INTERNAL COPY

TECHNICAL **PROPOSAL** FOR I-65 / I-70 NORTH SPLIT PROJECT

March 10, 2020 • Submitted by:
Superior Construction Co., Inc.

VOLUME 2: PRELIMINARY PERFORMANCE PLANS

SUPERIOR CONSTRUCTION

EXHIBIT E

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 Subcontractors	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 Project Plan or Job Training Plan	Exhibit B, Section 3.2.8

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 Q	Exhibit B, Section 3.2.10
Certification regarding Equal Employment Opportunity	Form R	Exhibit B, Section 3.2.11
Use of Contract Funds for Lobbying Certification	Form S	Exhibit B, Section 3.2.12
Debarment and Suspension Certification	Form K	Exhibit B, Section 3.2.13
Guarantor Commitment Letter	Form P	Exhibit B, Section 3.2.14
Insurance	No forms are provided	Exhibit B, Section 3.2.15
Confidential Contents Index	No forms are provided	Exhibit B, Section 3.2.16
Preliminary DBE Project Plan	No forms are provided	Exhibit B, Section 3.2.17
Prequalification Identification	Form U	Exhibit B, Section 3.2.19
C. Proposal		
Stipend Agreement	Form N	Exhibit B, Section 3.2.18
Volume 2		
F. Preliminary Performance Plans		
Preliminary Project Management Plan	No forms are provided	Exhibit B, Section 4.1
Project Management Approach	No forms are provided	Exhibit B, Section 4.1.1
Preliminary Project Baseline Schedule Narrative	No forms are provided	Exhibit B, Section 4.1.2(a)
NTP + 180 Schedule Narrative	No forms are provided	Exhibit B, Section 4.1.2(b)

Technical Proposal – Volumes 1 and 2		
Technical Proposal Component	**Form (if any)**	**ITP Section Cross-Reference**
Preliminary Quality Management Plan	No forms are provided	Exhibit B, Section 4.1.3
Safety and Environmental Management	No forms are provided	Exhibit B, Section 4.1.4
Public Information Plan	No forms are provided	Exhibit B, Section 4.1.5
Preliminary Design-Build Plan	No forms are provided	Exhibit B, Section 4.2
Preliminary Transportation Management Plan	No forms are provided	Exhibit B, Section 4.2.1
Bridge Structures, Retaining Walls, Sound Barriers and Other Structures	No forms are provided	Exhibit B, Section 4.2.2
Roadway Elements	No forms are provided	Exhibit B, Section 4.2.3
Utility Adjustment Work Elements	No forms are provided	Exhibit B, Section 4.2.4
Drainage Design and Culvert Replacement	No forms are provided	Exhibit B, Section 4.2.5
Total Project Duration	Form L	Exhibit B, Section 4.3
Maximum Closure Durations	Form T	Exhibit B, Section 4.3
G. Volume 1 Appendices		
Copies of Organizational Documents	No forms are provided	Exhibit B, Section 3.2.2
Proposer Teaming Agreement or Key Terms	No forms are provided	Exhibit B, Section 3.2.2
Executed Contracts or Term Sheets/Heads of Terms	No forms are provided	Exhibit B, Section 3.2.2
H. Volume 2 Appendices		
Technical/Design Drawings, Graphs and Data	No forms are provided	Exhibit B, Section 2
Key Personnel Resumes	No forms are provided	Exhibit B, Section 3.2.5

Technical Proposal – Volumes 1 and 2		
Technical Proposal Component	**Form (if any)**	**ITP Section Cross-Reference**
Landscape Architecture Firm Description	No forms are provided	Exhibit B, Section 3.2.18
Preliminary Project Baseline Schedule	No forms are provided	Exhibit B, Section 4.1.2(a)
I. NTP + 180 Schedule		
NTP + 180 Schedule (Narrative plus Schedule)	No forms are provided	Exhibit B, Section 4.1.2(b)
J. Railroad Coordination Bridge Plans		
Railroad Coordination Bridge Plans	No forms are provided	Exhibit B, Section 4.2.2(d)

Price Proposal – Volume 3		
Price Proposal Component	**Form (if any)**	**ITP Section Cross-Reference**
Volume 3		
A. Financial Capacity Information		
Material Changes in Financial Condition	No form provided	Exhibit C, Section 2.1
B. Proposal Security and Surety Information		
Proposal Security	Form J (if in the form of a bond); no forms provided for certified check	Exhibit C, Section 3.1
Surety Information	No forms are provided	Exhibit C, Section 3.2
C. Confidential Contents Index		
Confidential Contents Index	No forms are provided	Exhibit C, Section 4
D. Price Proposal Information		
Price Proposal Form	Form I	Exhibit C, Section 5
Summary Cost Table Form	Form I-1	Exhibit C, Section 5

TABLE OF **CONTENTS**

TABLE OF CONTENTS

Exhibit E .....

Table of Contents.....

4.1 – Preliminary Project Management Plan 1

4.1.1 – Project Management Approach 6

4.1.2 – Schedule Submissions 19

4.1.3 – Preliminary Quality Management Plan 24

4.1.4 – Safety and Environmental Management 31

4.1.5 – Public Information Plan.....39

4.2 – Preliminary Design-Build Plan 42

4.2.1 – Preliminary Transportation Management Plan 42

4.2.2 – Bridge Structures, Retaining Walls, Sound Barriers, and Other Structures.....51

4.2.3 – Roadway Elements.....55

4.2.4 – Utility Adjustment Work Elements.....60

4.2.5 – Drainage Design and Culvert Replacement 65

4.3 – Total Project Duration and Movement Closure Durations.....67

4.1 - PRELIMINARY PROJECT **MANAGEMENT PLAN**

The Superior Construction / JSE (Design-Build) Team is a true partnership bringing significant resources to a successful I-65 / I-70 North Split (North Split) project. Figure 1 highlights our team's unique benefits.

4.1 – PRELIMINARY PROJECT MANAGEMENT PLAN

OVERVIEW

Using Indiana Department of Transportation's (INDOT) project goals as our road map, the Design-Build Team drafted our preliminary project management plan (PMP). Our plan outlines how we will design, construct, and deliver the North Split project. We share INDOT's commitment to improve safety, provide innovative solutions, enhance communications, involve the community, and ultimately provide the best value for the citizens of Indiana.

Our PMP outlines how we will meet project challenges head-on to deliver a high quality, durable, long-lasting, and easily maintainable facility. It also outlines our approach to managing and directing our substantial resources including experienced staff, management tools, and proven design-build processes. Additionally, our PMP includes communication and coordination strategies with INDOT, surrounding neighborhoods, the traveling public, and other key stakeholders.

VALUE ADD

We included this benefit icon throughout our proposal to highlight specific benefits of our team.

BENEFIT

Design / Construction / Maintenance

To provide a complete solution, we highlight three main categories throughout our proposal:

- DESIGN
- CONSTRUCTION
- MAINTENANCE DURING CONSTRUCTION

Figure 1. Why the Design-Build Team

Figure 2. Approved ATCs

Alternative Technical Concepts

The Design-Build Team developed 14 alternatives to achieve INDOT's project goals. Figure 2 outlines our team's approved Alternative Technical Concepts (ATCs) that both enhance design and provide long-term safety and life-cycle maintenance benefits.

MANAGERIAL APPROACH

Our integrated design-build approach is centered in partnering and working with task forces. These meetings will bring design, construction, maintenance, INDOT, and stakeholder staff together to communicate, collaborate, and identify optimizations to expedite delivery and decrease project costs. Our approach includes:

- **STAKEHOLDER INTEGRATION** – invite key stakeholders to coordination meetings
- **SAFETY PROGRAM** – integrate our proven safety program to provide a safe project for workers and the traveling public
- **HAND-SELECTED AND INTEGRATED TEAM** – allocate experienced personnel with similar large, urban, complex interchange design-build projects with the necessary tools to manage stakeholder, environmental, traffic, and schedule challenges

PROJECT MANAGEMENT PHILOSOPHY

The Design-Build Team's philosophy is to **DECREASE RISK** and **INCREASE CONSTRUCTION EFFICIENCY** on the North Split project. We further developed our risk and mitigation matrix, as shown in Figure 3, to facilitate specific and intensive strategies and overall risk preparedness including:

- **DETAILED EXECUTION STRATEGIES** to decrease overall risk probability and provide timely, safe, and budget-conscious project completion
- **SPECIFIC RISK ASSIGNMENTS** for team members to evaluate ways to further minimize risk, including material selection, offsite construction, and additional safety training

Figure 3. Optimized Risk & Mitigation Matrix

RISK	MITIGATION
DESIGN	
Design Approvals • Third party approval delays	• Facilitate two-way communication, develop requirements, and facilitate reviews • Regular progress meetings to review plans and identify and resolve issues
Geotechnical Reliability • Unanticipated subsurface features or quality	• Verify and test bearing stratum for bridge and wall foundations • Plan for anomalies normally encountered in this geographic region • Include a verification boring program that confirms anticipated soil strata
Drainage Facilities • Existing unknown conditions	• Verify subsurface utility engineering report accuracy • Check project boundaries and drainage areas to verify flows

Figure 3. Optimized Risk & Mitigation Matrix (cont.)

RISK	MITIGATION
Retaining Wall Stability • Insufficient bearing capacity	• Verify as many locations as possible during early boring program • Supervise during excavation for changes in geology • Field check all wall locations with frequency matching wall geometry
Maintenance of Traffic (MOT) Phasing • Congested construction zones	• Divert truck traffic away from project when possible • Coordinate traffic information with INDOT
CSX Transportation Coordination • Railroad approval delays	• Start early coordination meetings • Ensure CSX has ample time to review plans prior to submittal
CONSTRUCTION	
Utility Relocation • Conflicts from both known and unknown utilities	• Utilize detailed analysis during design to minimize impacts • Pothole known utilities to verify locations • Include utility owners in task force process to maximize timely coordination
Traffic Flow • Excessive traffic congestion • Unforeseen traffic changes at locations adjacent to project	• Continually monitor and adjust the plan as required • Communicate construction activities, pre-warning, traffic patterns, and detours • Plan 24-hour shift work where critical areas require expedited construction • Monitor traffic flows during each phase and stage
Excavation and Groundwater • Unknown subsurface conditions with excessive unsuitable material or groundwater	• Perform borings to verify material and water table • Perform constant visual inspections of existing ground and / or groundwater • Install slope stakes and monitor points in surveys as required • Provide effective dewatering systems
Subgrade Stabilization • Inadequate subgrade materials	• Perform soil investigations to determine strength, adequacy, and moisture levels • Adjust means and methods to construct base considering soil variables
Labor Availability • Local trade union labor availability changes	• Use local developed crews • Utilize local subcontractors • Provide unions early notifications on manpower needs • Mobilize labor forces from other areas within Indiana as needed
ENVIRONMENTAL	
Hazardous Materials • Cost and schedule impacts	• Study subsurface investigations and understand details • Implement identification, handling, and treatment plan quickly
Construction Fuel Spills • Environmental protection	• Develop containment plan with precautionary measures • Provide containment where possible spills could occur • Report any spills to the authorities immediately
Buried Anomalies • Abandoned tanks, boulders, garbage that requires removal	• Proactively review property plats and identify existing and abandoned features
Traffic Noise • Actual noise higher than indicated	• Use National Environmental Policy Act (NEPA) provided information and compare to surrounding project data • Verify noise profiles assumed and actual
Vibration • Vibration to adjacent structures and residences	• Employ vibration monitoring program while working as required • Proactively employ measures to reduce vibration to acceptable levels

PROJECT MANAGEMENT PLAN

We will use our PMP to guide implementation of major project decisions regarding communication, management processes, execution, and overall project control. Ultimately, the PMP will clearly define the roles, responsibilities, procedures, and processes to ensure successful completion. Key PMP elements include:

- Budget and schedule controls
- Innovative solutions
- Safety program

The PMP will address all major life-cycle phases, aid in managing the project holistically, and establish the metrics for a successful project.

PMP Overview

PROJECT DESCRIPTION AND SCOPE OF WORK

We will document a complete project description, including documentation of historical decisions made throughout the process. Figure 4 highlights the table of contents, ensuring a comprehensive plan. The PMP will also include all project requirements, verification, and delivery methods. Finally, the PMP will clearly define the scope of work including construction, environmental work, and utility relocation.

GOALS AND OBJECTIVES DURING CONSTRUCTION

The Design-Build Team will openly communicate throughout the entire project, including:

- Project goals
- Requirements
- Expectations upfront

Innovative beam erection techniques to minimize traffic impacts and increase safety on the INDOT I-65 over the Wabash River project.

Figure 4. PMP Table of Contents

PMP TABLE OF CONTENTS

- Project description and scope of work
- Goals and objectives during construction
- Project organizational charts, roles, and responsibilities
- Project schedule
- Procurement and contract management
- Cost and budget
- Project reporting and tracking
- Project communications
- Project management controls
- Design quality control management plan
- Construction quality control management plan
- Environmental compliance and mitigation plan
- Safety management plan
- Traffic management plan
- Design management plan
- Construction management plan
- Project communications / information
- DBE compliance plan
- Closeout plan
- Project documentation
- Additional information

This communication will ensure that all team members and project stakeholders are in full agreement from the beginning.

PROJECT ORGANIZATIONAL CHARTS, ROLES, AND RESPONSIBILITIES

Our project management team is organized in a straightforward approach, ensuring all project objectives and goals from a managerial, technical, oversight, and decision-making perspective are included.

We included an executive oversight committee to provide a separate and independent voice throughout the project. This section of the PMP will also define the relationships between public and private stakeholders.

The Design-Build Team highlights experienced key personnel with the requisite technical, managerial, leadership, and communication skills needed for a complex, design-build project. Tim Johnson, project manager, has full authority and responsibility for the North Split project. **OUR TEAM IS 100% DEDICATED** to successful completion.

PROCUREMENT AND CONTRACT MANAGEMENT

We will formalize and document all of the procurement and contract management activities, including processes for procurement decisions including subcontractor selection and performance evaluation. This section will also address contract administration processes, performance reporting, payments, claims administration, and records management. We will have a dedicated section for the contract closeout process.

PROJECT REPORTING AND TRACKING

Our reporting and tracking system is one of the key elements to ensure the project has:

- Budget and schedule maintenance
- Quality
- Full compliance

Tracking system components include:

- Collect, assess, and maintain project information
- Timely, independent, and accurate data
- Progress, changes, issues, and mitigation / resolution
- Identify trends impacting the project
- Forecast performance and manpower needs
- Identify and proactively address challenges to minimize delays

Superior Construction building system-to-system interchange in busy urban area.

Superior Construction safely building adjacent travelers on the INDOT US 35 Bridge Replacement project.

PROJECT COMMUNICATIONS

The Design-Build Team will develop a matrix to clearly document the communication and decision-making levels including responsibilities and authorities. As project manager, Tim will be the main and single point-of-contact for all communications.

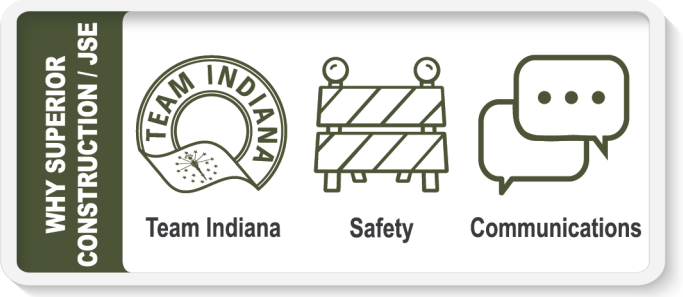
In our experience, an integrated partnering approach yields the highest project success. We will continue to promote a partnering process in order to create open and collaborative communication to achieve cooperation, dynamic creativity, and efficient uses of resources. We will hold an initial partnering kick-off meeting upon contract award and continue this collaboration throughout the entire North Split project.

SCHEDULE FOR EXECUTING PMP

We will submit our PMP to INDOT for approval no later than 30 days following notice to proceed (NTP). The PMP will be a living document, continuously being evaluated and revised as the North Split project progresses.

This page intentionally left blank.

4.1.1 - PROJECT MANAGEMENT APPROACH



4.1.1 – PROJECT MANAGEMENT APPROACH

The real key to the success of the North Split project will be the ability to partner with INDOT and the other stakeholders. INDOT's confidence in the Design-Build Team will depend on input and solution development throughout final design and construction.

Integrating design and construction personnel from the beginning results in one of the most significant benefits of design-build: the ability to incorporate construction options into the design early in the process. Understanding the mutual dependency of each function, we realize the speed, cost savings, and improved quality.

To foster a cohesive and collaborative environment, we used task forces during proposal development – roadway, structures, drainage, geotechnical, and traffic. These task forces met to exchange ideas, provide guidance, and improve constructability, quality, and safety. Ultimately, these task forces helped develop our ATCs to provide the best overall value to INDOT.

Upon contract award, we will invite INDOT and selected stakeholders to join the task forces, continuing to meet regularly, formulating final designs, and providing constructability reviews.

MANAGEMENT STRUCTURE AND PERSONNEL

Overall Project Management Organization

We hand selected each member of the Design-Build Team to compliment strengths, maximize technical expertise, and deliver overall quality. Figure 5 summarizes our organization chart. Figure 6 provides information describing involvement, functionality, responsibilities, qualifications, and experience for key team members.

MANAGING PROJECT DESIGN

Using a holistic approach, we will utilize the American Association of State Highway and Transportation Officials (AASHTO) and INDOT Design Manual (IDM) guidelines to deliver a completed corridor that will allow traffic to safely proceed at the designed speeds. Additionally, we will develop improvement strategies that will:

- Extend service life by optimizing the design criteria
- Construct bridge decks with corrosion resistant rebar for improved longevity
- Provide accurate data for an independent pavement consultant to review and analyze

Our team of highly qualified engineers and designers understands the importance of completing final design quickly to allow construction to begin as soon as possible. We will achieve project success by dedicating our team and involving the right team members throughout the duration of the North Split project, providing smooth transition from design through construction, and maximizing cost and schedule savings.

MANAGING PROJECT CONSTRUCTION

Our focus during construction is to maintain traffic in its original configuration for as long as possible by limiting and delaying major movement closure durations. The Design-Build Team evaluated the construction sequencing in conjunction with the design to determine the shortest schedule while minimizing movement closure durations.

MAIN INTERCHANGE

We will build the majority of the main interchange offline, away from existing facilities. Benefits include:

- **INCREASED SAFETY** for the traveling public
- **DECREASED INTERRUPTIONS** to traffic flow
- **LIMITED** major movement closure durations

Interchange construction with limited movement closure durations.

This page intentionally left blank.

Figure 5. Project Organizational Chart

Figure 6. Key Personnel Involvement, Functionality, Responsibilities, Qualifications, and Experience

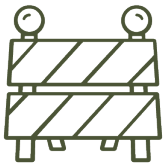
Figure 6. Key Personnel Involvement, Functionality, Responsibilities, Qualifications, and Experience (cont.)

This page intentionally left blank.

COST CONTROL

Always keeping cost at the forefront of our process and looking for ways to control cost, we evaluated each project element for its benefit compared to the cost. Figure 7 summarizes our key cost control measures.

SAFETY



Our efficient traffic management plan (TMP) will result in a safe work zone. The traffic and work areas will be separated by appropriate barriers, protecting the public from drop-offs and crews from vehicles, resulting in calmer traffic and reducing the number of potential incidents.

We incorporated safe work zones within the design, including specific hazard analysis and mitigation strategies within the MOT plan. Additional safety features include:

- All temporary access and construction entrances match existing conditions, local roads, and speed limits
- Temporary drainage to avoid ponding and associated hazards
- Advance emergency coordination before major construction phases or movement closures
- Site-specific safety plan
- Requirement of all subcontractors to comply with our safety plan
- Strict and ongoing quality control inspections
- Use law enforcement officers (LEOs) for all major temporary lane closures

LOCAL SUBCONTRACTOR OPPORTUNITIES

During the procurement phase, the Design-Build Team solicited bids from multiple local and regional subcontractors and DBE firms. The involvement will not only support local economic development, but also leverage their local knowledge. Final selection will be based on qualifications, safety record, local presence, and competitive pricing. Figure 8 summarizes the potential local subcontractors and DBE firms

Figure 7. Cost Control Measures

COST CONTROL MEASURE	BENEFITS	HOW ACHIEVED
Reduce the volume of borrow required to complete major earthwork	• Balanced between excavation and fill • Increased cost savings • Decreased delivery traffic	• Improved roadway profiles
Replace six traditional bridge structures with optional precast elements	• Realized cost savings up to 40% • Accelerated construction schedule • Decrease life-cycle maintenance costs	• Incorporated precast arch elements

Figure 8. Potential Local Subcontractors and DBE Firms

MANAGING MAINTENANCE DURING CONSTRUCTION

The Design-Build Team is committed to providing full-time maintenance crews to maintain and repair facilities, including cross-streets within the North Split project limits. We will provide safe and efficient movement throughout the project area.

VALUE ADD

We are dedicating a professional whose sole purpose is to provide maintenance related leadership. David Rainford will serve as a right-of-way operations manager and will not be assigned any permanent construction activities. He will provide weekly summary updates during project progress meetings.

BENEFIT

We understand that accidents can be caused by poor roadway maintenance. David will coordinate daily inspections to ensure appropriate maintenance is completed to reduce accident risk. He will provide INDOT with a weekly summary of incidents.

SAFETY

The Design-Build Team will provide a safe environment throughout construction of the North Split project. Within one hour of observing or receiving an accident notification, David will respond to, and correct, any issue that poses an imminent threat. Within 24 hours, he will provide INDOT with details and resolution of each incident.

Temporary traffic barriers increase safety for both crews and the traveling public

MAINTENANCE OF TRAFFIC

If a device or other work element cannot be immediately repaired or replaced, we will have a crew available to install temporary mitigation devices and procedures until repair or replacement is completed. We commit to repair and replace any device or other work element.

PERMANENT AND TEMPORARY TRAFFIC BARRIERS

The Design-Build Team will repair any damage to existing permanent or temporary barriers. We will keep the necessary equipment onsite to repair damaged temporary barriers. Within 24 hours of confirmation, we will repair and / or replace any barriers.

RIGHT-OF-WAY MAINTENANCE

The right-of-way (ROW) and worksite will be kept clean and free of overgrowth, rubbish / garbage, and debris throughout all phases of construction. We will perform four mowing cycles per year by a dedicated crew on site.

ROADWAY MAINTENANCE

The Design-Build Team will maintain all local streets and adjacent roadways to safely accommodate traffic. During construction, we will remove track-out, gravel, and debris. We will clean paved surfaces, including broom swept, if necessary. Contact names and 24-hour on-call phone numbers will be provided to INDOT for immediate access.

EXISTING ROADWAY PATCHING

All existing pavement will be maintained and we will repair any damaged pavement, including potholes, severe deterioration or rutting, and other unsafe surface conditions. We will implement repairs located within a travel lane during the next possible MOT off-peak period.

TEMPORARY PAVEMENT

We will provide temporary asphalt pavement for all locations.

DRAINAGE

All important waterways and drainage systems that collect and convey storm water flows during construction will be maintained. If necessary, we will clean drainage facilities and remove debris and sediment for proper operation. Standing water on the roadway surface during phased construction will not be allowed.

LIGHTING

The Design-Build Team will maintain and operate all existing and new lighting systems including:

- Replace non-functioning lamps
- Replace / repair damaged equipment or underground cable
- Address and maintain public safety issues within one hour of notice
- Provide temporary lighting and maintain lighting at all intersections and exit ramps
- Provide temporary lighting whenever existing lighting is removed / relocated
- Provide temporary lighting plans
- Replace or repair lighting issues (permanent or temporary) within 24 hours

SIGNING

The Design-Build Team will maintain all existing signs, sign supports, and foundations, including replace / repair:

- Damaged stop signs within 1 hour
- Other signs within 24 hours

We will remove and prevent any obstructions from blocking signage views, including construction equipment, parked vehicles, work zone devices, vegetation, and other obstacles.

PAVEMENT MARKINGS

All pavement markings will be maintained to safe levels of presence and retro-reflectivity. If the visibility of temporary pavement markings becomes compromised due to environmental conditions, reflective roadway surfaces, or any combination of factors that results in safety issues, we will implement corrective measures within 24 hours to establish sufficient contrast to resolve safety concerns. Before opening any roadway to traffic, we will entirely remove all unneeded existing markings utilizing water-blasting.

Pavement markings keep motorists aware of lane shifts

TRAFFIC SIGNALS

We will maintain and operate all traffic signal equipment and make repairs to traffic signals within four hours. We will respond within one hour and remain onsite and continue repair work until the signal operation is verified by INDOT. Emergency maintenance will be limited to problems related to public safety, including dark intersections, flashing signal lights, twisted signal heads, burned-out signal lamps, exposed wires, and knockdowns.

VALUE ADD

A repair crew will be available 24 hours per day, seven days per week.

BENEFIT

SNOW REMOVAL

INDOT will be responsible for snow removal on the travel lanes, shoulders, and emergency pullouts as part of the ordinary course of plowing. If any traffic control devices are displaced or damaged by plowing operations, we will restore them within one hour. The Design-Build Team will be responsible for all other snow removals in the work zone including maintaining INDOT's field office and laboratory area.

STRUCTURES MAINTENANCE

All existing structures will be maintained to keep them in working order during construction, including the repair of any potholes on bridge decks within 24 hours of notification and confirmation. Potholes will not be tolerated when they adversely affect the rideability and safety of the traveling public.

MISCELLANEOUS EQUIPMENT MAINTENANCE

We will maintain structural integrity of lids, covers, and grates within two feet of travel lanes to prevent dislodging, as well as replace damaged items from MOT impacts.

PEDESTRIAN AND BICYCLE FACILITIES MAINTENANCE

When a tripping hazard, obstacle, or any hazard impacting existing pedestrian and bicycle facilities is reported, we will note the hazard and respond quickly by:

- Inspecting the problem location to determine the hazard
- Correcting the hazard by rough patching, wedging, crack filling, or sidewalk replacement
- Providing temporary detours during any repair period to maintain Americans with Disabilities Act (ADA) accessibility
- Performing regular inspections throughout construction

ITS FACILITIES MAINTENANCE

The functionality, data collection integrity, and centrally controlled operations of all existing and temporary ITS devices will be maintained. Additionally, we will survey the functionality of the entire traveled work zone, including ramp lanes, mainline lanes, and interchanges. In the event of a communication failure, we will reestablish communications within four hours.

VALUE ADD

A repair crew will be available 24 hours per day, seven days per week.

BENEFIT

MAINTENANCE DOCUMENTATION

An electronic log will be kept of all maintenance and repair response activities performed including:

- Date and time reported
- Entity
- Description
- Arrival time of maintenance or repair worker(s)
- Corrective action(s) taken
- Date and time of resolution

Current and Projected Workload and Backlog

With 80+ years of experience, the Design-Build Team knows how to effectively manage workload and backlog to minimize impacts to clients and projects. Figure 9 summarizes the current and projected workload and backlog of all major participants.

TEAM INDIANA

Plan and Overall Ability to Provide Experienced Personnel, Equipment, and Facilities Required

As an original builder of our nation's interstate system, Superior Construction continues to be a design-build pioneer. The Design-Build Team is both committed to and has the current available capacity and the necessary staff required to complete the North Split project. We have immediate access to resources and experienced local staff, all of whom are **AVAILABLE TO BEGIN WORK** upon receipt of NTP. Together as Team Indiana, we have additional resources to support the North Split project, as summarized in Figure 10.

RECRUITING

Recruiting is an on-going process to identify, hire, and maintain the best talent in the industry. The Design-Build Team maintains a rigid protocol in recruiting. We have a clearly defined culture and follow strict guidelines in recruiting any position. We will follow these same guidelines as we add resources to our team.

Additionally, Superior Construction's proven internship program provides exceptional engineering and technical competencies at a variety of levels. We will continue to leverage this program as an opportunity to grow our team with the industry's newest talent.

Approach to Management and Utility Coordination

Our integrated team shares the goals of safety, quality, budget, schedule, environmental compliance, and utility coordination. This unification provides flexibility and authority to respond to specific demands at each stage of the project and meet the North Split's project goals. Understanding that utility relocations have the potential to significantly delay the project, we performed due diligence during the procurement period. We identified utilities that potentially provide the greatest schedule risk and created a mitigation plan. Plan highlights include:

- Avoid all possible conflicting utilities by adjusting alignments and profiles
- Design drainage systems to avoid crossing utilities
- Minimize conflicting utilities with early coordination regarding relocation

VALUE ADD

Ben Bruss, utility coordination manager, created a task force of designers, constructors, and specific utility owners to work collectively to determine the best route to mitigate conflict.

BENEFIT

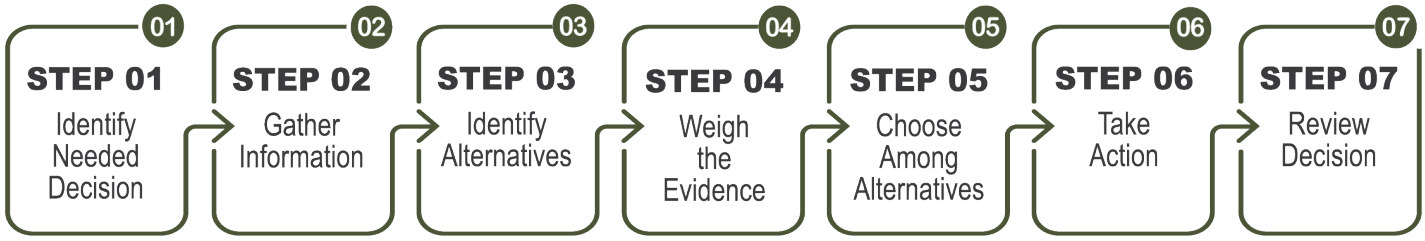
Our detailed schedule illustrates the interaction between design and construction, and includes INDOT utility design reviews, anticipated lead times for material production and

TEAM INDIANA

Figure 9. Team Indiana Current and Projected Workload and Backlog

Figure 10. Team Indiana By the Numbers

Figure 11. Seven Steps to Effective Decision Making



delivery, milestones, and critical path activities. Please reference the schedule in the Volume 2 Appendix.

Approach to Management and Railroad Coordination

Our coordination plan involves communication with major project stakeholders, especially CSX. We will provide a dedicated railroad liaison to regularly communicate with CSX. During the design phase, we will hold coordination meetings prior to submitting plans for them to review, including clearances, excavations and shoring, demolition, debris collection, and drainage.

The Design-Build Team will plan all activities near and over the railroad to minimize impacts to rail traffic, including work hours and critical crane lifts. We will use properly sized cranes to handle 150% of the proposed limit for anything raised over the railways.

INTERNAL ORGANIZATION SYSTEMS

Decision-Making Process

The Design-Build Team's decision-making process empowers personnel to make decisions at the lowest level possible. The success of this empowerment philosophy relies on frequent and honest communication amongst the entire team. As project manager, Tim will represent the best interests of the project and drive decision making. Should an issue be unresolved at the lowest level, we have a hierarchy in place for dispute resolution to immediately elevate unresolved issues to the next level.

Stakeholder meetings demonstrating our commitment to open communication

In concert with organizational and personnel hierarchy, we also will leverage our executive oversight committee for specific issue resolution impacting cost, schedule, or quality. At no time during the process will the project be adversely affected. Figure 11 summarizes our decision making process.

INTERNAL DISPUTE RESOLUTION

The foundation of our communication plan is engaged integration, allowing team members to regularly meet face-to-face. These meetings foster a cohesive environment. We will resolve issues as they occur, decreasing misunderstandings and keeping communication transparent. This approach will allow individuals with firsthand knowledge and experience to contribute appropriate resolutions in an expedited manner. In the event issues can't be corrected, we will escalate them for quick resolution at the next level.

AVOID ADVERSE PROJECT IMPACTS

Fast-track projects require a critical oversight with well thought out planning. Tim will work with the entire team to increase decision making and decrease negative project impacts. He will also ensure open and transparent communication and partnering with INDOT to maintain momentum and ensure timely completion.

Our approach to resolving potential quality concerns is to immediately identify the issue, communicate regarding the issue, and select / implement solutions without additional costs or delays.

COMMUNICATIONS PLAN

We will finalize a communications plan for key personnel, including regularly scheduled meetings to ensure cross-disciplinary interactions and that the Team agrees upon all major decisions before proceeding with implementation. Joint participation is crucial for design-build delivery in developing key design and construction components. We will:

- Conduct both **INFORMAL AND FORMAL MEETINGS**, always keeping INDOT involved in the decision process
- Host **FORMAL PARTNERING SESSIONS** with INDOT and key stakeholders to allow everyone to understand project goals
- Conduct **INFORMAL PARTNERING MEETINGS** during both design and construction to foster a spirit of cooperation among the entire project team

QUALITY

The Design-Build Team will build quality into each part of the North Split project. We will achieve this by making each employee responsible and accountable for the quality of his or her work. We will implement a rigorous project quality management plan (PQMP), detailing procedures for each activity, as well as providing checklists and testing programs for monitoring performance. Quality assurance will include dedicated, independent managers and staff who will report directly to the Design-Build Team's executive oversight committee.

Establish Lines of Communication and Documentation

We recognize the fast-paced nature of the North Split project. We will provide close coordination between our Team, INDOT, and other stakeholders throughout the duration. Part of our communication will include regularly scheduled meetings. We will document these meetings including identifying critical issues and established milestones for resolution.

Interface with INDOT, Consultants, and Stakeholders

The Design-Build Team's approach to the North Split project is centered around partnering. We will fully engage INDOT and the appropriate design consultants and stakeholders throughout the project. Figure 12 summarizes examples of communication methods including bi-weekly progress meetings, monthly design meetings, and reviews.

Figure 12. Examples of Project Communication

DESIGN-BUILD TEAM MEMBERS	INDOT AND OTHER STAKEHOLDERS	COMMUNICATION AND DOCUMENTATION METHOD	FREQUENCY
• Tim Johnson	• INDOT Project Manager	Report • Full project status	• Monthly
• Josh Kistner • David Hedlund	• INDOT Greenfield Material and Tests Division	Report • Quality summarizing all completed testing • Upcoming testing	• Weekly
• Tim Johnson • Bob Gray • Discipline Leaders	• INDOT • HNTB, owner's representative	Workshops • Design status and approval	• Weekly (design) • Monthly (construction)
• Neil Mulrooney • David Rainford	• INDOT Public Information Officer • INDOT Traffic Management Center • Local Authorities and Emergency Responders	Meeting • Coordinate and schedule traffic activities	• Monthly • Before each major traffic shift
• Neil Mulrooney • Michele Meyer	• Indiana Department of Environmental Management • Indiana Department of Natural Resources	Report • Storm water quality control plan • Storm water, erosion, and sediment control inspection	• Weekly meetings and inspection • Monthly visits
• Tim Johnson • Neil Mulrooney • Javier Gauthier • Ben Bruss	• CSX	Meeting • Railroad design status and construction schedule	• Monthly
• Bobby Greer	• INDOT Safety • Local Authorities and Emergency Responders	Meeting • Review project and traffic safety • Upcoming traffic shifts	• Monthly
• Tim Johnson • Neil Mulrooney • Nikki Martin	• INDOT Greenfield District EEO	Meeting • DBE and subcontractor performance • Rental lease review	• Quarterly

Public Information and Community Outreach

David Rainford will serve as our public information coordinator. He will leverage his experience working on six public involvement projects, one of which was the INDOT I-65 Design-Build from 465 to White River project in Indianapolis, to ensure smooth transition and sharing information with INDOT. David will be supported by Niall Letz. Figure 13 summarizes their combined experience.

For additional information on his qualifications, please reference Section 4.1.5 Public Information Plan.

Document and Information Storage

The complex nature of the North Split project will produce a significant amount of data and documents. Our approach and electronic document management system (EDMS) addresses the following:

- Document maintenance – plans, submittals, safety and quality reports, issues and tasks, as-builts, project documentation, photos, requests for information (RFIs), field and daily reports
- Version control
- Access and distribution
- Document security and backup

MEDIUM

The Design-Build Team will utilize the web-based software PlanGrid for all contractual file storage, communication, and correspondence. PlanGrid is a construction management solution that controls document version, comments, review status, and distribution. This system provides intuitive access to all applicable documentation via a simple web-based interface. Figure 14 presents different examples of storage and organization from PlanGrid. Internally, we will use Viewpoint for all financial control measures throughout the project.

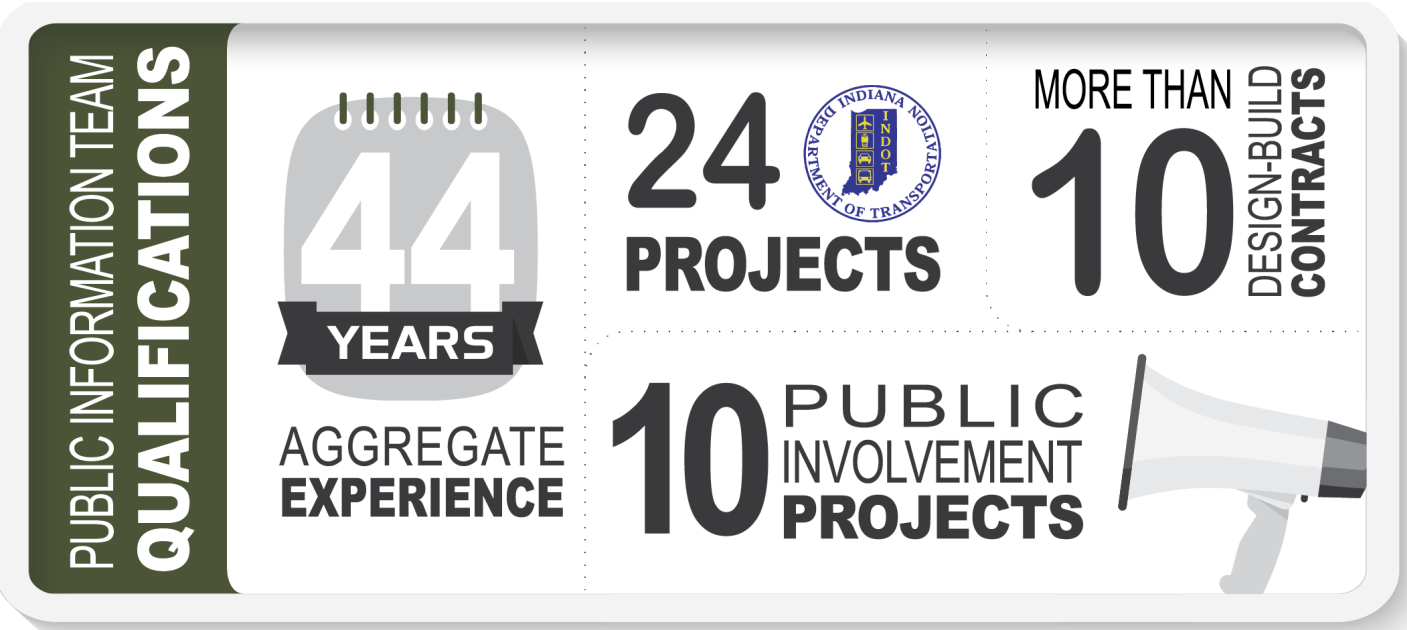
ELECTRONIC FORMAT

Utilizing PlanGrid provides specific benefits to the North Split project including:

- Capture and track all work in a single location
- Increase time savings
- Increase visibility for entire project team
- View project data in real time
- Provide accurate data for planning and tracking work
- Allow issue logs, drawings, reports, and quality records review
- Incorporate needed approval processes

Our planned document distribution and accessibility programs include:

Figure 13. Public Information Team Experience

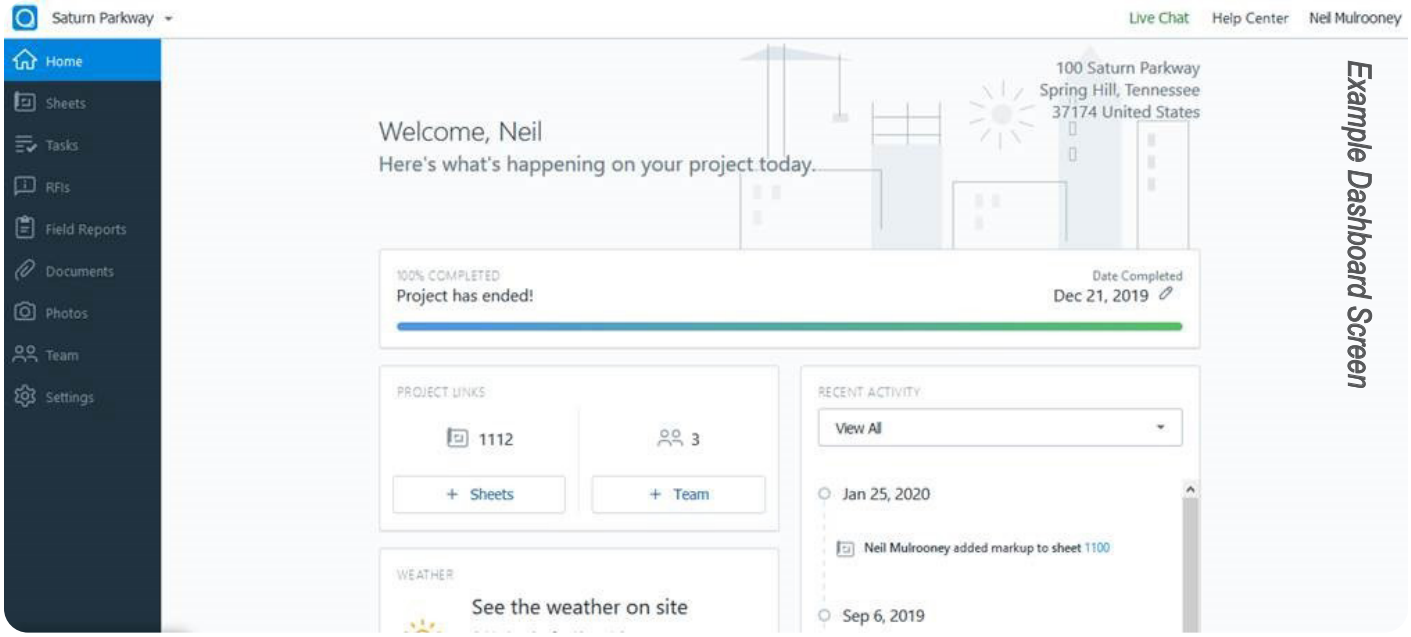


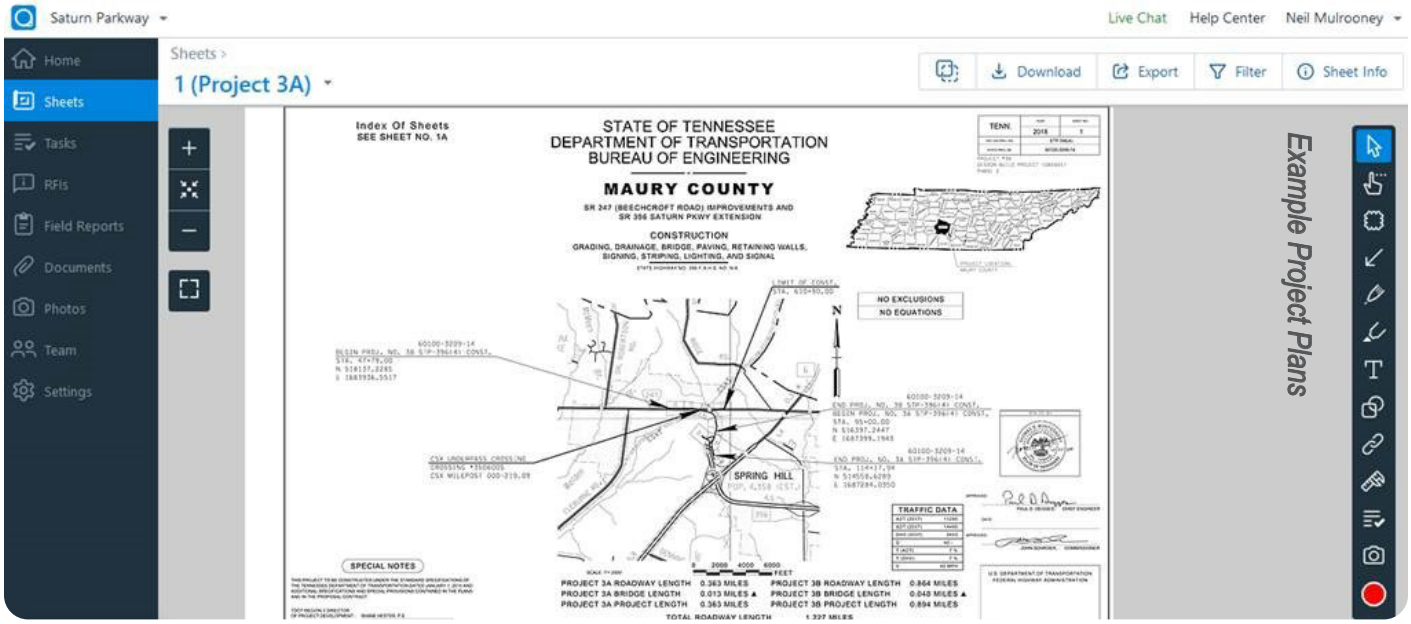
- Information and review documents – stored as PDF files
- Original documents with comment tracking
  - Microsoft Office
  - Primavera P6
  - Native design files

SECURITY AND BACK-UP

PlanGrid achieves security and control of access to documents to approved entities from both the project team and stakeholders. The Design-Build Team will work with INDOT and the HNTB team to determine individuals requiring access to specific information. We will establish an encrypted file structure to allow various access rights to maintain security to sensitive information. PlanGrid also provides safe backup as information is protected and stored in multiple locations for redundancy. The software will seamlessly fast-track the access and the exchange of needed information.

Figure 14. Examples from a Current Project Using PlanGrid





This page intentionally left blank.

4.1.2 - SCHEDULE
SUBMISSIONS

4.1.2 – SCHEDULE SUBMISSIONS

PRELIMINARY PROJECT BASELINE SCHEDULE

Using a scheduling approach that anticipates and mitigates schedule risk, the Design-Build Team will substantially complete the North Split project by November 24, 2022.

Understanding the critical schedule and completion time-frame, we planned the execution to utilize advanced construction methodologies. Each activity is uniquely identified so that the order and interdependence accurately illustrate our overall approach to the work. Durations and logic ties demonstrate the planning, scheduling, and execution of the work.

Proposed Execution of Work Through Substantial Completion

All elements of the project are considered in the schedule, including design, permitting, utilities, and construction. The design packages are tied to each construction phase and activities. Understanding the complexities associated with the project and the importance of schedule, we invested significant time in the procurement phase, which will allow us to hit the ground running upon receiving NTP. As part of this approach, we will:

- Start design work ahead of the NTP date, on an "at-risk" basis
- Develop early design packages in the first six months for long-lead items without risk to subsequent design elements to reduce schedule risk. Early design packages will follow
  - Preliminary layout, typical sections, and design computations
  - Supplemental geotechnical subsurface exploration and testing program
  - Finalized cross-sections
  - Conceptual drainage
- Leverage the design-build process to begin construction of certain key elements
  - Utility relocations
- Schedule long-lead duration items as early as possible to maximize flexibility
  - Permits
  - Railroad reviews
  - Steel procurement
- Incorporate weather calendars, holidays, no work periods, critical submittals, third party review periods, utility relocations, and hold points

Sequencing and Phasing of Construction Activities

Our work breakdown structure (WBS) is organized by milestones, administration, and construction activities. Under each major WBS heading, we broke it into further work elements. For example: project phasing, structures, roadway, and paving. Figure 15a summarizes the template we used.

Figure 15a. Work Breakdown Structure Template

Breakdown of Construction Phases

PHASE 0A, 0B, 0C, & 0D

This phase begins on November 15, 2020 and includes the construction on structures 43 through 46 (Roosevelt and Valley Ave). The different subphases represent the different lanes that will be reconstructed at a given time.

PHASE 1

This phase also begins on November 15, 2020 and includes all offline structure construction, which does not impact traffic or movement closure durations. We have select offline construction occurring to facilitate the completion of structure number 34.

PHASE 2A

This phase will begin on May 10, 2021 when the design of the new structures is complete. Major movement durations 1 through 5 will occur in this phase, including:

- Structures requiring traffic interruptions and closures
- Roadway and paving operations
- Coordination between the different south Leg construction operations and road closure restrictions

Once paving is completed and traffic is on the new alignments, we will begin Phase 2b. Phase 2b begins prior to the completion of Phase 2a.

PHASE 2B

This phase will begin on April 13, 2022 and will go through substantial completion of November 23, 2022. This phase includes:

- Structures 21, 26, 28, and 29
- Roadway and paving for I-65 northbound / I-65 southbound
- Southbound collector / distributor (CD) I-65 off-ramp
- Southbound CD I-65 south leg

SUMMARY OF SCHEDULE DATES

Figure 15b provides an overview of our anticipated progress by year and phase, identifying critical path and includes the following activities:

- Design – early works packages
- Permitting
- Utility relocation
- Phase 2a construction and paving
- Phase 2b construction and paving

Figure 15b. Summary of Schedule Dates

SUMMARY OF SCHEDULE DATES

ACTIVITIES

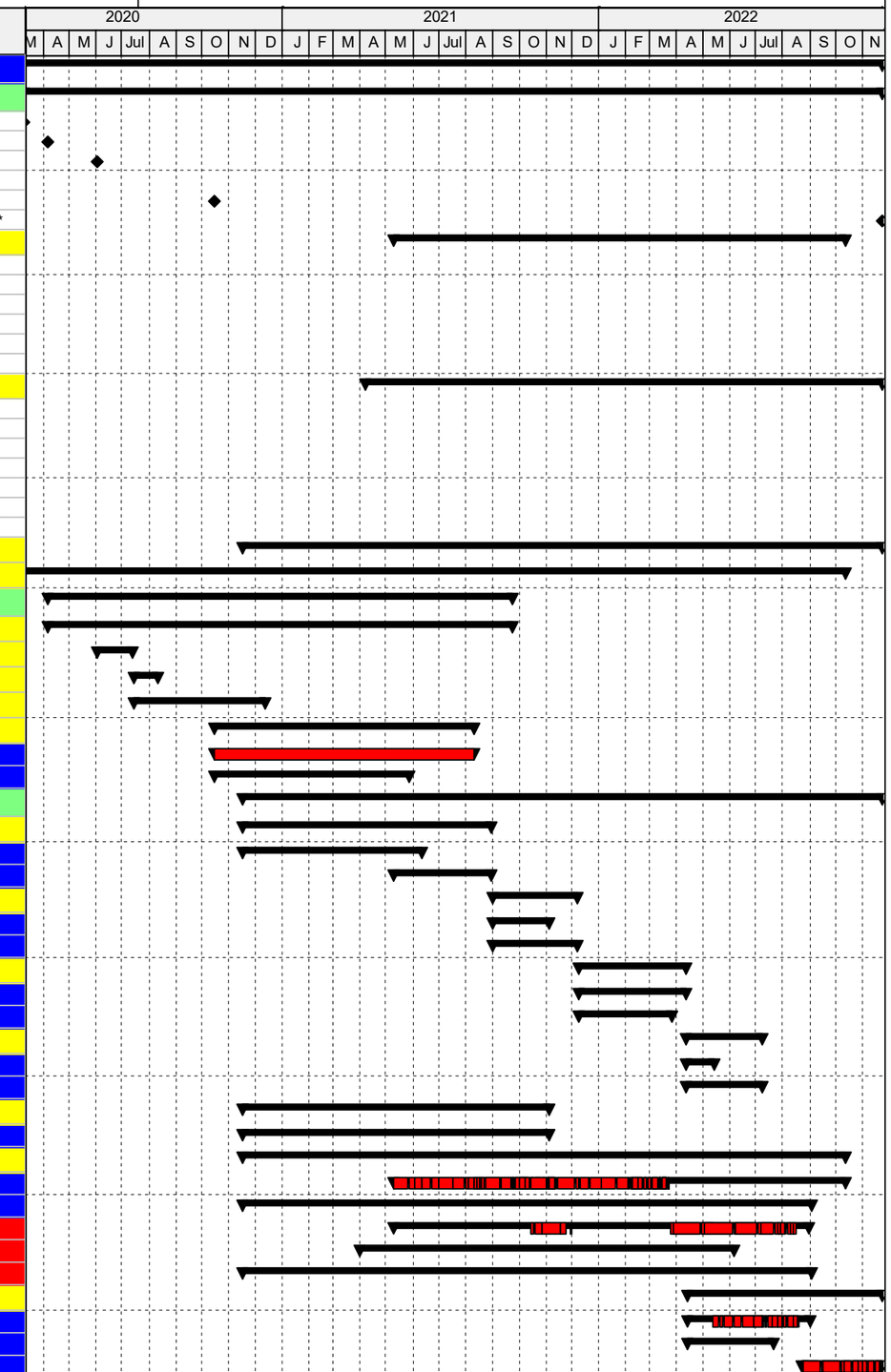
- Design - early packages
- Permit
- Utility relocation
- Phase 2a construction and paving
- Phase 2b construction and paving

PHASE	START DATE	COMPLETION DATE
Initial Work Package Design	June 2020	November 2020
Remaining Work Package Design	November 2020	May 2021
Execution of PPA	June 2020	April 2023
Utility Relocations	October 2020	August 2021
Phase 0a, 0b, 0c, 0d	November 2020	July 2022
Phase 1	November 2020	November 2021
Phase 2a	May 2021	September 2022
Phase 2b	April 2022	November 2022

Figure 15c. Primavera 6 Summary of Schedule Dates

Summary Schedule

Activity ID	Activity Name	Original Duration	Start	Finish
I-65/I-70 North Split Project Bid Schedule		689	10-Mar-20	23-Nov-22
Milestones		689	10-Mar-20	23-Nov-22
MILE.1000	Bid Date	0	10-Mar-20*	
MILE.1050	Selection of Proposer	0	6-Apr-20*	
MILE.2000	Notice to Proceed - Design and Administation	0	2-Jun-20*	
MILE.2040	Contract Duration (From NTP + 905 calendar days)	905	2-Jun-20	23-Nov-22
MILE.2010	NEPA Approval Date	0	15-Oct-20*	
MILE.2050	Substantial Completion	0		23-Nov-22*
FORM T Movement Closure Durations		520	10-May-21	11-Oct-22
MILE.FORMT.100	I-65 NB to I-70 EB (Sta 113+00, line "P_ALG_I65/I70" to Sta. 41+90, line "P_ALG_I70") (Maximum Duration 560 Days)	520	10-May-21	11-Oct-22
MILE.FORMT.110	I-65 NB to I-65 NB (Sta 113+00, line "P_ALG_I65/I70" to Sta. 25+75, line "P_ALG_I65") (Maximum Duration 560 Days)	520	10-May-21	11-Oct-22
MILE.FORMT.120	I-65 SB to I-65 SB (Sta 25+75, line "P_ALG_I65" to Sta. 113+00, line "P_ALG_I65/I70") (Maximum Duration 520 Days)	520	10-May-21	11-Oct-22
MILE.FORMT.130	I-65 SB to I-65 SB CD (Sta 25+75, line "P_ALG_I65" to Sta. 115+00, line "R_CDS65") (Maximum Duration 520 Days)	520	10-May-21	11-Oct-22
MILE.FORMT.140	I-70 WB to I-70 WB (Sta 41+90, line "P_ALG_I70" to Sta. 113+00, line "P_ALG_I65/I70") (Maximum Duration 430 Days)	430	10-May-21	13-Jul-22
MILE.FORMT.150	I-65 SB to I-70 EB (Sta 25+75, line "P_ALG_I65" to Sta. 41+90, line "P_ALG_I70") (Maximum Duration 45 Days)	1	31-Jul-21	31-Jul-21
Table 12-1 Allowable Ramp Movement Closures		596	7-Apr-21	23-Nov-22
MILE.12-1.1010	I-65 NB to 12th Street Exit Ramp (Maximum Closure 120 Days)	114	7-Apr-21	29-Jul-21
MILE.12-1.1000	11th Street On-Ramp to I-65 SB (Maximum Closure 60 Days)	52	14-Apr-21	4-Jun-21
MILE.12-1.1040	I-70 WB/I-65 SB CD to Fletcher Ave Exit Ramp (Maximum Closure 520 Days)	520	10-May-21	11-Oct-22
MILE.12-1.1050	Fletcher Ave. On-Ramp to I-65NB/I-70EB (Maximum Closure 520 Days)	520	10-May-21	11-Oct-22
MILE.12-1.1060	Pine St. On-Ramp to I-65 NB (Maximum Closure 520 Days)	520	10-May-21	11-Oct-22
MILE.12-1.1030	I-70 WB/I-65 SB CD to Ohio St Exit Ramp (Maximum Closure 260 Days)	260	29-Nov-21	15-Aug-22
MILE.12-1.1020	I-70 WB/I-65 SB CD to Michigan St Exit Ramp (Maximum Closure 260 Days)	100	16-Aug-22	23-Nov-22
Phase Milestones		511	16-Nov-20	23-Nov-22
Movement Milestones		658	10-Mar-20	11-Oct-22
Administration		374	6-Apr-20	23-Sep-21
Design		374	6-Apr-20	23-Sep-21
Submittals		30	2-Jun-20	13-Jul-20
Review and Approval		20	14-Jul-20	10-Aug-20
Procurement and Fabrication		153	14-Jul-20	13-Dec-20
Utility Relocation		300	15-Oct-20	10-Aug-21
Type I		300	15-Oct-20	10-Aug-21
Type II		225	15-Oct-20	27-May-21
Construction		511	16-Nov-20	23-Nov-22
Phase 0a		198	16-Nov-20	30-Aug-21
Structures		143	16-Nov-20	11-Jun-21
Roadway Phase 0a		79	10-May-21	30-Aug-21
Phase 0b		68	31-Aug-21	7-Dec-21
Structures		48	31-Aug-21	5-Nov-21
Roadway Phase 0b		68	31-Aug-21	7-Dec-21
Phase 0c		87	8-Dec-21	11-Apr-22
Structures		87	8-Dec-21	11-Apr-22
Roadway Phase 0c		76	8-Dec-21	25-Mar-22
Phase 0d		61	12-Apr-22	8-Jul-22
Structures		23	12-Apr-22	13-May-22
Roadway Phase 0d		61	12-Apr-22	8-Jul-22
Phase 1 - Offline Construction		245	16-Nov-20	4-Nov-21
Structures		245	16-Nov-20	4-Nov-21
Phase 2a		480	16-Nov-20	11-Oct-22
Structures		361	10-May-21	11-Oct-22
Roadway		454	16-Nov-20	3-Sep-22
South Leg		333	10-May-21	31-Aug-22
West Cooridor		298	1-Apr-21	6-Jun-22
Interchange		454	16-Nov-20	3-Sep-22
Phase 2b		157	13-Apr-22	23-Nov-22
Structures		99	13-Apr-22	1-Sep-22
Roadway		69	13-Apr-22	21-Jul-22
Paving		67	22-Aug-22	23-Nov-22



This page intentionally left blank.

Plan to Mobilize Key Personnel, Equipment, Materials, and Supplies

The Design-Build Team will mobilize in October 2020 while the design phase is concluding to establish the onsite office, crew compounds, and begin construction on November 15, 2020:

- Phase 0a, 0b, and 0c
- Phase 1 offline structure construction
- Utility relocations

We will begin major construction on May 10, 2021 and will mobilize separate teams to each respective areas.

SOUTH LEG

We will begin road closures utilizing multiple pile driving crews in the south leg with Closure A, including:

- Washington St
- Market St
- Eastbound Ohio St / CSX
- Vermont St
- St. Clair St

Once the overhead bridge construction is completed to allow the road underneath to be open, we will mobilize to the south leg with Closure B:

- New York St
- Michigan St
- 10th St

WEST LEG

The west leg construction will begin on May 10, 2021 with the pile driving crews and carpenter crews. Multiple structures will be constructed concurrently.

INTERCHANGE

We will construct a portion of the flyover bridge offline during Phase 1. This will minimize disruptions to the traveling public during movement closure periods. The online portion will be constructed linearly from pier to pier with deck placements completing the critical interchange structure.

Prepare and Update Project Baseline Schedule

The Design-Build Team will develop the project baseline schedule in relation to the bid schedule for smooth transition.

We will be take additional steps to ensure the schedule is a useful planning tool, including using an intelligent activity identification (ID) system to filter and breakdown the schedule. This system will logically link activities and allow filtering into specific work areas. For example, a roadway activity in Phase 2a will have an ID similar to RDPH2a.1000.

During the weekly project meetings, we will discuss the schedule and review multiple look-ahead schedules, which will consist of one, three, and six months. We will submit weekly look-ahead schedule updates to INDOT.

We will use activity notebooks included in the Primavera 6 (P6) program. These notebooks will record any scheduling change and also create transparency and open communication.

ASSUMPTIONS AND LOGIC

The Design-Build Team will utilize the following non-work holidays:

- New Year's Day
- Good Friday – 12 noon on Friday until sunrise Monday
- Memorial Day – 12 noon the Friday before Memorial Day until sunrise Tuesday
- Independence Day
  - 2021 – 12 noon Friday, July 2nd until sunrise Tuesday, July 6th
  - 2022 – 12 noon Friday, July 1st until sunrise Tuesday, July 5th
- Labor Day – 12 noon the Friday before Labor Day until sunrise Tuesday
- Thanksgiving – 12 noon the Wednesday before Thanksgiving until sunrise Monday
- Christmas – 12 noon December 24th until sunrise December 27th

Figure 15d outlines multiple work week schedules and calendars.

CONSTRUCTION PROGRESS REPORTS

We will submit the following information to INDOT weekly:

- Brief summary, including photos / other graphics, of the previous week's progress
- Major upcoming activities
- Any changes to traffic patterns,
- 4D (3D plus time) model animation

Figure 15d. Work Week Schedules and Calendars

PROJECT CALENDARS	ASSUMPTIONS	
5-day work week	• 9 holidays per year	• Standard 5-day work week
6-day work week	• 9 holidays per year	• Standard 6-day work week
7-day work week	• No holidays	• Standard 7-day work week
Winter overlay calendar	• 5-day work week	• Non-work period from November 15th – March 15th
Paving calendar	• 5-day work week	• Non-work period from December 1st – February 28th

Plan to Integrate Design and Subcontractor Activities into Scheduling and Reporting System

The Design-Build Team has already implemented portions of the activities into the bid schedule. We will discuss fabrication windows with suppliers to verify accurate time frames, which will also aid in providing early demand notifications. Each subcontractor will be required to provide a milestone schedule to be reviewed, approved, and fully implemented into the baseline schedule.

Interfaces with INDOT

In addition to monthly schedule submissions, we created a 3D model of the project, which has the option to link to the schedule to create 4D animations communicating the intended design, construction sequence, and traffic control.

We also have the potential to create 4D / 5D animation reports identifying the P6 schedule, the SynchroPro file used to create the animation, and a side-by-side view comparison with the previous schedule submission. These 4D / 5D reports can identify how much work we completed for the month to supplement the basis of payment.

Additionally, we can also use the 3D and 4D models internally to verify construction work plans and identify conflicts before they become issues during construction, decreasing risk and increasing quality.

Summary of Major Risks and Contingencies

We identified the following major risks that could adversely impact the schedule, as well as mitigation plans to reduce and eliminate these risks, as summarized in Figure 15e.

NTP + 180 SCHEDULE

Please reference the separate, sealed envelope labeled NTP + 180 Schedule.

Figure 15e. Work Week Schedules and Calendars

SCHEDULE RISK	MITIGATION STRATEGIES
Unforeseen delays in permit approval	• Provide well-publicized schedule • Multiple coordination meetings • Alternate plan to maintain completion date
Material procurement	• Advance complete design schedules
Utility relocations	• Early recognition of utility subcontractor delays • Recovery schedule
Labor shortage	• Early partnership with local subcontractors
Winter weather restrictions	• Early construction pre-planning

4.1.3 - PRELIMINARY QUALITY **MANAGEMENT PLAN**

WHY SUPERIOR CONSTRUCTION / JSE

Best Value | Stewardship | Team Indiana

4.1.3 – PRELIMINARY QUALITY MANAGEMENT PLAN

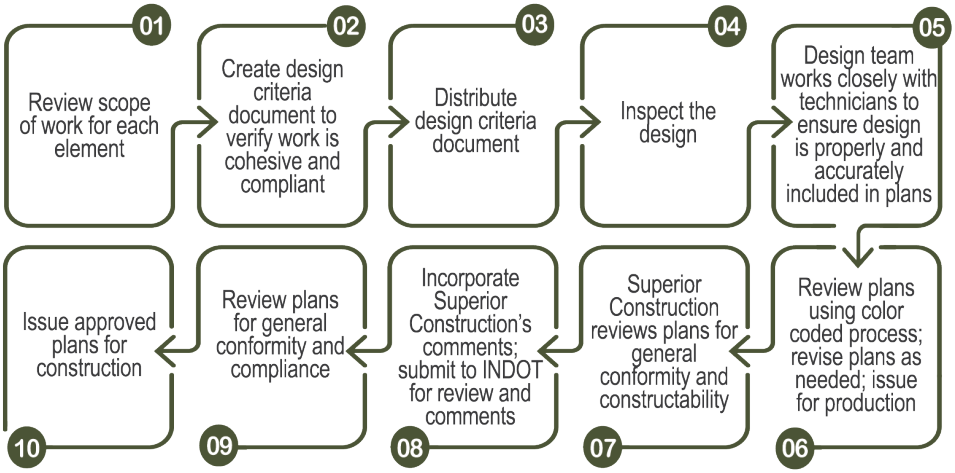
DESIGN DELIVERABLE PROCESS

The Design-Build Team maintains a culture that focuses on quality in everyday activities at all levels of personnel to ensure that our projects meet or exceed the project requirements. This goal is emphasized in weekly meetings and passed down from field supervisors to the crews. Participation and mindfulness of each member of the team is critical to excellence in construction. To achieve exceptional quality, our team will develop quality construction work plans using the following design quality management plan (DQMP).

INTERNAL PROCESS FOR DESIGN REVIEWS

The design quality process referenced in Figure 16 utilizes a series of checklists for each design discipline. Both the designers and reviewers will use these checklists to confirm that all items are included in the design drawings. We will perform a detailed check of the plans at each stage of design to verify completeness and accuracy.

Figure 16. Design Quality Process



Leveraging our fleet of equipment decreases project costs.

Additionally, we will perform an independent technical and constructability review at 90% design, as summarized in Figure 17. We will form a specialized team and process for an independent review involving senior road and structural designers, principals, and construction personnel.

Figure 17. Independent Review Process

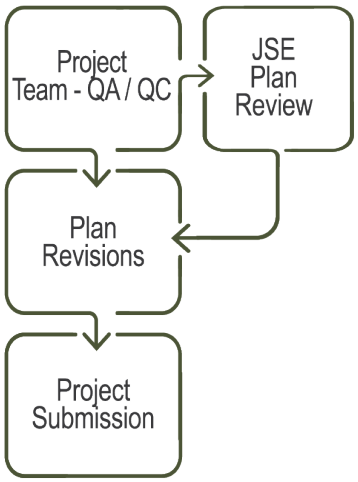


Figure 18. QA / QC Processes

QA/QC REVIEW LEGEND

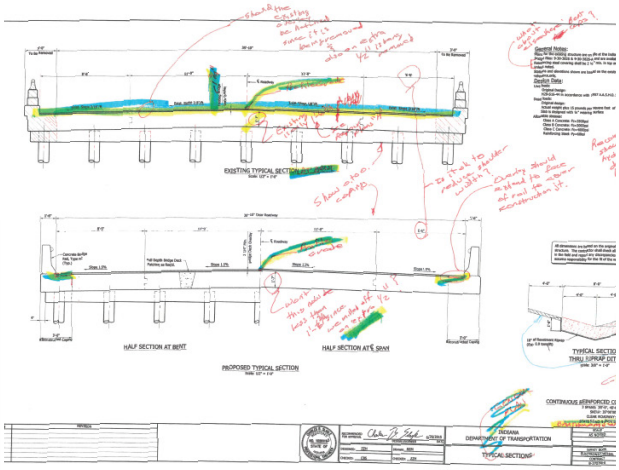
YELLOW
- correct, signifying verified information

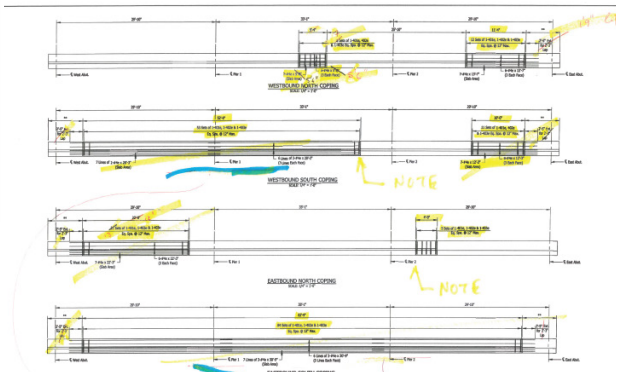
RED
- incorrect information to return to originator for correction
- if designer disagrees; resolve through discussion; design manager will decide if no resolution

CLOUDED RED
- suggestions, comments, and notes

RED WITH YELLOW HIGHLIGHTS
- incorporate agreed corrections into document

BLUE OVER YELLOW HIGHLIGHTS (creating GREEN)
- reviewer verifies information incorporated into document





David Hedlund, PE, design quality manager, will have the ultimate responsibility for design quality control. He will use a color-coded procedure for reviewing and correcting design drawings, as shown in Figure 18. Additionally:

- Both designers and reviewers will initial drawings
- Completed documents will be appropriately stored
- Designer and reviewer will provide proof of process before plans are submitted to INDOT as well as before plans are submitted to Superior Construction for production
- David will issue a completion certificate with each plan set

QUALITY FUNCTIONS

David will reinforce the plan review process for each design discipline and will be responsible for ensuring that all plans are reviewed, corrected, and documented in accordance with the quality design process.

David will also ensure that each subconsultant is following the same review process. Upon final approval, David will include the corrected set of plans and completion certificate as part of the INDOT quality audits.

INDOT INVOLVEMENT

The Design-Build Team will send each plan package to INDOT for review at various design stages, especially at the witness and hold points. These reviews will result in a log including any suggestions and comments. INDOT will respond with comments on the log with the Design-Build Team.

The team will then respond with three types of responses:

- Revise plans to comply to all technical provisions
- Provide appropriate explanation of preference and direction
- Provide comment supporting the Team's position

REPORTING RELATIONSHIPS AND RESPONSIBILITIES APPROACH

One of the guiding principles of an effective QA / QC process is communication and coordination among all design, construction, and INDOT team members. As the single point-of-contact and project manager, Tim will be responsible for project activities, QC assurance, issue resolution, and coordination. He will work with INDOT, keeping INDOT apprised of our status and mitigating issues well in advance.

The Design-Build Team's quality control procedures result in proper quantities being used onsite.

Tim, Bob, and Neil Mulrooney, construction manager, will meet regularly to discuss and coordinate project activities. In conjunction with this process, Tim will communicate with the entire team prior to progress meetings to make timely decisions, increase efficiency, and reduce delays.

The Design-Build Team will have open communication and regularly scheduled meetings. Additionally, we will maintain updated project records capturing details about decisions and pending action items.

To coordinate design and construction, we will also hold technical working group (TWG) meetings based on project elements – roadway, structures, drainage, geotechnical, and traffic – that will involve the same team members from the task force meetings, ensuring continuity throughout the project. These meetings will include:

- Structured agenda
- Design plan, schedule, plan comments, and constructability
- Teamwork environment
- Early coordination needs

CONFORMANCE TO FEDERAL OVERSIGHT REQUIREMENTS

The Design-Build Team understands that the North Split project is subject to Federal Highway Administration (FHWA) oversight. Michele Meyer, environmental compliance manager (ECM), and Bob will ensure that the plans incorporate and follow all federal requirements, including review at each stage. The main points that we will incorporate include:

- Environmental permitting
- Design guidelines
- Railroad permitting and approval
- Environmental commitments

We understand all of the environmental commitments associated with the North Split project including:

- Noise analysis and mitigation
- Environmentally restricted areas and "do not disturb" zones
- Wetland avoidance and mitigation
- Terrestrial wildlife avoidance and minimization
- Storm water management improvements

QUALITY MANAGEMENT DOCUMENTATION

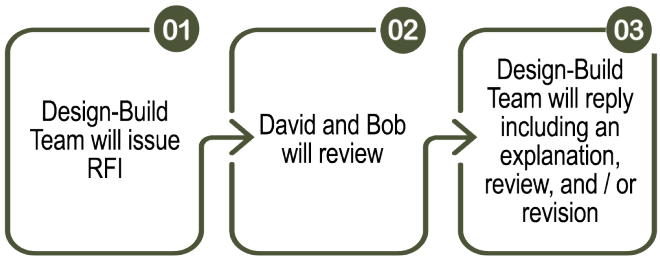
TheDQMP will direct all design quality control processes and quality assurance monitoring. The plan will document the processes for plan reviews, recording, filing, and assurance. David will work with Bob to develop the DQMP. Once developed, it will be reviewed by other team members, and will be maintained for INDOT quality audits.

Each design plan package will store finalized documents and plans. David will audit the project regularly to ensure plan and calculation reviews have followed the process. Each plan submittal will have a certificate signed by the respective discipline design lead, Bob, and David.

CHANGES TO CORRECT DESIGN EXCEPTIONS

As previously described, the designer will revise the plans and calculations following each review. They will resolve any comments, including from INDOT, and document the appropriate actions taken. Should a design issue arise during construction, the Design-Team will implement a RFI process to quickly address and resolve the issue as shown in Figure 19.

Figure 19. Design Exception Process



PRELIMINARY CONSTRUCTION QUALITY MANAGEMENT PLAN

Superior Construction's policy is to meet and exceed project requirements and to adhere to both corporate and INDOT quality objectives. We strive to eliminate rework by performing our work "right the first time." Figure 20 summarizes our PQMP table of contents.

PROJECT QUALITY GOALS

The Design-Build Team's executive oversight committee supports implementing and enforcing all quality procedures, inspections, and controls as outlined in the following PQMP.

Our goal of exceeding all quality standards for the North Split project will be achieved by:

- Careful planning and quality reviews with craft workers
- Giving everyone authority to stop non-compliant work

Tim, Neil, Jeff Anderson, superintendent, and all other field supervisors are accountable for the overall quality of the North Split project.

All personnel assigned to perform inspection and testing will be qualified and trained for their respective assignment areas. Josh Kistner, construction quality manager, will oversee all inspection and testing activities. As each inspection and test is performed, inspectors will have the responsibility and authority to identify quality issues. They will perform routine inspections to verify the manufacture, fabrication, and construction quality of all materials to be incorporated.

Figure 20. PQMP Table of Contents

PQMP TABLE OF CONTENTS

- Organization, staffing, and responsibilities
- Managing submittals, document control, and document changes
- Receiving, handling, storage, and control of materials and equipment
- Subcontractor and supplier controls
- Inspection and testing plan (ITP)
- Control of construction processes
- Control of measuring and testing equipment
- Preventative action and control of non-conforming conditions
- Documentation of quality records
- Contractor internal assessment
- Training
- Statistical control

PROJECT QUALITY MANAGEMENT PLAN REVIEW

Josh will review the efficacy of the PQMP against project design and constructability requirements. He will also:

- Conduct quarterly self-assessments and INDOT interviews
- Discuss the results of the assessments and interviews with the executive oversight committee
- Update the PQMP as needed

QUALITY SYSTEM PROCEDURES

The quality team will confirm best value work is being performed by:

- Inspection and test plan (ITP)
- Preventative action and control of non-conforming product log
- Document and drawing control
- Material and equipment control
- Subcontractors and suppliers control
- Construction and installation processes control
- Internal and external assessments

ROLES AND RESPONSIBILITIES

Josh will conduct an initial quality meeting with INDOT and / or INDOT's representatives to identify expectations and specific concerns. The agenda will include:

- Level of quality necessary
- Quality program and initiatives
- Five most significant quality risks and corresponding mitigation plan
- INDOT's top five hot buttons / expectations and the mitigation plan
- Consistency between quality expectations and requirements
- Suggested schedule and agenda for preactivity meetings

Tim, Neil, and Josh will review project status with INDOT each month and will track the results in a four-square matrix. Josh will post the matrix onsite, review it with staff and crews as appropriate, and bring emphasis to resolving matters to keep the project moving forward without rework or schedule delays.

Figure 21 outlines the Design-Build Team's construction quality roles and responsibilities.

INTEGRATION WITH DESIGN

Neil will work with Jeff Lietzan, design-build coordinator, and Bob to ensure the roadway and structure elements are both constructable and will work in the manner intended. The process includes:

- Jeff will conduct bi-weekly constructability reviews
- Following formal drawing reviews, Jeff will coordinate with Neil to create a list of design optimizations
- Jeff will submit this list to Bob
- If implemented, Bob will confirm that the design drawings are updated
- We will maintain real-time design records in PlanGrid
- Josh will manage the hard copy specifications and drawings

CONSTRUCTION ENGINEERING

Neil will be responsible for temporary structures and construction devices (TS&CD) design and implementation. Responsibilities and interactions will include:

- Neil will use a construction engineering checklist (CEC) to designate the required design and review controls for the various structures and devices.
- Josh will be responsible to classify the necessary inspections.
- Jeff will be responsible for maintaining design files and current design revisions.
- CEC will designate the required approval to begin using any structure or device.
- All devices must be included in the CEC.
- Josh will provide training to the field supervision to emphasize no deviations from the CEC.
- Neil will audit the TS&CD program to verify compliance on a monthly basis.

Figure 21. Construction Quality Roles and Responsibilities

TIM JOHNSON, PROJECT MANAGER	JOSH KISTNER, CONSTRUCTION QUALITY MANAGER
PRIMARY QUALITY RESPONSIBILITY: INDOT's single point-of-contact • Provide Neil authority to perform duties, independent of production • Communicate plan, quality goals, and standards to project personnel • Provide operations with a compliant work plan • Ensure Josh reviews and approves all subcontractor and supplier-provided quality plans • Include field supervision in project planning • Participate in regular executive oversight committee quality tours • Oversee quality training • Review project monthly with INDOT via four square matrix	**PRIMARY QUALITY RESPONSIBILITY**: Implement quality program • Participate in new hire orientation • Supervise all quality control personnel • Commit to INDOT's quality expectations and convey them to entire team • Conduct subcontractors and suppliers assessment • Provide design quality oversight • Conduct periodic audits with David • Establish subcontractor preactivity procedures • Report non-conformance report (NCR), deficiencies, and findings using NCR log • Establish system of accountability for NCR items • Oversee entering information into NCR log • Report quality incidents and maintain summary • Review and approve quality aspects of all work plans • Shutdown non-compliant operations • Discuss quality during project-wide toolbox talks • Review project with INDOT via four square matrix
NEIL MULROONEY, CONSTRUCTION MANAGER	**FIELD SUPERVISORS**
• Communicate quality expectations • Know contract requirements • Participate in developing operational work plans • Tour site operations and review findings with project team • Include field supervision in project planning processes • Establish system of craft accountability for NCR items • Lead quality initiative through recognition and self-reporting quality issues	• Perform quality checks and practices • Review and sign-off on work plans before implementation • Proactively report quality issues and implement mitigation plans • Verify crews understand and comply with work plan • Participate in INDOT quality tours

CONTROL OF MATERIALS

The Design-Build Team is responsible for receiving and storing all permanent materials onsite. Josh, or other designated field engineers, will inspect the delivered materials before we use them to construct the North Split project. Since materials supplied and delivered will vary, Josh will work with Neil to ensure all materials are carefully stored and moved, ensuring adherence to all manufacturers' storage recommendations.

We will store all materials in an appropriate environment to preclude damage or deterioration that could affect performance, warranty, or longevity of operation. The QA / QC department will maintain a material storage checklist for any deficiencies, further noting corrections in the NCR log. General storage requirements include:

- Protection from elements (rain, sun, wind, and moisture)
- Store on supports raised off ground
- Provide proper moisture control
- Provide supports to prevent bottom material from being crushed
- Store in secure area
- Store materials a safe distance away from operations to prevent accidental damage

INSPECTION AND TESTING MONITORING

Josh will ensure that all inspection and testing, including sample inspection reports required, will conform to the ITP. He will compile a list of all requirements, including:

- Specification section
- Description
- Examination and test
- Nature of testing or acceptance criteria
- Frequency
- Any specialized equipment, training, or qualifications

Josh will continually update the ITP following design package approval.

Testing Personnel Qualifications

The Design-Build Team will contract a third-party testing subcontractor. Josh will verify that all engineers and technicians performing any testing have the required training, qualifications, and / or certifications to perform the specific test. Josh will maintain records at the jobsite, which can be made available to INDOT upon request.

Testing Control Procedures

Josh will generate a checklist with Bob and will incorporate it into the work plan. The checklist will identify specific tests

Regular quality reviews increase efficiency during construction and decrease costs

and inspections to be conducted. The third-party testing subcontractor will generate official test and inspection reports. Josh will keep all testing reports and records on PlanGrid, referring back to the checklist in the ITP.

Test Procedures

Josh will incorporate each type of test procedure into the work plans as necessary, including referenced standards, job-specific QC checklists, guidelines, and procedures. Josh will ensure that the individual performing inspections follows the procedures for consistency and compliance. He will list these references and checklists in the ITP, and upload test records to PlanGrid.

MONITORING CONSTRUCTION ACTIVITIES

Work planning is the key to success for safety, quality, and productivity. The Design-Build Team will follow our four step planning process, as outlined in Figure 22.

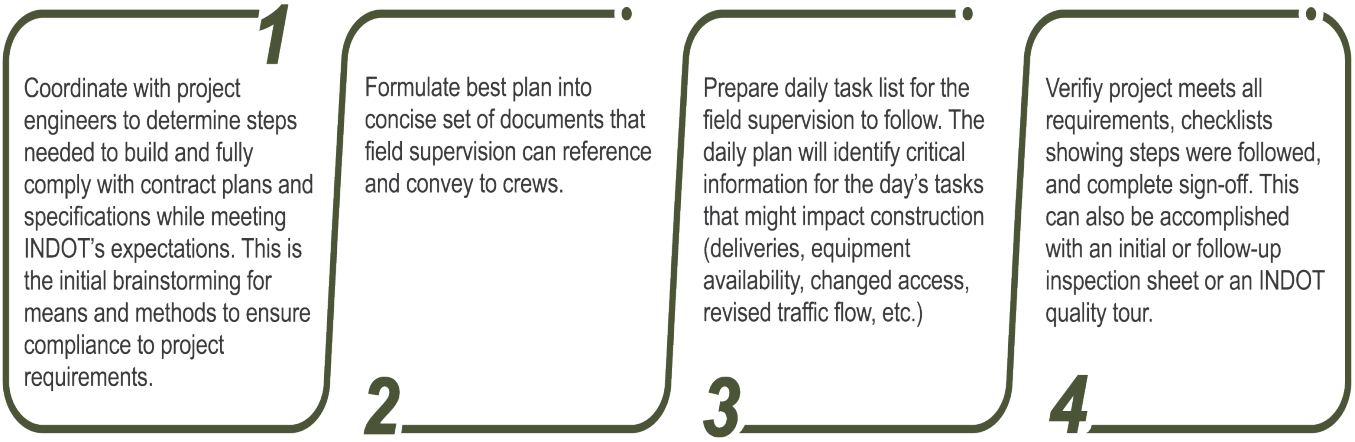
Work Plans with Quality Analysis and INDOT Review

We will require a work plan for all identified major operations on the North Split project. Josh will identify concerns and provide a specific mitigation plan to address each concern, including tight tolerances, finishes, testing requirements, and coloration.

Work plans will contain comprehensive checklists and include specific hold points and actions or observations necessary for quality construction. Field supervisors will develop work plans and Neil will subsequently review and approve the plans.

We will score the work plan according to its completeness before any operation can begin. Bobby Greer, safety

Figure 22. Four Step Planning Process



manager, will also review work plans before work begins. These plans are living documents that will be updated and reviewed with the crew at the start of each operation.

DOCUMENTATION

Josh will maintain all North Split project quality records on PlanGrid including:

- Approved drawings / submittals / submittal register
- Requests for information
- Quality alerts
- Inspection checklists / INDOT quality tours
- Verification / calibration logs
- Material requisitions / receiving reports / certificates of compliance
- As-built information
- Work plans with quality analysis / pre-activity meeting notes
- Contract documents
- Audits and assessments

PREVENTATIVE ACTION AND CONTROL OF NON-CONFORMING CONDITIONS

Josh will identify, investigate, and correct NCR issues. Once a non-conforming item is discovered, Josh will generate a NCR and immediately notify Neil. He will work to determine the cause and appropriate corrective action. Josh will:

- Document and report any corrective action
- Relay information to the executive oversight committee
- Use the NCR and logs
- Process all non-conformances

ACTION is the key to a successful North Split project. Our work planning process will help prevent issues from occurring. If a problem occurs, we will identify lessons learned and implement measures to prevent that issue from happening again, all of which Josh will document in the NCR log.

Quality Alert Report

Josh will generate a written quality alert report for any NCR item, and he will immediately distribute the report to Neil. The report will include a problem statement, root cause analysis, future measures, and the associated cost and time impacts. Josh will notify Neil within 24 hours of a quality issue.

Josh will create quality alerts, which Neil will review, to determine the need for additional or more formal reviews. Josh will perform a root cause analysis for incidents exceeding the following limits with the Team, including all personnel involved in the incident:

- Conflict with potential to be repeated
- Repetitive incidents

When conducting a root cause analysis investigations, Josh will:

- Define the problem
- Determine cause(s)
- Identify solutions
- Implement the most effective solutions
- Verify effectiveness of solutions

The Design-Build Team's goal is to prevent and reduce future occurrences of similar problems through analysis and understanding. Josh will distribute information and findings to the entire Team.

This page intentionally left blank.

4.1.4 - SAFETY & ENVIRONMENTAL MANAGEMENT

WHY SUPERIOR CONSTRUCTION / JSE

Safety | Stewardship | Less Impact

4.1.4 – SAFETY AND ENVIRONMENTAL MANAGEMENT

SAFETY

The Design-Build Team is committed to a core philosophy that all projects must have **ZERO INJURIES, ZERO ACCIDENTS, AND ZERO INCIDENTS**. Our safety culture focuses on protecting employees, local residents, traveling public, and partners. We deliver a consistent and clear message that safety leads all operational processes. With INDOT's support, we are committed to establishing this same culture on the North Split project.

At Superior Construction, safety is not a "program," it is a discernible culture that is incorporated on each of our projects. This is reflected in our industry leading **EXPERIENCE MODIFICATION RATE (EMR) OF 0.65**. Over the last 80+ years, we have continually been acknowledged by our peers as "industry leading" and "the best of the best."

SUPERIOR CONSTRUCTION

2020 EMR 0.65

Experience Modification Rate

We are committed to providing a safe environment for employees, stakeholders, and the traveling public.

We actively participate with multiple safety organizations and authorities to learn and remain proficient in best management practices (BMPs). We are regularly recognized for our outstanding safety record, including **INDIANA CONSTRUCTORS, INC.**'s Pinnacle Award, Indiana's Construction Advancement Foundation, the Northwest Indiana Business Roundtable, and The Association of Union Constructors. For additional information on our safety program and awards, please reference Volume 2 Appendix.

BENEFIT

Superior Construction was recently recognized by Liberty Mutual Insurance with the Gold Safety Award for Outstanding Safety Performance, and by the Board of Certified Safety Professionals (CSP) for our commitment in mandating that all safety managers become certified as Safety Trained Supervisors in Construction (STS-C). Benefits of safety certified professionals include:

- Implement BMPs throughout construction
- Reduce risk for INDOT
- Increase safety for traveling public

Through our ongoing commitment to safety, health, and environmental excellence, the Design-Build Team affirms to all employees, subcontractors, and the traveling public that we will work collaboratively to achieve safety of everyone in and around the project area. We support INDOT's primary goal to **INCREASE THE EFFICIENCY AND SAFETY** of the North Split project. We will achieve this by:

- Building 15 structures offline
- Using temporary pavements and accelerated schedules
- Incorporating new design while maintaining existing traffic flow
- Performing critical traffic pattern changes while minimizing movement closure durations

We understand that the traveling public will also be affected by the work, including interchange access, road and bridge widening, and intersection improvements. We will stage our construction and incorporate accelerated schedules while providing continuous access to local neighborhoods, schools, and businesses.

As an Indiana State University graduate, Bobby Greer will serve as safety manager and will oversee the project and processes to ensure the health and safety of each employee, subcontractor, stakeholder, and the traveling public. Bobby has more than 21 years of experience in the construction industry, and is an authorized Occupational Safety and Health Administration (OSHA) 30- and 10-Hour instructor, Traffic Safety Supervisor, a member of American Society of Safety Engineers, and holds CSP and STS-C certifications.

VALUE ADD

We will dedicate an emergency medical technician (EMT) to the North Split project Team.

BENEFIT

Summary

STAKEHOLDER INVOLVEMENT

From the beginning of this pursuit, we recognized the importance of stakeholder input. Throughout the process, our team coordinated with INDOT to engage multiple stakeholders to gain feedback regarding both design and construction project elements.

Some of the items we learned and will incorporate are:

- Connectivity
- Speed of construction
- Aesthetics

EMERGENCY SERVICES

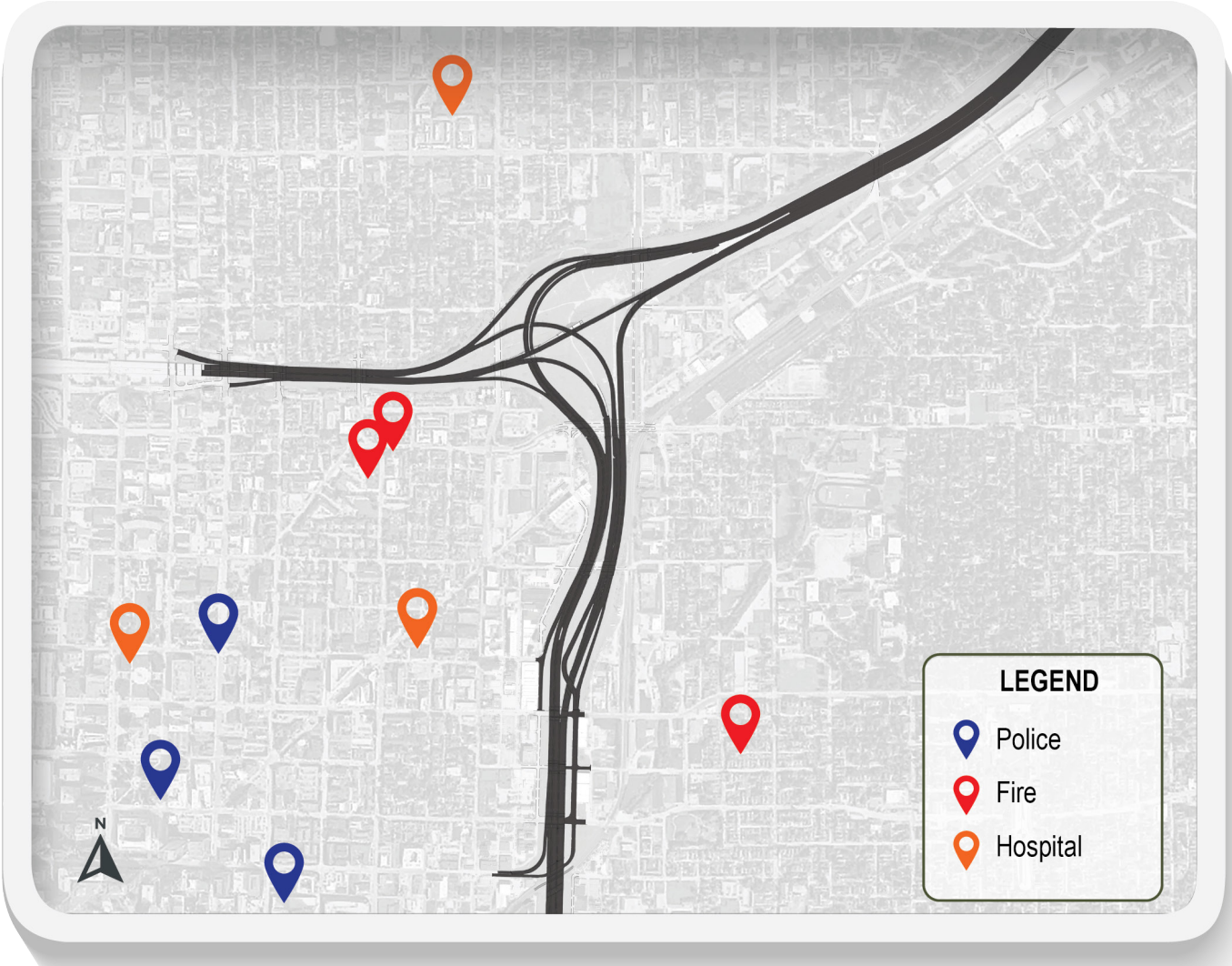
During the procurement process, we:

- Contacted emergency services throughout the corridor
- Educated our team with specific needs
- Provided a proper forum to share construction phase details
- Received feedback from local agencies
- Shared our project overview and discussed incident response and emergency access
- Reviewed established protocols to increase safety

Figure 23 outlines fire, police, and hospital facilities within the project footprint.

By involving stakeholders, we are able to directly incorporate agency suggestions into our emergency access and incident management plans including:

Figure 23. Emergency Services



- Establishing clear lines of communication for construction stage changes and / or major project events
- Establishing regular site visits with emergency service representatives
- Providing emergency responder access through construction work zones to avoid excessive traffic impacts
- Providing clear and guided work zone access in event of an emergency
- Providing equipment assistance for obstacle removal, e.g., loader and sweeper assistance

LONG-TERM APPROACH TO SAFELY ACCOMMODATING MAINTENANCE PERSONNEL WITHIN CORRIDOR

We recognize that INDOT has maintenance responsibilities for many years to come and maintaining the interchange can present dangerous conditions for personnel. Our proposal incorporates numerous enhancements aimed at maximizing personnel safety, which can be achieved by minimizing the amount of required maintenance.

VALUE ADD

Our design decreases the volume of bridge deck and hard surfaces, translating into less maintenance for INDOT.

BENEFIT

SAFETY PLAN – DESIGN PHASE

Preconstruction collaboration is the essence and foundation for success, and depends on a committed, well-intentioned, open-minded team with the common goal of delivering a successful project. This is the intent of the Design-Build Team's approach to preconstruction safety. We value our relationships with INDOT, subcontractors, suppliers, and emergency service personnel.

The Design-Build Team combined efforts and expertise to create, promote, and maintain site specific safety and incident management plans for the North Split project. We engaged our safety professionals during the procurement phase to ensure a successful, and more importantly safe project completion.

Upon award, we will immediately begin the preconstruction planning phase. We will leverage established relationships with local agencies to share project-specific details and collaborate on local agency preferences. Due to the significant amount of craft workers required for the North Split project, **OPEN COMMUNICATION AND COLLABORATIVE SUPPORT FROM EMERGENCY SERVICES IS ESSENTIAL**. We will invite INDOT, emergency service providers, and local agencies to monthly meetings and site safety inspections. These monthly meetings will update all partners on the latest construction phase configurations and anticipated closures.

We will also require all employees and subcontractors to attend a mandatory site specific safety orientation. The safety orientation will educate them on job-specific details, all INDOT requirements, safe work practices, procedures, and expectations. We will require management supervision to maintain an OSHA 30-hour safety certification.

SAFETY PLAN – CONSTRUCTION PHASE

The key component to our safety culture is our fundamental commitment to personal accountability and professional behavior. Some of the construction phase tools we use to protect project personnel include:

WORK PLANS

- Jointly completed by management and supervisory staff
- Plan, identify, and review all hazards to either eliminate or plan mitigation
- Shared with field supervision for additional review and comment

TASK HAZARD ANALYSIS (THA)

- Performed daily and as-needed
- Identify hazards associated with particular tasks
- Conduct pre-task training sessions with all involved crew members

Figure 24 summarizes components of both the work plan and THA.

STOP WORK AUTHORIZATION

Every employee has the right and responsibility to stop work if they believe the work activity creates an undue hazard to the health and wellbeing of any individual. To exercise this stop work authority, employees must immediately report the circumstances to their supervisor.

Figure 24. Project-Specific Work Plan and THA Documents

PROJECT-SPECIFIC WORK PLAN COMPONENTS

- Project-specific orientation
- Communications systems
- Hazard identification
- Inspections
- Personal protective equipment (PPE)
- Emergency action plan
- Project security plan
- Environmental management
- Subcontractor management
- Equipment
- Incident investigation
- Injury management

TASK HAZARD ANALYSIS (THA) COMPONENTS

- Required Personal Protective Equipment (PPE)
- Access / egress
- Environmental conditions
- Activity hazards
- Activity height conditions
- Personnel limitations / material handling
- Elimination / mitigation steps and controls
- Crew member signatures
- Field supervisor signature and documentation

PROJECT SPECIFIC HAZARD MANAGEMENT DETAILS

We identified the following project-specific hazards and mitigation plans associated with the North Split project.

Work Zone / Traffic Safety

As a major roadway and bridge builder, Superior Construction is sensitive to and aware of traveling public and workforce safety. For this reason, we require special traffic control planning and MOT training for key team members. All management team members and personnel involved in placing traffic control devices will be trained following the American Traffic Safety Services Association (ATSSA). Additionally, we will certify and train all flaggers prior to assignment.

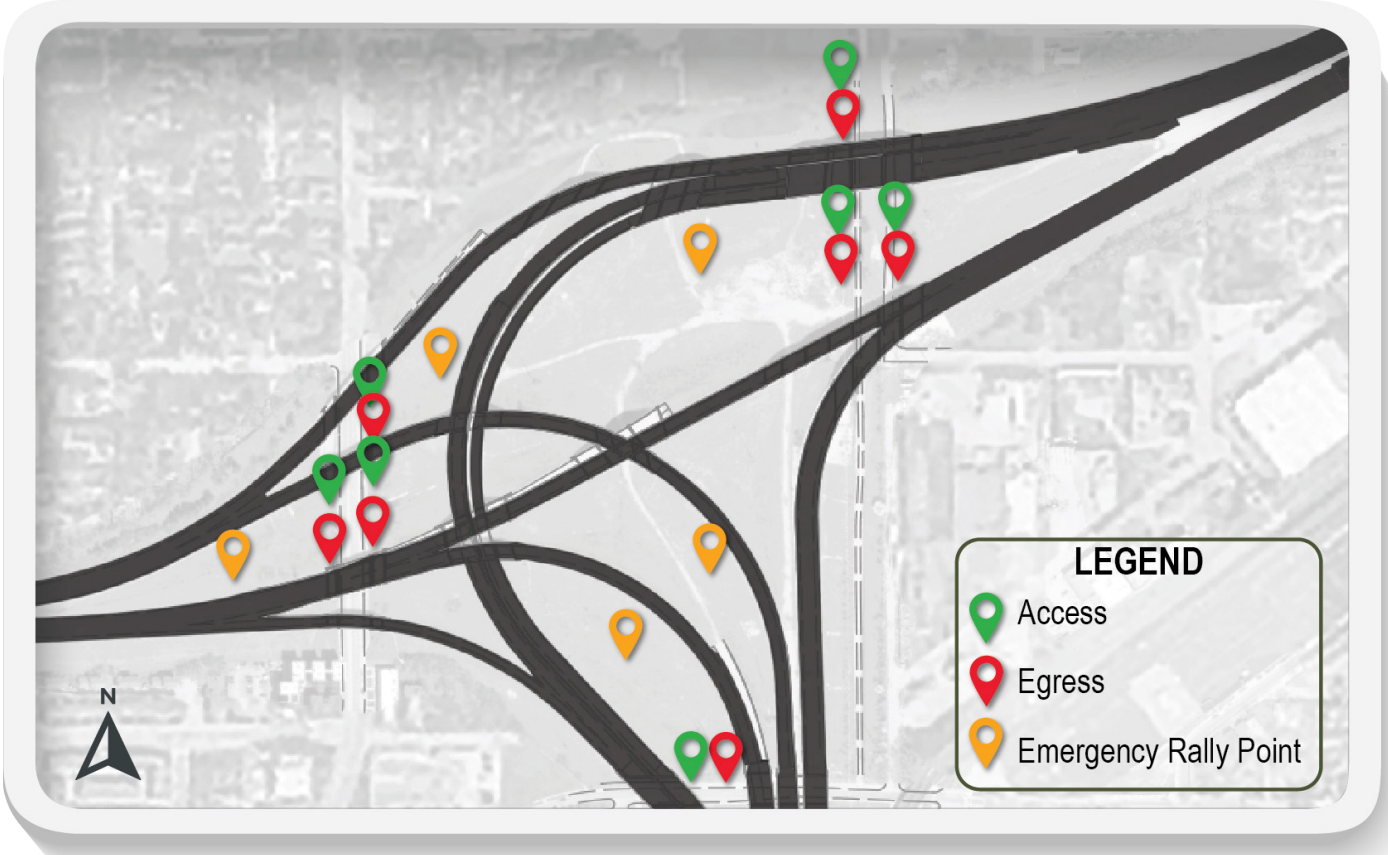
Dustin Kaptur, certified worksite traffic supervisor, will maintain the work zones to ensure traveling public and worker safety. If anyone notifies Dustin of a safety or traffic delay concern, he will immediately work to correct the situation. He will review traffic control items as well as set up any temporary lane drop traffic control items during operation. Dustin's involvement will allow us to correct traffic control items without additional INDOT direction. Dustin will be responsible to verify all traffic control devices are maintained, and will document the daily work zone inspection. We will keep all project reports at the project office, allowing INDOT review access.

Working on the existing corridor will include working overhead for beam erection, concrete placement, formwork, and painting. We will schedule these critical activities during off-peak hours to minimize disruption to traffic and nearby residents as well increase safety for our workforce. Night time work zones will be illuminated and properly signed to alert motorists.

We will perform milling and resurfacing activities during allowable lane closure periods. In areas where this work occurs directly adjacent to traffic, we will develop a temporary control plan (TCP) to provide temporary driving lanes to shift traffic away from the work zone. This will allow for the work to be completed safely while still providing the required number of travel lanes.

The delivery of borrow materials, aggregates, asphalt, and concrete constitute the largest volume of construction related traffic. To minimize traffic impacts caused by delivery of materials, the Design-Build Team will develop and implement a plan to provide safe access / egress for these trucks, including appropriate signage and acceleration / deceleration lanes. Figure 25 displays access, egress, and emergency rally point locations. Larger substructure and superstructure material deliveries present a different challenge. Comparatively there

Figure 25. Access, Egress, and Emergency Rally Point Locations



are fewer deliveries for bridge construction elements, however the materials being delivered are more complex components that will require additional supplier and crew coordination. We will identify staging areas at each delivery site where delivery trucks can wait until crews are ready for the off-loading process. This will minimize the amount of time these oversize loads are adjacent to traffic and reduce the duration of any lane closures or detours.

Additionally, the Design-Build Team has already conducted preliminary coordination with regional precast concrete suppliers and have confirmed viable delivery routes for concrete beams.

VALUE ADD

We will provide patrol services during non-working hours, weekends, and holidays to facilitate incident management for the traveling public.

BENEFIT

Fall Protection

Work from heights greater than six feet pose additional hazards to workers. We will enforce a **ZERO TOLERANCE** disciplinary program regarding fall protection, as well as implement our 100% tie-off policy. Our team will immediately remove and discipline any employee or subcontractor that is not protected by a guardrail or personal fall-arrest system (harness and lanyard).

Following our safety plan and abiding by PPE and fall protection systems requirements protect workers.

We will use temporary handrail systems extensively and we will inspect, maintain, and alter these systems as needed. Where guardrail protection is not feasible, we will provide a suitable anchor-point system to use in conjunction with a personal fall-arrest system.

During activities that involve drilled shafts or pile driving where crew members must climb leads, they will be tied-off to prevent falls. At all other times, crews will utilize a man-lift to maximize worker safety.

Workplace Injury Response

The Design-Build Team will provide a collaborative plan to handle serious workplace injuries with County and State emergency response agencies. While we strive for zero injuries, we will have an effective incident management plan should an injury occur that includes:

- Calling 911 to dispatch fire and rescue as outlined during preconstruction coordination meetings
- Providing a dedicated EMT onsite

ENVIRONMENTAL MANAGEMENT

Environmental Team Qualifications and Experience

As ECM, Michele Meyer's experience includes:

- Worked with INDOT Environmental Services (ES) to develop objectives, procedures, permitting processes, environmental commitments, municipal separate storm sewer system (MS4), and other regulatory requirements
- Performed environmental permitting, sediment and erosion control, and storm water compliance
- Developed, instructed, and administered INDOT's storm water management training program
- Certified Erosion, Sediment and Stormwater Inspector (CESSWI), MS4 Compliance and Enforcement Certified Inspector (MS4CECI), and 24-Hour Hazardous Waste Operations and Emergency Response (HAAZWOPER) certifications
- US Army Corps of Engineers (USACE) wetland delineation 32-hour training

Michele will implement her hands-on approach as she works with all team members. She will leverage her INDOT ES experience to ensure the team has proper training and supervision to verify everyone knows and executes the plan, and responds quickly to unexpected changes. Her role will include:

- Coordinate permit application and compliance as summarized in Figure 26
- Design sediment and erosion control plans
- Supervise plan implementation specific to sediment and erosion control
- Protect water features and systems
  Coordinate with INDOT, USACE, Indiana Department of Environmental Management (IDEM), City of Indianapolis Department of Public Works (DPW), Indianapolis MS4 program, Environmental Protection Agency (EPA), and other regulatory agencies
- Supervise and approve weekly and post rain event inspections

Michele will provide subcontractor oversight to verify that all BMPs are installed and maintained correctly. She will be assisted by Greg Egbert in day-to-day inspection and maintenance. He will supervise a dedicated erosion control maintenance crew separate from construction activities.

Methods to Develop Environmental Compliance and Mitigation Plan

We will prepare the environmental compliance and mitigation plan (ECMP) to include our environmental goals:

- Support INDOT's environmental stewardship and enhance storm water quality
- Minimize negative effects on the built and natural environments
- Assist in creating and implementing an ECMP with clear compliance responsibilities

Figure 26. Permit Outlook

IDEM Rule 5	Six months from design to approval. Process will begin upon project award.
IDEM 401 Permit	In process, INDOT will develop and submit.
City of Indianapolis Flora Permit	Will apply when final landscaping designs are available, process takes 3-10 days for approval after filing.
Indianapolis Historic Preservation Commission	It is possible that the work being done will not warrant this permit, will review with commission upon project award with final plans.
FFA Notice of Proposed Construction or Alteration	Must apply 45 days before the start of construction. Once final plans are available, and project is awarded, the permit process will begin. High mast lighting and cranes may warrant FAA permit.

- Anticipate compliance risks and implementing actions to reduce or eliminate risks
- Implement quick corrective action
- Create work plan to avoid non-compliance issues and permit delays
- Implement training program to communicate principles of environmental compliance, proactive strategies, clear communication, and problem solving
- Work cohesively with RATIO Architects to provide
  - Pollinator habitat for insects – monarch butterflies and federally endangered rusty patched bumblebees
  - Attractive, sensitive, and easily maintained environmental enhancements

Our ECMP will:

- Detail full compliance, environmental approvals, environmental laws, and INDOT review procedures during design and construction.
- Describe how we will balance following laws and regulations while having the flexibility to react to changing environmental conditions, construction activities, sequencing, and unexpected complications.
- Include the structure, organization location, documentation, communication, and QA / QC processes and procedures, as well as how we will implement to reduce environmental risks.
- Detail procedures should we encounter unanticipated discoveries, such as threatened or endangered species, archaeological, paleontological, biological, or cultural resources or artifacts.
- Includes procedures should we discover any non-compliant issue.

Should problems arise, we will contact Michele immediately for guidance and issue resolution. She will conduct proper training on how to identify issues before they become compliance problems.

The Design-Build Team will hold weekly progress meetings to address environmental compliance and active work assignments, including sediment and erosion control.

Adequate Installation, Maintenance, and Repair of Erosion and Sediment Control Devices

We will use the following methods for the installation, maintenance, and repair of BMPs.

- **COMMUNICATION** – Team members involved with sediment and erosion control will call Michele immediately with environmental issues or concerns. She will implement and continually update a phone tree dependent on site activities.
- **TRAINING** – Our program will follow the INDOT Storm Water Quality Management Training. Michele will develop site-specific training including real-time site conditions.
- **IN FIELD TECHNICAL ASSISTANCE AND INSTRUCTION** – Michele will ensure team members understand storm water BMPs. This will also be applied if hazardous soils or contaminated water is encountered onsite. She will hold regular meetings as the job progresses to keep everyone informed of expectations, safety concerns, and non-compliance consequences.
- **PROPER SUPERVISION** – Michele will ensure issues are remediated to avoid construction delays by preventing storm water, erosion, and sedimentation.
- **STORM WATER INSPECTIONS** – Michele will provide oversight and review the required weekly and post rain event inspections.

ENVIRONMENTAL COMPLIANCE AND MITIGATION TRAINING PROGRAM

For more than five years, Michele developed, administered, and instructed the INDOT Storm Water Management Training Program for more than 2,000 INDOT employees, contractors, and consultants. She worked closely with INDOT construction management to develop a curriculum and leveraged her own field experience working as the INDOT storm water specialist. This gave her a comprehensive understanding of storm water management in active construction projects, as well as sediment and erosion control fundamentals. She can identify potential environmental issues before they become problems or compliance concerns, and will teach this skill to other team members.

We will leverage our experience working on other large design-build projects to ensure environmental compliance.

Michele will facilitate and promote the INDOT storm water management training, making it specific to project conditions and processes. As a living and dynamic program, Michele will have the ability to adjust to changes in the project, as well as INDOT standard specifications, processes, rules, and regulations.

Potential Environmental Risks and Approach to Mitigate, Eliminate, or Reduce Risks

The Design-Build Team is familiar with the entire project corridor. During the procurement period we examined the environmental conditions and evaluated environmental risks. Figure 27 outlines identified risks and our mitigation approach.

Figure 27. Environmental Risks and Mitigation

ENVIRONMENTAL COMPONENT	RISK	MITIGATION	AVOIDANCE	REDUCTION	SOLUTION
Wetland impacts	Non-permitted area impacts	■			• Avoid when possible • Purchase wetland bank credits
City of Indianapolis DPW storm sewers	Polluted water into system		■		• Proactive sediment and erosion control methods • Test water
Erosion and sediment control	Sediment migration and permit non-compliance		■		• Develop and implement storm water management plan • Team member training
Permit coordination	Violations		■		• Work closely with INDOT ES • Comply with permit • Address modifications and amendments
Seasonal work restrictions	Environmental issues and potential non-compliance			■	• Stabilize and minimize disturbed areas • Prepare for adverse weather conditions
Hazardous waste spills / soils / groundwater	Excavating hazardous soils or pumping contaminated groundwater	■			• Coordinate known locations and contamination sources • Develop testing and disposal standard operating procedures (SOPs) for excavated material and groundwater
Stabilize slopes	Erosion		■		• Ensure just-in-time slope stabilization
Rule 5 permit termination	Fines and schedule delays		■		• Prevent issues • Proper sediment and erosion control during construction

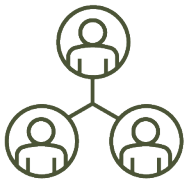
4.1.5 - PUBLIC INFORMATION PLAN

4.1.5 – PUBLIC INFORMATION PLAN

PUBLIC INFORMATION TEAM

Public Information Coordinator

David Rainford will serve as public information coordinator. He has worked on multiple large transportation projects public involvement programs including the I-65 Design-Build from 465 to White River project. He will be our liaison with INDOT representatives and local stakeholders.



Niall Letz will assist David as the public information assistant by providing up-to-date project information. Niall has experience conducting public information meetings on previous projects and is comfortable addressing large audiences.

SYSTEM FOR RECORDING AND ASSISTING INDOT TO RESPOND TO COMPLAINTS AND INQUIRIES

We understand that communication and prompt response to all inquiries throughout the project's duration is critical.

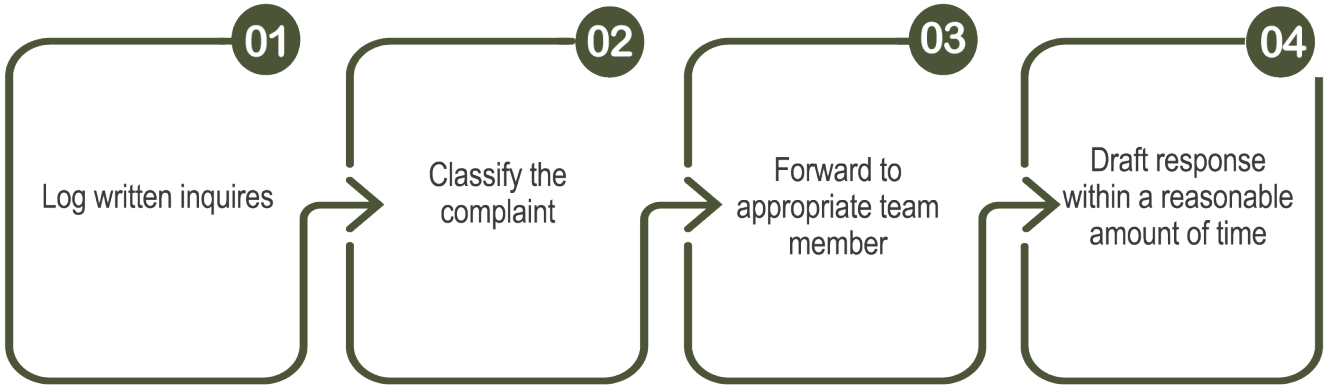
David and Niall will create a project specific public involvement plan (PIP) that will outline the inquiries and complaints tracking system. The Design-Build Team recommends including residents, businesses, ecclesiastical, neighborhood groups, and school corporations in the plan. This will allow us to better gauge thematic concerns and respond promptly to stakeholders.

Niall will track and manage all inquiries through PlanGrid, allowing for transparency and all team members access to both questions and responses. Figure 28 summarizes the process.

TOOLS AND TECHNIQUES TO EFFECTIVELY SUPPORT PUBLIC OUTREACH, PUBLIC ENGAGEMENT, AND COMMUNICATION

David will formulate and implement strategies to address issues relative to the public, public resource agencies, emergency service providers, businesses, media, and other interested parties. He will work with INDOT to respond and provide appropriate communication.

Figure 28. Complaint and Inquiry Process



INQUIRY DOCUMENTATION WILL INCLUDE:

- Date received
- Inquirer's name (first & last)
- Business / organization / neighborhood
- Email
- Address
- Phone number
- Question / inquiry
- Date assigned to team member
- Assigned team member
- Response
- Date of response

Preliminary Public Involvement Plan

David will design and implement the preliminary PIP, which will outline communication processes and procedures between the Design-Build Team, INDOT, relevant stakeholders, and emergency responders. We are committed to being proactive in sharing information in a timely and accurate manner.

INDOT PUBLIC INVOLVEMENT OFFICE PRE-PLANNING AND COORDINATION MEETING

We will attend INDOT's pre-planning and coordination meeting with the Greenfield District Public Information Officer to identify the team's precise roles, establish clear lines of communication, and verify INDOT's expectations.

PRECONSTRUCTION PUBLIC INFORMATION MEETING

The Design-Build Team will share information with INDOT prior to construction activities beginning onsite. We will also participate in the preconstruction public information meeting and support INDOT with any advertisement requirements.

Coordination

Scheduling for all lane or ramp closures will be coordinated with local events and holidays including:

- NBA all star weekend
- NCAA final four games
- One America 500 festival mini marathons
- Indianapolis 500
- Big 10 football championship
- College football championship
- NCAA men's basketball first and second rounds

INCIDENT MANAGEMENT PLAN

Superior Construction will develop an incident management plan that will engage all local emergency responders and follow commitments made in the TMP. We will provide all first responders with our traffic control plan and a layout identifying access obstacles during each phase of construction. In addition,we will notify emergency responders in advance of any traffic pattern changes. We will maintain a continuous and open dialogue to identify a better way to enhance safety to the traveling public.

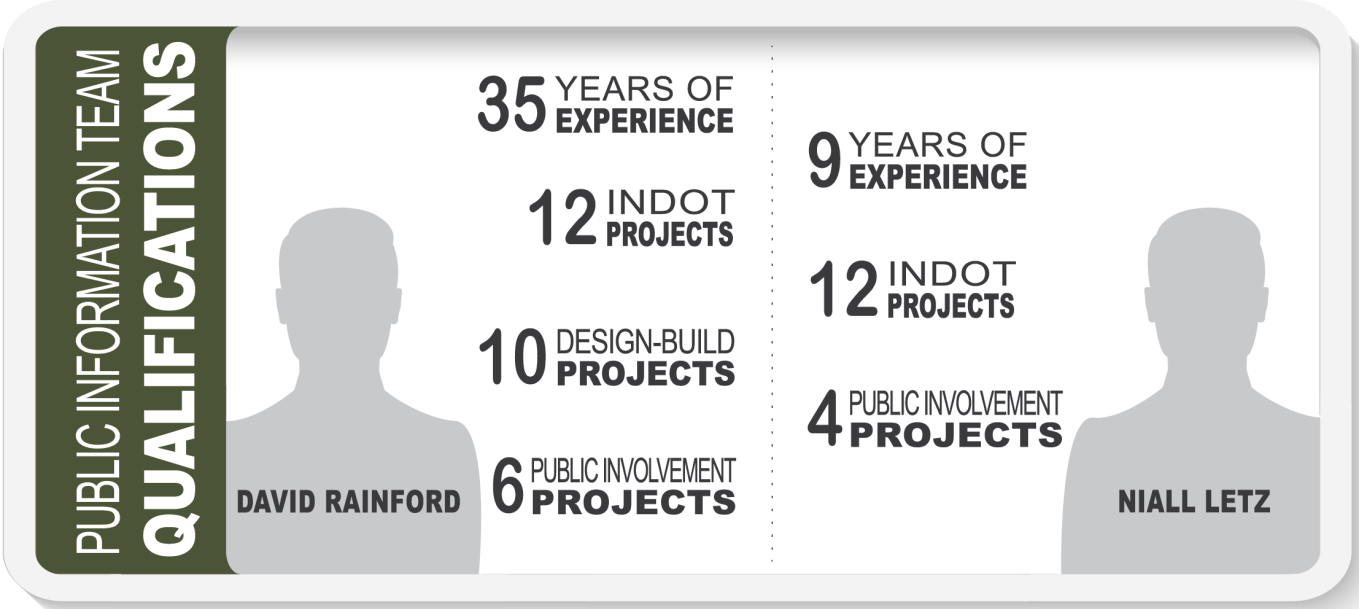
DEVELOP SOCIAL MEDIA FOR INDOT WEBSITE

The Design-Build Team will work with INDOT to provide project information and updates.

PUBLIC INFORMATION AND COMMUNITY OUTREACH TEAM

Figure 29 summarizes both David and Niall's experience and qualifications.

Figure 29. Public Information Team Qualifications



Please see Figure 30 for potential audiences for both the high school and advanced education programs.

Figure 30. Educational Outreach Program Audiences

EDUCATION OUTREACH

During construction, the Design-Build Team is committed to providing an education outreach program that focuses on opportunities for tomorrow's construction leaders.

HIGH **SCHOOL**

Superior Construction is an active supporter of a craft development program called "Construction Career Days." This national program focuses on local high school students and is designed to introduce career opportunities in a hands-on environment. Continuing our commitment, we will invite local high schools within the surrounding Indianapolis community and dedicate a special area within the project limits to showcase certain aspects of construction trades. The ultimate goal is to educate the students about the project and introduce them to future career paths within the transportation construction industry.

ADVANCED **EDUCATION**

As an integral part of our overall recruitment effort, the Design-Build Team will also invite local third level institutions to the site, offering specific learning opportunities for engineering and construction management programs. These outreach events will present periodic jobsite visits throughout the construction phase and develop classroom activities to inspire the next generation of engineering and construction leaders.
Our Team will:

- Present the uniqueness of the North Split project
- Focus on alternative project delivery procurement
- Accelerated construction techniques
- Components of environmental protection and sustainability
- The positive impact of construction on local communities

Please see below for potential audiences for both the high school and advanced education programs.

PURDUE UNIVERSITY

TEAM INDIANA

IVY TECH COMMUNITY COLLEGE

IUPUI PURDUE SCHOOL OF ENGINEERING AND TECHNOLOGY

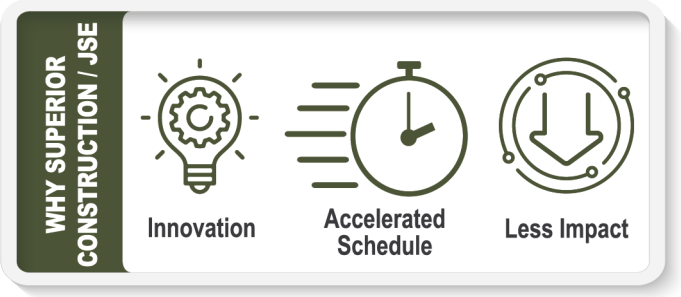
HERRON HIGH SCHOOL

BALL STATE UNIVERSITY

This page intentionally left blank.

4.2 - PRELIMINARY
DESIGN-BUILD PLAN

4.2.1 - PRELIMINARY TRANSPORTATION MANAGEMENT PLAN



4.2 – PRELIMINARY DESIGN-BUILD PLAN

The Design-Build Team developed a preliminary design-build plan adapted specifically for the North Split project. Our approach incorporates technical solutions with innovative accelerated construction techniques to decrease overall schedule and movement closure durations. Team Indiana will leverage our cummulative experience to enhance the overall project process. The following sections include our:

- Preliminary transportation management plan
- Bridge structures, retaining walls, sound barriers, and other structures
- Roadway elements
- Utility adjustment work elements
- Drainage design and culvert elements

4.2.1 – PRELIMINARY TRANSPORTATION MANAGEMENT PLAN

COORDINATION

A key element of an effective TMP is efficient communication and coordination with the public. The Design-Build Team's preliminary TMP outlines:

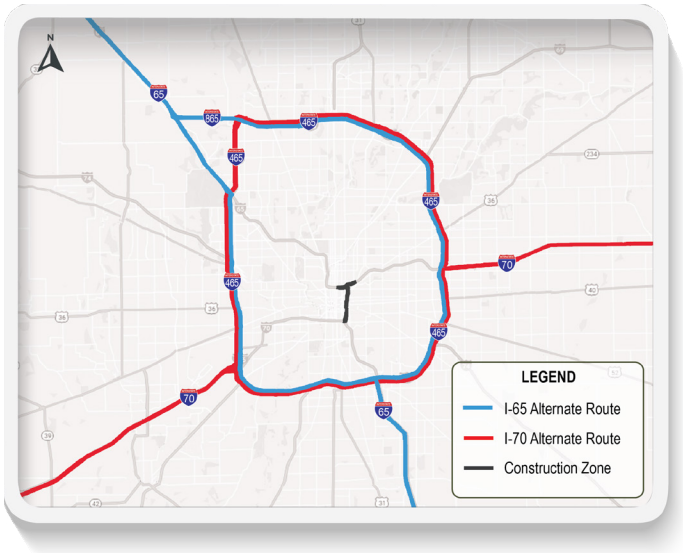
- Methods to keep the public informed of ongoing construction and traffic changes
- Coordination with INDOT, local communities and agencies, public transportation facilities, key stakeholders, and emergency responders

REGIONAL SIGNAGE AND MOBILITY

Providing maximum mobility throughout the corridor is vital to maintaining traffic movement in the Indianapolis area. The Design-Build Team's construction plan to minimize lane closure durations includes:

- Proper signage during construction to limit delays and impacts
- Well designed detours to route traffic needing access to the local street networks or businesses, as referenced in Figure 31
- Supplemental advanced signage and communication to provide optional routes around the construction zone, reducing congestion
- Portable message boards, additional informational signage, and INDOT's websites to direct travelers to avoid the construction corridor

Figure 31. Regional Alternate Routes



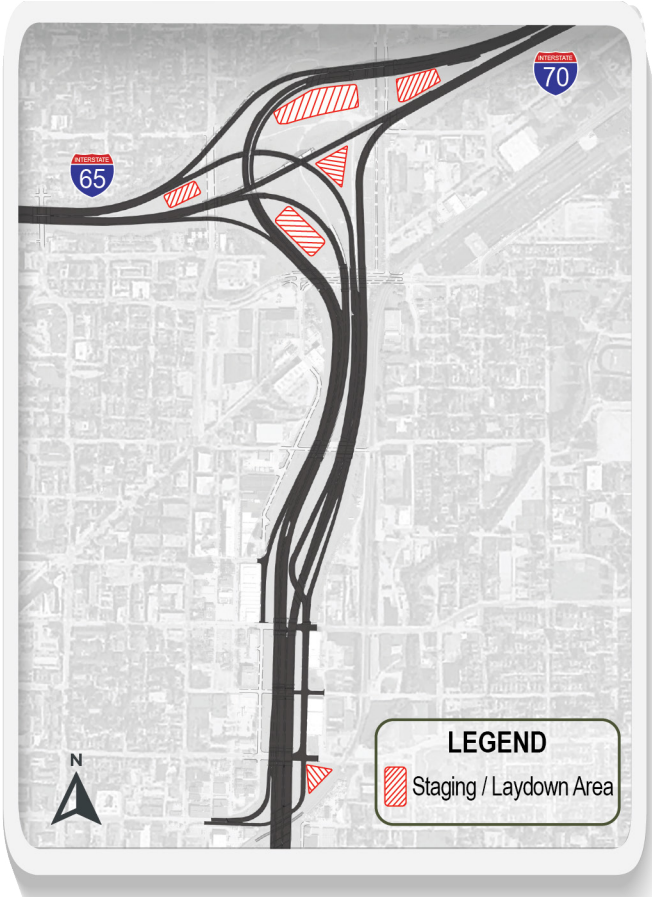
CONSTRUCTION STAGING, TRAFFIC CONTROL, AND SEQUENCING DURING CONSTRUCTION

The project length requires multiple staging and laydown areas, as summarized in Figure 32. We will utilize the main interchange infield and adjacent structure areas for staging and laydown. We will clearly identify these areas to protect environmentally sensitive areas and increase safety. Additionally, we will implement spill containment measures to prevent accidental contamination.

OVERALL TRAFFIC MANAGEMENT AND CONTROL AND SEQUENCING APPROACH

Our plan is guided by successful past experiences and establishes methods to provide access to pedestrians, local businesses, and residents while fast-tracking the construction schedule using accelerated construction techniques, thereby reducing the overall project duration. Our plan is to complete a significant portion of the work offline resulting in minimizing movement closure durations, detours, lane restrictions, and temporary traffic shifts

Figure 32. Staging and Laydown Areas



by accelerating construction activities. Our approach to traffic management, control, and sequencing includes the following objectives:

- **MINIMIZE** closures and impacts to local streets
- Provide access to local businesses, service providers, and other stakeholders
- **COLLABORATE** with stakeholders prior to traffic shifts, detours, and other MOT changes
- Communicate with local police authorities
- Design and build temporary widenings and crossovers to withstand anticipated traffic volumes and durations
- No restrictions during holidays and special events
- Inspect traffic control devices daily and correct deficiencies as needed
- Install, inspect, and maintain temporary lighting, signals, and signage
- Identify haul routes to local concrete, asphalt, and aggregate sources
- Provide construction access and appropriate traffic control devices for safe, efficient access to work zones with limited traffic disruption

SCHEDULE AND SEQUENCE TO MINIMIZE IMPACTS ON ENVIRONMENT, COMMUNITIES, THIRD PARTIES, AND TRAVELING PUBLIC

The completion of the North Split project will occur over two construction seasons. With this aggressive timeline, we developed a schedule to not only track progress, but help identify potential risks early.

The Design-Build Team will minimize traffic disruptions and closures during the first season by focusing on constructing off-line infrastructure. This **SEQUENCING REMOVES 15 BRIDGES FROM THE CRITICAL PATH AND MINIMIZES RISK OF BRIDGE CONSTRUCTION TRAFFIC DELAYS**.

Our phased construction sequencing approach minimizes traffic shifts and road closure durations while maximizing the amount of construction completed. This approach allows us to implement longer term solutions to managing and minimizing environmental impacts such as sediment control during construction.

CONCEPTUAL CONSTRUCTION STAGING DIAGRAMS

Please see Figures 33 through 37 for our conceptual staging diagrams.

The Design-Build Team created a rending of the new interchange looking southwest.

Figure 33

MAINTENANCE OF TRAFFIC PLAN

Phase 0 | Pre - Phase

LEGEND

- Construction Zone
- Temporary Pavement
- Previously Constructed; No Live Traffic
- Location of Traffic
- Traffic FLow

Pennsylvania St.
Delaware St.
Alabama St.
Central Ave.
College Ave.
Lewis St.
10th St.
St. Clair St.
Massachusetts Ave
North St.
Michigan St.
Vermont St.
New York St.
Ohio St.
Washington St.
Commerce Ave.
Valley Ave.
Roosevelt Ave.
INTERSTATE 65
INTERSTATE 70
BR. 43
BR. 44
BR. 45
BR. 46

1 Temporary pavement installed during each sub-phase to safely transition drivers from proposed roadway surface to the existing roadway surface.

2 Temporary pavement placed to act as a temporary connector during movement closures (Phase 2).

Phase 0 | Pre - Phase

- I-70 (eastbound & westbound) east of the interchange proper is to be completed utilizing a 4-sub-phase construction sequencing.
- 5 travel lanes are maintained eastbound & westbound along I-70 east of the interchange.
- 11' minimum lane width; 13' lane width where lane shifts are present.

Movements Open

- I-70 WB to I-65 SB/I-70 WB CD Ramp
- I-70 WB to I-65 NB
- I-65 SB to I-70 EB
- Pine St. entrance ramp to I-70 EB

Movements Closed

- None

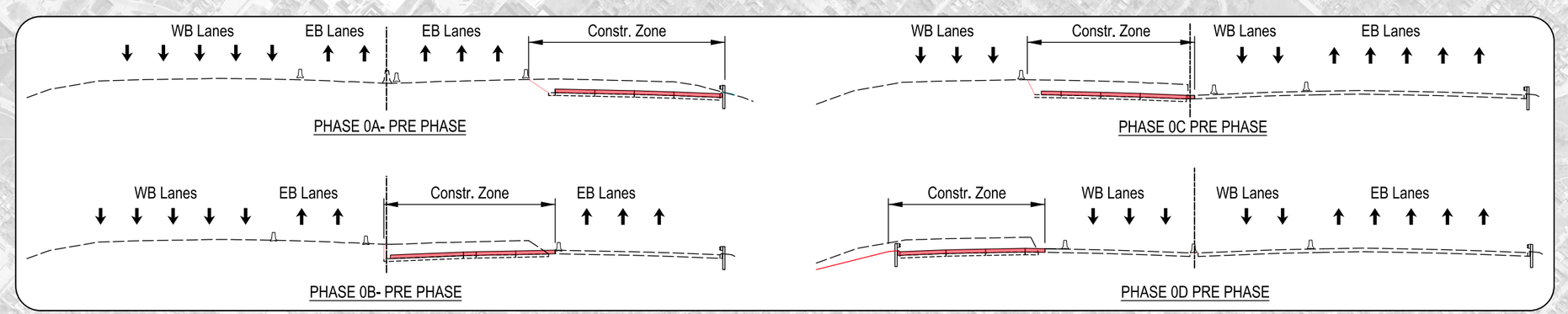


Figure 34

MAINTENANCE OF TRAFFIC PLAN

Phase 1 | Offline Construction

LEGEND

- Construction Zone
- Temporary Pavement
- Previously Constructed; No Live Traffic
- Location of Traffic
- Traffic FLow

BR. 47
BR. 48
BR. 27
BR. 30
BR. 31
BR. 33
BR. 36
BR. 34
BR. 37
BR. 41
BR. 40
BR. 39

INTERSTATE 65
INTERSTATE 70

Pennsylvania St.
Delaware St.
Alabama St.
Central Ave.
College Ave.
Lewis St.
10th St.
St. Clair St.
Massachusetts Ave
North St.
Michigan St.
Vermont St.
New York St.
Ohio St.
Washington St.
Commerce Ave.
Valley Ave.
Roosevelt Ave.

1. Temporary widening along the Pine St. entrance ramp to I-70 EB to ensure 2 lanes of traffic through construction zone.
2. Temporary pavement placed to complete the I-65 SB to I-70 EB temporary connector during movement closure (Phase 2).
3. Substructure work completed on Bridges 47 & 48 to minimize 11th and 12th St. closure periods.

Phase 1 | Offline Construction

- Proposed construction to take place within the infield of the existing interchange; 10 Proposed Bridges Constructed (Bridge No. 27, 30, 31, 33, 34, 36, 37, 39, 40, 41);substructure work completed on Bridge No. 47 & 48; system ramp construction initiated.
- All travel lanes are maintained.
- 11' minimum lane width; 13' lane width where lane shifts are present.
- Begin construction of offline retaining & noise walls.

Movements Open

- I-70 WB to I-65 SB/I-70 WB CD Ramp
- I-70 WB to I-65 NB
- I-65 SB to I-70 EB
- Pine St. entrance ramp to I-70 EB

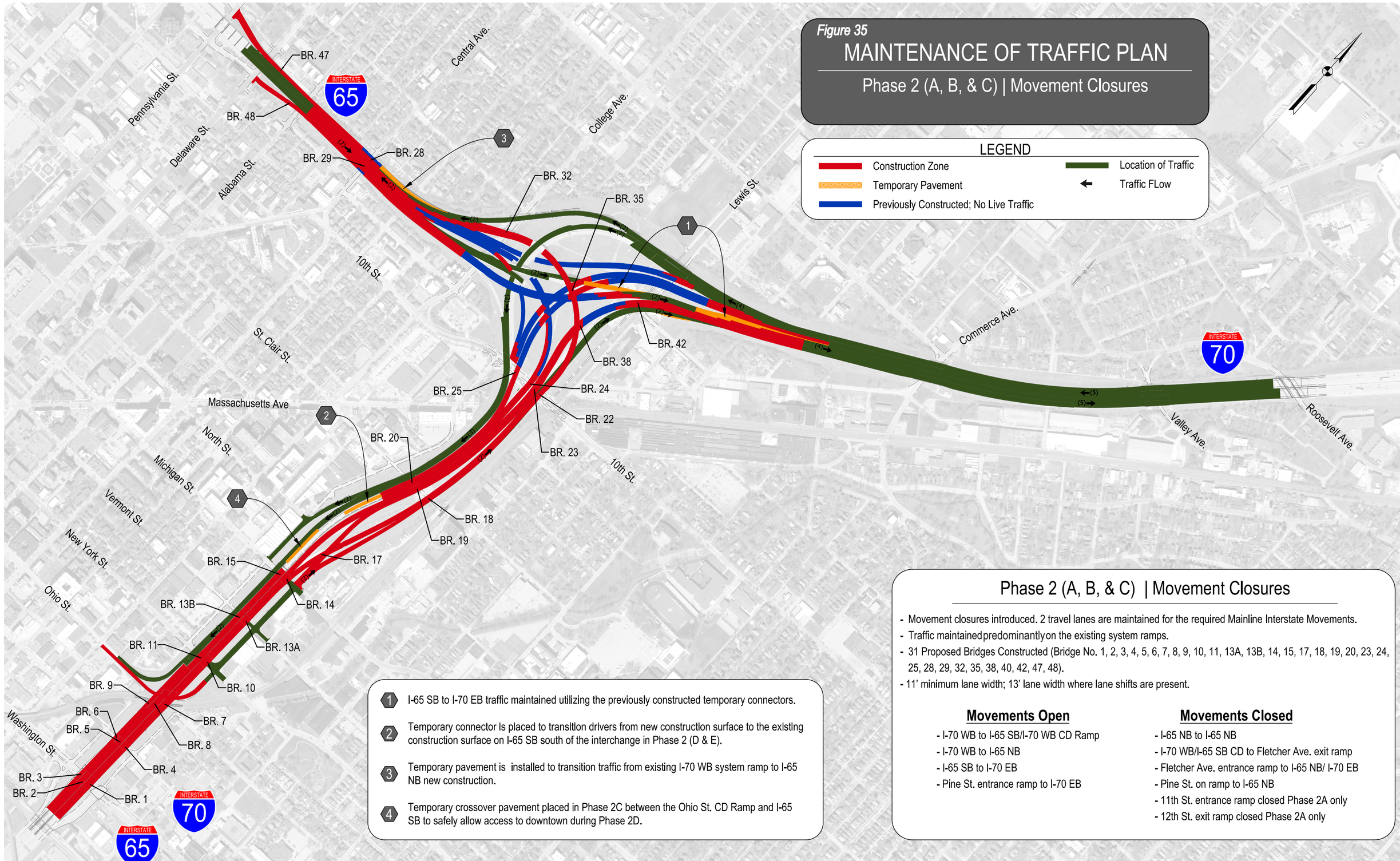
Movements Closed

- None

Figure 35

MAINTENANCE OF TRAFFIC PLAN

Phase 2 (A, B, & C) | Movement Closures



1. I-65 SB to I-70 EB traffic maintained utilizing the previously constructed temporary connectors.
2. Temporary connector is placed to transition drivers from new construction surface to the existing construction surface on I-65 SB south of the interchange in Phase 2 (D & E).
3. Temporary pavement is installed to transition traffic from existing I-70 WB system ramp to I-65 NB new construction.
4. Temporary crossover pavement placed in Phase 2C between the Ohio St. CD Ramp and I-65 SB to safely allow access to downtown during Phase 2D.

Phase 2 (A, B, & C) | Movement Closures

- Movement closures introduced. 2 travel lanes are maintained for the required Mainline Interstate Movements.
- Traffic maintained predominantly on the existing system ramps.
- 31 Proposed Bridges Constructed (Bridge No. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 13A, 13B, 14, 15, 17, 18, 19, 20, 23, 24, 25, 28, 29, 32, 35, 38, 40, 42, 47, 48).
- 11' minimum lane width; 13' lane width where lane shifts are present.

Movements Open

- I-70 WB to I-65 SB/I-70 WB CD Ramp
- I-70 WB to I-65 NB
- I-65 SB to I-70 EB
- Pine St. entrance ramp to I-70 EB

Movements Closed

- I-65 NB to I-65 NB
- I-70 WB/I-65 SB CD to Fletcher Ave. exit ramp
- Fletcher Ave. entrance ramp to I-65 NB/ I-70 EB
- Pine St. on ramp to I-65 NB
- 11th St. entrance ramp closed Phase 2A only
- 12th St. exit ramp closed Phase 2A only

Figure 36

MAINTENANCE OF TRAFFIC PLAN

Phase 2 (D & E) | Movement Closures

LEGEND

- Construction Zone
- Temporary Pavement
- Previously Constructed; No Live Traffic
- Location of Traffic
- Traffic FLow

Pennsylvania St.
Delaware St.
Alabama St.
Central Ave.
College Ave.
Lewis St.
10th St.
St. Clair St.
Massachusetts Ave
North St.
Michigan St.
Vermont St.
New York St.
Ohio St.
Washington St.
Commerce Ave.
Valley Ave.
Roosevelt Ave.
INTERSTATE 65
INTERSTATE 70
BR. 26
BR. 21
BR. 16
BR. 13C
BR. 12

1. Temporary connector and temporary crossover between CD Ohio and I-65 SB are utilized to transition traffic from I-65 SB to Ohio St. CD exit ramp during the Michigan St. CD ramp closure; allowing access to downtown.
2. Temporary pavement installed to maintain 2 travel lanes for the I-70 WB to I-65 NB movement.
3. The Michigan St. CD exit ramp and Ohio St. CD exit ramp are never closed at the same time; sequential phasing is utilized to ensure traffic can exit to either Michigan St. (2D) or Ohio St. (2E).
4. I-70 WB to I-65 NB traffic switches from the nothernmost existing system ramp in Phase 2D to the newly constructed system ramp in Phase 2E.

Phase 2 (D & E) | Movement Closures

- 2 travel lanes are maintained for the required Mainline Interstate Movements utilizing sub-phase construction sequencing.
- Traffic maintained predominantly on the proposed system ramps.
- 5 Proposed Bridges Constructed (Bridge No. 12, 13C, 16, 21, 26).
- 11' minimum lane width; 13' lane width where lane shifts are present.

Movements Open

- I-70 WB to I-65 SB/I-70 WB CD Ramp
- I-70 WB to I-65 NB
- I-65 SB to I-70 EB
- Pine St. entrance ramp to I-70 EB

Movements Closed

- I-65 NB to I-65 NB
- I-70 WB/I-65 SB CD to Fletcher Ave. exit ramp
- Fletcher Ave. entrance ramp to I-65 NB/ I-70 EB
- Pine St. on ramp to I-65 NB
- Michigan St. CD Ramp*
- Ohio St. CD Ramp*

* - The Michigan St. CD Ramp and Ohio St. CD Ramp are never closed at the same time; sequential phasing is utilized to ensure traffic can exit to either Michigan St. (2D) or Ohio St. (2E).

Figure 37

MAINTENANCE OF TRAFFIC PLAN

Phase 3 | Project Completion

LEGEND

- Construction Zone
- Temporary Pavement
- Previously Constructed; No Live Traffic
- Location of Traffic
- Traffic FLow

INTERSTATE 65

INTERSTATE 70

Pennsylvania St.
Delaware St.
Alabama St.
Central Ave.
College Ave.
Lewis St.
10th St.
St. Clair St.
Massachusetts Ave
North St.
Michigan St.
Vermont St.
New York St.
Ohio St.
Washington St.
Commerce Ave.
Valley Ave.
Roosevelt Ave.

BR. 1
BR. 2
BR. 3
BR. 4
BR. 5
BR. 6
BR. 7
BR. 8
BR. 9
BR. 10
BR. 11
BR. 12
BR. 13A
BR. 13B
BR. 13C
BR. 14
BR. 15
BR. 16
BR. 17
BR. 18
BR. 19
BR. 20
BR. 21
BR. 22
BR. 23
BR. 24
BR. 25
BR. 26
BR. 27
BR. 28
BR. 29
BR. 30
BR. 31
BR. 32
BR. 33
BR. 34
BR. 35
BR. 36
BR. 37
BR. 38
BR. 39
BR. 40
BR. 41
BR. 42
BR. 43
BR. 44
BR. 45
BR. 46
BR. 47
BR. 48

Phase 3 | Project Completion

- All travel lanes are fully open to traffic.
- Complete connection of concrete barriers.
- Complete installation of traffic and roadway appurtenances.
- Removal of all temporary traffic control devices.

Movements Open

- I-70 WB to I-65 SB/I-70 WB CD Ramp
- I-70 WB to I-65 NB
- I-65 SB to I-70 EB
- Pine St. entrance ramp to I-70 EB
- Pine St. on ramp to I-65 NB

Movements Closed

- Closures per Interstate Highway Congestion Policy

This page intentionally left blank.

LAYDOWN, RECYCLING, STAGING, DISPOSAL, AND MAINTENANCE LOCATIONS

The North Split project requires a significant amount of borrow material to complete the new interchange.

VALUE ADD

We will incorporate all existing pavement and subbase into the new fill areas.

BENEFIT

We do not anticipate any additional disposal besides existing structural elements with reinforcing steel and structural steel beams. This will greatly reduce the volume of construction truck traffic entering and leaving the jobsite to an already congested traffic system.

We will also incorporate approved ATC # 7 using RAP in shoulder wedges instead of INDOT compacted aggregate 53s. We will apply this recycled material to the shoulder wedges on the mainline and ramps.

BENEFIT

INNOVATIVE BEST MANAGEMENT PRACTICES TO INCREASE SAFETY AND ADD VALUE DURING MOT PHASES

The Design-Build Team developed a plan to implement safety BMPs to:

- Provide a safe work site for the traveling public, construction workers, and INDOT representatives
- Accelerate incident identification
- Mitigate risks

In order to exceed the project requirements, we carefully reviewed our MOT phasing to identify opportunities to improve safety within the work zone and minimize disruptions as summarized in Figure 38.

ACCELERATED BRIDGE CONSTRUCTION

The Design-Build Team has leveraged many opportunities to incorporate accelerated bridge construction (ABC) techniques throughout the North Split project. ABC uses innovative planning, design, materials, and construction methods in a safe and cost-effective manner to reduce onsite construction time.

Our goal is to reduce the duration of movement closure durations. ABC also requires considering structure service life and durability. We included optional prefabricated bridge elements into our design:

- Full depth precast deck panels
- Precast approaches and sleeper slabs
- Precast arch structures

INCIDENT MANAGEMENT

In the event of traffic incidents, the Design-Build Team will minimize impacts to traffic flow through advanced planning, communication with INDOT, and using existing variable message signs and highway advisory radio.

We will install cameras connected to the Traffic Management Center (TMC) and the mandatory PCMS for emergencies. All of the signage will monitor and alert the

Figure 38. MOT Benefits

MOT PRACTICE	BENEFIT
Lane shifts and crossovers tapers	• Moves traffic away from construction zone • Increases safety
Implement greater than minimum lane and shoulder widths	• Provides more vehicle area • Increases safety
Materials delivery via local streets during first season	• Removes delivery vehicles from interstate • Reduces congestion
Replace non-accessible ramps and sidewalk panels along alternative pedestrian routes	• Provides ADA accessibility during construction
Install closed circuit television (CCTV) system together with mandatory portable changeable message signs (PCMS)	• Provides video surveillance to help incident coordination • Allows alerts to traveling public of incidents ahead

The Design-Build Team created a rending of the new bridges looking southwest.

traveling public of incidents, while the Design-Build Team and INDOT execute the incident management plan.

EMERGENCY VEHICLE ACCESS

We will hold monthly emergency services coordination meetings to update vehicle access locations. Since the project will be dynamic, especially during the six major movement closures, it may be necessary to increase the meeting frequency. It will be imperative to hold this meeting onsite including a walk through to provide updates and incorporate any recommendations.

If a traffic accident does occur, we are committed to supporting law enforcement and emergency responders to clear incidents and keep a positive traffic flow through the work zone. We will use the following steps to manage and clear the incident scene:

- Verify incidents
  - When appropriate, relocate all disabled vehicles out of live traffic lanes to a shoulder or other safe zone
  - This may require a temporary lane closure to keep drivers and vehicles safe
- Open lane(s) to traffic once obstructions are cleared
- Remove all disabled vehicles
  - Provide patrol services during non-working hours, weekends, and holidays to facilitate incident management

STAGE, SEQUENCE, AND ACCELERATE WORK TO MINIMIZE CLOSURE DURATIONS

In order to minimize movement closure durations, the Design-Build Team commits to the movement durations summarized in Figure 39. We will accomplish this by:

- Sequencing construction to maintain five lanes of traffic in each direction east of the North Split interchange
- Minimizing movement closure durations by including optional precast concrete bridge approaches and sleeper slabs
- Utilizing temporary pavement
- Enhancing design to eliminate two straddle bents
- Utilizing three-sided precast structures where possible

PRELIMINARY PLAN – CONSTRUCTION SEQUENCING AND MOT CONCEPTS AND TECHNICAL SOLUTIONS

Preliminary construction sequencing, MOT concepts, and technical solutions are included in Volume 2 Appendix.

Figure 39. Days Saved in Movement Closures

MOVEMENT	LOCATION	MAXIMUM DAYS ALLOWED	PROPOSED CLOSURE DURATION	DAYS SAVED
1	I-65 NB to I-70 EB	560	520	40
2	I-65 NB to I-65 NB	560	520	40
3	I-65 SB to I-65 SB	520	520	0
4	I-65 SB to I-65 SB CD	520	520	0
5	I-70 WB to I-70 WB	430	430	0
6	I-65 SB to I-70 EB	45	1	44

4.2.2 - BRIDGE STRUCTURES, RETAINING WALLS, **SOUND BARRIERS, & OTHER STRUCTURES**

4.2.2 – BRIDGE STRUCTURES, RETAINING WALLS, SOUND BARRIERS, AND OTHER STRUCTURES

The Design-Build Team's approach to designing, building, structures, and managing risk comes from years of experience with similar major design-build projects. Our approach includes the strategic use of lessons learned and investigating key structural and geotechnical areas to drive design and construction details, resulting in durable, maintainable structures.

Two key elements that we focused on were work we could complete offline and speed of construction. The quicker we complete the bridges, the shorter the movement closure durations are for the project. We captured offline elements in early works packages and incorporated optional ABC techniques to benefit the traveling public while also decreasing project costs to INDOT.

HIGHWAY BRIDGE STRUCTURES

The new bridge structures will be prestressed concrete beams supported on reinforced concrete substructures; and the substructures will be supported on deep foundations (pipe piles). Bridge 17 (I-65 northbound over I-70 eastbound entrance ramp) is the only exception, which will utilize a post-tensioned intermediate support with an optional drilled shaft deep foundation.

The Design-Build Team proposes to use 16-inch diameter, structural steel grade 3 pipe pile having a 0.312-inch wall thickness. These pipe piles provide the following benefits:

- **ECONOMIC** – Using fewer, larger piles decreases cost and increases time savings
- **FEWER DYNAMIC TESTS** – Fewer piles means fewer to test

For the optional drilled shaft foundation at Bridge 17, we will install the drilled shaft so that the load is carried on the bedrock surface. We will perform lateral analyses to confirm fixity at the shaft end and determine reinforcing steel length to resist bending forces.

We will widen the Monster Bridge identified as Bridges 47 and 48. The existing bridges are supported on shallow spread footings bearing on the native granular soils. We anticipate the widened portion will also be supported by spread footings. The bearing pressure is designed to minimize differential settlement between the existing bridge structure and the widened portion.

Bridge 44 (I-70 eastbound over Roosevelt Avenue at Commerce Avenue) will be widened with substructure portions that utilize 16-inch diameter pipe piles having a 0.312-inch wall thickness. The support of the widened substructure portions will also utilize 16-inch diameter pipe piles having a 0.312-inch wall thickness. Please see Figure 40 for proposed bridge structure work at the end of this section.

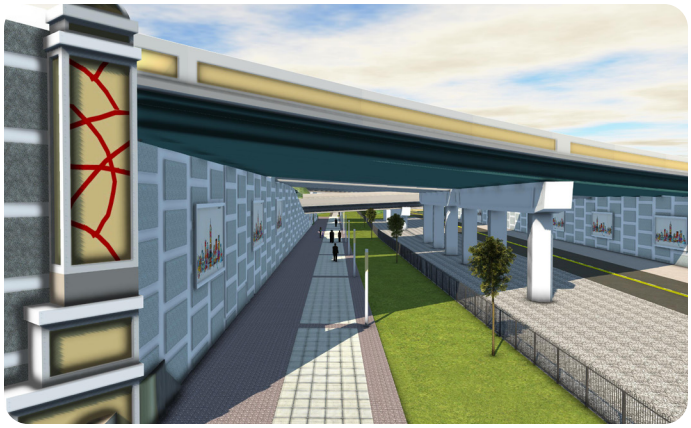
RETAINING WALLS, SOUND BARRIERS, AND OTHER SURFACE STRUCTURES

The retaining walls mechanically stabilized earth (MSE) retaining walls will be constructed as fill walls. In some locations – along the project's west leg where exposed wall heights are limited – we will utilize a pile and lagging wall. We will bench the existing embankments, as described in the IDM, where new walls are constructed against existing fill slopes. Benefits of this system include:

- Minimizes backfill limits behind the wall
- Uses precast panels as visible facing
- Increases speed of construction

MATERIAL SELECTION

The Design-Build Team's approach to material selection on structure design is to utilize high strength materials as much as practical. This typically results in less material



The Design-Build Team created a rending of the new bridges at the Monon Trail and Lewis Street.

being placed as well as both construction time and material cost savings. We may also utilize the following materials to reduce construction material quantities, which in turn may result in additional cost and schedule savings for each structure:

- High performance concrete
- High stress limits reinforced steel

We selected foundation elements, such as steel pipe pile and concrete spread footings, to best match the existing soil conditions at each bridge. The pipe pile selected is a large diameter with wall thickness for large pile hammers, which allows the Design-Build Team to achieve higher resistances. The end result is a decreased number of piles, increased construction speed, and reduced substructure element size.

STRUCTURAL STEEL

Structural steel beams will be utilized in the widening of the existing structures. In order to decrease costs and increase schedule efficiencies, we designed all of the new bridge superstructures with highly durable, prestressed concrete beams. All of the beams will be produced in Indiana, supporting local economic development.

Additional benefits include:

- Reduced future long-term maintenance
- Reduced cost and capital investment
- Eliminated long-lead procurement

SUBSTRUCTURE REINFORCEMENT

We selected American Society for Testing and Materials (ASTM) A615 grade 75 reinforcing bars to reinforce the substructures. This reinforcing grade provides the best application of price premium versus strength compared to conventional grade 60 reinforcing.

CONCRETE BARRIERS REINFORCEMENT

We selected conventional ASTM A615 grade 60 reinforcing bars to reinforce the concrete barriers on the decks.

BRIDGE DECK REINFORCEMENT – NEW CONSTRUCTION

The Design-Build Team will utilize ASTM A955 grade 75 to reinforce the bridge decks. In addition to project requirement compliance, this grade increases the decks' service life.

GEOTECHNICAL RELATED ISSUES APPROACH

We will perform additional geotechnical exploration along the alignment center line on the south and west legs as well as along the proposed alignment changes in the interchange area. Figure 41 provides example locations. We will pay special attention to Bridge 34 (I-65 southbound and Delaware Street entrance ramp to I-70 eastbound over College Avenue and five ramps) along with the retaining walls and embankments which differ from the reference information documents (RID) design. Based upon our preliminary design, we recommend 100 additional test borings, totaling 7,400 LF of drilling and sampling, including:

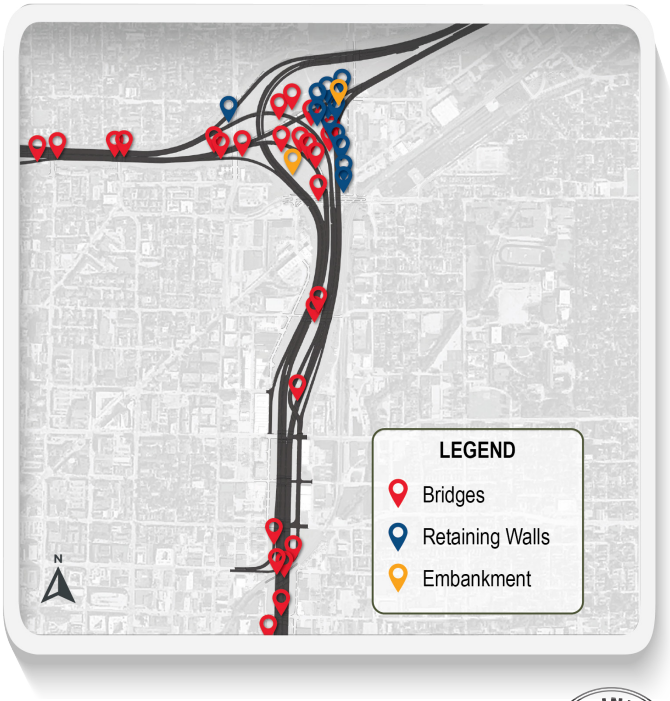
- 8 for new embankments
- 26 for retaining walls
- 58 for bridges
- 8 for light foundations

We will submit a final additional geotechnical exploration scope to INDOT upon NTP. Subsurface sampling may include:

- Drilling methods
  - Hollow stem auger
  - Rotary
  - Direct push
- Testing methods
  - Standard penetration
  - Cone penetration
  - Pressuremeter

Before we begin any field work, we will obtain the required and applicable road cut permits and will coordinate all utility clearances.

Figure 41. Example Proposed Boring Locations



We will also include a laboratory testing program as part of our supplemental exploration. Laboratory tests will include methods to determine:

- Soil classification
- Grainsize distribution
- Moisture content
- Fines plasticity
- Shear strength

Additionally, we will explore areas throughout the project area to determine embankment use suitability. We will determine soil moisture density relationships for soils proposed as fill sources.

We will prepare geotechnical design reports for specific design elements including embankment, foundation elements, retaining walls, and structures. The reports will include:

- Summary of field data for each element
- Applicable laboratory test data
- Geotechnical design recommendations
- Boring locations plans
- Boring logs
- Design rationale
- How data was used to determine soil properties

Figure 42 highlights a success story building structures in an award-winning and similar design-build project.

PLANS

Volume 2 appendices include:

- Bridge plans
- Stage 2 – bridges 7, 8, and 9 plans
- Proposed retaining wall layout sheets
- Proposed locations and limits of sound barriers

QUALITY, LONGEVITY, AND SERVICE LIFE OF ALL BRIDGE, RETAINING WALLS, SOUND BARRIERS, AND OTHER STRUCTURES

Following AASHTO design criteria, the structural elements standard design life is 75 years. We selected stainless steel reinforcing and very early (VE) latex-modified concrete overlay as the superstructure material. The primary reason for this selection was due to material longevity and the ability to exceed the 75-year design life.

Figure 42. Structure Success Case Study – SR 9B Phases II and III

SR 9B PHASES II & III
CASE STUDY

Superior Construction led the design-build efforts on the final two phases of the SR 9B roadway project, which was recognized and honored with multiple DBIA awards.

SIMILARITIES TO THE
NORTH SPLIT PROJECT

- 17 new structures
- MSE wall construction
- System-to-system interchange
- Fly-over structure
- Replaced RID double-span structures to single-span
- Roadway realignment
- Offline construction

BENEFITS
REALIZED

- Decreased maintenance
- Reduced construction costs by $20 million
- Diminished traffic impacts
- Increased construction safety
- Minimized environmental impacts
- Enhanced interchange operational characteristics
- Improved constructability

Leveraging lessons learned, the Design-Build Team incorporated aspects from this successful project into our design and approach to the North Split project. Benefits to INDOT include:

- Innovative solutions - life-cycle, traffic operations, MOT and sequencing
- Maximize safety for traveling public and workers
- Fast-track construction techniques

This page intentionally left blank.

Figure 40. Proposed Bridge Structure Work

BRIDGE	DESCRIPTION	LENGTH (FT)	WIDTH (FT)	# SPANS	WORK TYPE	SUPERSTRUCTURE
1	I-65 / I-70 northbound over Washington St	125	70.4	1	New Bridge	Prestressed Bulb-Tee with Optional Full-Depth Precast Deck
2	I-65 / I-70 southbound over Washington St	125	57.1	1	New Bridge	Prestressed Bulb-Tee with Optional Full-Depth Precast Deck
3	I-65 / I-70 soutbound CD over Washington St	125	37.0	1	New Bridge	Prestressed Bulb-Tee with Optional Full-Depth Precast Deck
4	I-65 / I-70 northbound over Market St	84	Span 66	1	New Bridge	Precast Arch
5	I-65 / I-70 southbound over Market St	57.1	Span 66	1	New Bridge	Precast Arch
6	I-65 / I-70 southbound CD over Market St	52	Span 66	1	New Bridge	Precast Arch
7	I-65 / I-70 northbound over CSX and Ohio St	225	70.4	2	New Bridge	Prestressed Bulb-Tee
8	I-65 / I-70 southbound over CSX and Ohio St	225	57.1	2	New Bridge	Prestressed Bulb-Tee
9	I-65 / I-70 southbound CD over CSX and Ohio St	225	37.0	2	New Bridge	Prestressed Bulb-Tee
10	I-65 / I-70 northbound over New York St	103	70.4	1	New Bridge	Prestressed Bulb-Tee with Optional Full-Depth Precast Deck
11	I-65 / I-70 southbound over New York St	103	57.1	1	New Bridge	Prestressed Bulb-Tee with Optional Full-Depth Precast Deck
12	I-65 / I-70 southbound CD over New York St	103	69 (avg)	1	New Bridge	Prestressed Bulb-Tee
13A	I-65 / I-70 eastbound over Vermont St	69	70.4	1	New Bridge	Prestressed Bulb-Tee
13B	I-65 SB / I-70 westbound over Vermont St	69	57.1	1	New Bridge	Prestressed I-Beam with Optional Full-Depth Precast Deck
13C	I-65 / I-70 southbound CD over Vermont St	69	49.5 (avg)	1	New Bridge	Prestressed I-Beam with Optional Full-Depth Precast Deck
14	I-65 northbound and I-70 eastbound over Michigan St	90	80.3 (avg)	1	New Bridge	Prestressed Bulb-Tee with Optional Full-Depth Precast Deck
15	I-65 / I-70 southbound over Michigan St	90	57.1	1	New Bridge	Prestressed Bulb-Tee with Optional Full-Depth Precast Deck
16	I-65 / I-70 southbound CD over Michigan St	90	47.0	1	New Bridge	Prestressed Bulb-Tee
17	I-65 northbound over I-70 eastbound Entrance Ramp	355	45	2	New Bridge	Prestressed Bulb-Tee
18	I-65 northbound over St Clair St	85	80.3 (avg)	1	New Bridge	Prestressed Bulb-Tee with Optional Full-Depth Precast Deck
19	I-70 eastbound over St Clair St	89	60.7	1	New Bridge	Prestressed Bulb-Tee with Optional Full-Depth Precast Deck
20	I-65/I-70 southbound over St Clair St	89.2	71.4	1	New Bridge	Prestressed Bulb-Tee with Optional Full-Depth Precast Deck
21	I-65/I-70 southbound CD over St Clair St	89.5	70.7 (avg)	1	New Bridge	Prestressed Bulb-Tee
22	I-65 northbound over East 10th St	136.4	45.0	1	New Bridge	Prestressed Bulb-Tee
23	I-70 eastbound over East 10th St	125	61.0	2	New Bridge	Prestressed I-Beam
24	I-65 southbound over East 10th St	126.9	50	2	New Bridge	Prestressed I-Beam with Optional Full-Depth Precast Deck
25	I-70 westbound over East 10th St	140	44	2	New Bridge	Prestressed I-Beam with Optional Full-Depth Precast Deck
26	I-65 / I-70 southbound CD over East 10th St	140	69.4 (avg)	2	New Bridge	Prestressed I-Beam with Optional Full-Depth Precast Deck
27	I-65 northbound CD Exit Ramp over Central Ave	86	24.7	1	New Bridge	Prestressed Bulb-Tee
28	I-65 northbound over Central Ave	86	66.4	1	New Bridge	Prestressed Bulb-Tee
29	I-65 southbound over Central Ave	86	59.8 (avg)	1	New Bridge	Prestressed Bulb-Tee
30	I-65 southbound CD Entrance Ramp over Central Ave	86	24.7	1	New Bridge	Prestressed Bulb-Tee
31	I-70 westbound to I-65 northbound over College Ave	116.7	45.0	1	New Bridge	Prestressed Bulb-Tee
32	I-65 northbound and CD Exit Ramp over College Ave	156.6	64.6 (avg)	1	New Bridge	Prestressed Bulb-Tee
33	I-65 southbound and I-65 southbound CD Ramp over College Ave	116.2	72..2 (avg)	1	New Bridge	Prestressed Bulb-Tee
34	I-65 southbound to I-70 eastbound over College Ave, I-65 southbound CD Ramp, southbound CD, I-70 westbound, I-65 southbound, and I-65 northbound	1235	65.1 (avg)	9	New Bridge	Prestressed Bulb-Tee
35	I-65 northbound over I-70 westbound and southbound CD	180	49	2	New Bridge	Prestressed Bulb-Tee
36	I-70 westbound to I-65 northbound over I-65 northbound	165.5	45	1	New Bridge	Prestressed Bulb-Tee
37	I-65 southbound over southbound CD and I-70 westbound	216.3	52	2	New Bridge	Prestressed Bulb-Tee
38	I-70 eastbound over I-65 northbound	169.8	63	1	New Bridge	Prestressed Bulb-Tee
39	I-70 westbound and southbound CD over Lewis St and Monon Trail	126.8	77.8 (avg)	2	New Bridge	Prestressed Bulb-Tee
40	I-70 westbound to I-65 northbound over Lewis St and Monon Trail	154	51	2	New Bridge	Prestressed Bulb-Tee or Optional Precast Arch
41	I-65 southbound to I-70 eastbound over Lewis St and Monon Trail	166	62.7	2	New Bridge	Prestressed Bulb-Tee or Optional Precast Arch
42	I-70 eastbound over Lewis Strand Monon Trail	178	62.7	2	New Bridge	Prestressed Bulb-Tee or Optional Precast Arch
43	I-70 westbound over Roosevelt Ave at Commerce Ave	153	90.7	3	Overlay	Rolled Steel Beam
44	I-70 EB over Roosevelt Ave at Commerce Ave	153	96.7	3	Widen / Bridge Replace	Rolled Steel Beam
45	I-70 westbound over Valley Ave	121.3	90.8	3	Overlay	Rolled Steel Beam
46	I-70 eastbound over Valley Ave	121.3	90.7	3	Overlay	Rolled Steel Beam
47	I-65 NB to 12th St CD Ramp over Alabama St at Delaware St	477.2	Varies	7	Widen / Deck Overlay	Rolled Steel Beam
48	11th St CD Ramp to I-70 eastbound over Alabama St	217.1	Varies	4	Widen / Deck Overlay	Rolled Steel Beam

This page intentionally left blank.

4.2.3 - ROADWAY **ELEMENTS**

4.2.3 – ROADWAY ELEMENTS

SELECTION, PROCUREMENT, AND DELIVERY OF METHODS APPROACH

The Design-Build Team used the technical provisions, IDM, and AASHTO to design the North Split project. The configuration not only provides optimized connections for drivers, but also **PROVIDES SAFETY IMPROVEMENTS**.

In the early stages of development, there were several instances where conflicts existed between the technical provisions and standards. Additionally, there were several critical criteria that were modified or introduced later in the design process that required significant design modifications. These included:

- Restricting two feet applied to the interchange geometry outside of the interchange
- Roadway classifications that affected design standards to be followed
- Requirements aimed at providing roadside clear zones within the interchange

INDOT is concerned with safety and providing a barrier-free roadway. When considering the typical sections, we modeled each alignment in a step-by-step process to provide full clear zone where allowed. We applied 6:1 side slopes to the templates and verified the application. If we found that the slope did not conform, we verified the slope at 4:1 and then so forth. The site is constrained by limited ROW as well as undulating and crossing geometry.

We scrutinized the interchange geometry and completed multiple design iterations to determine the best interchange for function, constructability, cost, and schedule. After considering more than 20 options, our proposed design provides significant advantages for construction and accelerating the construction schedule. These advantages include:

- Ability to construct 15 structures offline
- Reduced movement closure durations
- Reduced bridge deck volume

We modified the interchange design from the RID by keeping the east approach similar to its present configuration. As travelers move westbound toward the interchange, I-65 northbound will be on the far right with access to Michigan and New York Streets in the middle lanes, and the connection to I-70 westbound and I-65 southbound on the inside lanes.

Utilizing the current configuration allowed the alignment to incorporate larger radii and smoother transitions from I-70 westbound to I-65 northbound as it enters the middle of the interchange. The gradual alignment improved the bridge geometry and eliminated the need for two straddle bents.

We will incorporate the design exceptions for horizontal stopping sight distance (SSD), minimum radius, and lane and shoulder widths. We do not expect any additional Level 1 or 2 design exceptions.

Sources of Borrow for Earthwork Including Subgrade Treatment

The Design-Build Team anticipates the need for borrow as required by the different project stages, predominantly located in the new interchange. We will coordinate with INDOT and all governing agencies for approval of borrow sites. We have already identified multiple material sources during the procurement phase. We also considered alternate solutions should borrow suppliers have difficulty meeting the demands and schedule of the project. We evaluated the allowable subgrade treatment types for the mainline and shoulder pavement areas. We will use a combination of Types 1B, 1C, and 1D for various locations throughout the project. We have also evaluated using slurry based chemical modification to reduce the possible affects of dust pollution.

GEOTECHNICAL RELATED ISSUES

The Design-Build Team will ensure all geotechnical related issues are addressed throughout the North Split project. Please reference 4.2.2 – Bridge Structures, Retaining Walls, Sound Barriers, and Other Structures.

Landscape

The North Split project impacts the Indianapolis area and surrounding communities in multiple ways. With this in mind, we designed a planting scheme to enhance the

ecology and aesthetics of the interchange and surrounding areas. Vegetation plays a vital role in serving the needs of the INDOT owned interstate, City owned local streets, local neighborhoods, and business districts.

We used information gained from neighborhood workshops and surveys that indicated the public prefers a naturalistic approach with many referring to the term "urban forest" in the Aesthetic and Landscape Design Guidelines (ALDG). The ALDG directs the project towards a context-sensitive design. It factors in many community assets and stakeholders, and represents the over-arching and long-term project maturation, including six major typologies:

- Tree preservation
- Grass buffer zone of 20-ft
- Side slope plantings
- Screen plantings
- Interchange plantings
- Detention basin plantings

These classifications all interact and overlap. For example, some of the screening areas are located on significant side slope areas. When these overlaps occur, we will chose the best solution. Depending on location, we will select specific plants and seed mixes that are recommended and correspond to the stakeholders' input. As the project matures, we will encourage diverse plant material focusing on native and low-maintenance species.

Historic neighborhoods have the benefit of visual screening. We designed the landscape in those areas to soften noise levels with planted berms north and southwest of the interchange. Those traveling by bicycle or by foot on local streets will enjoy beautiful views, more comfortable experiences, and educational opportunities along their routes.

PROJECT ROW AND ADJACENT ROADS AND PROPERTIES MAINTENANCE AND PROTECTION

We will maintain the project site and protect the surrounding properties through the full implementation of various mitigation plans. The Design-Build Team will limit the impact of construction activities and protect the environment by using multiple approved plans.

Noise

The Design-Build Team will prevent noise pollution in the surrounding areas, especially during nighttime hours. We will take several steps to mitigate noise levels and document how we address them in our construction noise abatement plan.

NOISE RESTRICTIONS

We will comply with all noise restrictions.

MITIGATION STRATEGIES

We will follow these steps to minimize construction noise:

- Use well-maintained construction equipment
- Minimal pile driving during restriction time periods
- Employ noise dampering equipment devices
- Perform minimal existing bridge demolition during restriction time periods
- Install permanent noise walls in early works construction packages

Vibration

To prevent damage and disruption, the Design-Build Team will provide vibration monitoring and documentation at nearby structures, businesses, and historic properties. We will document how we address construction vibration mitigation in our vibration monitoring and control plan including:

- Susceptibility study
- Preconstruction survey
- Sewer conditions report
- Structures and pavement reports
- Building conditions reports
- Vibration monitoring approach

VIBRATION RESTRICTIONS

We will comply with the threshold values established in Figure 43, which define the peak particle velocities (PPV) for six different scenarios.

MITIGATION STRATEGIES

In the event that the vibration levels approach the threshold values in Figure 43, a quality control technician will direct work to stop and communicate with construction crews to modify the activity to reduce vibration levels. The technician will be equipped with portable seismographs to monitor multiple locations simultaneously. In the event of longer duration activities, we may establish a semi-permanent seismograph station for regular data download and analysis. Other mitigation techniques include:

- Promote alternate compaction techniques and construction sequencing in sensitive areas
- Collect and review data regularly to ensure that vibration levels are acceptable

Figure 43. Vibration Restrictions

STRUCTURE AND CONDITION	MAXIMUM (PPV) VIBRATION THRESHOLD	
	TRANSIENT SOURCES	CONTINUOUS / FREQUENT INTERMITTENT SOURCES
Extremely fragile historic buildings, ruins, ancient monuments	0.12	0.08
Fragile buildings (non-engineered timber frame and masonry)	0.20	0.10
Older buildings	0.50	0.25
Older residential structures	0.50	0.30
New residential structures	1.0	0.50
Modern industrial / commercial buildings	2.0	0.50

Light

The Design-Build Team will reduce light pollution by:

- Limiting the number of nighttime construction activities
- Properly directing needed temporary light fixtures toward the ground and away from the traveling public, adjacent properties, and businesses

Dust

Utilizing dust control methods, we will prevent excessive dust from becoming airborne during construction. Air pollution associated with dust will be effectively controlled by using constant grade watering techniques, which will be implemented dependent on weather conditions. We are also investigating using soil stabilization techniques to incorporate a wet slurry (dust-free) mixture rather than traditional dry spreading that promotes dust pollution. This can affect nearby residences and businesses and become a safety issue for the traveling public.

Regular dust control activities protect the project area.

Erosion and Sediment Control

As detailed in Section 4.1.4 – Safety and Environmental Management, we will implement multiple erosion and sediment control strategies.

Local Road Damage

By documenting the existing structural and cosmetic conditions of the pavement, the Design-Build Team will limit damage to existing local roadways. We will document conditions with digital photographs, videotape, and measurements of the pavement. Prior to construction activities, we will submit an existing pavement report to INDOT providing the pavement area limits inspected, existing conditions, and description of the areas of concern. Delivery access points and weight restricted roadways will be distributed to all delivery vendors to ensure appropriate access points. Any cosmetic damage on local roadways caused by construction will be mitigated upon project completion.

Figure 44 highlights a success story with similar roadway elements on a related design-build project.

Figure 44. Roadway Success Case Study – Super 70

SUPER 70 CASE STUDY

JSE led the design efforts on the Super 70 design-build project.

SIMILARITIES TO THE
NORTH SPLIT PROJECT

- Construction along the I-70 corridor to downtown Indianapolis
- Fast-track and phased construction
- CSX coordination
- Complex MOT
- Utility relocation / adjustments

BENEFITS
REALIZED

- Increased safety for crews and traveling public
- Improved drainage and sight distances
- Smoother pavement design and wider inside shoulders

Leveraging lessons learned, the Design-Build Team incorporated aspects from this successful project into our design and approach to the North Split project. Benefits to INDOT include:

- Maintain mobility and access into and out of downtown Indianapolis
- Design to exceed environmental and social requirements
- Innovative solutions - traffic operations
- Enhanced public awareness and stakeholder engagement

APPROACH TO THE PROJECT THROUGH 3D MODELING

Our approach to a quality-driven project begins with 3D modeling and automated machine control (AMC). Superior Construction is an industry leader with leveraging technology for successful project completion.

We developed our first 3D model and AMC on a design-build project in Florida. Since then, we have invested and installed AMC systems on all of our grade control equipment (dozers, graders, and concrete pavers), and have exclusively used the AMC systems for 31 department of transportation (DOT) projects throughout the US.

3D-modeling is one of the tools we use to identify key drainage issues during MOT phasing, utility conflicts, and final roadway design. The modeling process allows for increased accuracy while grading, projecting project costs and quantities, and reducing risks during the preconstruction phase.

The Design-Build Team will develop the North Split 3D model, including detailed phased construction sequencing, to ensure a predictable outcome during construction. Our extensive modeling and construction planning experience will allow us to virtually build the project before crews are mobilized onsite. This 3D model will also serve as the basis for all plan development and survey control during construction. We will:

- Incorporate the 3D model into our AMC systems
- Use high-tech drones to monitor construction

The Design-Build Team commits to combining 3D modeling with AMC systems for all:

- Roadway and pavement grading
- Aggregate base laying
- Fnal roadway surfacing

Due to the complexity of the existing utilities and MOT phasing, we will also use the 3D model for each phase to ensure everything is accounted for. By also utilizing 3D modeling for earthwork operations, we significantly improve the accuracy of slopes, subgrade, and base course, while increasing efficiency and accelerating the schedule.

Another advantage to modeling is that everyone is working from the same design file, reducing potential errors and increasing construction quality.

LEGACY DONATION

Figure 45 explains our legacy donation to Indianapolis as our part of giving back to the communities we serve.

PRELIMINARY PLANS – ROADWAY CONCEPT AND TECHNICAL SOLUTIONS

Preliminary roadway concepts and technical solutions are included in Volume 2 Appendix and include:

- Road plans
- Conceptual signing, lighting, ITS, and signal plans

Figure 45. Frank and Judy O'Bannon Old Northside Soccer Park Playground

LEGACY DONATION

As a family-owned and operated company, Superior Construction is committed to making a difference in the communities we serve – beyond building reliable infrastructure. As part of our legacy to the North Split project and the local Indianapolis community, we are donating the construction of a playground and splash park in partnership with the Indianapolis Parks Foundation located adjacent to the project in the Frank and Judy O'Bannon Old Northside Soccer Park. Indianapolis is a vital area to the future of our company, and many of our employees live and work here. We view this as our responsibility to leave the local community better than we found it. We will donate this playground at the Soccer Park because it will provide much-needed recreational space and create exciting new opportunities for children and their families.

This page intentionally left blank.

4.2.4 - UTILITY ADJUSTMENT
WORK ELEMENTS

WHY SUPERIOR CONSTRUCTION / JSE

Communications | Stewardship | Less Impact

4.2.4 – UTILITY ADJUSTMENT WORK ELEMENTS

UTILITY CONFLICTS AND PROPOSED TREATMENT

Utility relocations can significantly delay a project. The Design-Build Team's first approach will be to avoid disturbing and relocating utilities, if possible, by adjusting alignments, profiles, and bridge abutment locations. We designed drainage systems to avoid crossing utilities where possible.

If avoidance is not possible, we will minimize impacts by utilizing alignment and profile changes. If the utilities cannot be avoided, we will perform early and intense coordination.

Early mitigation strategies include:

- Utilize detail analysis during initial design to minimize impacts
- Pothole known utilities to verify locations
- Include utility owners in the task force process throughout design and construction to maximize coordination

Figure 46 summarizes our utility location conflicts along with the proposed treatment.

APPROACH AND SOLUTIONS INVOLVING UTILITY ADJUSTMENTS

Approach

The Design-Build Team worked with INDOT to schedule multiple initial meetings and talked with each of the identified utility owners to determine the exact adjustments. Figure 47 summarizes our approach.

Solutions

Our solutions include the complete utility relocation of specific elements, as well as systematic planning to safely work within the proximity of active utilities without requiring relocation.

We will continue the process by holding regularly scheduled meetings with each utility separately and monthly combined onsite meetings during project development. The purpose of these meetings will be to:

- Communicate progress and status updates
- Reinforce overall project schedule expectations

Once onsite, we will begin verifying the existing utility locations. Our final solution is to protect the relocated facilities during the remainder of construction activities.

Figure 48 following the utility adjustments highlights a success story with similar utility adjustments on a related INDOT project.

UTILITY ADJUSTMENTS

Figure 49 provides information about our proposed utility adjustments.

Figure 47. Utility Approach

1. Conducted initial review of all reference information documents relating to the utility relocation scope
2. Performed field verification to determine the approximate locations throughout the project limits
3. Completed further field analysis to verify any potential unknown conflicts
4. Adjusted the utility matrix to accurately depict the extent of utility relocation scope
5. Attended INDOT sponsored event to verify conflicts & have additional discussions about anticipated utility relocation scopes with the identified owners
6. INDOT coordinated meetings with identified owners to further improve utility matrix
7. Applied the precise data to our design

Figure 46. Utility Location Conflict and Proposed Treatment

LOCATION	UTILITY CONFLICTS	PROPOSED TREATMENT
Washington St	CenturyLink • INDOT listed Type 2 underground joint trench in north slope wall	• Confirm conflict by test holes • Enter relocation agreement as needed
Washington St	Crown Castle • INDOT listed Type 2 underground joint trench in north slope wall	• Confirm conflict by test holes • Enter relocation agreement as needed
Market St	Crown Castle • INDOT listed Type 2 underground joint trench in north slope wall	• Confirm conflict by test holes • Enter relocation agreement as needed
Ohio St	Citizens Energy Group (CEG) Water • INDOT listed Type 1	• No conflict found • Cooperate with utility for relocation
Vermont St	Indianapolis Power and Light (IP&L) Distribution • INDOT listed Type 1	• Cooperate with utility for relocation
Michigan St	IP&L Distribution • INDOT listed Type 1	• Cooperate with utility for relocation
Saint Clair St	CenturyLink • INDOT listed Type 1	• Cooperate with utility for relocation
Saint Clair St	Crown Castle • INDOT listed Type 1	• Cooperate with utility for relocation
Saint Clair St	IP&L Distribution • INDOT listed Type 1	• Cooperate with utility for relocation
Saint Clair St	IP&L Transmission • INDOT listed Type 2	• Confirm conflict by test holes • Enter relocation agreement as needed
Saint Clair St	Spectrum • INDOT listed Type 1	• Cooperate with utility for relocation
10th St / Massachusetts Ave	IP&L Distribution • INDOT listed Type 2	• Confirm conflict by test holes • Enter relocation agreement as needed
10th St / Massachusetts Ave	IP&L Transmission • INDOT listed Type 1	• Cooperate with utility for relocation
Alabama St	CEG Gas • INDOT listed Type 2	• Confirm conflict by test holes • Enter relocation agreement as needed
Myron St / Park Ave	CenturyLink Overhead • INDOT listed Type 1	• Cooperate with utility for relocation
Myron St / Park Ave	Spectrum Overhead • INDOT listed Type 1	• Cooperate with utility for relocation
Lewis St	IP&L Distribution • INDOT listed Type 1	• Cooperate with utility for relocation

Figure 49. Project-Wide Utility Conflict and Proposed Treatment

UTILITY CONFLICTS	PROPOSED TREATMENT
WASHINGTON STREET	
Angies List – INDOT listed Type 2 • No conflict	• Indiana Underground Plant Protection Service (IUPPS) locates to confirm • No further action
AT&T Distribution – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
CEG Gas – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
CEG Sanitary – INDOT listed Type 2 No conflict	• IUPPS locates to confirm • No further action
CEG Water – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
CenturyLink – INDOT listed Type 2 • Underground joint trench in north slope wall	• Confirm conflict by test holes • Enter relocation agreement
Comcast – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
Extenet – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
Crown Castle – INDOT listed Type 2 • Underground joint trench in north slope wall	• Confirm conflict by test holes • Enter relocation agreement
IP&L Distribution – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
Intelligent Fiber Network (IFN) – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
MCI / Verizon – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
US Signal – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
Tele-Communications Association (TCA) – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
MARKET STREET	
Angies List – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
CEG Sanitary – NDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
CEG Water – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
Extenet – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
Crown Castle – INDOT listed Type 2 • Underground joint trench in north slope wall	• Confirm conflict by test holes • Enter relocation agreement
Crown Castle – INDOT listed Type 2 • Underground joint trench in north slope wall	• Confirm conflict by test holes • Enter relocation agreement
IP&L Distribution – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
OHIO STREET	
CEG Water – INDOT listed Type 1 • No conflict	• Cooperate with utility for relocation
Extenet – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
IP&L Distribution – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
IUPUI – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
MCI / Verizon – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
Zayo – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
NEW YORK STREET	
AT&T Distribution – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
AT&T Transmission – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
CEG Sanitary – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
CEG Water – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
Extenet – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
US Signal – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
Winstream – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
Zayo – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
VERMONT STREET	
AT&T Distribution – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
CEG Gas – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
CEG Sanitary – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
CEG Water – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
Extenet – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
IP&L Distribution – INDOT listed Type 1	• Cooperate with utility for relocation
Windstream – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
Zayo – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
DAVIDSON STREET	
AT&T Distribution – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
CEG Gas – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
CEG Water – INDOT listed Type 2 • No conflict	• Cooperate with utility for relocation
CEG Sanitary – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
CenturyLink – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
Comcast – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
Extenet – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
Crown Castle – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
IP&L Distribution - INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
Spectrum – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
US Signal – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
TCA – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
MICHIGAN STREET	
AT&T Distribution – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
CEG Gas – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
CEG Sanitary – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
CEG Water – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
Extenet – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
IP&L Distribution – INDOT listed Type 1	• Cooperate with utility for relocation

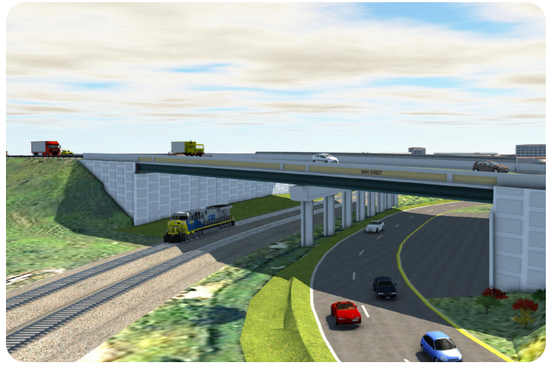
Figure 49. Project-Wide Utility Conflict and Proposed Treatment (cont.)

UTILITY CONFLICTS	PROPOSED TREATMENT
Windstream – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
Zayo – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
NORTH STREET	
CEG Sanitary – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
SAINT CLAIR STREET	
AT&T Distribution – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
AT&T Transmission – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
CEG Sanitary – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
CEG Water – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
CenturyLink - INDOT listed Type 1	• Cooperate with utility for relocation
Extenet – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
Crown Castle – INDOT listed Type 1	• Cooperate with utility for relocation
IP&L Distribution – INDOT listed Type 1	• Cooperate with utility for relocation
IP&L Transmission – INDOT listed Type 1	• Cooperate with utility for relocation
Spectrum – INDOT listed Type 1	• Cooperate with utility for relocation
Zayo – INDOT listed Type 1	• Cooperate with utility for relocation
Windstream – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
TCA – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
10TH STREET / MASSACHUSETTS AVENUE	
AT&T Distribution – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
AT&T Transmission – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
CEG Gas – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
CEG Sanitary – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action

UTILITY CONFLICTS	PROPOSED TREATMENT
Extenet – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
IP&L Distribution – INDOT listed Type 2 • Communication line – fiber optic	• Confirm conflict by test holes • Enter relocation agreement
IP&L Transmission – INDOT listed Type 1	• Cooperate with utility for relocation
Zayo – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
PENNSYLVANIA STREET	
AT&T Distribution – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
CEG Gas – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
CEG Sanitary – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
Extenet – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
IP&L Distribution – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
MCI / Verizon – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
DELAWARE STREET	
CEG Water – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
Extenet – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
IP&L Distribution – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
Windstream – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
ALABAMA STREET	
CEG Gas – INDOT listed Type 2	• Confirm conflict by test holes • Enter relocation agreement
CEG Water – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
Extenet – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
Crown Castle – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action

UTILITY CONFLICTS	PROPOSED TREATMENT
IP&L Distribution – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
MCI / Verizon – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
CENTRAL AVENUE	
AT&T Distribution – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
CEG Gas – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • Confirm no conflict • No further action
CEG Water – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
COLLEGE AVENUE	
CEG Gas – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • Confirm no conflict • No further action
CEG Sanitary – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
CEG Water – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
Extenet – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
IUPUI – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
MCI / Verizon - INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
Zayo – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
PARK AVENUE	
CEG Sanitary – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
CEG Water – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
Extenet – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
IP&L Transmission – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
MYRON STREET / PARK AVENUE	
CenturyLink Overhead – INDOT listed Type 1	• Cooperate with utility for relocation
Spectrum –INDOT listed Type 1 • No conflict	• Cooperate with utility for relocation

UTILITY CONFLICTS	PROPOSED TREATMENT
MYRON ST STREET	
Extenet – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
IP&L Distribution – INDOT listed Type 1	• Cooperate with utility for relocation
LEWIS STREET	
CEG Gas – INDOT listed Type 2	• IUPPS locates to confirm • Confirm no conflict • No further action
CenturyLink – INDOT listed Type 2	• IUPPS locates to confirm • No further action
Extenet – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
IP&L Distribution – INDOT listed Type 1	• Cooperate with utility for relocation
Zayo –INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
MONON TRAIL	
AT&T Distribution – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
AT&T Transmission – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action
MCI / Verizon – INDOT listed Type 2 • No conflict	• IUPPS locates to confirm • No further action



The Design-Build Team created a rending demonstrating the results of our coordination with CSX.

Figure 48. Utility Success Case Study – Borman Expressway

BORMAN EXPRESSWAY
CASE STUDY

Superior Construction led the design-build efforts on the Borman Expressway project.

SIMILARITIES TO THE
NORTH SPLIT PROJECT

- Fast-track construction
- Utility relocation / adjustments
- New collector distributor lanes
- Interchange reconstruction and reconfiguration

BENEFITS
REALIZED

- New ramps and structures to maximize traffic flow
- Improved lighting
- Decreased environmental and wetland impacts

Leveraging lessons learned, the Design-Build Team incorporated aspects from this successful project into our design and approach to the North Split project. Benefits to INDOT include:

- Improve safety and increase efficiency of traffic movements
- Innovative solutions - life-cycle considerations, traffic operations, and construction sequencing
- Minimize delays and queue lengths on existing roadways during construction

RAILROAD COORDINATION

In addition to the utilities in the corridor, we will coordinate work around CSX railways throughout the design and construction of the overhead bridge work. We understand the need to maintain the existing horizontal and vertical clearances, crash wall design requirements, and drainage restrictions. Figure 50 highlights our recent successes constructing around and over CSX railways and ROW in Indiana.

Figure 50. Recent Successful Railroad Coordination and Project Construction with CSX in Indiana

CSX RAILROAD
COORDINATION

7 INDIANA PROJECTS
OVER CSX RAILWAYS
IN THE LAST **FIVE** YEARS

4 WITH **INDOT**

THREE WITH OTHER **OWNERS**

CONSTRUCTION
VALUE
$50.4M

This page intentionally left blank.

4.2.5 - DRAINAGE DESIGN & **CULVERT REPLACEMENT**

WHY SUPERIOR CONSTRUCTION / JSE

Sustainability | Innovation | Less Impact

4.2.5 – DRAINAGE DESIGN AND CULVERT REPLACEMENT

The Design-Build Team focused our proposed drainage design on perpetuating existing drainage patterns without increasing downstream impacts. Additionally, we routed storm water runoff in closed storm sewer system to eliminate runoff on steep slopes.

Prior to drainage structure construction, we will inspect, clean, and repair all existing structures. This will ensure positive drainage during construction until the new structures are operational.

Drainage features include:

- New curbing
- Inlets
- Access holes
- Pipes
- Roadside ditches
- Cross culverts
- Detention facilities
- Pavement underdrains

We will include detention basins and other underground appurtenances to provide water quantity BMPs prior to release from INDOT ROW. We will evaluate and incorporate infiltration when feasible to reduce storm water including:

- Initial evaluation – based on grainsize distributions reported in RID documents
- Field testing – confirm initial design considerations

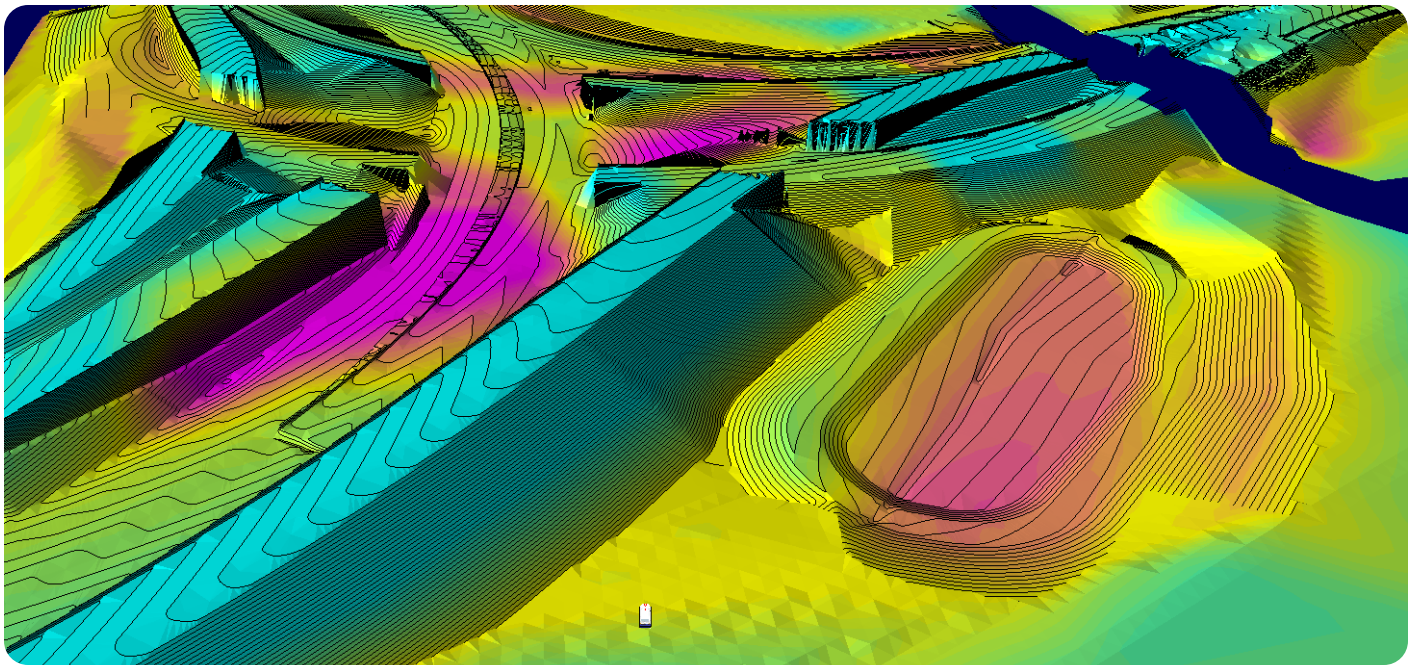
Water quality requirements for post construction flow will be met utilizing a combination of vegetated swales, catch basin inserts, and hydrodynamic separators to remove coarse sediment, debris, and free floating oils. The detention pond will also be utilized as a water quality post construction BMP. Figure 51 provides an example drainage and grade plan.

Structural Capacity Assumptions

The majority of the North Split project's existing drainage structures are more than 50 years old, making them insufficient. To ensure proper functionality, our design proposes incorporating new inlets and pipes, and not using any corrugated metal pipes. We will use curved vane grates with greater efficiency for the replacement inlets, increasing spacing efficiency and decreasing future maintenance.

The existing drainage structures located east of the existing interchange along I-70 were built with the Super

Figure 51. Drainage and Grading Plan Example



70 project. Since these structures are only 10 years old, we will inspect them to verify they have 50 service years remaining in their life span. We will continue to inspect the pipes for structural capacity.

Method to Replace Culverts

The Design-Build Team will use open cut installation and close the roadway where structures need be replaced. In areas where traffic must be maintained, we will use trenchless installation.

Hydraulic Capacity and Backwater Criteria Requirements

We designed all storm sewer systems and cross culvert hydraulic capacity utilizing the IDM. We will submit a concept drainage design to INDOT prior to Stage 1, ensuring compliance to all project requirements.

We will build the culvert and capacity evaluation report on the concept drainage report to ensure compliance prior to construction. The Design-Build Team has extensive experience in providing efficient, low maintenance drainage design involving culvert replacements, inlet spacing, storm sewers, detention, water quality, and erosion control.

LIST OF ALL MAJOR TRUNKLINES AND PROPOSED CULVERT REPLACEMENTS

All existing culverts under new pavement will be removed or filled. After careful evaluation, we only found two major trunklines that need to be replaced, as referenced in Figure 52.

We will design additional culverts and trunklines throughout the interchange, which we will determine as the design progresses. We will also evaluate appropriate materials. We are currently evaluating concrete, polyethylene (PE), polyvinyl chloride (PVC) pipe, and high-density polyethylene (HDPE) pipe.

Figure 52. Proposed Culvert Replacements

CULVERT STATION	TYPE	SIZE	MATERIAL	ACTION
122+62.25 R_S65	Type 1	36”	Reinforced Concrete Pipe	Replace
111+73.88 R_S65_E70	Type 3	18”	Reinforced Concrete Pipe	Replace

Figure 53. Case Study – IH-635 LBJ Express Managed Lanes

IH-635 LBJ EXPRESS TOLL LANES
CASE STUDY

JSE led the design efforts on the IH-635 LBJ Express Managed Lanes Public-Private Partnership project.

SIMILARITIES TO THE
NORTH SPLIT PROJECT

- Urban construction through downtown area
- Complex interchange system design
- 25 miles of drainage system
- Incorporated local streets

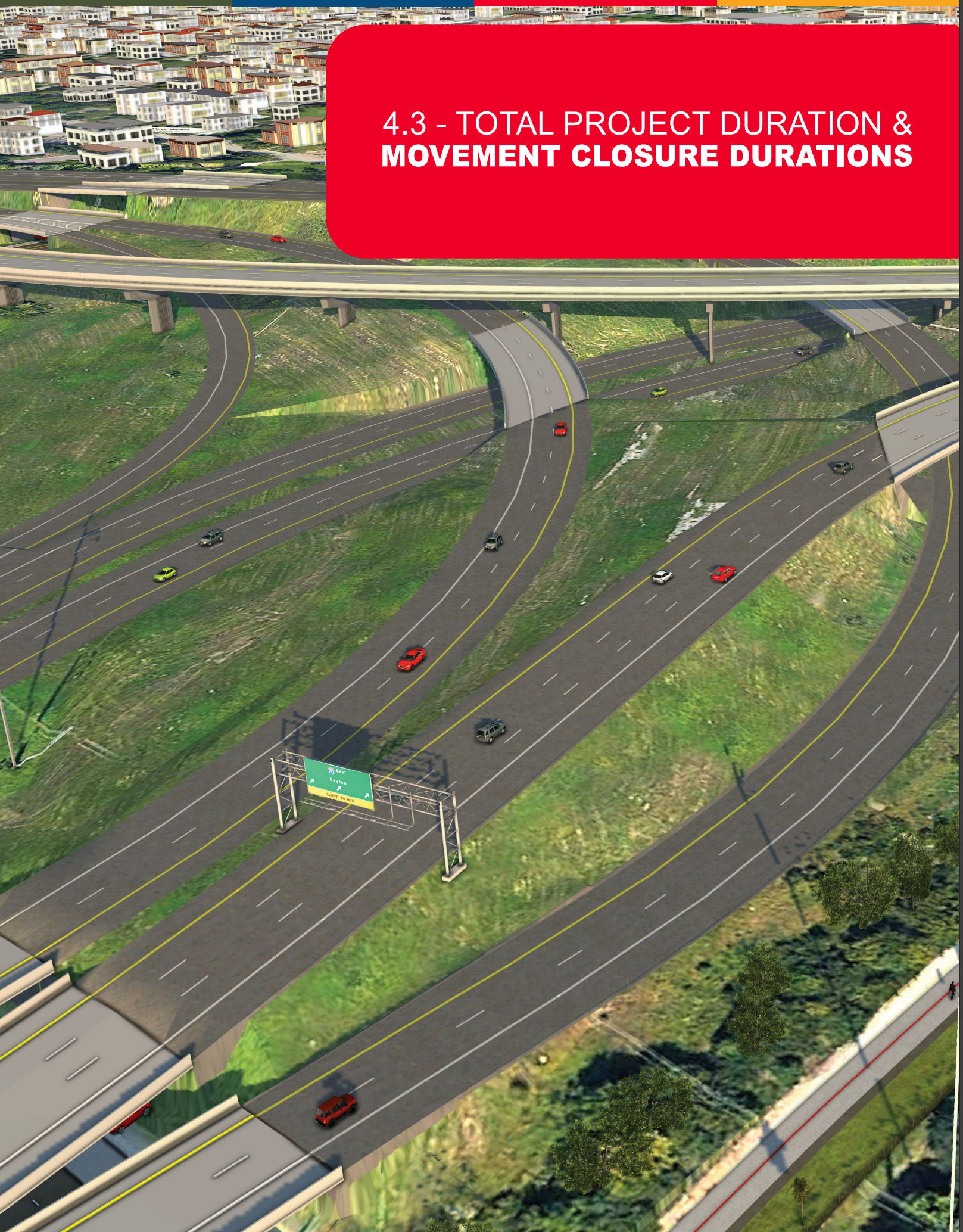
BENEFITS
REALIZED

- Complex MOT implementation
- Decreased impact to existing storm system demands
- Reduced environmental impacts

Leveraging lessons learned, the Design-Build Team incorporated aspects from this successful project into our design and approach to the North Split project. Benefits to INDOT include:

- Design to exceed technical and environmental requirements
- Provide a high quality, durable, long lasting, and maintainable facility
- Innovative solutions - life-cycle considerations, MOT, and traffic operations

4.3 - TOTAL PROJECT DURATION & **MOVEMENT CLOSURE DURATIONS**



FORM T - MOVEMENT
CLOSURE DURATIONS

FORM T

MOVEMENT CLOSURE DURATIONS

Note: Proposed closure durations of zero days will, for scoring purposes, be evaluated at 1 day.

Movement	Proposed Movement Closure Duration	Maximum Movement Closure Duration (continuous once started in whole or in part)	Weighting (Out of Maximum 30 Technical Proposal Score Points)
1. I-65 NB to I-70 EB (from Sta. 113+00, line "P_ALG_I65/I70" to Sta. 41+90, line "P_ALG_I70")	520	560 days	15% (maximum 4.5 Technical Proposal Score points)
2. I-65 NB to I-65 NB (from Sta. 113+00, line "P_ALG_I65/I70" to Sta. 25+75, line "P_ALG_I65")	520	560 days	20% (maximum 6 Technical Proposal Score points)
3. I-65 SB to I-65 SB (from Sta. 25+75, line "P_ALG_I65" to Sta. 113+00, line "P_ALG_I65/I70")	520	520 days	20% (maximum 6 Technical Proposal Score points)
4. I-65 SB to I-65 SB CD (from Sta. 25+75, line "P_ALG_I65" to Sta. 115+00, line "R_CDS65")	520	520 days	10% (maximum 3 Technical Proposal Score points)
5. I-70 WB to I-70 WB (from Sta. 41+90, line "P_ALG_I70" to Sta. 113+00, line "P_ALG_I65/I70")	430	430 days	10% (maximum 3 Technical Proposal Score points)

6. I-65 SB to I-70 EB (from Sta. 25+75, line “P_ALG_I65” to Sta. 41+90, line “P_ALG_I70”)	1	45 days	25% (maximum 7.5 Technical Proposal Score points)

FORM L - COMPLETION
DEADLINES

FORM L

COMPLETION DEADLINES

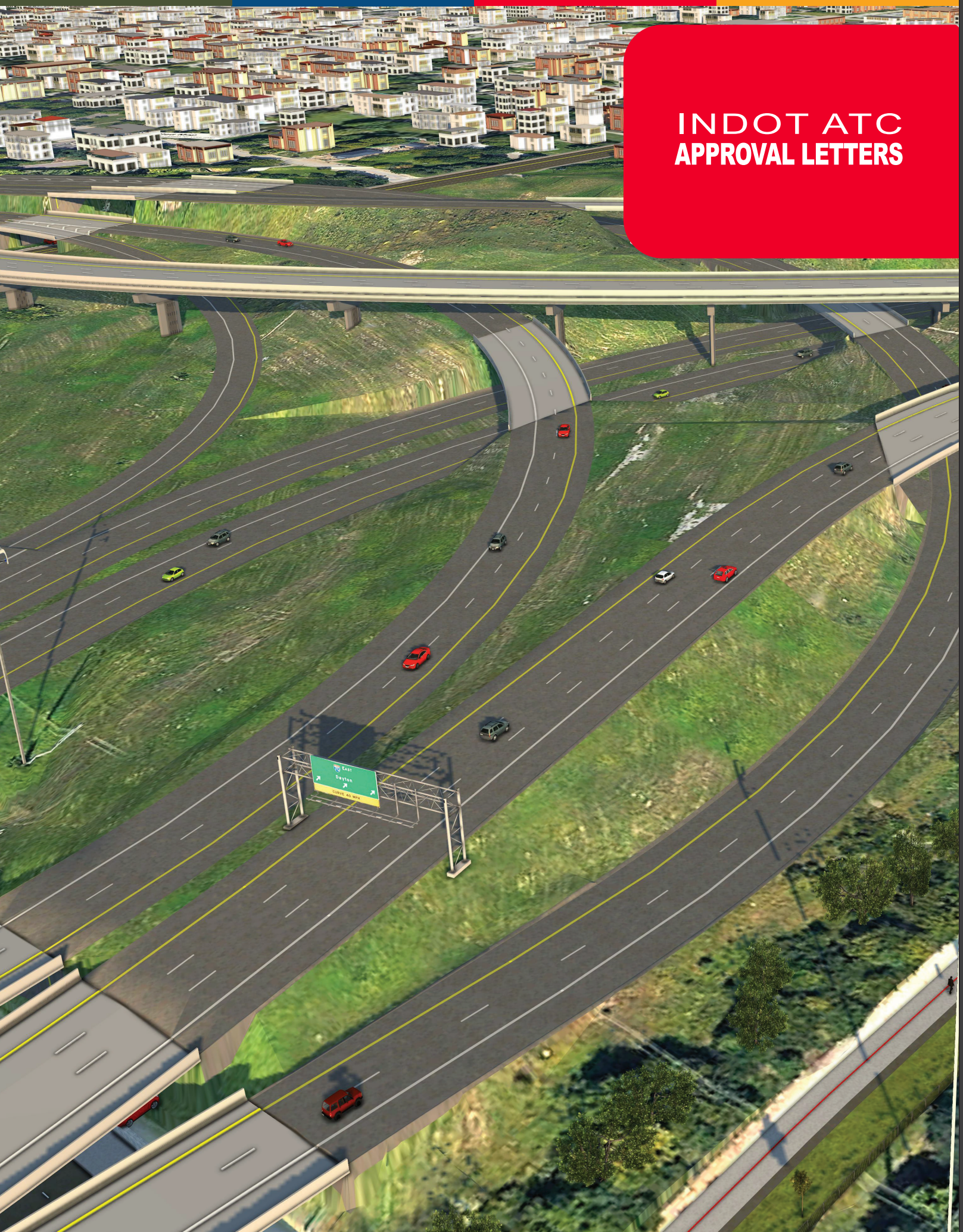
Last Allowable Dates:

Milestone	Deadline
Substantial Completion Deadline	905 days after issuance of NTP
Final Acceptance Deadline	150 days after Substantial Completion Deadline

Proposal Commitment Dates (cannot exceed the above table):

Milestone	Deadline
Substantial Completion	905 days after issuance of NTP

INDOT ATC
APPROVAL LETTERS



INDIANA DEPARTMENT OF TRANSPORTATION

100 North Senate Avenue
Room N601
Indianapolis, IN 46204
Phone; 317-233-2072

Eric Holcomb, Governor
Joe McGuinness, Commissioner

January 20, 2020

VIA E-MAIL

Superior Construction Co. Inc.
Jeff Lietzan
1455 Louis Sullivan Drive
Portage, IN 46368
jlietzan@superiorconstruction.com

RE: I-65/I-70 North Split Project – Public-Private Agreement
Response to Alternative Technical Concepts

Dear Mr. Lietzan;

The Indiana Department of Transportation ("INDOT") has reviewed the Alternative Technical Concept ATC-5 Rev, ATC-6 Rev, ATC-7, ATC-8, ATC-9 and ATC-10 Rev submitted by Superior Construction Co. Inc., ("Proposer") in response to the Request for Proposals issued by INDOT on October 11, 2019 to design and construct the I-65/I-70 North Split Project through a Public-Private Agreement (as amended, the "RFP"). Capitalized terms not defined in this letter have the meanings given in the RFP.

INDOT's responses to Proposer's proposed ATC No. 5Rev, ATC-6Rev, ATC-7, ATC-8, ATC-9 and ATC-10Rev is included in Attachment 1.

Please be advised that nothing in this letter modifies or alters the terms of the RFP or the Public-Private Agreement and each of such terms, including INDOT's rights thereunder, shall remain in full force and effect.

INDOT appreciates your continued interest in the I-65/I-70 North Split Project and this procurement.

Sincerely,

Cat Schoenherr

December 18, 2019

I-65/I-70 North Split Project
Attn: Cat Schoenherr
Indiana Department of Transportation
100 North Senate Avenue, Room N601
Indianapolis, Indiana 46204

RE: I-65/I-70 North Split Project - Confidential ATC # 7

Cat,

In accordance with ITP Section 3.3, Superior Construction Co., Inc. is pleased to submit Confidential ATC #7. We look forward to discussing this opportunity with INDOT and their partners during our one-on-one meeting regarding the ATC's.

Should INDOT require further information regarding this Confidential ATC after review, please contact me at your convenience.

Thank you,

Jeff Lietzan
Director of Pursuits
Superior Construction Co., Inc.

Attachment:

- *None*