a minimum 36-inch diameter culvert or equivalent. Structures that are not used in the final drainage system shall be abandoned and backfilled. Large culverts will be replaced or improved in accordance with their overall condition rating. Our recommendations are provided in **Figure F.2-21**, on the next page.

Structural Capacity

Structural capacity (pipe rating) for large culverts will be determined from Technical Provisions Attachment 9-3. There are no structural pipe ratings for small culverts and none are required.

INDOT will benefit from the Walsh DBT's **experience on other local projects with similar elements,** such as these from the I-80 Interchange Modification project.

Precast Structures

MSE Abutments

Waterway Crossings

Figure F.2-21 Large Culvert Improvements. Summary of design improvement recommendations for the large culverts within the Project.

Structure No.	"PR-A" Station	Original Culvert Waterway Opening (sq. ft)	Existing Structure	Recommendation	Proposed Culverts Waterway Opening (sq. ft)
65-56-232.20	263+80	26.0	84" x 54" CMP Arch	Install 79" x 49" HDPE liner	21.9
65-45-241.70	839+92	24.00	73" x 55" CMP Arch	Install 54" HDPE Liner and Add capacity pipe (77" x 52")	37.80
65-45-244.10	966+00	23.20	73" x 55" CMP Arch with 55 x 43 liner	Add capacity pipe (54")	27.10
65-45-244.20	969+75	7.40	49" x 33" CMP Arch with 21" liner	Add capacity pipe (36")	9.50
65-45-244.60	989+67	33.00	95" x 67" CMP Arch	Replace with 95" x 67" CMP Arch	37.00
65-45-245.75	1052+78	24.00	73" x 55" CMP Arch with 60" x 48" Liner	Add capacity pipe (42")	24.30
65-45-246.10	1074+35	8.70	49" x 33" CMP Arch with 36" x 21" Liner	Add capacity pipe (36")	11.60

Replacing/Rehabilitating Culverts

Large unlined culverts with an overall condition pipe rating less than or equal to five will be replaced. Large unlined culverts with overall condition pipe rating greater than five and less than eight will be evaluated for lining and an added capacity pipe (minimum 36-inch diameter equivalent) will be installed if the pipe liner alone does not meet hydraulic requirements. Culvert installation, using either staged open-cut or trenchless, will be evaluated based on height of fill over the structure.

All large lined culverts with an overall condition rating greater than five and will remain in place. Added capacity pipes (minimum 36-inch diameter equivalent) will be installed for lined culverts that do not meet hydraulic requirements.

There are no unlined culverts larger than 36-inch diameter (or hydraulic equivalent) and less than 48-inch diameter that could be lined.

Hydraulic Capacity and Backwater Criteria

All culverts will be evaluated for hydraulic capacity, backwater, and roadway serviceability per IDM In-Kind Replacement (IDM 203-2.02(02)) or Pipe Lining requirements (IDM 203-2.02(14)).

Unlined Large Culverts: A hydraulic analysis will be performed on the existing structure and recommended replacement or rehabilitation.

Lined Large Culverts: A hydraulic analysis will be performed on the existing lined structure and original pre-lined structure. To meet hydraulic criteria the lined structure will be improved with installation of an additional culvert (minimum 36-inch diameter equivalent) as necessary.

Small Culverts: Small culverts (lined or unlined) with a waterway opening less than an equivalent 36-inch diameter pipe will be replaced with a structure that provides a waterway opening equivalent to a 36-inch diameter pipe. A hydraulic analysis will be provided for the 36-inch equivalent replacement pipe. The existing structure (lined or unlined) will not be analyzed.

Median Drainage

Median inlets spacing, drain pipe, and ditch capacity are designed and evaluated for the one percent annual EP storm such that the hydraulic grade line does not encroach onto the travel lanes. Peak runoff is computed using the NRCS Unit Hydrograph method and 50% Probability Huff Distribution, quartile I storm duration ordinates for South Bend, Indiana. No additional inlets or improvement to drain pipes are necessary for Segment A. In Segment C, all inlets and drain pipes will be replaced and, at sag locations, dual or triple E-7 modified inlets are provided as an additional measure of safety. Median drain pipes shall be constructed longitudinally to tie into cross culverts as much as possible to minimize open cut

construction in travel lanes or more costly trenchless installation. At locations where median drain pipes discharge to an outside ditch, invert elevations shall be 6 inches above the ditch flowline.

Stormwater Detention

Stormwater detention will be provided at cross culverts and bridges that convey flow beyond the right-of-way to control water quantity such that runoff discharge from added impervious areas for the post-project one percent exceedance probability storm event will be equal or less than runoff discharge from the pre-project ten percent exceedance probability storm event. Stormwater detention will be provided in outside roadside ditches. No additional right-of-way will be secured and no utility relocation will be required for water quality control.

Utility Relocation and Adjustment Work Elements

The Walsh DBT will be proactive in utility coordination throughout the duration of the Project. We are prepared to begin early and regular coordination efforts upon issuance of NTP. Early contact and coordination with utilities will assist in mitigating conflicts and will prevent Project delays. Our utility coordination approach (**Figure F.2-22**) will facilitate a successful partnership with utilities and INDOT.

The Walsh DBT has identified utility owners within the Project Limits and reviewed the preliminary information provided for each. We have identified the expectations of each owner and developed a plan to meet those expectations. The existing utility owners identified within the Project include:

- American Electric Power
- Apple Valley Utilities
- AT&T Distribution
- AT&T Long Distance
- Buckeye Partners, LP
- Comcast Cable Communications
- City of Crown Point Sanitary & Water
- Enbridge, Inc.
- Indiana Fiber Network
- Indiana American Water Company
- Northern Indiana Public Services Co.
- Northwestern Indiana Telephone Company
- Zayo Fiber Solutions

To expedite the utility coordination process once NTP is issued, the Walsh DBT has reviewed all known utilities within the Project limits to create a Utility Conflict Matrix (provided in Volume 2A Appendix) that identifies the utility companies, facility types and locations, potential conflicts, and proposed treatments. We understand the importance of analyzing both the potential of conflicts with the proposed design as well as the construction process and have taken both of these into account in our analysis. The Utility Conflict Matrix will continue to be updated to ensure that no

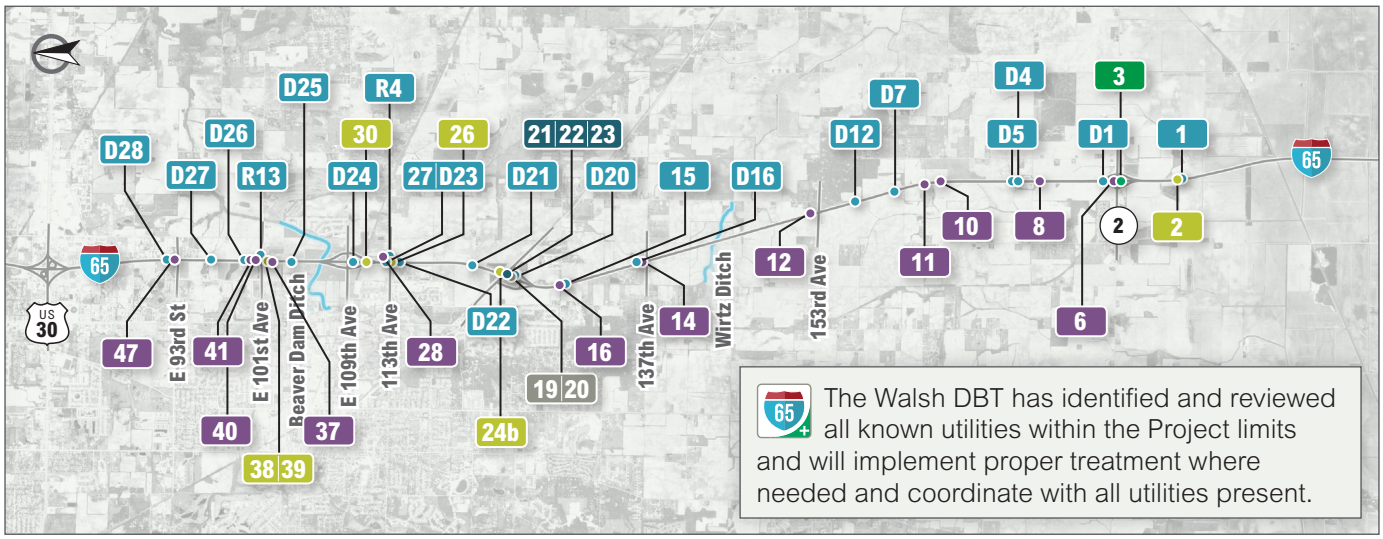
Figure F.2-22 Utility Coordination Approach.

additional conflicts are created. **Figure F.2-23** summarizes the Walsh DBT's proposed treatments.

Non-INDOT relocations are not anticipated for this Project; however, the construction of the bridge foundations at I-65 and SR 2 will affect the existing signal loop system on SR 2. After the foundation work is complete, the signal loop system items, such as handholes, detector housings, conduit, and the signal cable will be restored.

The mainline ITS fiber network is being extended within the Project limits, and the existing detection system is being updated and expanded with loop detection and cameras. Additional ITS facilities will be installed. We have identified new utility service points required for the new ITS facilities and will coordinate with the appropriate utilities. We have determined that the existing lighting services points will be maintained and no additional lighting service points are required at this time.

Figure F.2-23 Utility Treatments. A summary of the proposed utility treatments being implemented.



Proposed Treatment Identified by Number & Location

- Locate, Verify Depth, Non-Motorized Excavation
- Locate, Verify Depth
- Relocate
- Warning Sign ("Overhead Electric")
- Warning Sign ("Overhead Electric"), De-energize, and Utility Line Shield
- Locate, Verify Depth, Non-Motorized Excavation, Support Utility

Proposed Treatment	Utility Type	Location Number (Reference Utility Matrix)
Locate, Verify Depth, Non-Motorized Excavation	Communication and Natural Gas	1, D1, D4, D5, D7, D12, D16, 15, D20, D21, D22, R4, D23, 27, D24, D25, R13, D26, D27, D28
Locate, Verify Depth	Natural Gas, Sanitary, and Telephone	2, 24b, 26, 30, 38, 39
Relocate	Traffic Signal	3
Warning Sign ("Overhead Electric")	Electric	6, 8, 10, 11, 12, 14, 16, 28, 37, 40, 41, 47
Warning Sign ("Overhead Electric") De-energize and Utility Line Shield	Electric	19, 20
Located, Depth Verified, Non-Motorized Excavation, Utility Supported	Communication, Natural Gas, and Telephone	21, 22, 23

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