



VOLUME
2
Preliminary
Performance Plans

Response to the Request For Proposals

TO DEVELOP, DESIGN, CONSTRUCT, FINANCE, OPERATE AND MAINTAIN

I-69 SECTION 5 PROJECT through a PUBLIC-PRIVATE AGREEMENT

SUBMITTED BY:



I-69
DEVELOPMENT
PARTNERS

Driving Section 5 Forward through
INNOVATION, QUALITY, & SUSTAINABILITY

Exhibit E

SUMMARY AND ORDER OF PROPOSAL CONTENTS

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

Technical Proposal Component	Form (if any)	ITP Section Cross-Reference
DBE Certification	<u>Form H</u> No forms are provided for the DBE Performance Plan or Job Training Plan	<u>Exhibit B, Section 3.2.9</u>
Surety/Financial Institution Information	No forms are provided	<u>Exhibit B, Section 3.2.10</u>
Conflict of Interest Disclosure Statement	<u>Form I</u>	<u>Exhibit B, Section 3.2.11</u>
Equal Opportunity Employment Certification	<u>Form Q</u>	<u>Exhibit B, Section 3.2.12</u>
Lobbying Certification	<u>Form R</u>	<u>Exhibit B, Section 3.2.13</u>
Debarment and Suspension Certification	<u>Form S</u>	<u>Exhibit B, Section 3.2.14</u>
Insurance	<u>No forms are provided</u>	<u>Exhibit B, Section 3.2.15</u>
Confidential Contents Index	<u>No forms are provided</u>	<u>Exhibit B, Section 3.2.16</u>
C. Proposer Election of Termination for Convenience Calculation Method		
Election of Termination for Convenience Calculation Method	<u>Form V</u>	<u>Exhibit B, Section 3.4</u>
D. Volume 1 Appendices		
Copies of Organizational Documents	No forms are provided	<u>Exhibit B, Section 3.2.2</u>
Proposer Teaming Agreement or Key Terms	No forms are provided	<u>Exhibit B, Section 3.2.2</u>
Executed Contracts or Term Sheets/Heads of Terms	No forms are provided	<u>Exhibit B, Section 3.2.2</u>
E. Proposal Security (Proposal Bond or Proposal Letter of Credit)		
Proposal Bond	<u>Form K-1</u>	<u>Exhibit B, Section 3.3.1</u>
Proposal Letter of Credit	<u>Form K-2</u>	<u>Exhibit B, Section 3.3.2</u>

Technical Proposal Component	Form (if any)	ITP Section Cross-Reference
F. Escrow Agreement		
Escrow Agreement	<u>Form L</u>	<u>Exhibit B, Section 3.5</u>
G. Preliminary Performance Plans		
Preliminary Project Management Plan	No forms are provided	<u>Exhibit B, Section 4.1</u>
Preliminary Project Baseline Schedule for Design and Construction	No forms are provided	<u>Exhibit B, Section 4.1.2</u>
Completion Deadlines	<u>Form N</u>	<u>Exhibit B, Section 4.1.2</u>
Design-Build Plan	No forms are provided	<u>Exhibit B, Section 4.2</u>
Operations and Maintenance Approach	No forms are provided	<u>Exhibit B, Section 4.3</u>
H. Volume 2 Appendices		
Key Personnel Resumes	No forms are provided	<u>Exhibit B, Section 3.2.5</u>
Technical Drawings, Graphs and Data	No forms are provided	<u>Exhibit B, Section 4.2</u>

Financial Proposal

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

	Financial Proposal Component	Location of information within submission documentation	
		Document Reference	Financial Model Sheet Reference
A.	Updated financial information Proposer must provide the corporate and financial information identified in <u>Section 2.0</u> of <u>Exhibit C</u> , for the Proposer, Equity Members, Design-Builder, any Guarantor and any other Financially Responsible Party		
A1	Audited Fiscal Financial Statements for all periods subsequent to SOQ and unaudited interim financial statements (<u>Exhibit C</u> , <u>Section 2.0</u>)		
A2	Financially Responsible Party letters of support (as required) (<u>Exhibit C</u> , <u>Section 2.0</u>)		
A3	For publicly held companies, most recent SEC 10-K and 10-Q reports and any 8-Ks filed since the SOQs (<u>Exhibit C</u> , <u>Section 2.0</u>)		
A4	Credit Ratings (<u>Exhibit C</u> , <u>Section 2.0</u>)		
A5	Letter regarding material change in financial condition since submission of the SOQ and for next reporting period (<u>Exhibit C</u> , <u>Section 2.0</u>)		

	Financial Proposal Component	Location of information within submission documentation	
		Document Reference	Financial Model Sheet Reference
A6	Letter disclosing all material off balance sheet liabilities (<u>Exhibit C, Section 2.0</u>)		
B	Financial Plan (<u>Exhibit C, Section 3.0</u>)		
B1	Financial Plan Executive Summary (<u>Exhibit C, Section 3.1</u>)		
B1	Identity of Financial Institution (<u>Exhibit C, Section 3.2</u>)		
B2	Range of Financing Sources (<u>Exhibit C, Section 3.3</u>)		
B3	Details for Core Lender(s) and Lead Underwriter(s) Commitment Letters (<u>Exhibit C, Section 3.4</u>)		
B4	[Reserved]		
B5	Details of Equity Source and letters from Equity Members (<u>Exhibit C, Section 3.5</u>)		
B6	Financial Advisor letter (<u>Exhibit C, Section 3.6</u>)		
B7	Schedule for Commercial and Financial Close (<u>Exhibit C, Section 3.7</u>)		
B8	Summary Cost Table and Financial Plan Summary Forms (<u>Forms O and P, Exhibit C, Section 3.8</u>)		
C	MAP Proposal (Form J) (<u>Exhibit C, Section 4.0</u>)		

	Financial Proposal Component	Location of information within submission documentation	
		Document Reference	Financial Model Sheet Reference
D	Financial Model (<u>Exhibit C, Section 5.0</u>)		
D1	Financial Model (<u>Exhibit C, Section 5.1 to 5.2</u>)		
D2	Financial Model Assumptions Book (<u>Exhibit C, Section 5.3</u>)		
D3	Instructions on operations of the Financial Model (<u>Exhibit C, Section 5.4</u>)		
E	Cost and Pricing Data (<u>Exhibit C, Section 6.0</u>) (to be submitted to escrow)		
F	Independent Insurance Broker/Consultant Letter (<u>Exhibit C, Section 7.0</u>)		

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G.

4.0 PRELIMINARY PERFORMANCE PLANS

G. 4.0 Preliminary Performance Plans



The Proposer I-69 Development Partners (I-69 DP) formed by Isolux Infrastructure (Isolux) is excited for the opportunity to

participate in this project and provide IFA and INDOT with a cost-effective solution to expand Indiana's transportation infrastructure. If selected by IFA as the preferred proposer, the I-69 DP will form a Special Purpose Vehicle company (SPV) to be likely called I-69 Development Partners, LLC to act as the Developer. Isolux's broad experience in transportation public-private partnership (P3) projects will ensure that the I-69 Section 5 project is a success and a model for future IFA P3 projects.

Our commitment is not limited to this project. Rather our intention is to invest and participate long-term in Indiana's other P3 transportation opportunities. In all our endeavors, we will make local involvement a priority, combining the participation of local companies within the Team and the stakeholder's involvement.

I-69 DP is ready to make a long-standing commitment to the IFA/INDOT and the local community with the I-69 Section 5 Project (the Project). The I-69 DP Team (I-69 DP Team or the Team) merges international resources and expertise in finance, design, construction, and operations and maintenance (O&M) with local experience and understanding (**Figure 4.0-1**).

We understand the desire of IFA to keep the jobs associated with building, operating and maintaining the Project in the State of Indiana. It is our firm intention to hire as many local contractors and staff as possible for this project. We also understand the commitments IFA has made to local communities along Section 5 and we stand ready to complete the work within the timeframes established in the ITP.

If awarded the Project, Isolux plans to create its US Transportation Headquarters in Indiana.



We offer IFA and INDOT the added value, innovation, quality, and sustainability needed to finance, design, build, operate and maintain Section 5 of the I-69 corridor. We look forward to partnering with the IFA/INDOT to make this Project a successful reality.

As per the ITP, our technical proposal is divided into three preliminary plans. Our **Preliminary Project Management Plan (4.1)** discusses the Team's organization structure, key personnel and work requirements to successfully complete the Project and meet ALL IFA/INDOT goals. Our P3 Project Management System (P3PMS) unifies all levels of project delivery. The technical solutions provided in **our Preliminary Design-Build Plan (4.2)** creates a safe, quality Project for the best use of the community. Finally, our **Preliminary O&M Plan (4.3)** ensures a well-maintained and managed long-term asset. During the development of each plan, particular attention has been given to the O&M Performance Requirements. These performance plans combine to create a sustainable finished product that meets or exceeds the desires and goals of the IFA and INDOT.

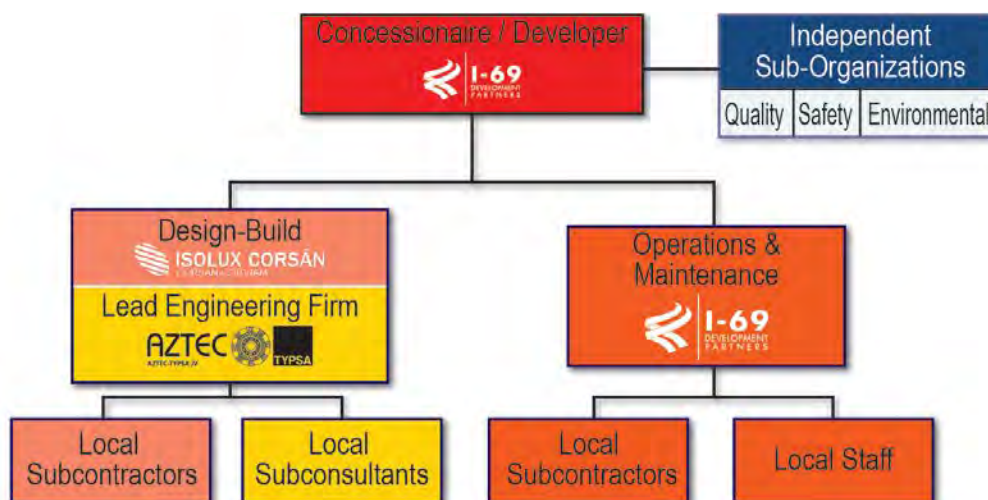


Figure 4.0-1: The I-69 DP Organization

Icons: Assisting IFA/INDOT in meeting your goals is our highest priority. We have provided icons that indicate when our proposal addresses a principle that guides our team's success. These icons highlight important points in our project approach, team experience, and commitment that ensures we successfully meet your needs. Our guiding principles are:



Safety

"Safety First" The safety of our workers, the traveling public and the environment is built into every plan that we develop. We are committed to the highest standards of workplace safety and will implement safe work programs for all project tasks. **Safety will influence all of our design, construction and O&M principles.**



Added Value

"Optimizing for Added Value" We focus on identifying the optimal design, construction logistics and O&M. We leverage the expertise and experience of our team members and key personnel to identify the project's key cost drivers to maximize savings and deliver the best value solution. **We have already started value-engineering of the Project through our Alternative Technical Concepts and will continue to look for ways to add value without impacting function or safety.**



Innovation

"Innovation and Forward Thinking" By integrating our design, construction, O&M and financing teams we have identified many innovate solutions and approaches that optimize the use of public resources. **During design, the Design Team, the Build Team and the O&M Team will constantly be collaborating on ways to incorporate innovative methods and materials into the Project.**



Quality

"Quality Always" We are dedicated to exceeding IFA/INDOT expectations by providing a high-quality, aesthetic, durable, and maintainable highway. Our approach is based on efficient planning, clear communication, training, inspection and documentation. This process is supported through a comprehensive Design-Build Quality Management Plan. **Quality is built into every aspect of the Project from design and construction through to operations and maintenance.**



Sustainability

"Sustainability to Preserve our Assets Now" Everything that we need for our survival and well-being depends, either directly or indirectly, on our natural environment. Sustainability creates and maintains ways humans and nature can exist in harmony to fulfill the needs of present and future generations. **Sustainability is important to making sure that we continue to have the water, materials and resources to protect human health and our environment.**

The I-69 Development Partner's Team Members

Isolux Infrastructure (Equity Member)

- ✓ Has a portfolio of 65 concession projects all along the world (57 are completed), including eight DBFOM transportation projects and nine availability payment projects
- ✓ Recently completed a \$800 million US P3 project
- ✓ Has invested more than \$6 billion in project financing over the last 10 years (equity and debt)

Corsan Corviam (Design-Build Contractor)

- ✓ Presence in four continents and 15 countries.
- ✓ Design-Build Contractor for Isolux Infrastructure for eight DBFOM transportation projects.

AZTEC – TYPASA Joint Venture (Lead Engineering Firm)

- ✓ AZTEC has extensive experience in design of urban and rural freeways and interchanges
- ✓ AZTEC has been involved with various project aspects for P3 and DB projects in USA and Canada
- ✓ TYPASA was ranked 92nd of the Top 200 International Design Firms in 2012, according to ENR
- ✓ Significant design support being provided by Indiana based subconsultants

Local Contractors: Gradex, Force Construction Company and E&B Paving

- ✓ All are headquartered in Indiana
- ✓ All have previous experience in the I-69 Corridor
- ✓ They have successfully completed numerous INDOT projects
- ✓ Combined Indiana workforce totals more than 2000 employees

4.1 Preliminary Project Management Plan



4.1 Preliminary Project Management Plan

Management Philosophy



The I-69 DP Team will leverage the local knowledge of our Indiana-based team members with the international experience of Isolux, Corsan, and AZTEC-TYPSA to provide IFA/INDOT with the best value possible, while achieving and exceeding all IFA's goals.

We know how to provide a world-class, high-quality product and are committed to meeting all of the project elements through whole life asset management. The I-69 DP Team, as shown in **Figure 4.1-1** on the following page, provides a vertically integrated team through all stages of finance, design, construction and O&M.



As shown in **Figure 4.1-2**, we have developed a delivery team comprised of related companies which provides agile decision making and vertical integration that is second to none. Our organization aligns perfectly with our project management philosophy, where all team members work together as one single entity to provide the IFA, INDOT, stakeholders and the Citizens of Indiana with the best possible Project.

Employing this same organizational structure, Isolux has successfully managed eight DBFOM transportation projects throughout the world. We offer the following added value features that differentiates us from the competition:

- Our Engineering Team merges the global knowledge of TYPSA (ranked 92 out of the top 200 International Design Firms in 2012 by ENR), the US knowledge of their subsidiary, AZTEC

Engineering; and the local knowledge of our subconsultants:

- Burgess & Niple, Inc. (B&N)
- Professional Service Industry (PSI)
- Christopher B. Burke Engineering, LLC (CBBEL)
- Keramida Inc.
- VS Engineering Inc. (VS)
- Hardlines Design Company (HDC)
- Eco-Tech Consultants, Inc. (Eco-Tech)
- iTunnel, Inc.
- Local support services in non-technical areas
 - Barnes & Thornburg, LLP (legal)
 - The McCormick Group (Public Involvement)
- Local expertise from our contractors, who have worked extensively for INDOT:
 - Gradex, Inc.
 - Force Construction Company, Inc.
 - E&B Paving, Inc.

These firms will work under the leadership of Corsan, an International experienced Design-Build contractor and Isolux Infrastructure, an International experienced P3 developer

With the same organizational structure, Isolux has successfully managed eight DBFOM transportation projects around the world

4.1.1 Project Management Approach



In order to fully fulfill the Project Management Plan (PMP) requirements, the I-69 DP Team will use our P3 Project Management System (P3PMS). The P3PMS is built on Isolux and Corsan's experience developing P3 and Design-Build projects for more than ten years, including more than 1,000 miles of DBFOM transportation projects and 3,400 miles of power transmission line P3 projects all over the world (USA, Brazil, Spain, Mexico and India). The P3PMS accomplishes the following goals:

- Provides the I-69 DP Team management approach, philosophies, systems, processes and procedures
- Integrates local and multinational companies into a unified team, incorporating their main strengths

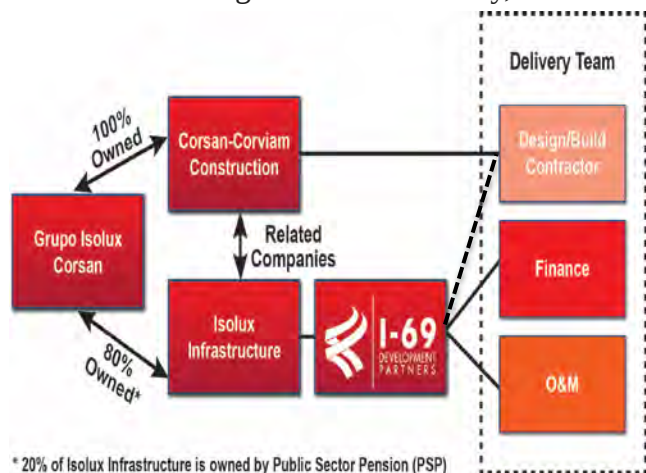
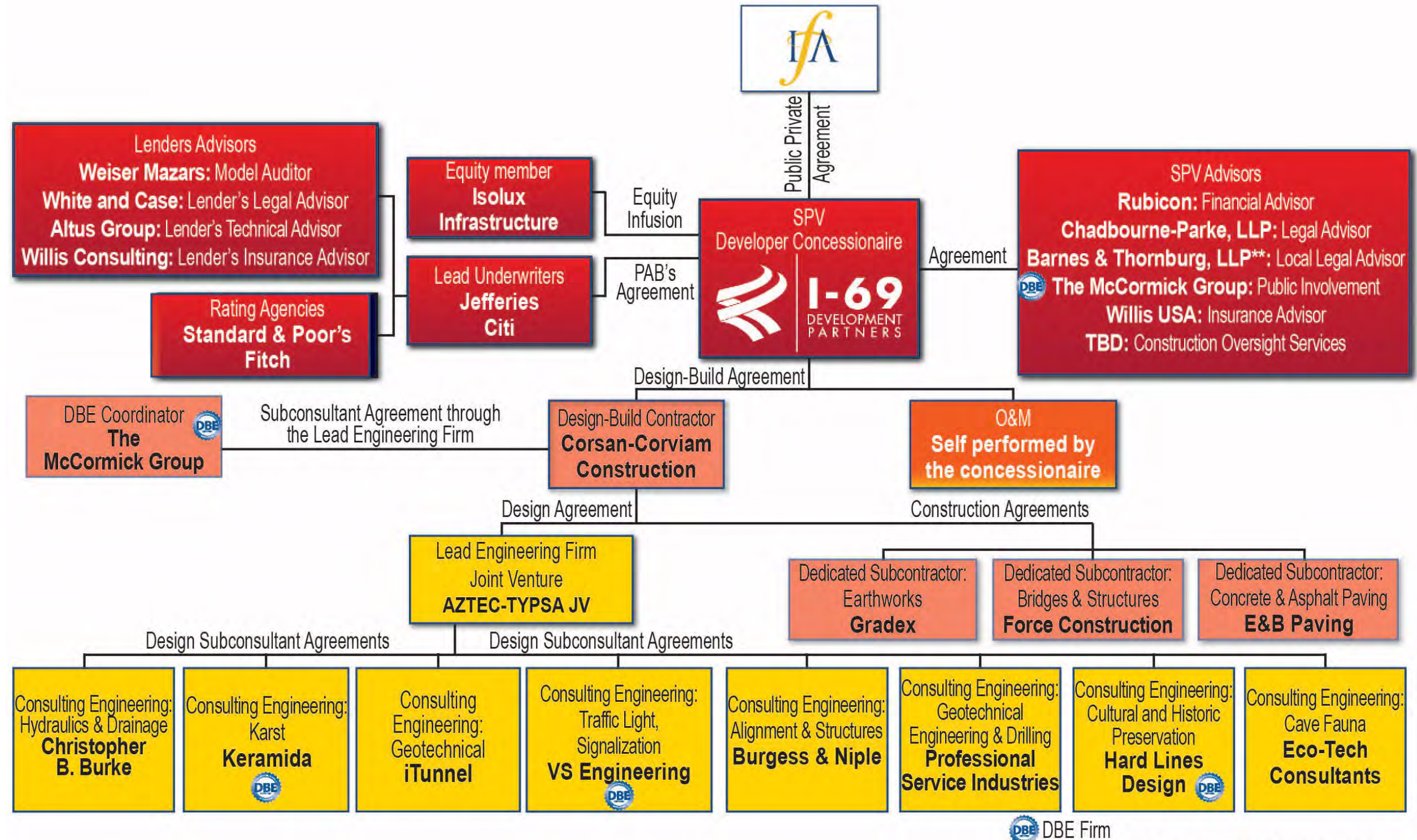


Figure 4.1-2: Related Companies Involved



DBE Firm

** If allowed by IFA (as per section 19.3 of the ITP)

Barnes & Thornburg will also act as Bond Counsel.

Figure 4.1-1: The I-69 DP Team and Lines of Agreement

- Outlines the interfaces of the I-69 DP Team with IFA/INDOT, stakeholders and the community to establish clear lines of communication
- Dedicates the resources and organization to achieve all Project objectives
- Encourages DBE and workforce diversity and fosters involvement of the community
- Provides specific, interactive plans to facilitate the on-time delivery of the Project
- Provides for effective cost control for all phases of the Project

The P3PMS is a comprehensive document describing our managerial approach, strategy, safety and quality procedures to be used during the entire concession period, customized for the different activities under the **PPA** (such as Design-Build, O&M During Construction and O&M After Construction). It establishes the management approach and the organizational structure, including lines of responsibility, qualifications for Project personnel and the role of these personnel. It includes quality,

Global Management, Local Development
I-69 Development Partners' main goal is to put its global know how and expertise at the service of the IFA and the people of Indiana.



safety, and sustainable management plans, which when combined will deliver the Project efficiently, cost-effectively and safely with minimal impacts on road Users, local stakeholders and the environment, in line with IFA/INDOT goals. Our key personnel and task leaders will use the P3PMS to control delivery throughout the Project.

The basis of the I-69 DP Team's management philosophy is coordination. The core of the Team is formed by related companies: Isolux as the Equity Member, Corsan as the Design-Build Contractor, and the I-69 DP as the self-performing O&M entity. This provides integrated functionality and consistency to the Team, assures agility in the decision-making process and allows for close coordination within the Team. This relationship also allows clear lines of authority and responsibility and enables the Team to work as one single entity. The I-69 DP Team will use the P3PMS during the planning, delivery and monitoring of all activities to ensure the safe,



Figure 4.1-3: Our Project Management Plan effectively focuses and mitigates issues that affect complex

sustainable, on-time and in-budget delivery of a high quality product.

The P3PMS provides the framework for the management approach in all Project stages. All employees, subcontractors and suppliers are required to comply with it. The inputs that enable the development and implementation of the P3PMS include stakeholder, client and I-69 DP requirements and expectations; as well as the Design-Build Contractor best practices and lessons learned. The main goal and final result is the full satisfaction of the IFA, the stakeholders and the Users.

P3PMS Structure: The P3PMS is based on the Guide to the Project Management Body of Knowledge ("PMBOK"), published by the Project Management Institute (PMI), certified by the American National Standards Institute (ANSI) and customized by Isolux and Corsan to DBFOM P3 transportation projects.

Under the P3PMS, the Delivery Process interacts with two other processes: the Control Process and the Support Process as described below and shown in **Figure 4.1-4**.

Delivery Process (Del. Pro.): This includes the core processes that will contribute directly to the achievement of IFA and INDOT satisfaction and the fulfillment of stakeholder objectives.

- **Del. Pro.1: Finance:** This is the process of obtaining the funding needed for the Project. The Concessionaire and its financial department will be the responsible party.
- **Del. Pro. 2: Design and Build:** Includes the design and construction of the Project. The Design-Build Team (DB Team) will be the responsible party.





- **Del. Pro. 3: O&M During Construction:** O&M Work carried out prior to commencement of the Operating Period. Its responsibility will be shared by the DB Team and the Developer.
- **Del. Pro. 4: Transfer:** This describes the process of acceptance of the facility by the Concessionaire once the DC Works are finished. As Corsan and Isolux are related companies, this interface will be a smooth transition and much easier than separate organizations.

Throughout the project, our Key Personnel and Task Managers control our P3PMS process, which will provide IFA/INDOT with the flexibility and responsiveness to mitigate issues

- **Del. Pro. 5: O&M After Construction:** O&M work carried out on and after commencement of the Operating Period. This will be the responsibility of the O&M Team of the Developer. This includes the Life Cycle Maintenance.
- **Del. Pro. 6: Handback:** This includes processes that ensure that the Project is delivered to the IFA in accordance with the Handback requirements and procedures established by the PPA after the termination of the concession period. This will be the responsibility of the Concessionaire.

Control Process (CP): To ensure that the I-69 DP Team controls every aspect of the works required to achieve the Project objectives. The CP is divided into five areas:



- **CP1: Project Integration Management:** Includes the processes and activities needed to identify, define, combine, unify and coordinate the various processes and project management activities.
- **CP2: Project Scope Management:** Ensures that all the work required to complete the Project successfully has been identified. Managing the Project scope is primarily concerned with defining and controlling what is and is not included in the Project.
- **CP3: Project Time Management:** Includes the processes required to manage timely completion of the Project, including definition, sequencing, estimation of resources and estimation of durations of the activities and the development and control of the schedule. Our objective is to minimize schedule deviations.

- **CP4: Project Cost Management:** Includes the processes involved in estimating, budgeting and controlling costs so that the Project is completed within the approved budget. Our main objective is to minimize the deviation in the cost.

- **CP5: Project Quality Management:** Includes the processes and activities of Quality management and sets forth quality policies, objectives and responsibilities needed to fulfill the Project requirements.



- **CP6: Project Safety Management:** Includes the processes and activities related to Project Safety, both for workers during and after construction as well as the road Users.



Support Process (SP): The intent is to ensure the proper implementation of the I-69 DP Delivery Process through the provision of all necessary resources. This includes management support, supply of qualified and experienced people, our supply chain, the input of technical experts, plants and equipment, public relations, financial support and Project documentation.

The Support Process is divided into four areas:

- **SP1: Project Human Resource Management:** Manages the Team workforce, including the recruitment, selection, training, assessment and rewarding of employees. It also oversees organizational leadership, On-The-Job training program and Workforce Diversity .
- **SP2: Project Communications Management:** Includes the processes required to ensure timely and appropriate generation, collection, distribution, storage retrieval and ultimate disposition of project information. It provides an effective liaison that ensures communication and creates a bridge between team members, IFA, INDOT and stakeholders.
- **SP3: Project Risk Management:** Includes conducting the management planning, identification, analysis, response planning, monitoring, and control of Project risk. Our objectives are to increase the probability and impact of positive events and decrease the probability and impact of negative events on the Project.

- **SP4: Project Procurement Management:** Includes the procurement processes necessary to purchase or acquire services, materials and other commodities needed from outside I-69 DP Team. It also identifies the processes to manage and control the contracts with the suppliers and the relations with DBEs.

Each of the Delivery Processes (Finance, Design-Build, O&M During Construction, Transfer, O&M After Construction and Handback) has five Delivery Process links with the CP and the SP. These are:

1. **Initiating Phase:** Definition of a new phase of the Project by obtaining notice to proceed.
2. **Planning Phase:** Establishment of the scope of the Project, refinement of the objectives and definition of the course of action required to attain the objectives of the Project.
3. **Executing Phase:** Performance and completion of the work defined in the Project management plan to satisfy the Project specifications.
4. **Controlling Phase:** Monitoring and tracking of the progress and performance of the Project, identification of any areas in which changes to the plan are required, and the initiation of the corresponding changes.
5. **Closing Phase:** Finalization of all activities to formally closeout the Project or one of the phases of the Project.

4.1.1.a Management Structure and Personnel

Isolux has already executed a Design-Build Term Sheet with the Design-Build Contractor, Corsan. Corsan has executed a Design Agreement with AZTEC-TYPSA joint venture, the Lead Engineering Firm. AZTEC and TYPSA have drafted a Design Joint-Venture operating agreement. (Please refer to [Volume 1, Appendices](#) for these agreements). The Design-Build Contractor has also executed memorandums of understanding with the three main Indiana contractors (Gradex, Force Construction and E&B Paving) and AZTEC/TYPSA has also initiated Design Subconsultants agreements with several design firms (Burgess & Niple, Christopher B. Burke Engineering, Professional Service Industries, Keramida, iTunnel, Eco-Tech Consultants, Hard Lines Design, and VS Engineering). The I-69 DP Team commits that the Concessionaire will self-perform the O&M in an amount no less than 30% of the O&M Work, therefore no contract with a Lead

O&M Contractor is required. A visual depiction of the lines of agreements are shown in [Figure 4.1-1](#).

I-69 DP's goal is to put the global knowledge of Isolux, Corsan, and AZTEC-TYPSA at the service of the IFA/INDOT. To provide that knowledge and to support our long-term commitment to the IFA, INDOT, and the citizens of Indiana, our Key Personnel and Task Managers have been selected to meet our strict qualification standards. Our key members are reinforced by experienced and competent support personnel assembled to deliver the Project efficiently, safely, on-time and within budget. We will provide services of the highest quality, consistent with best transportation P3 management practices and the requirements of the PPA.

4.1.1.a.i Project Management Organization Chart



Since the Equity Member and the Design-Build Contractor are related companies and the O&M work is going to be self-performed by the Developer, our organization avoids conflicting interests, accelerates the decision making process and mitigates risks. This relationship also allows for key functions to benefit from clear lines of authority and responsibility and enables the Team to work in a fully integrated manner, which is essential for a successful P3 project delivery.

I-69 DP has developed an integrated organizational structure, shown in [Figure 4.1-5](#), to span the entire project period with four sub-organizations

- Concessionaire
- Design-Build
- Operations & Maintenance
- Independent Sub-organizations (Quality, Safety, and Environmental Compliance)

José R. Ballesteros (Project Manager) will apply the same leadership as he did on the \$130M A-4 Expressway, including O&M During Construction

The I-69 DP integrated organization in [Figure 4.1-5](#) identifies the sub-organizations, team member firms, key personnel and task managers that are assigned to critical responsibilities. The organization chart also illustrates the interrelationships of the sub-organizations and the formal lines of authority and

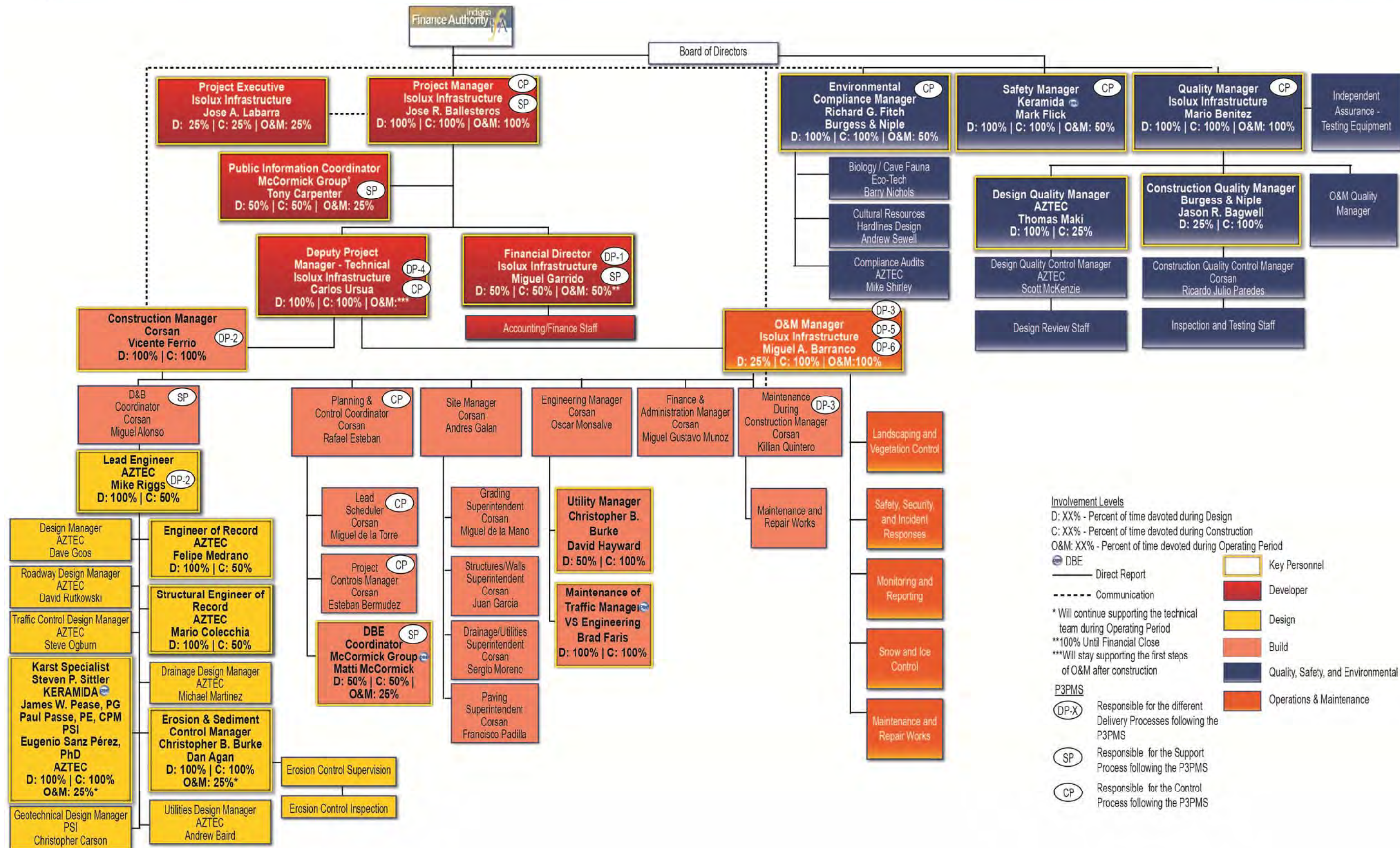


Figure 4.1-5: I-69 DP Team Organization Chart

functional interfaces within our integrated organization. These lines of authority and functional interfaces are structured to facilitate the working relationships critical to a successful design-build effort, project finance and long-term O&M process. Each sub-organization and the interrelationships are described in further detail below:

Concessionaire

I-69 DP (the Concessionaire) will manage, be responsible for the project's success; and ensure efficient and effective communication, coordination and collaboration within the team (Please refer to [Volume 1, Appendix H-1](#) for resumes).

The Concessionaire lead and the single point of contact for IFA is José R. Ballesteros (Project Manager).



**Jose R.
Ballesteros**

José is a senior project manager with experience operating high profile and complex highways. Jose's experience in the US market includes serving as the lead for several procurement processes. He has also been the I-69 DP Project Manager and Proposer's Representative since the earliest stages of this PPA process. This continuity ensures consistency during transition from the procurement to project delivery.

Under our management approach, José is responsible for all facets of the concession, including finance,



**Jose A.
Labarra**

design-build, and O&M. He will report to the board of directors and will benefit from the advice of Jose A. Labarra, our Project Executive and former CEO of a \$1 billion DBFOM transportation project in Texas.

The Concessionaire will oversee all the D&C Work. A strong technical department, led by Carlos Ursua, Deputy Project Manager - Technical, will be responsible for monitoring the Design-Build activities and will ensure that the Team is fully compliant with all requirements of the PPA and the Design-Build contract.



**Carlos
Ursua**

Carlos will also oversee the O&M During Construction and will ensure coordination of main activities and tasks involved. Once the construction has been completed, Carlos will lead the transfer of the facility from the Design-Build Team to the Concessionaire and then remain for a short

Carlos will ensure a smooth transition for O&M from the Construction Period to the Operating Period



duration as the Deputy Project Manager –Technical supporting the first steps of the O&M After Construction.

The Financial department will be led by Miguel Garrido, Financial Director. . External advisors will assist in Project auditing and accounting.

The Concessionaire will develop and implement a final Public Involvement Plan (PIP), including public involvement outreach and education strategies designed to gain community understanding and acceptance of the project and its impacts. Our Public Information Coordinator, Tony Carpenter will work closely with the D-B Team and will be our liaison with the representatives of IFA, INDOT and local stakeholders, ensuring consistent messaging. He will coordinate public meetings, conduct outreach with relevant stakeholders and maintain communication materials including a project website, hotline and information brochures. The Concessionaire will also be responsible for:

- Management of the PPA and other contracts such as the Design-Build contract and the financing contract
- Oversight of the Design-Build Team
- Management of insurances

Design-Build



**Vicente
Ferrio**

Managed by Vicente Ferrio (Construction Manager) and overseen by Carlos Ursúa (Deputy Project Manager – Technical), the Design-Build Team is responsible for meeting the all the Project's technical requirements and the on-time delivery of the Project. Vicente's team is a fully integrated Design-Build Team with a strong local component that understands the project goals and has been involved in the Project during the proposal phase. This will be the fourth major P3 project for Vicente and the fifth major P3 project for Carlos.

Miguel Alonso will serve as the Design-Build Coordinator. He will act as the liaison between design and construction to ensure that designs are constructible and compliant with the PPA requirements.



Our four Karst specialists, Steven P. Sittler, James W. Pease, Paul Passe and Eugenio Sanz and Dan Agan, our Erosion and Sediment Control Manager will continue supporting the technical team after the Construction Period, working directly for our O&M Manager.

The Erosion and Sediment Control Manager and a Karst Specialist will continue to serve the Team through the Operating Period



Operations and Maintenance



Miguel Barranco

The O&M Team will be led by the O&M Manager, Miguel A. Barranco. I-69 DP's approach to O&M is tailored to successfully conduct the services and obligations specified in the PPA. Most of the tasks will be self-performed by the Concessionaire who will hire the best professionals in the local market to fill key O&M roles. Some specific tasks which involve workload peaks, such as landscaping activities, pavement marking, and snow and ice control activities will be subcontracted to local specialized subcontractors. This approach is further detailed in [Section 4.3, Preliminary Operations and Maintenance Plan](#).

The O&M Team will be responsible for all O&M work upon receiving NTP2 with some of the routine maintenance tasks during construction undertaken by the Design-Build Contractor ([see Section 4.3.1.2.e](#)). Our O&M Team will also be in charge of Life Cycle Maintenance. When needed, a transparent, fair and compliant procurement process will be used to procure capable local contractors interested in performing the specialized work. Compliance with IFA/INDOT's requirements in terms of quality and safety will be the key drivers of the procurement process.

Quality, Safety and Environmental Compliance

A Sub-Organization, independent of the Design-Build and Concessionaire teams, will manage quality, safety and environmental compliance. This autonomy ensures that quality, safety and environmental compliance are not compromised due to production demands of the other team members.



Mario Benitez



Jason R. Bagwell



Tom Maki



Mark Flick



Richard Fitch

Our Quality Team will develop and enforce procedures, conduct audits and impose corrective actions that ensure all phases of the Project adhere to our Quality Management Plan. Mario Benitez, our Quality Manager, Jason R. Bagwell, PE, our Construction Quality Manager, and Tom Maki, our Design Quality Manager, will consult regularly with Jose R. Ballesteros and Carlos Ursua, informing them of quality conformance and easing continuous improvements. Once the construction has been completed, Mario will remain as Quality Manager for O&M.

Mark Flick (Safety Manager) will conduct safety trainings and audits; enforce our Safety Plan, safety regulations and requirements; and enforce safety-related corrective actions. Richard Fitch, AICP, (Environmental Compliance Manager) is responsible for all elements of our Environmental Compliance Plan, including ensuring that the design meets all environmental commitments, that monitoring during construction occurs and that all required mitigations are implemented.

Implementation of Greenroads™ Rating System



I-69 DP plans on submitting the I-69 Section 5 project for a Greenroads™ designation. Greenroads™ recognizes the sustainable attributes of a roadway project considering that sustainability is a system characteristic that reflects its capacity to support natural laws and human values. A Greenroads™ project is quantified by:

- Defining the features that contribute to sustainability on the project
- Providing accountability for sustainability
- Measuring and tracking specific sustainability goals over time
- Managing and improving roadway sustainability
- Encouraging new and innovative practices
- Promoting competitive advantage and other economic or market incentives for sustainability

- Communicating sustainable features to stakeholders in an understandable way, especially to the general public

More information can be found in [Appendix H-6](#).

4.1.1.a.ii Key Personnel Involvement

The I-69 DP Team organization chart was presented in [Figure 4.1-5](#). In this section we will further introduce our Key Personnel and their involvement in this project. The I-69 DP Key Personnel have been approved by the IFA and their relevant information is presented in [Figure 4.1-6](#). Detailed resumes are included in [Appendix H-1](#).

4.1.1.a.iii Qualifications and Experience of Task Managers

The I-69 DP Team will staff the Project using the I-69 DP Staff Selection Process establishes qualifications, responsibilities and required experience for each position.

Candidates will be recruited and selected based on the criteria shown in [Figure 4.1-7](#). Examples of specific qualifications and experience required for selected Task Managers is shown in [Figure 4.1-8](#).

Project-specific training will provided to ensure Task Managers exceed standards and keep developing and improving their skills.

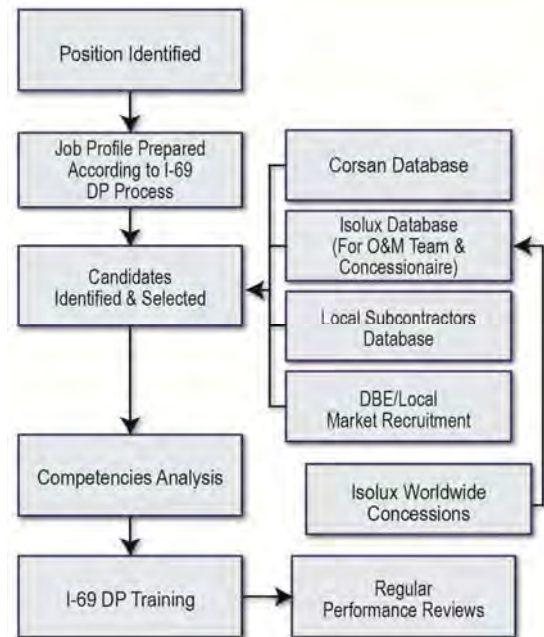


Figure 4.1-7: I-69 DP Team Project Staff Selection

Position	Qualifications	Experience	Name
DB Coordinators	Civil Engineer degree or equivalent	>8 years in construction/engineering including DB projects	Miguel Alonso
Design Managers	Registered Professional Engineer in Indiana	>8 years in construction/engineering in relation to specific area of activity	Dave Goos, David Rutkowski Michael Martinez, Steve Ogburn, Christopher Carson Andrew Baird
Site Manager	Civil Engineer degree or equivalent	>8 years in construction	Andrés Galan
Superintendents	Adequate experience and training	>8 years in construction >5 years in their area of responsibility (Grading, Paving, Structures, Drainage/Utilities)	Miguel de la Mano, Juan Garcia, Sergio Moreno, Francisco Padilla
Planning & Control Coordinator	Civil Engineer degree or equivalent	8 years in Project Controls Management and scheduling management	Rafael Esteban
Project Controls Manager	Civil Engineer degree or equivalent	>8 years in Project Controls Management	Esteban Bermudez
Lead Scheduler	Civil Engineer degree or equivalent	>8 years in Scheduling Management	Miguel de la Torre
Design QC Manager	Registered Professional Engineer in Indiana	>8 years in Design QC management	Thomas Maki
Construction QC Manager	Civil Engineer degree or equivalent	>8 years in Construction QC management	Jason R. Bagwell
Maintenance During Construction Manager	Civil Engineer degree or equivalent	>8 years in maintenance of highways and at least 2 projects maintained during construction	Killian Quintero
Engineering Manager	Civil Engineer degree or equivalent MOT Training	>8 years in utilities management and MOT	Oscar Monsalve
Finance & Administration Manager	B.S. Economics or Business Management	>5 years in financing and administration of construction projects including P3 projects	Miguel Gustavo

Figure 4.1-8: Task Manager Qualifications and Experience Requirements

I-69 DP TEAM KEY PERSONNEL		
Name and Role	Key Responsibilities	Relevant Experience
Concessionaire		
José A. Labarra Project Executive	Advise the Project Manager, Ensure that adequate resources are devoted to the Project	- CEO for a US DBFOM transportation project (SH130 in Texas) - Project Executive for several Isolux DBFOM transportation projects
José R. Ballesteros Project Manager	Overall lead and management of the Project, Point of contact with IFA and INDOT, Manages the I-69 DP Team, Responsible for fulfillment of the PPA contract and management of the Concessionaire's contracts, Reports Project progress and performance to IFA, lenders and shareholders	- CEO for the A-4 Expressway P3 project, a very similar project to the I-69 Section 5 - Project Manager and member of the Board of Directors for an availability payment project (Albali)
Carlos Ursua Deputy PM– Technical	Oversee the DB Team and the O&M Department during the Construction Period, Coordinate O&M and Construction activities, integrate O&M into construction, Monitor the fulfillment of the contractual schedule and the other Design-Build contract requirements by the DB Team	- CEO for the Monterrey Saltillo DBFOM P3 transportation project during its construction - COO for the AP-41 DBFOM P3 project, in charge of the O&M department - Deputy Project Manager - Technical for two projects NH-6 and NH-8 (India)
Miguel A. Barranco O&M Manager	Hires the O&M staff in the local market and lead the O&M Department, Lead the Lifecycle process in coordination with José R. Ballesteros	O&M Manager for an Isolux's DBFOM transportation project (Monterrey-Salttillo)
Miguel Garrido Financial Director	Main objective: Reach of the financial close, Manage financial model, lenders and underwriters expectations and reporting, Control the concession finances and coordinate and manage financial accounting and reporting	- Financial manager for the bonds issuance for Monterrey-Salttillo and Cachoeira Paulista - Project finance lead for several P3 projects, including one in US (WETT)
Anthony Carpenter Public Information Coordinator	Provide ongoing information to the public concerning the development, construction, operation and maintenance of the Project.	- I-69 Section 6 Tier 2 (INDOT) - I-465 Accelerate 465 Reconstruction Project (INDOT)
Independent		
Mario Benitez Quality Manager	Ensures that the overall quality system is established, implemented, and maintained, Produces regular performance reports on the quality system to I-69 DP Team's management for review and improvement, Supervises directly the efforts of the Design Quality Manager and Construction Quality Manager , responsible for O&M Quality	Quality Manager for an Isolux's DBFOM transportation project (Monterrey-Salttillo)
Jason R. Bagwell, PE Construction Quality Manager	Lead the quality assurance, surveillance and auditing, and continuously improve quality management, Manage IFA QA feedback, Assess, monitor and report compliance with relevant law and Corsan policies and objectives, Manage and coordinate the QA reporting process	- An INDOT-certified inspector - Thorough understanding of INDOT standards through work on five similar projects in the state
Thomas Maki, PE Design Quality Manager	Manage design quality compliance, Coordinate design quality with construction team, Conduct project, Report to the Quality Manager and be functionally independent from the production of the Design Documents, Identify and report Nonconforming Work; track, monitor, and report on the status of outstanding design-related nonconformance reports	- I-595 Managed Lanes, P3; Ft. Lauderdale, FL - US 290 program management project (\$2B)
Mark Flick Safety Manager	Develop, maintain and manage health and safety activities, Ensure safety exceeds expectations of IFA and the Concessionaire, Audit, inspect, train, manage, and continuously improve in all aspects of safety, Responsible for the approval of the Safety Plan and Safety Standards	- Access road construction for installation of large propane storage vessels. - Raleigh Durham Airport – Concourse A Renovation
Richard Fitch, AICP Environmental Compliance Manager	Develop, deploy and review and maintain environment protection and sustainability activities for I-69 DP, Deliver environmental standards exceed expectations of IFA, stakeholder and environmental bodies, Provide advice, training, and guidance on environment and sustainability issues during design and construction , Responsible for Developer's compliance with all the environmental commitments and conditions of Environmental Approvals required for the Project	- Currently Director of the NEPA/ Ecological/Phase I ESA Section - Completed more than 100 hazardous waste screenings, Phase I ESAs, Phase II ESAs, and remediation plans for transportation-related projects including 13 INDOT/FTA Transit systems
Design Build Team		
Vicente Ferrio Construction Manager	Accountable for delivery of the DB Contract, project management and team direction, single point of contact for the Concessionaire,, Deliver Corsan objectives, satisfy IFA and stakeholder requirements, take responsibility for Project safety, Report Project progress and performance	Construction Manager with Corsan in three large Isolux DBFOM transportation projects such as Monterrey-Salttillo in Mexico and Via Bahia in Brazil
Mike Riggs, PE Lead Engineer	Oversee the development of the design and compliance with PPA and technical requirements, Ensure timely flow of design information and resolve design issues, Coordinate construction team input through Design-Build Coordinator	- Design Coordinator for South Fraser Perimeter Road DBFOM P3 in British Columbia, Canada - Discipline leader for US 60, SR 202, and I-17 DB projects in Arizona - Discipline leader for SR 500/Thurston Way DB project in Washington State
Felipe Medrano, PE Construction Engineer of Record	Provide design, engineering or construction certifications with respect to the Project	- Project Engineer for several major highway improvement projects such as the McDowell Road in Lehi – Mesa Drive to Gilbert Road; Salt River Pima – Maricopa Indian Community, AZ - Project Engineer for US-36 Managed Lanes Phase 2 DBFOM P3 project in Colorado
Mario Colecchia, PE Structural Engineer of Record	Provide Structural certifications with respect to the Project	- Registered Indiana Professional Engineer - Bridge Design Lead and Engineer of Record for I-10/SR303L Traffic Interchange in Arizona - Bridge Design Lead and Engineer of Record for four bridges in Arizona
David Hayward, PE Utility Manager	Principal contact for all Utility-related Project activities. Coordinate and work with Utility Owners. Information of construction schedules, changes to the Utility Adjustment Plans. Ensure Utility Owners are involved in making the decisions that affect their own Utilities.	- Licensed Indiana PE - State Road 46 Corridor Improvements, Columbus, IN.(INDOT) - Rocky Ford Road, Columbus, IN.
Steven Sittler, Eugenio Sanz, Paul Passe, James Pease Karst Specialists	Responsible for Reasonable Investigation karst features, Responsible for the preparation of design scenarios dependent upon karst location	Broad experience as geotechnical engineers
Dan Agan, CPESC, CESSWI Erosion and Sediment Control	Comply with all environmental/erosion and sediment control, Established Quality control checkpoints at stages of the construction progress, Responsible for developing Erosion Control Plans	City of Indianapolis Infrastructure Inspection
Brad Faris, Maintenance of Traffic (MOT) Manager	Coordinate all MOT activities and changes to access with emergency service providers, school transportation officials, and all affected local public agencies, Coordinate all construction traffic impacts with IFA's PIP Manager and TMP team, as well as Developer's Certified Worksite Traffic Supervisor (CWTS) who is responsible to monitor daily MOT activities, Identify and receive approval for all necessary temporary traffic signals.	- I-69 Interstate Rehabilitation – Grant and Huntington Counties, IN (INDOT) - R 65 Intersection Improvement (Owensville) – Gibson County, IN
Matti McCormick DBE Coordinator	Lead liaison with Disadvantaged Business Enterprises (DBEs)Ensure national goals are exceeded, Lead liaison to coordinate diversity and SBE issues with IFA and the community	- I69 Section 6 Tier 2 (INDOT) - I 465 Accelerate 465 Reconstruction Project (largest reconstruction project in INDOT history)
Figure 4.1-6: I-69 DP Key Personnel Function and Responsibilities (SUMMARY) Find the complete table in Appendix H1		

I-69 DP Team Member	Current Workload (Annual Capacity)	Current Backlog Projected Workload Compromised (2014)	Available Annual Capacity (2014)
AZTEC-TYPSA JV			\$58M
Corsan			\$300M
Gradex			\$70M
Force Construction			\$120M
E&B Paving			\$188M

Figure 4.1-9: I-69 DP Team Current and Projected Workload and Backlog

4.1.1.a.iv Project Team Current and Projected Workload and Backlog

Isolux, Corsan, and AZTEC-TYPSA have significant experience working on very large projects simultaneously. Combining the Team's international experience and local resources of personnel and equipment, the I-69 DP Team is fully prepared for safe, on-time delivery of the project. The I-69 DP Team's current and projected workload and backlog is detailed in [Figure 4.1-9](#).



One of the main points of our proposal is a strong local presence. Our three major subcontractors (Gradex, Force Construction, and E&B Paving) are based in Indiana and have extensive experience working with INDOT as well as with each other on various other highway projects throughout Indiana. Through these three firms and other local subcontractors to be added as the Project progresses, our Team brings an important local component including labor, equipment, plants and materials. Relevant information is shown in [Figure 4.1-10](#).

Additionally, seven of our design consultants (B&N, CBBEL, VS Engineering, KERMIDA, PSI, The McCormick Group, and Eco-Tech) have offices in Indiana, employing well over 175 people.

4.1.1.b Internal Organization Systems

To guarantee the successful delivery of the Project, our Internal Organization Systems combine:

- An agile decision-making process
- Clear lines of communication within I-69 DP Team
- Proactive and harmonious communications with IFA/INDOT and other stakeholders
- An experienced and recognized Public Information Coordinator
- A robust Public Involvement Plan

4.1.1.b.i Team Decision-Making Process



As previously described in [Section 4.1.1.a](#), the I-69 DP Team organization is simple and clear. Experienced personnel have been assigned to the various Project tasks and elements.

Local Contractor	N. Offices in Indiana	Total Employees and Employees Available for this Project	Pieces of Owned Heavy Equipment	Access to Local Suppliers and Quarries
Gradex	1 office with numerous temporary project field offices	Total: more than 400 For this Project: As needed	• More than 300 • 45 – Dozers , 40 – Excavators • 40 – Scrapers • 14 – Loaders • 13 – Backhoes • 10 – End Dumps • 27 – Compactors Plus over 100 other misc. pieces	Access to all local quarries and borrow pits as a customer. Close relationships with many local suppliers and material companies.
Force Construction	1 office with numerous temporary project field offices	Total: more than 250 For this Project: As needed	More than 100 including mass earthmoving, hoisting, hauling, paving, soil compaction, material handling, fine grading as well as hundreds of small-engine pieces of equipment.	Close relationships with many local suppliers and material companies.
E&B Paving	10 offices	Total: more than 750 For this Project: As needed	13 permanent asphalt plants, 5 portable asphalt and concrete plants strategically located throughout Indiana	Close relationships with many local suppliers and material companies.

Figure 4.1-10: I-69 DP Team Local Contractor Capabilities

In addition, many of the main companies forming the Team have experience working together. Most important, the Equity Member (Isolux) and the Design-Build Contractor (Corsan) are related companies and the O&M work will be self-performed by the concessionaire. This tight organization avoids conflicting interests within the Team, accelerates the decision-making process and mitigates the risk of dispute.

Having a single Design-Build Contractor supported by local subcontractors gives the I-69 DP Team a clear advantage, due to the absence of conflicting interest. Our decision-making process is more agile, concise and precise. The I-69 DP Team Task Managers at every level are aware of their autonomy to make decisions. Decisions are made and issues are resolved quickly at the lowest possible level where implications of the issue are best recognized. Only if these concerns cannot be resolved are they escalated to the next level. This system ensures that issues are addressed quickly, thereby minimizing the risk adverse impacts on cost, schedule and quality. We use a formal, Project-specific dispute resolution process that anticipates the potential impacts that can occur between disciplines regarding such elements as safety, cost and schedule. All decisions related to design and construction work will be made within the DB Team. The Concessionaire's staff, principally Carlos Ursúa (Deputy Project Manager - Technical), will be in charge of overseeing and supervising the Design-Build Team but will not get involved in the decisions related to Design-Build except in the

unlikely event of Change Orders or Change Requests. In regards to O&M decision-making, while most of the decisions will be resolved at or below the O&M Manager level, those that cannot be resolved will be escalated to Jose. In the event an internal dispute occurs, our simple vertical dispute process will be used to resolve the matter at the lowest level possible using our dispute resolution and decision-making hierarchy process. The I-69 DP Team's dispute resolution and decision-making hierarchy process is illustrated in [Figure 4.1-11](#).

4.1.1.b.ii Internal Communications

The I-69 DP Team's internal communication process is designed to encourage a continuous flow of information with clear and open lines providing both lateral and vertical organizational communications. Formal lines of communication and direct reports between management personnel within the I-69 DP Team are established by our Team organization. These lines of reporting and communication apply both across and within sub-organizations facilitating effective communication throughout the entire Team.

Key personnel are responsible for implementing effective lines of communication within their specific task group. Cross-discipline and cross-organizational communications are encouraged for the task groups and other integrated activities. The vast majority of the Team will be co-located which facilitates communication, coordination and efficiency. The I-69 DP Team Project Office in Bloomington will be the center of operations and production.

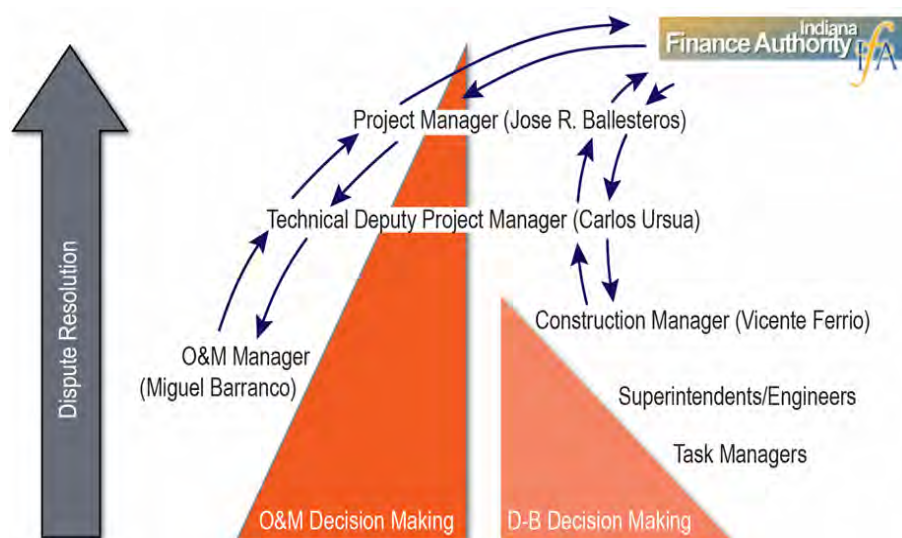


Figure 4.1-11: I-69 DP Dispute Resolution and Decision-Making Hierarchy

Figure 4.1-12 provides a listing of the key internal meetings. Our protocols require that all meetings have clear agendas and conclude with recording and assignment of action items (with due dates) to responsible parties. Minutes of meeting will be posted in our Digital Central Library (DCL).

4.1.1.b.iii Interfacing with IFA

The I-69 DP Team will continually interface with IFA and INDOT, their consultants and any other stakeholder such as federal, state and local agencies, the Bloomington MPO, City of Bloomington, Morgan County,

Monroe County, Town of Ellettsville, City of Martinsville and local police and fire departments. The I-69 DP Team commits to maintain transparency and clarity of communications with all stakeholders throughout the entire term of the Project. Periodic meetings will be conducted with stakeholders and I-69 DP management personnel will be open to any meeting or communication requested by IFA/INDOT or other stakeholders. Our main goal is to develop proactive and harmonious communications that will benefit the Project. **Figure 4.1-13** shows how we will interface with the IFA for this project.

For efficient Project delivery, I-69 DP Team will provide facilities as required in Section 1 of the Technical Provisions for IFA and INDOT in the Project and Field Offices.

Even if not required, we would welcome co-location as it allows for daily face-to-face interaction between design, construction, and IFA and INDOT personnel and improves communication, cooperation, and expedited decision-making.

4.1.1.b.iv Public Information and Community Outreach Qualifications and Experience

Public Information and Community Outreach will be provided by The McCormick Group which is a certified Indiana DBE firm with over two decades of experience. They have extensive experience in community relations and public involvement project leadership for transportation projects, including work on other Sections of the I-69 corridor. The qualifications of The McCormick Group are outlined in **Appendix H-4**.

In the execution of this Project, The McCormick Group will allocate the necessary resources to meet the proposed schedule, budget and client expectations. The McCormick Group has assigned Tony Carpenter to lead the PIP effort. He has worked on multiple transportation projects leading and providing a full range of public involvement services.

Of note, The McCormick Group planned and executed an Accelerate 465 Information Fair which received over one million free media exposures, in a two day period. McCormick Group has also served in I-69 Section 6 Tier II



4.1.1.b.v Public Involvement Plan (PIP)

Among the factors most critical to the success of this project will be the ability to work with, receive input and foster cooperation through consensus-building among a large and diverse group of stakeholders. Our approach will be a proactive, structured, yet fluid process of public involvement.

In a project with diverse stakeholder groups, it is critical that an execution protocol for public involvement be established and consistently followed. From our experience, public involvement has evolved from single meeting management to an integrated discipline, requiring an understanding of local markets and synergistic management of public involvement techniques. We understand from experience that effective meetings, clear and concise information materials and continual information flow are required for successful PIP execution.

Our technical approach will be multidimensional. With IFA input and approval, we will finalize the PIP. With stakeholder/ target audiences identified, an information fact sheet will be developed for public information and placed on a website link for public access. The specifics of our approach are as follows:

- We will identify target audiences by categories of responsibility.
- We will develop communication tools, including web based and print as a definition of the project's goals, scope, timeline, expected outcomes, FAQs and contact follow-up.
- We will plan and execute public meetings as required, in the initial launch phase to educate and receive input regarding public perceptions and Project goals and later in the Project to receive feedback on the progress.
- We will establish an ongoing presentation service to participate in neighborhood and special stakeholder meetings throughout the duration of the Project.
- We will develop a monthly information update through an e-distribution to deliver a central message and keep the public pro-actively engaged. PI representatives will serve as resource contacts to maximize information exchange.
- We will identify key stakeholders) and utilize them as information sources for outreach to their respective constituencies.

Meeting	Key Attendees	Purpose/Focus	Frequency
Play-of-the-day	Construction Management Staff/workforce	Five minute recap by foreman to crew of day's activities and important features and safety components	Daily during construction
Pre-activity	Management Staff/workforce	Before starting a construction activity, the work plan will be thoroughly presented to crew performing the work, emphasizing work procedures, QC elements and safety	As needed
Task Force	Deputy Project Manager - Technical, Construction Manager, O&M Manager and Lead Engineer	DB Team and O&M Department to integrate and build constructability into the design. Ensure the design takes into account the whole life of the project	Weekly during design
Design Coordination	Lead Engineer, Engineer-of-Record, Design Unit Managers, DB Coordinator.	Coordination. Communication of design progress. Resolution of potential conflicts between various disciplines.	Weekly during design
Construction Coordination	Construction Manager, Construction Superintendents, DB Coordinator, Quality Manager, Lead Engineer, Engineer-of-Record	Coordination. Communication of construction progress. Resolution of potential conflicts. Discussion of schedule, safety and quality issues	Weekly during construction
DB Integrated Schedule	Construction Manager, Lead Engineer, DB Coordinator and other relevant DB Team Members	Coordination off all DB Work, including sub-contractor activities. Review overall schedule, cost and compliance with project goals	Weekly during construction
Quality management	Quality Manager and quality team	Ensure that all the components of the quality service team are communicating on project issues, schedule and reporting requirements associated with the overall quality plan and sub-plans	Weekly during design and construction Monthly during Operating Period
O&M During Construction Coordination	Deputy Project Manager - Technical, O&M During Construction Manager and O&M Manager	Manage interphases and coordinate O&M in sections under construction and in sections not under construction.	Weekly during construction
O&M Planning	Project Manager, O&M Manager and O&M task managers	Schedule of O&M Activities and interfaces between workforces	Weekly during Operating Period and construction
Progress Review	Project Manager, Deputy Project Manager - Technical , Construction Manager, Lead Engineer	Monitor overall progress versus schedule, project objectives and targets; address/escalate any issues as necessary	Every Two Weeks during construction
Risk Management	Project Manager, Construction Manager, Lead Engineer, O&M During Construction Manager and O&M Manager	Identify new risks, follow risk evolution and update the risk matrix	Weekly during design and construction Monthly during Operating Period
Meeting after Incident	Project Manager, Construction Manager, Safety Manager and O&M Manager	Review incident, lessons learned and to make changes to incident response procedures as needed	Within 2 days of any incident
Board of Directors	Project Manager, members off the Board of Directors from Isolux	Review of the overall project performance, compliance metrics and reports from the Project Manager and the Quality Manager. Strategic decisions making	Monthly during construction, Quarterly during Operating Period

Figure 4.1-12: I-69 DP Team Key Internal Meetings

Stakeholder	I-69 Key Personnel	Meetings/ Communications Methods
IFA	Project Manager	I-69 DP will provide a written report on progress and performance every two months, and meetings with IFA to gain feedback
IFA (in issues related to quality)	Quality Manager	To reinforce the independence of the quality team, Luis J. Leon, our Quality Manager, will be the primary point of contact to IFA for all issues relating to our Quality Management Plan
Traffic Incident Management Meeting	Project Manager, Safety Manager	Quarterly meetings held by IFA/INDOT. To discuss traffic Incidents, resolutions and procedures
The Department/ Consultants for DB Issues	Construction Manager, Lead Engineer	The Department and consultants will have the option to be included in relevant design review and workshops to ensure a closely coordinated review process
The Department for O&M issues During and After Construction	Deputy Project Manager - Technical , O&M Manager, O&M During Construction Manager	I-69 DP will establish monthly meetings with the appropriate Department representatives to discuss O&M During Construction and O&M After Construction, including future lane Closures; the maintenance activities of the previous month, Planned Maintenance, incidents and any other pertinent information
Residents near the construction site	Public Information Coordinator	Early consultation meetings to ensure potentially affected parties are identified and aware of the risks. Advanced warnings provided via the Project Website, local media and on site notice boards. A phone number and email address is provided to which queries, concerns or complaints can be addressed
Environmental Agencies	Environmental Compliance Manager	Interface with environmental agencies to ensure all requirements, including testing and permanent approvals are met
Emergency Services	Safety Manager	Establish key points and methods of contact; develop and obtain approval for all project emergency plans. Monthly updates communicate potential risks
Transportation Agencies	MOT Manager	I-69 DP uses ongoing communication through informal contact and weekly meetings to mitigate impacts on the traveling public, and ensure safety
Utilities	Utilities Manager, Lead Engineer, Design Unit Managers	Identify and manage all interfaces and eliminate risk of impact on utilities. Communication is particularly important where any services are relocated
Third Parties	Public Information Coordinator	Consultation activities, regular meetings, third-party contact details, and inform public of upcoming service disruption

Figure 4.1-13: I-69 DP Team Communication Methods

The combination of proactive grass roots, web based, key stakeholder and message continuity through multiple outreach will define our efforts. We will work to create and maximize opportunities to inform, educate and build a successful public involvement effort. The PIP is further described in [Appendix H-5](#).

4.1.1.b.vi Approach to Project Documents and Information

A significant volume of data will be generated, processed and shared within the Team and with the IFA/INDOT on a daily basis over the life of the Project. The Project information management approach includes the processes required to ensure the appropriate and on time generation, collection, distribution, storage and the final disposition of the project information necessary for success. The I-69 DP Team will control this information in our electronic document management system known as the Digital Central Library (DCL).

Medium for Maintaining Documents

All records and documentation produced during the project including but not limited to memos, reports, minutes of meetings, letters, drawings, diagrams, and contracts will



Figure 4.1-14 The McCormick Group is experienced in conducting public general meetings.

be securely stored and controlled digitally until the final acceptance of the project. The DCL will be organized and assembled to store all the information produced on digital media, and will be updated with any changes made. Information will be also stored in paper format. All the documentation generated by the project will be coded and maintained in storage where it can be accurately searched and easily.

A record of changes during the Project will be used so their impact in terms of time, costs and risks will be communicated to appropriate parties. A record of incidents will also be used to document and monitor the resolution thereof. Lessons learned on the resolution of incidents will be documented and distributed so that they become part of the historical database for both the Project and the I-69 DP Team members. Records of entry/exit of all documents will be maintained. At all stages of construction, records will be available to the IFA. Upon the start of the

Operating Period all documents will be transferred to the I-69 DP O&M Team.

Electronic Format

Documents to be distributed for information and review only will be stored as PDF files, preventing unauthorized changes. Original and editable versions of documents are accessible only by authorized personnel. Documents are stored in the most relevant format including Microsoft Office, Primavera P6, MicroStation or other formats, as appropriate.

Security and Backup

The I-69 DP DCL shall comply with the following security and backup for project documentation:

- Secure access to dedicated documents, procedures and forms for each project management process will be provided online via a fully interactive version of the P3PMS, linked to the DCL
- Specific authorization of access will be implemented only to authorized personnel
- User registration and changes
- Firewall
- Access via Internet and/or VPN
- Data will be backed up to a secure cloud provider, where it is encrypted
- Secure and redundant off-site data storage location to allow for disaster recovery.

4.1.2 Preliminary Baseline Schedule

Design and Construction Baseline Schedule

The I-69 DP Team has developed a Preliminary Baseline Schedule through an iterative process. Alternative Work Breakdown Structures (WBS) were developed and reviewed to create a preliminary outline that would accurately reflect the entire project scope and provide a sensible and accurate tool for planning the project through completion.

The IFA has provided a detailed outline of requirements that will meet the expectations of all local stakeholders. Our schedule incorporates critical requirements to essentially provide a summary checklist for IFA and I-69 DP Team as we meet each of the requirements for obtaining Commencement of Design Work, NTP 1, Financial Close, NTP2, Commencement of Construction, Substantial Completion, and Final Acceptance. These significant deadlines are shown on [Figure 4.1-15](#) and listed on [Form N](#).

**Preliminary Project Baseline
Schedule for Design and Construction**



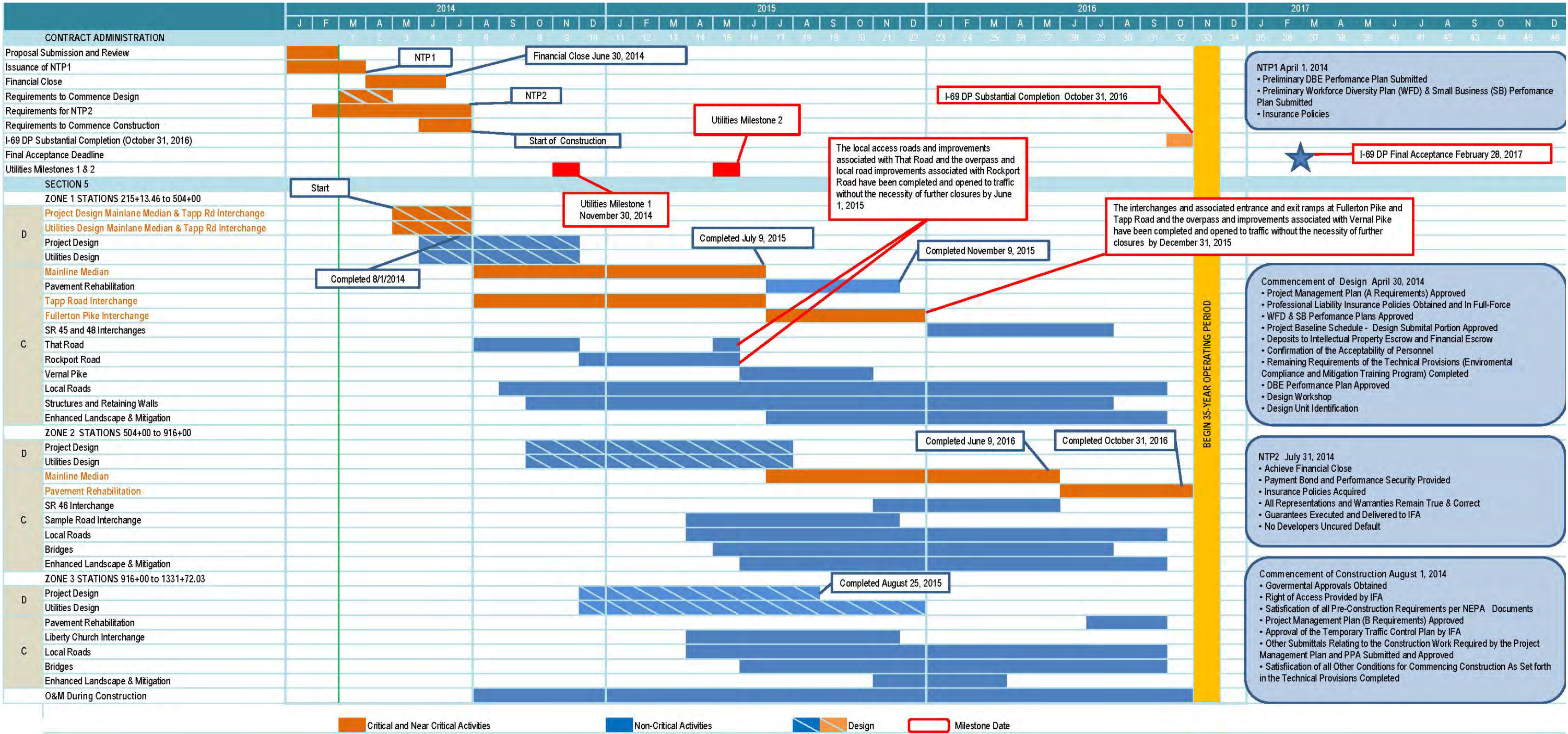


Figure 4.1-15: Summary Project Schedule

Design

The I-69 DP Team has hosted several Design Workshops to establish a set of Design Units that are critical and therefore will occur immediately following satisfaction of Conditions to Commencement of Design Work. This includes the following as early Release for Construction (RFC) packages:

- Utilities (especially those affecting That Road and Rockport Road and Bridge)
- Temporary erosion and sediment control
- That Road
- Rockport Road, Bridge and Walls

- Mainline widening from station 215+13.46 to 340+00

There is a key provision to be satisfied immediately following NTP1 which is included as part of our Design Review Plan and Project Management Plan (PMP). With the approval of the PMP and Design Work authorized to commence on April 30 2014, early design efforts will focus on performing the collection of engineering studies required to confirm the design criteria for the mainline median and bridge construction. The design schedule was developed using this philosophy, specifically for early release packages. I-69 DP Team has gone through an iterative process to leverage non-critical portions of the design schedule against the construction sequencing. This process will continue through the development of the final baseline schedule and our coordination efforts with IFA.

Early Release for Construction Packages will enable I-69 DP to meet IFA's commitments to the City of Bloomington.



Completion Deadlines (Form N)



Completion Deadlines

FORM N

COMPLETION DEADLINES

Milestone Schedule For Project

IFA Last Allowable Dates:

Milestone	Deadline
Baseline Substantial Completion	October 31, 2016
Financial Close Deadline	the date established by the Developer for Financial Close in its Proposal, as such date may be extended by IFA as provided in the PPA, but in no event earlier than May 27, 2014
Long Stop Date	12 months after Baseline Substantial Completion
Final Acceptance Deadline	120 days after Substantial Completion Date

Proposal Commitment Dates (cannot exceed the above table):

Milestone	Deadline
Satisfaction of NTP1 Conditions	0 calendar days after the execution of the PPA
Satisfaction of NTP2 Conditions	121 calendar days after the date IFA issues NTP1
Financial Close Deadline	June 30, 2014
Commencement of Construction	August 1, 2014
Baseline Substantial Completion	October 31, 2016
Long Stop Date	October 31, 2017
Final Acceptance Deadline	February 28, 2017

Construction

Starting construction on August 1, 2014 requires obtaining design approvals for the Temporary Traffic Control Plan, early Design Units for Maintenance of Traffic (MOT), Erosion Control Plans and the accompanying approvals for the environmental permit submittals.

Other significant requirements include approval of the Quality Plan for construction operations. Work on these items will begin at NTP 1 and we expect to have them submitted and approved before reaching the required design submittal approvals.

The I-69 DP Team is committed to the Milestones and/or Limitations of Work specified in the PPA documents including:

- Commencement of bridge construction, roadway construction, building demolition and utility relocation in the Bloomington area (Considered South of Sample Road Interchange). This shall be initiated in 2014 and continue until complete
- Local access roads and improvements associated with That Road will be completed by June 1, 2015
- Overpass and local road improvements associated with Rockport Road will be completed by June 1, 2015
- Interchanges and associated entrance and exit ramps at Fullerton Pike and Tapp Road will be completed by December 31, 2015
- Interchanges and associated entrance and exit ramps at Vernal Pike will be complete by December 31, 2015
- Practical non-working days according to the standard specifications.
- Restrictions on environmental conditions including:
 - No work within stream jurisdictional, from April 1 to June 30 affecting the foundation work of the structures on waterways
 - Indiana bat work restriction from April 1 until August 15 that affects the work of clearing the right of way and earthworks in general
- Optimization of production equipment to make a realistic schedule that exactly matches the availability of labor equipment, also trying to optimize the cost of the work.

All of these aspects have been merged into the schedule achieving a balanced program to achieve substantial completion of work on October 31, 2016 as stipulated by the IFA with the maximum guarantees of compliance.

Scheduled Activities

Based on the information discussed above we have assumed a five month window from the time that the IFA provides notification that the I-69 DP is the Preferred Proposer until the beginning of the construction. With this assumption, the start of construction will be August 1, 2014, and our deadline for substantial construction completion is October 31, 2016. The I-69 DP Team target milestone dates are provided in [Figure 4.1-15](#) in the following section. Detailed schedule discussion, along with the Primavera P6 Schedule, is provided in [Appendix H-2](#).

Lag has been used as needed within the Contract Administration section of the Schedule to provide an appropriate depiction of the anticipated critical items and to account for a portion of the restrictions set forth within the PPA and Technical Proposal. Extensive lag use has been made within the O&M portion of the schedule to cycle recurring activities appropriately without the use of constraints.

Necessary lag use has been included within the construction portion of the schedule. In selected long duration earthwork, subgrade, and drainage activities, reasonable lag periods have been included to better reflect the parallel construction that occurs over large areas.

Critical construction areas also have minimal use of lag relationships to better reflect the overlap anticipated during actual construction and to ensure the appropriate items are identified as critical.

As a definition included in the Standard Specifications, Critical Path is defined as the longest path of activities which determines the scheduled completion date of the Project.

Critical Path Activities, from the beginning of the project to the substantial completion are:

- Mainline Median: Stations 215+13.46 to 504+00
- Tapp Road and Fullerton Pike Interchanges (Due to IFA Commitments)
- Mainline Median: Stations 504+00 to 916+00

- Pavement Rehabilitation: Station 504+00 to 916+00

Use of a five-day production week provides schedule float in case there are delays due to external circumstances that occur during the Project duration.

4.1.3 Preliminary DBE Performance Plan

To meet the IFA's goal to spur economic development within Monroe and Morgan Counties, the I-69 DP Team has developed a targeted Disadvantaged Business Enterprise (DBE) Performance Plan. Our plan will generate participation above the DBE goals of 11% ([see Figure 4.1-16](#)) and is in compliance with the requirements and regulations associated with the applicable federal and state programs.



**Matti
McCormick**

Leading our DBE program is Matti McCormick, as DBE Coordinator. She is an experienced DBE Coordinator, and as a DBE certified vendor in four states, she has direct knowledge of program requirements and the issues DBE firms face in competing on transportation projects. Matti, and her experienced

team, will direct the execution, planning and management of the I-69 DP DBE program.

4.1.3.a Comprehensive Approach

The I-69 DP Team is committed to having DBE firms in Monroe and Morgan Counties, and

Matti brings over two decades of experience and knowledge of the Indiana DBE program. Her leadership will serve to maximize DBE participation in all components of project delivery

throughout Indiana, successfully compete for contracts and subcontracts. Our processes to qualify firm and receive bids, our outreach to the DBE community, and our interface with the three major local subcontractors to identify participation opportunities will maximize participation by the DBE community.

We will:

- Conduct DBE outreach to introduce the project and build awareness of process and opportunities
- Create a level playing field and remove barriers so DBEs can compete fairly for contracts
- Publicize the DBE program and fully communicate contract opportunities and promote DBE bidding participation
- Encourage eligible DBE firms that meet 49 CFR Part 26 standards to become certified and participate
- Ensure nondiscrimination in the award and administration of IFA/INDOT – assisted contracts; operate the DBE Program in full accordance with applicable laws; fully document DBE participation and contractor good faith efforts to include DBEs
- Work closely with the I-69 DP Team members and the local major subcontractors to identify and award DBE contracting opportunities at every opportunity
- Serve as a central point of contact for all DBE related planning and executions

4.1.3.b Approach to Encourage Participation

Our plan includes a grass root, web-based program that will remove barriers and promote DBE participation. From day one of the contract award, the I-69 DP Team will initiate the DBE Compliance Program.

To publicize our efforts to attract DBEs to be welcome to bid on job opportunities, we will utilize the INDOT DBE program as the contact benchmark. We will then build on that list through close partnership with the following local organizations:

- El Centro Comunal Latino
- Mid-States Minority Supplier Development Council
- NAWBO
- IBRBA
- Network of Women in Business
- Local Small Business Meet-ups

SCOPE PACKAGE	POTENTIAL DBEs	I-69 DP Team Potential %	SCOPE PACKAGE	POTENTIAL DBEs	I-69 DP Team Potential %	SCOPE PACKAGE	POTENTIAL DBEs	I-69 DP Team Potential %	
Design Consultants	Keramida	1.12%	Road Milling	CE Hughes Milling, Inc.	0.55%	Traffic Maintenance	Indiana Sign & Barricade, Inc.	0.57%	
	VS Engineering		Bridge Builders	Cherokee Construction and Excavation, LLC	0.38%		M.A.S. Markers, Inc.		
	K&S Engineers			Free Contracting, Inc.			B&B Contracting		
	Khafra Engineering			Jones and Bourland, Inc.			K.V.W.V. Traffic Control Holdings, Inc.		
	Shrewsberry & Associates			NWK Construction Inc.			S&T Partners, LLC d/b/a Traffic Control Services		
	Rangaswamy & Associates			PBTHNOJJ Construction Company, Inc.		Electrical	T.E.M. Electric Company	0.13%	
	Corn Island Archaeology			Vic Enterprises			Guardrail, Attenuators, Fence, Signals	C-Tech Corporation	0.27%
	Third Rock Consultants		3D Company, Inc.	CLS Industries					
Cultural Resource Management and Historic Preservation	Hardlines Design	0.13%	Structural Removal and Demolition	L.L. Brown Construction	0.41%	JAG, Inc.			
DBE Consultants	McCormick Group	0.41%		HCL, Inc.		Contractors Corporation			
	Engaging Solutions			Cherokee Construction and Excavation, LLC		NWK Construction Inc.			
	Indiana Strategic Resource Group		General Conditions	Mezzetta Construction	Dallas Dean, Inc.				
	Vick Strategic		Precast Beams - Furnish/Instal	Choice Construction	Professional Fence Co.				
	United Construction & Design Group		Javier Steel Corporation	0.35%	Highway Lighting, Traffic Signals, Fiber Optic Cables, ITS	The Hoosier Company	0.30%		
Survey	Barr & Prevost, Inc	0.36%	Ready-Mix Concrete	Amelie Construction & Supply, LLC	Aggregate Haul	Messier & Associates		0.71%	
	Structure Designs			Advanced Ready Mix	0.44%	Trucking	Nubian Transport Management, Inc.	1.27%	
	Jacobi, Toombs and Lanz		AR Concrete & Supplies, LLC				Oatts Trucking		
	United Construction & Design Group		American Ready Mix				King's Trucking & Excavation		
	Vision Engineering		Bancroft Group	C Lee Construction					
Quality Control and Materials Testing	Barr & Prevost, Inc	0.31%	Concrete and Flatwork - Miscellaneous	Pioneer Associates, Inc.	0.15%		Hoosier Bulk Transport, Inc.		
	Resource International, Inc.			Martin Asphalt and Concrete Construction			K&A Trucking, Inc.		
Clearing	King's Trucking & Excavation	0.19%		Seven Seas Construction			0.39%		Messier & Associates
Excavation and Embankment Construction	Central Engineering & Construction Assoc.	0.57%		DC Concrete, LLC					LRP Trucking
	HTA Enterprises		Eaton Construction Co., Inc.	MU Trucking					
	C Lee Construction		Structural Steel - Furnish and Install	Choice Construction (WA - Gig Harbor)	Fuel and Petroleum Supplier	Big Meadow Oil, Inc.	0.19%		
Drainage	3D Company, Inc.	0.41%	Structural Steel - Painting and Coating	Javier Steel Corporation		0.33%		Jacobi Oil Services	
	Natural Construction, Inc.			Amelie Construction & Supply, LLC	Reinforcing Steel - Furnish		Circle City Rebar, Inc.	0.27%	
	Spartan Construction Inc.			Central Painting			Reinforcing Steel - Install		Bar-Tie Reinforcing, Inc.
	Corbitt & Sons		Atlantic Painting	SIP Forms - Furnish and Install		J & B Steel Erectors			0.28%
	Reyes Group, Ltd.		Antoine Adams Painting, Inc.	Javier Steel Corporation	Sealing and Masonry Coating	Cardinal Indiana, Inc.	0.42%		
	C & L General & Mechanical Maintenance		Reinforcing Steel - Install	0.43%		SIP Forms - Furnish and Install		Sims & Pedigo Co., Inc.	
	Seven Seas Construction							Leong Enterprises	Environmental Landscape
	Landscaping, Erosion Control		Earth Images	0.28%	SIP Forms - Furnish and Install	J & B Steel Erectors	0.28%	ANTICIPATED TOTAL DBE PARTICIPATION	11.76%
3D Company, Inc.		Javier Steel Corporation							
B&B Contracting		Sealing and Masonry Coating	0.42%						
C.A. Fulkerson									
NWK Construction Inc.									
Environmental Landscape									

Figure 4.1-16: The I-69 DB Team is committed to actively engaging DBE firms on the I-69 Section 5 Project.

Internally, Matti and her team will work with the I-69 DP Team members to include DBE firms by monitoring monthly DBE utilization assessment reports and holding monthly meetings to notify all subcontractors of our stated commitments to the IFA. As the project continues we will issue monthly updates on project activity and establish a timeline for bid notifications. We will meet with the DBE Team prior to establishing bid postings and will meet with DBE awarded contractors monthly to build positive reception and to proactively monitor any of their concerns. We recognize that each DBE contractor will need to have a direct contact as this important project moves forward and Matti will be that point of contact, serving as a liaison between INDOT, and sub-contractors.

4.1.3.c Approach to Outreach

The I-69 DP Team is serious about DBE participation. We held our first DBE/MBE/WBE Subcontractor Outreach Event on December 10, 2013 ([Figure 4.1-17](#)).



Figure 4.1-17: The I-69 DP Team's first outreach session on December 10, 2013.

At this event we introduced the DBE attendees to the I-69 DP Team, provided an overview of the I-69 Section 5 project, answered questions pertaining to the potential bidding opportunities, and created a database of attendees for future notification purposes. Based on this meeting we have developed [Figure 4.1-16](#): a preliminary list of anticipated DBE firms who may participate in the Project.

We will hold a second DBE Outreach Event to maximize awareness and participation upon

notification of award, utilizing the project-specific database created from attendees to our first event and INDOT's DBE databases. We will advertise the meeting in local newspapers, Trade and Professional Associations, on the web, and through networking within the DBE community.

Following the identification and prequalification of a potential subcontractor/supplier, an Invitation to Bid is formulated and electronically issued to the subcontractor. A log is maintained to track the

Our team already includes four DBE firms: The McCormick Group, Keramida, Inc., VS Engineering, and Hardlines Design Company.

subcontractors contacted and their response.

The responsive subcontractor/supplier quotes are evaluated based on qualifications, quality, inclusions/exclusions, prequalification information and price. After careful consideration, the I-69 DP Team makes a selection of the successful subcontractors for each work scope subcontracted. If a DBE is not selected, the reasons for this decision are documented on the vendor log for the particular work scope. Appropriate agreements for the successful contractors are drafted and distributed for execution.

We will also assist potential DBE firms become Indiana certified. We will clearly offer our help at all events and through messaging to the DBE and potential DBE community. At outreach events and on our web-based links, we will identify those firms who desire to become DBE certified. Each firm identified will be accorded a one-on-one meeting to define their intent, to explain the DBE certification process and to provide assistance in complying with the application procedure. We will additionally provide follow-up to each firm with whom we have had this individual meeting, to determine status of the application and to answer any additional questions as needed.

4.1.3.d Challenging and Expanding DBE Participation in Technical, Management and Business Capabilities

Through training, mentor-protégé relationships and technical assistance referrals, the I-69 DP Team will help build the capabilities of DBE firms to succeed both on this project and on future projects. The

programs that the I-69 DP Team offers to assist DBE firms include:

Educational Seminars/Training

Educational seminars/training are available to participating DBE subcontractors to strengthen their business management capabilities in areas from project management and scheduling to estimating, and how to successfully do business with the I-69 DP Team. In these sessions, participants will learn what it takes to compete successfully for opportunities on this project.

All subcontractors will receive applicable training requirements through orientation and/or acknowledgement of safety requirements included in all subcontract agreements. These training events will include:

- OSHA Safety Training
- Awareness of Traffic Training
- Weather Restrictions Training
- Superintendent, Foreman and Laborer Training

Mentor-Protégé Program

The I-69 DP Mentor-Protégé Program will cultivate an established DBE firm to become a future prime contractor and leave a positive benchmark on the community. As a seasoned mentor, the I-69 DP will provide formalized mentoring that includes:

- Developing a mentor-protégé business plan for DBE firms to understand the process to obtain the desired results
- Providing specific technical, managerial and financial training to allow significant business development
- Providing guidance to allow DBE firms to be successful through a “lessons-learned” experience
- Working together in monthly meetings to understand what it takes to become a prime contractor

Technical Assistance

The I-69 DP offers assistance to DBE firms regarding contract compliance, goals and standards, cash flow management, and material purchasing. Technical Assistance also includes:

- **Prequalification:** I-69 DP will explain what Agencies and Prime Contractors look for in terms of prequalification for work scope including firm

experience, firm staffing, projects successfully completed, and references.

- **Bonding Capacity:** I-69 DP will facilitate access to independent bonding lines by developing a program that includes overviews of insurance, bonding, and selected banks which will allow qualified subcontractors to take the next step and become prime contractors.
- **Invoicing and Payment:** DBE firms often have unique financial challenges that may prevent them from bidding on projects of this size and complexity.

4.1.4 Preliminary Workforce Diversity and Small Business Performance Plan

A diverse, well-trained workforce is crucial to project success, both to improve delivery and support the achievement of IFA and I-69 DP sustainable development goals. This comprehensive and proactive commitment to encourage, educate and train will:

- Value diversity and view the differences between people as a strength
- Use management practices and policies that maximize participation and empowerment through training and education
- Create a working environment where all personnel are valued
- Follow through on broader external social responsibilities by educating employees in multicultural perspectives, which will maximize program participation

With the combined mentor-protégée experiences that exceed five decades, the I-69 DP team represents a seasoned mentor protégée participant.



4.1.4.a On-The-Job Training Program

The I-69 DP Team is committed to participating in INDOT’s Equal Employment Opportunity Trainee Program and On-the-Job Training (OJT) program and meeting these program requirements throughout the life of the Project. I-69 DP’s DBE and workforce team has already begun to consider OJT requirements for this Project and addresses these through the following avenues:

College and High School Construction Co-Ops

We have recognized from past experience that prospective minority/women participants will need to be recruited with full participation from faculty advisors. Our strategy will be to assign program mentors for each internship. These mentors will be charged with teaching, monitoring participation and reporting monthly to the DBE Coordinator regarding the status of program participation. I-69 DP Team will target the following facilities: Indiana University, Martin University, Ball State University, University of Southern Indiana, Ivy Tech Community College, Rose Hulman Institute of Technology, Purdue University

With the combined mentor-protégée experiences that exceed five decades, the I-69 DP team represents a seasoned mentor protégée participant.



Provision of Professional OJT

The I-69 DP Team will internally identify additional, professional OJT opportunities with the goal of maximizing participation through specific training programs targeted to design and technical disciplines. Once identified based on capacity and opportunity for sustainable program requirements, we will define program eligibility and timelines.

Trade-Specific OJT

The I-69 DP Team plans for trades OJT to begin at the start of construction in 2014 and continue throughout the Project. The total number of trade trainees to be employed by I-69 DP and subcontractors is estimated to be no less than 20 at any one time. The number of trainees per work classification is based on contractor/subcontractor needs. It is our goal to maximize participation at each contractor and subcontractor opportunity. The I-69 DP Team will be responsible for determining the training requirements and will track compliance.

4.1.4.b Educating & Training Employees

I-69 DP's commitment to invest in and train the personnel working on the Project both improves performance on the job and strengthens the Indiana

workforce. We will educate and train both professional occupations which require specialized, theoretical knowledge through college education and technical occupations which require specialized training through technical knowledge or manual skills. These may be obtained through on OTJ training or specialized classes.

Examples of possible education and training programs include Human Resources, Equipment, Legal, Project Management, Safety and Traffic, Recordkeeping and IT Connectivity

The I-69 DP Team will assesses all recruits and use the results of this assessment to identify educational and training needs, skill gaps and needed advancement in training exposures. Our training program is shown in [Figure 4.1-18](#).

4.1.4.c Encouraging Participation

The I-69 DP Team's approach to encouraging participation in the Workforce Diversity and Small Business Performance Plan begins with an understanding of the area demographics and existing collaborations with local community organizations to identify interested minority and female applicants. To extend participation it is important that we discover and connect with the qualified and interested applicant pool through that communities recognized organizations and leadership.

To help discover and connect with potential applicants, we held our first DBE/MBE/WBE outreach event on December 10, 2013.

The I-69 DP Team's intent is to capitalize on local organizations with established training programs which is an important first step to building participation. These organizations will include: Greater Indianapolis Urban League, Indiana Supplier Development Council, City of Indianapolis M/WBE Department of Administration, NAWBO (National Association of Women Business Owners), Indiana Plan for Equal Employment.

4.1.4.d Goals & Mentoring Approach

The principal goals of the Project mentoring program are to:

- Support small businesses in delivering a quality end product

- Equip small businesses with skills and experience to undertake larger projects in the future

I-69 DP's mentorship program will cover both small, minority-owned, and female-owned companies and minority and female employees. At a company level, support is primarily conducted through educational workshops, training events, and meetings where participants learn new skills and build on existing knowledge.

4.1.4.e Methodologies for Dividing Work

We recognize that capacity has been an inherent component within the DBE/MBE/WBE community, based on the nature of businesses started, the exposure to projects and historical financial constraints attendant to business growth. One component that can be utilized to address this is the packaging of opportunities. Where feasible, we will break these down further into smaller packages for individual sections of the Project to give DBE/MBE/WBEs the ability to compete when bidding. We propose to work with certifying state entities to better understand the capacity of the DBE/MBE/WBE community, and to assemble bid packages that will match the capacities of the community.

4.1.4.f Evaluating Plan Effectiveness



The I-69 DP Team will review the results of our Workforce Diversity and Small Business Performance Plan throughout the Project to ensure we exceed our targets. By measuring performance regularly and reporting up-to-date utilization statistics to IFA, we can make adjustments needed to ensure satisfaction of I-69 DP and IFA goals. The I-69 DP Team will measure success in attaining OJT goals by reviewing:

- All trainees
- Quarterly trainee evaluations
- Monthly subcontractor reports – including Federal EEO compliance
- Annual reports
- Monthly subcontractor reports – including Federal EEO compliance

- Participant survey data (contractor and trainee) quarterly, defining ratings for program value, with qualitative data input for success and corrective recommendations

4.1.4.g Training Programs

Induction Training

All Team members and relevant supply chain members are required to complete induction training before commencing work. This will include project purpose, scope, objectives, safety, schedule, budget and other administrative requirements.

Ongoing Training

Ongoing training programs will follow two parallel processes, as shown in the [Figure 4.1-18](#).

4.1.4.h Eligibility Requirements

The I-69 DP Team will target minority and females for participation. Union member personnel are eligible to participate through training programs provided by their trade union. The I-69 DP Team sponsors entry to the appropriate union for personnel when necessary. We will develop a uniform, consistently applied eligibility statement. This statement will be utilized to recruit participants via active postings and distribution. It will include a commitment statement to build understanding within the applicant community of the intent and value of program participation.

4.1.4.i Training & Mentoring Workshops

Ongoing technical training supports individual professional development and keeps skills and qualifications up-to-date.

Apart from programs set forth in [section 4.1.3.d](#), workshops will be held semi-annually, and topics will include: Bonding and Insurance Requirements,



Civil Engineering, Surveying, Maintenance of Traffic, Business Plan Development, Bidding, Pre-Qualification, Marketing and Finance.

Several firms that would benefit from this support have been identified at the I-69 DP DBE/MBE/WBE outreach event. Through their involvement in this Project and the training they will receive, it is our intent that these firms will have the opportunity to grow and perform on larger projects.

4.1.5 Quality Management



The I-69 DP Team's approach to Quality Management is based on the collective years of experience in constructing large infrastructure projects.

The I-69 DP Quality Management Plan (QMP) ensures that there is always a defined "owner" identified for each phase of a process (from the ranks of the consultants and contractors) who will be responsible for the phase of the process from start to end.

I-69 DP is fully aware that not only is quality about the final product, but it is also about the procedures and processes undertaken on a daily basis to achieve the best final results.

The I-69 DP Team aims to promote a universal culture of empowering employees with responsibility and authority for quality assurance/quality control (QA/QC). All project participants, including subcontractors and suppliers, will be required to adhere to the QMP.

The structure of the QMP will include the elements described in Sections 3 and 4 of Technical Provisions and the Quality Management requirements specified in the ISO 9001 standard.

4.1.5.1 Environmental Compliance and Mitigation Plan



As part of the overall Project Management Plan, the I-69 DP Team has developed a specific Project Environmental Compliance and Mitigation Plan (ECMP). The general approach to the environmental management has been described in [Section 4.1.6.c](#).

4.1.5.2 Durability Plan

The I-69 DP Team will develop a Durability Plan that will provide a uniform approach for selection of materials and methods during design, construction, and O&M of pavements, bridges, walls, culverts, sign bridges and other major structural elements with the goal being to build in superior asset performance over the life cycle of the Project.



The major stages in the Durability Plan implementation include:

- Preliminary and final engineering design
- Construction stage methods and detailing
- In-Service operation and maintenance and inspection
- Residual life at Handover minus 5 years and Handover

The Durability Plan will start by guiding decisions made during the design phase of the project. Material selection has a significant impact of life-cycle performance. Our plan requires designers to consider materials, design details, construction methods and operational aspects (such as inspection access) with the goal of increasing service life and lowering maintenance costs.

Preventative maintenance is an important part of ensuring the functionality and service level of the project pavements. The new flexible pavements have been designed in general accordance with Chapter 52 of the Indiana Design Manual using a 15 year design life, as described in [Section 4.3.1.3.a](#). During the intervals between overlays, inspection and preventative maintenance will be performed. The maintenance items may include crack sealing, fog sealing, HMA inlays, and/or other operations which may be deemed appropriate.

As drainage is the key to the performance of any pavement, the design includes underdrains, drainage courses, and stormwater management BMP's to provide for appropriate drainage of the pavement structures. Inspection of the drainage systems during and after construction will be a vital part of ensuring the performance of the pavements throughout the design life. Inspections will be conducted in general accordance with the guidelines set forth in the INDOT Maintenance Management Field Operations Handbook. Maintenance will include cleaning ditches, repair of the underdrain system, and other



cleaning and repairs to maintain the flow of water through the drainage system.

For bridges, we will take all appropriate measures to ensure that maintenance operations necessary for the conservation of the elements of the structures are conducted. Such measures will include design and construction requirements for each particular structural element in accordance with the following guidelines:

Design Measures

- Useful Life establishment
- Adequate concrete cover related to: Useful Life, actual exposure conditions
- Crack control in concrete structures.
- Concrete quality: measures to get an adequate strength, workability and compactness in concrete mixtures (compressive strength, type of cement, the relative proportions of cement, cement content, water-cement ratio, adequate air entrainment, admixtures, concrete ingredients and proportions)
- Adoption of proper overthicknesses and coatings (paints or steel treatments) for steel structures related to: Useful Life, actual exposure conditions and studied element
- Using details with low sensitivity to degradation by fatigue and brittle fracture
- Using suitable structural shapes, drainage systems and protections to avoid the exposure of water to structural elements through use of specific protections (joints, sealant, waterproof membranes)
- Design which facilitates replacement of elements with a shorter life than the structure (neoprene bearings, movement joints)
- Degradation models will be used to predict the evolution of concrete and steel bars degradation processes when necessary (carbonation induced corrosion, chloride induced corrosion, freeze/thaw attack)

Construction Measures

- Control in each structural element: adequate concrete cover, concrete conveying and pouring conditions, uniform compaction of concrete, proper curing for the element
- Control of additional protection measures: waterproof membranes, sealers, coatings
- Testing of concrete and steel

Preventative Maintenance Measures



The Maintenance and Monitoring Plan will include the measures to be carried out to ensure that structures will satisfy the service requirements, avoid damage that requires extensive or expensive repairs, and undertake preventive measures. In accordance with the AASHTO Manual for Bridge Evaluation, it will include a complete and accurate record of each bridge or structure which will be maintained and updated annually.

An initial inspection of all structures, both existing and new ones, will be carried out to define their baseline state. Subsequent reports of recurring inspections will be compared to the baseline to assess the performance evolution. The inspection scheduling will include Handback and Handback minus 5 years. Different inspections types will be carried out: Initial inspections, Routine inspections, Damage inspections, In-depth inspections, Fracture-critical inspections and Special inspections. We will develop an inspection schedule according to the characteristics of each particular element.

4.1.5.3 Organizational Requirements

The Quality Manager is classified as Key Personnel and will be responsible for overseeing the overall quality program.

Our Quality Manager, Mario Benitez, will be authorized to ensure the establishment and implementation of the QMP.

To maintain autonomy, the Quality Manager will be independent of the Project Manager and at same level of hierarchy and will report directly to the I-69 DP Board of Directors.

He will also be in permanent direct contact with IFA to apprise them about any issues related to the QMP, attend meetings and ensure that the required reports are produced in a timely manner. He will solicit feedback from IFA and will promote continuous improvement of the QA/QC systems.

4.1.5.4 Management Responsibility

4.1.5.4.a Quality Policy

A Quality Policy (QP) stating a clear commitment to quality and best practice procedures will be included in the QMP. The QP will set forth the primary

objective of the quality management function, namely, how all work will be documented and performed.

The policy will also establish the independence of the Quality Manager from DM and O&M Teams and his authority to perform all quality management activities.

4.1.5.4.b Quality Program Organization



The Team's commitment to Quality begins with executive management and our Board of Directors whose roles include:

- Establishing and maintaining the QP of the design-build and other sub-organizations, ensuring it is read, understood and implemented by all employees
- Ensure commitment to IFA requirements throughout the Term of the Project
- Ensure an effective QMP is developed, implemented, and maintained to achieve project quality objectives, consistent with our P3PMS
- Ensure the authority and independency of the Quality Management resources. They will also ensure that fully qualified personnel, with specific training for the Project, are provided

This commitment, expressed through QMP, will be practiced by every team member. To separate quality from production, the organization is structured with a Quality Team sub-organization that is independent of the DB and O&M Teams, as shown in [Figure 4.1-19](#).

This approach enables the Quality Team to make decisions and recommendations, without influence from design, construction or O&M, to ensure that the Project's Quality Standards are met. As required in the PPA, the I-69 DP Quality Manager will have authority independent of the Project Manager and will have an equivalent in level of authority. The Quality Manager will have direct reporting obligations to the Board of Directors and IFA.

The Quality Team will develop and enforce procedures, conduct audits and impose corrective actions to ensure all phases of the Project adhere to our Quality Management Plan.

4.1.5.4.c. Management Review

The I-69 DP Board of Directors will be responsible for the review and update, at planned intervals of the I-69 DP's Quality Management System to ensure that it remains suitable, adequate and efficient, and reflects current and anticipated conditions. The review will include the assessment of the current performance, possible improvement opportunities and their implementation when needed, including to the QP and objectives. Reviews will be recorded and will be submitted to IFA within 30 days after the review date.

4.1.5.5 Quality System

4.1.5.5.a General

The I-69 DP Team is committed to provide quality processes confirming that all aspects of the project meet the correct standards. The QMP includes procedures for performing reviews, inspections, testing and corrective actions to comply with the PPA. All parties involved in the Project, including subcontractors and suppliers will be required to understand, implement and support the Quality Assurance (QA) program. The QMP will set forth well-defined specific responsibilities and will identify possible interfaces and establish conflict resolution protocols. Quality procedures are established at the Project onset and are an integral part of the QMP, which is a live document that will be updated throughout the life of the Project development requires.

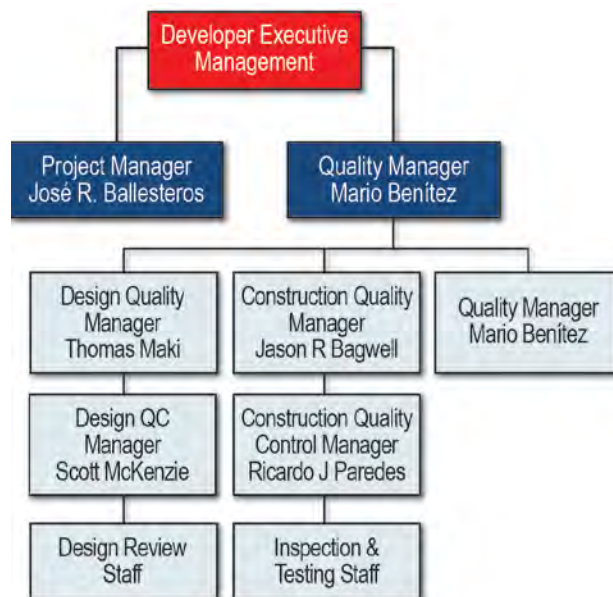


Figure 4.1-19: Quality Program Organization

4.1.5.5.b Quality Planning

We will define and document how the quality requirements are to be met. Quality planning must be in synch with the other quality system requirements and must be documented in a suitable format.

4.1.5.5.c Quality System Procedures

The Quality Management Team will prepare, implement and maintain procedures and processes for monitoring, measuring, analyzing, reporting and updating the QMP.

Identifying, understanding and managing interrelated processes, as a system, contribute to the I-69 DP Team's effectiveness and efficiency in achieving its objectives. The ability to focus effort on the key Quality Management Processes provides confidence to all involved parties as to the consistency, effectiveness and efficiency of the QMP.

The quality system will include procedures that will define how to carry out activities and processes during design, construction and O&M. These processes are shown in [Figure 4.1-21](#).

General procedures that will be used during all phases of the project are described in [Figure 4.1-21](#). These procedures will be complemented with specifically developed quality processes.

Corsan, our Design-Build Contractor, has a defined Corporate Management System used for all its projects world-wide, based on international standards:

- Health & Safety as per OHSAS 18001
- Quality Management as per ISO 9001
- Environment Management as per ISO 14001



Figure 4.1-20: ISO Certifications

4.1.5.6. Design-Build and O&M Quality Management

Our Quality Manager will be responsible for quality during the whole Term. The QMP plan will apply from the design-build period through O&M to Handback to provide a seamless and consistent process during the whole duration of the Project.

As shown in [Section 4.2.3](#), the goal of the Design-Build Quality Management Plan (DBQMP) is to ensure that the work conforms to the requirements of the PPA. The I-69 DP Team will produce the DBQMP by following the guidelines described above.

Our Deputy Project Manager - Technical will ensure a smooth transition from the Construction to the Operating Period.

Implementation of a comprehensive and well executed DBQMP will result in superior quality deliverables, shorter review times and a superior design product. The I-69 DP Team has developed the plan to ensure preparation of quality products and compliance with IFA/INDOT requirements. The Quality Manager will be responsible for executing the DBQMP.

The general approach to O&M Quality Management has been described in [Section 4.3.3](#).

During the Operating Period our quality commitments will be to:

- Achieve or exceed the quality thresholds, deadlines and budget goals set forth in the PPA in accordance with the applicable legal framework and standards
- Ensure that the O&M Team meets the project operation and maintenance requirements in line with the contractual requirements, public safety standards, safety standards and environmental standards
- Establish best practices and foster continuous improvement through collected and solicited feedback
- Communicate with all interested parties, including IFA, Users and nearby residents, to promote a positive image of the Project and anticipate and address any potential sources of dissatisfaction

I-69 DP Quality System Procedures	
Design Control	This procedure sets forth the general control measures applicable during the design phase. The QMP will define specific roles and tasks of the design team, including reporting lines and decision making processes. All design activities will be developed in accordance with a Design Quality Management Plan, which will describe the design procedures, including reviews, verification validation, and change control processes. Our Design Quality Manager, Tom Maki will ensure that plans, report and other internal and external documents and deliverable developed by the Design Team meet Project requirements. This will be accomplished through design QA reviews, which are discussed in Section 4.2.3.a.
Document and Data Control	The objective of this procedure is to establish the processes for control of the documents including the review, approval, edition, distribution, up-dating and use. We will use specialized software as a collaboration tool. The software will include version control and a built-in search engine.
Procurement and Purchasing	Suppliers and sub-contractors will be evaluated and selected according to their ability to provide materials and services that fulfill all quality requirements. By identifying and selecting key suppliers through a clear and open process while establishing joint development and improvement activities, we will be able to provide a high quality product that is very cost effective. The I-69 DP Team will ensure the products purchased meet the specified requirements and will carry out all needed inspections. When testing is carried out by the supplier, the provisions for testing and the methodology will be specified in the purchase documentation. Records of the results of the evaluation and verification processes will be available to IFA.
Control of Department-Supplied Items	The QMP will include procedures to identify, test, protect and safeguard Department-Supplied items for their use or incorporation in the project or for related activities. Any product that is lost, damaged or rendered inadequate for use in any way will be recorded and reported to IFA.
Product Identification and Traceability	All materials will be positively marked so they are identifiable and traceable. Positive material identification is used to distinguish identical items made in separate fabrication processes and confirm that the fabrication of material is indeed the specified grade. All team members will be trained on suitable procedures for receiving materials, inspecting them for conformance, and maintaining positive identification.
Process Control	The manufacturing processes, installation and after-sales service that directly affect quality will be identified, incorporated and documented. Activities will be identified and planned in the QMP, through work procedures, written instructions or other methods.
Inspection, sampling and testing	Inspection and testing requirements for all operations will be identified, reviewed and approved. The inspection and testing plans will be based on contract requirements and serve as the guide to monitoring and controlling the works. Status will be tracked ensuring that only those sources, materials and works that have been approved by prior inspection and testing are accepted. Compliance with the contract requirements will be verified in accordance with the provisions of the QMP and its procedures.
Control of Inspection, Measuring and Test Equipment	Proven procedures will be used to track and monitor calibrations and certifications of all equipment used in testing. Regular audits will be carried out by the QA department to ensure that QC and associated independent testing subcontractors are using appropriately calibrated and certificated equipment.
Inspection and Test Status	The inspection and test status of a product will be properly classified, to identify conformity or nonconformity with the inspections and tests carried out. The inspection and test status will be recorded in accordance with the specifications in the QMP or documented procedure.
Control of Nonconforming Product	Non-conforming conditions, when encountered, will be documented and controlled in accordance with the NCR procedure identified in the QMP. A NCR will be generated in SharePoint as long as a hold point is bypassed, which will allow quick notification and process in of those items. The NCR process and status is tracked using a log that is reviewed regularly with IFA. Through monitoring and tracking, the Quality Team will ensure that non-conforming conditions are corrected in an expedited manner.
Corrective and Preventive Action	Corrective actions are assigned to any on-site personnel, consultant, subcontractor, or supplier when immediate action is required to correct a situation that has or is likely to cause non-conforming work. Corrective actions will be generated through the Quality Team sub-organization and will require a response from the recipient. Recipient will be required to carry out root cause analysis, define actions to correct the situation, implement the actions, verify that the actions solve the problem, and then define ways to avoid using the actions in the future. All corrective actions will be documented through a corrective action report (CAR) managed electronically through SharePoint and will be verified through the Quality Team sub-organization. The lessons learned will be applied to continually improve the work.
Handling, Storage, Packaging, Preservation and Delivery	We will protect the products during internal processing (handling, storage, packaging, labeling and preservation) and deliver them to the intended destination. This process will be defined in the QMP and will include all levels of participation with responsibilities assigned to the participants.
Control of Quality Records	We will create a documented procedure reflecting the methodology established for the control of quality records, including collection, indexing and storing of records. The records will be made available to IFA to provide evidence of conformity with requirements as well as the efficient operation of the Quality Management System. Quality records from subcontractors will be collected and those records will be included in the overall quality records. The retention time of quality records will be as set forth by IFA.
Internal Quality Audits	The QMP will include a documented procedure for conducting internal audits that includes the following aspects: Audit criteria, Scope of the audit, Audit scheduling, Audit methods, Responsibilities and requirements for planning and conducting internal audits (internal and independent personnel), Relevant audit records andReporting results of the audit. Quality audits will verify if quality systems are being implemented as planned, and will assess their performance, to suggest possible enhancement and corrections in the procedures.
Training	The procedure will define the methods to determine and provide required training of personnel, identifying the different needs for each team member. Our training will include sessions on our quality policy to ensure our staff is fully aware of our commitment. Processes and procedures will also be established for project-specific training for all Quality Management personnel in the specific quality plans, processes and procedures identified in the QMPs. Personnel directly interfacing with IFA oversight/verification personnel will receive additional training to fully understand the roles of all parties and their requirements for cooperation and response to audits.
Servicing	Documented procedures will be established and updated for after-sales service and to confirm that the service meets the requirements specified.
Statistical Techniques	We will identify the required statistical techniques to be used for establishing, controlling and verifying process capability and product characteristics. Documented procedures will be established and updated for the application of statistical techniques.

Figure 4.1-21: Quality System Procedures

4.1.6 Cost Control, Safety, Environment and Risk Management

4.1.6.a Cost Control

Cost control is one of the control processes defined within our P3PMS, whose structure is described in Section 4.1.1. A summary of our approach to cost control is provided below:

- During the Construction Period, we will define and implement procedures for subcontractor and supplier selection which will always include market research to set price benchmarks and a comparison of the bids with those of our preferred subcontractor or suppliers (who might be selected by other criteria such as quality, diversity, DBE performance, etc.) . For all subcontracted activities, quantities performed will be measured by both the subcontractor and our own workers in order to verify and check associated invoices. We will head off disputes by first agreeing beforehand how we will measure quantities performed. If there is still a dispute, we will measure on-site in the presence of both parties. Our Deputy Project Manager- Technical (Carlos Ursúa), will oversee the cost control of the construction works, which will be led by Vicente Ferrio.
- During the Operating Period, for the self-performed activities, our Maintenance Supervisor will be responsible for authorizing the quantities for supplies of materials or equipment up to a set dollar amount. For larger amounts, Miguel Barranco's authorization will be required. Major rehabilitations and repairs will be subcontracted and will follow the same procedures as during the Construction Period in terms of cost control.

Monthly Progress Reports will serve as the base document which the Project Management Team will utilize for overall reporting of the Project to IFA. The site Monthly Progress Report will be incorporated into the Project Management Team report and will provide a comprehensive picture of where the project has been, current status, or forecasts relative to Cost Control and Schedule. The report will allow management to take corrective actions as required to keep the Project on schedule and within budget.

4.1.6.b Safety



Mark Flick

The I-69 DP Team has prepared a Preliminary Health and Safety Plan that will be implemented during the entire Project Term from NTP through the Handback period. Mark Flick, our Safety Manager, will oversee our Health and Safety Plan, which meets all the requirements set forth in the PPA and consists of five primary elements:

- Management Commitment and Planning
- Employee Involvement
- Worksite Analysis
- Hazard Prevention and Control
- Safety and Health Training

The I-69 DP Team is responsible for implementing major decisions, policies and safety and health procedures, i.e., specific safety and health procedures that are required by OSHA, including:

- Lockout
- Right to Know
- Fall Protection
- Confined Space
- Respiratory Program

A hard copy of the I-69 DP Health and Safety Plan will be available on every jobsite, either posted in the jobsite trailer, Field Office or with the foreman. The required OSHA posters will also be posted. It will be made clear that the I-69 DP safety rules must be obeyed by all Project personnel. Failure to do so will result in immediate removal from the site followed by strict disciplinary action.

In regards to PPA Section 19.2.3, it is the I-69 DP Team's belief that the IFA will not need to issue a Safety Compliance Order, however should this occur, we will immediately take corrective action to comply with the order as safety is paramount to the I-69 DP Team.

4.1.6.c Environmental Management



As part of the overall PMP, the I-69 DP Team has developed a specific Environmental Compliance and Mitigation Plan (ECMP).

The ECMP has been prepared to address the environmental mitigation and commitments outlined

in the Technical Provisions which directly reflect the I-69 Evansville to Indianapolis, Indiana Project Section 5, Bloomington to Martinsville, Indiana, Tier 2 Final Environmental Impact Statement (FEIS) and August 7, 2013 Record of Decision (ROD). The Technical Provisions specify the environmental mitigations and commitments that the IFA has delegated to the I-69 DP Team to complete. Some of the mitigations and commitments are being handled separately by INDOT. In most of those cases, those being handled by INDOT will be done in advance of construction.

4.1.6.c.i Qualifications and Experience

The I-69 DP Team has assembled a number of highly qualified individuals with the applicable experience required for this project. Each specialized individual is briefly discussed below with detailed resumes included in [Appendix H-1](#). All staff listed below have been certified by INDOT for their respective areas of expertise.

- **Environmental Compliance Manager (ECM) – Richard Fitch.** Mr. Fitch has nearly 24 years of water resource and environmental permitting experience. Over his career, he has dealt with nearly every federal, state and local environmental and stormwater agency in Indiana.
- **Karst Specialist – Steven Sittler, James Pease, Paul Passe and Eugenio Sanz** With their combined expertise, our Karst Specialists ensure that design and construction recognizes the fragility of the karst environment and that the design includes the necessary karst mitigations needed to protect this environment.
- **Erosion and Sediment Control Manager – Dan Agan.** Mr. Agan brings 34 years of experience in erosion and sediment control design and inspection. Mr. Agan is the Indiana Representative for CESSWI and is a certified instructor and



Figure 4.1- 22: Eco-Tech is experienced working with Indiana Bat Habitats.

provides training for those preparing to take the exam in the Midwest.

- **Biology/Cave Fauna – Barry Nichols.** Mr. Nichols has over 25 years of experience as a biologist.

- **Cultural Resources – Andrew Sewell.** Mr. Sewell has over 19 years of experience as a Historical Archaeologist specializing in the excavation and analysis of complex 19th century industrial sites.
- **Compliance Audit – Mike Shirley.** Mr. Shirley has 20 years of experience in project management, preparing National Environmental Policy Act (NEPA) documents and assisting government agencies with environmental compliance.

4.1.6.c.ii Environmental Compliance and Mitigation Plan Development Methods

The I-69 ECMP contains the framework for the daily, on the ground, environmental compliance monitoring and controls. As a “living document” changes to the ECMP will be made as the project advances from design into construction, and onto the Operating Period of the Project. The I-69 DP ECMP includes:

- General Project Scope of Work items
- Key environmental issues
- Commitments applicable to the I-69 DP
- Examples of inspection checklists for monitoring compliance
- Training requirements for construction personnel
- Organizational structure and roles and responsibilities of the I-69 DP environmental compliance personnel
- Requirements for reporting, auditing and quality control of compliance efforts
- Methods for record keeping

The I-69 DP ECM, Richard Fitch, will be responsible for achieving full compliance with the environmental commitments required for the Project. The ECM will report directly to the I-69 DP Board of Directors and will be the primary liaison to IFA for environmental issues. He will have full authority to stop the construction work to maintain environmental compliance. Additional compliance personnel will report directly to the ECM. Each of these staff will meet the required certifications as required by IFA.

4.1.6.c.iii Methods to Ensure Adequate Installation, Maintenance and Repair of Erosion and Sediment Control Devices

Erosion and sediment control is an important and vital component of the I-69 Segment 5 Project. The Project corridor is home to many sensitive and

Types of Erosion and Sediment Control Best Management Practices (BMPs)

1	Diversion Interceptor	15	Filter Berm
2	Temporary Seeding	16	Filter Sock
3	Permanent Sod or Seed	17	Turbidity Curtain
4	Mulch (hydraulic or bonded fiber mulch)	18	Surface Roughening
5	Straw Mulch (blown/laid)	19	Vegetative Filter Strip
6	Manufactured Surface Protection Products	20	Inlet Protection
7	Check Dam	21	Construction entrance/exit
8	Check Dam, Traversable	22	Concrete Washout
9	Slope Drain	23	Secondary Spill Containment
10	Splash Pad	24	Mini-benching of slopes
11	Sediment Trap	25	Dust Palliative
12	Sediment Basin	26	Erosion Control Blanket

Figure 4.1-23: Erosion and Sediment Control BMPs

protected environmental features, flora and fauna. Due diligence has been applied to making the erosion control plan as comprehensive and yet flexible as possible. Building on the efforts already prepared, the Erosion Control Plan (ECP) components for the Project are being developed to address the following Project RID and Technical Provision requirements:

- The Environmental Impact Statement (EIS), mitigation requirements
- Technical Provisions including drainage, environmental, landscape architecture, utilities, roadway, and MOT
- The I-69 Segment 5 Record of Decision (ROD)
- INDOT Standard Specifications and Details
- Chapter 205, Temporary Erosion and Sediment Control Manual (INDOT 2012)
- INDOT Design Memorandum No. 10-06 Technical Advisory (January 14, 2010)
- I-69 Section 5 Karst Feature Inventory (American Structurepoint Inc.)
- 2013 I-69 Section 5 Karst Agreements, including the Karst MOU (as updated prior to Financial Close)
- Identification of all on-site contractor use areas, borrow sites and waste sites
- Requirements of Rule 5 Permit from Indiana Department of Environmental Management (IDEM)
- Protection of local water wells and properties
- Staffing with qualified, experienced personnel during all project phases

Our ECMP will consist of a wide range of Best Management Practices (BMPs) to afford the most comprehensive temporary erosion control in the timeliest manner. Built in flexibility allows the

application of a "tool box" of ECMP BMPs to address the wide range of specific issues that may occur. **Figure 4.1-23** identifies some of the BMPs that will be applied during the construction and operations phases of the project. Others will be employed as needed.

Our ECMP will provide the necessary direction to Contractors during the construction phase and will form the basis of the Stormwater Pollution Protection Plan (SWPPP). For instance, karst features are addressed in the ECMP for temporary protection, in the drainage design plans for long term protection, in utility plans where utility relocations involve

potential karst excavation and in bridge plans where structure foundations may impact karst.

Dan Agan, our Certified Erosion Control Professional (CPESC) will direct the preparation and implementation of the SWPPP In conjunction with our Environmental Compliance Manager; the CPESC will exercise the authority to stop or redirect construction work as needed to maintain environmental compliance of the ECP in accordance with the SWPPP.

Training will consist of an initial course that is augmented with planned training updates and special training as needed.

Erosion control measures will also constitute a principal component of the Environmental Training Program to assure that all personnel are fully versed in meeting the requirements.

4.1.6.c.iv Key Environmental Issues

The I-69 DP ECMP provides an overview of the environmental considerations and details of the mitigation and commitments identified during the analysis and preparation of the FEIS and ROD Key Environmental Issues:

- Karst Topography
- Groundwater, Surface Water, and 100-Year Floodplains
- Wetlands, Waterways, and Waters of US
- Forests
- Terrestrial Wildlife and Aquatic Biota
- Endangered, Threatened, and Rare Species
- Cultural Resources
- Noise Quality (including construction noise)
- Construction Vibration
- Hazardous Materials
- Air Quality
- Construction-related Impacts

In some situations, the I-69 DP Team will be required to avoid environmentally sensitive areas or be restricted as to when they can enter those areas within the Project limits. The design plans will identify these avoidance areas as “Do Not Disturb” zones. Environmental compliance and mitigation training will include a detailed understanding of the necessary environmental compliance requirements and ensure that all personnel on the project are fully aware of environmentally sensitive areas. The environmental compliance and mitigation training program will be submitted to IFA for review and approval prior to construction.

4.1.6.c.v Compliance with the Environmental Management System (EMS)



As discussed in the previous section, an environmental compliance and mitigation training program will be developed for all construction personnel to ensure a complete understanding and awareness of the environmentally sensitive areas within the project limits.

Records will be maintained throughout design,

construction, and eventual maintenance and operations to demonstrate conformance. Designated Management Level Environmental Staff from within the team, but not directly involved in the day-to-day compliance being completed by the ECM will assist the I-69 DP Project Manager perform these compliance audits. On-site inspections will be performed as a part of the compliance audits. **Figure 4.1-24** identifies the basic processes for compliance auditing including the frequency and the responsible individual who will carry out the audits.

4.1.6.c.vi Sustainability Management Plan

The I-69 DP Team will submit a Sustainability Management Plan (SMP) to IFA for review and approval. The SMP will be a component of the PMP. The SMP will define how the I-69 DP Team will address the sustainability goals and objectives of the Project during both performance of the construction work and the Operating Period.

The Sustainability Management Plan will address the following goals and objectives:

- Safety
- Optimization of life-cycle costs
- Provision of enhanced economic opportunity
- Protection and conservation of environmental resources
- Use of green infrastructure stormwater management design principles
- Protection, conservation and enhancement of environmentally sensitive areas
- Improvement of mobility
- Proactive engagement with the public

The Sustainability Management Plan will include:

- Measurable standards and performance measures to demonstrate that the I-69 DP Team is meeting the sustainability goals and objectives
- Means to remedy deviations from the goals and objectives
- An organizational structure which sets out the roles and responsibilities of the I-69 DP Team members as they relate to sustainability

Audit Component	Frequency	Record	Auditor / Inspector
Environmental Management Plan	Beginning of Construction, then Quarterly	Memo	Jose Ballesteros, Isolux
ECM Reports	Biweekly	Memo	Michael Shirley, AZTEC
Daily Inspection Checklists	Weekly	Report	Richard Fitch, B&N

Figure 4.1-24: Compliance Auditing Process

- A quarterly reporting and tracking mechanism for both the construction period and O&M respectively
- An accepted methodology for performance evaluation of the SMP such as Greenroads, INVEST (“Infrastructure Voluntary Evaluation Sustainability Tool”), or GreenLITES

The SMP will distinguish between the requirements for the Construction Period and the Operating Period. The I-69 DP Team will update the SMP at least every five years during the Operating Period to enable application of new BMPs.

4.1.6.d Risk Management

Risk Management Approach

The key to our risk management approach is to identify the risks of the project from a very early stage. The I-69 DP Team considers this will be essential for future Project planning and timely cooperation with stakeholders. Early identification also aids in prompt implementation of risk mitigation measures so that the potential impact or the probability of the risk event can be minimized or completely dismissed.

We have already held “Toolbox Talks” and Risk Management Meetings, involving a multidisciplinary team that worked together during the RFP stage to identify potential risks.

4.1.6.d.i Identification of significant risk categories,

Assessing Risks and Mitigations

This multidisciplinary team went through all stages of the Project, forecasting and brainstorming all issues that might appear, and assessing probabilities and impacts from entirely different outlooks. This identification process not only identified the risks, but also tried to spot root causes, and consequences in a qualitative manner.

To avoid overlooking any risk, we followed the logical stages of the projects, as shown in our Risk Matrix: Preliminary Phase, Design & Construction Phase, Pre-Completion and Completion Phase and Operations Phase.

For each of these stages, a participant of each discipline had a chance to intervene, and expressed their possible concerns to the team.

4.1.6.d.ii Potential consequences of the Identified Risks

Potential risks and consequences are identified in [Figure 4.1-25](#) and [Volume 1, Appendix H-2, part B](#)

4.1.6.d.iii Probability of Identified Risks;

Probability of a risk occurring are identified (indicated by a P) in [Figure 4.1-25](#) and [Volume 1, Appendix H-2, part B](#)

4.1.6.d.iv Risk Sensitivity Analysis

Our risk management strategy considers the monitoring of risks as vital during the whole duration the project. The intention of our risk matrix is to keep it as a “live document”. We will update the matrix throughout the life of the Project, introducing more specific risks as they arise during Project development. This matrix will be a useful to define the risk profile of the Project at every stage, track risk evolution and check effectiveness of mitigation measures. We will hold Risk Management Meetings on at least a monthly basis.

Our Key Personnel will be involved in these meetings, taking responsibility for the decision making process and for implementation of the agreed upon mitigation measures, and for ensuring they have the desired effect until the potential damage or the probability of the risk is nil.

For sensitivity analysis, our team will use PALISADE’s risk analysis software called @RISK. This program is based on Monte Carlo simulation, and provides sensitivity and scenario analyses to determine the critical factors in the risk model.

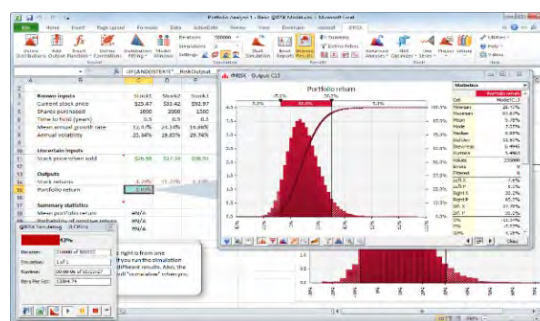


Figure 4.1-26: Palisade's @RISK Software

4.1.6.d.v Risk-Mitigation Strategies

Specific mitigation actions are identified in [Figure 4.1-25](#) and [Volume 1, Appendix H-2, part B](#).

ID	RISK EVENTS	CAUSES, KEY FACTORS	POTENTIAL CONSEQUENCES	BEFORE MITIGATION					RISK OWNER	MITIGATION	AFTER MITIGATION					
				P	SEVERITY						P	SEVERITY				IMPACT P*(C+T+Q)/3
					C	T	Q	C				T	Q			
PRELIMINARY PHASE																
Design																
GAP-2	Environmental Approvals	Not obtain Environmental Approvals in time	Delays	2	2	2	1	3	IFA/ I-69 DP/ DBC	Section 4.4 of PPA and attachment 7 of TP and Definition Relief Events (K). are a Mitigation.	2	2	2	1	3	
Financial																
FIN-1	Time of Financial Closing	Difficulties with Financial Agents	Project Feasibility	1	4	4	0	3	I-69 DP	Planning and follow up proper and necessary actions. Market Interest Rate Adjustment and Credit Spread Adjustments as defined in section 5.10.3 and 5.10.4 of the ITP are a mitigation.	1	1	3	0	1	
DESIGN AND CONSTRUCTION PHASE																
The Developer has mitigated Construction Risk by transferring it to the Design-Build Contractor. This is properly implemented in the Design Build Contract.																
Ground Risk																
GEO-3	Karst	Unexpected variations in the Karst Feature Treatment works across the project site	Cost Overruns and Delays	4	3	3	2	11	DBC	Adequate level of site investigation. Permanently assigned an experienced Local karst specialist to the Project. Provided adequate Contingency Allowances. Karst Feature Treatment Work is a mitigation.	3	2	2	1	5	
Technological Risks																
MOT-1	Maintenance of traffic during construction	Lack of attention. Unforeseen circumstances	Non Compliance Points	4	2	2	4	11	DBC	Strict monitoring of Traffic Management Plan and Quality Management Plan.	2	1	1	2	3	
Environmental risks																
CON-12	Weather Conditions	Worse weather conditions than expected	Delays	3	3	3	1	7	DBC	Permanent attention to weather forecasts. Update schedule as appropriate. Increased resources if required.	2	2	2	1	3	
Noncompliance Events and Unavailability Events																
MAI-1	Noncompliance Points System and Unavailability Adjustment	Fault and breach of the performance requirements set forth in Exhibit 10 and 12 of PPA and Attachment 18 of TP	Noncompliance Points. Payment Adjustment. Persistent Developer Default	4	3	2	3	11	DBC/ I-69 DP	Provide the experienced human resources needed to develop and implement the PMP.	2	2	2	2	4	
Legal and regulatory risks																
ENR-2	Threatened / Endangered Species	Not comply with technical specifications	Noncompliance Points. Payment Adjustment. Persistent Developer Default	3	3	3	1	7	IFA/ DBC	Provisions in Section 5.9. and 15.7.7 of PPA and Exhibit 5 Hazardous Material risk allocation terms and DEFINITION RELIEF EVENTS (PPA) (m), (n), (o), (q) and (r) are a Mitigation. Provided adequate allowances for deductible in Section 15.8.2. of PPA.	2	2	2	1	3	
LEG-1	Change in Adjustment Standards	Change in Adjustment Standards	Cost Overruns	1	1	1	2	1	IFA/ DBC		1	1	1	2	1	
Financial risks																
FIN-3	Interest rate	Changes in Interest rate estimated	Change in the expected Return	1	2	1	0	1	I-69 DP	The financing will be provided via a fixed rate instrument, i.e. a fixed rate capital markets solution such as the PABs	1	2	1	0	1	
Force Majeure																
FL-1	Flood Event	Flood Event	Cost Overruns and Delays	1	4	2	1	2	IFA/ DBC/ I-69 DP	Adequate Insurance Policies	1	3	2	1	2	
PRE-COMPLETION AND COMPLETION PHASE																
Substantial Completion																
OP-5	O&M Condition Precedents	Not comply with requirements in 5.8.4 of PPA	Developer Default	3	1	3	2	6	I-69 DP	Properly maintain and follow up the Project Management Plan	2	1	2	2	3	
OPERATION PHASE																
Noncompliance Events and Unavailability Events																
MAI-2	Noncompliance Points System and Unavailability Adjustment	Fault and breach of the requirements set forth Exhibit 10 and 12 of PPA and Attachment 18 of TP	Noncompliance Points. Payment Adjustment. Persistent Developer Default	3	3	2	3	8	I-69 DP	Provide expertise needed to develop and implement thePMP. Continuous monitoring will fulfill all specific requirements.	2	2	2	2	4	
Environmental risks																
OP-21	Hazardous Materials	Noncompliance with any Environmental Requirements	Noncompliance Points	3	3	1	3	7	I-69 DP	Strict monitoring of Management Plan, Quality Management Plan and Environmental Approvals.	1	1	1	2	1	
Legal and regulatory risks																
HIM-5	Hazardous Materials	Not comply with specifications Exhibit 5 of	Cost Overruns	1	2	1	1	1	IFA/ I-69 DP	Provisions in Section 5.9. and 15.7.7 of PPA: Exhibit 5 Hazardous Material risk allocation terms and DEFINITION RELIEF EVENTS (PPA) (m) and (n). are a Mitigation.	1	2	1	1	1	
Financial risks																
INF-2	Inflation	Different Inflation that estimated	Change in the expected Return	2	2	0	0	1	I-69 DP	The fixed indexation component of the MAP will cover our fixed rate debt. The remaining CPI indexed component will offset the variable costs of the concessionaire	2	2	0	0	1	
Force Majeure																
CON-23	Other Catastrophic Events	Other Catastrophic Events	Cost Overruns and Delays	2	3	2	2	5	IFA/ I-69 DP	Adequate Insurance Policies	1	2	2	1	2	
Operation and Maintenance Overruns																
MAI-27	Rehabilitation Work	Not undertaken with Rehabilitation Work in time	Cost Overruns	3	4	3	3	10	I-69 DP	Strict and permanent monitoring of O&M Plan and Cost Control	2	3	2	2	5	
Hand Back Requirements																
RV-3	Handback acceptance	Noncompliance with Handback Requirements	Costs Overruns. DP Default	3	4	3	2	9	I-69 DP	Property maintaining and following the Operation Plan and control the parameters. Strictly follow the Rehabilitation Works Schedule.	2	3	2	2	5	

Figure 4.1-25: Risk Register Example. Please find complete Risk Register in Volume 1 Appendix H2 Part B

4.2 Design-Build Plan



4.2 Preliminary Design-Build Plan

4.2.1 Design-Build Technical Solutions

The I-69 DP Team has developed a preliminary Design-Build Plan (DBP) for the I-69 Section 5 Project that is tailored to provide the State and its residents with the best value, quality, innovation, and sustainable solutions. The I-69 DP Team's approach incorporates technical solutions with innovative features that exceed the contract requirements, while delivering IFA a world-class Project. Our integrated team combines local, national and global knowledge and experience.



The I-69 DP Team's DBP is built on the principles of Quality, emphasizing 'Safety First' and 'Right the First Time'. Our development processes are strengthened through vertical integration. Isolux Infrastructure (Equity Member) and Corsan (DB Contractor) are related companies and have extensive experience working together. The I-69 DP Team will be formed to self-perform O&M, both during and after construction.

The I-69 DP Team is led by our Project Manager; Jose R. Ballesteros. Jose has managed many successful projects throughout the world. He has the proven skills for understanding all aspects of the Project including construction, operations, life cycle maintenance, and routine maintenance including snow and ice services.

Our DB Team, led by the Construction Manager, Vicente Ferrio, understands the established Project expectations and goals. We have developed the DBP to exceed IFA's and the public's needs and expectations.

4.2.1.1 Roadway Elements

This Project will convert approximately 21 miles of State Route (SR) 37 in Morgan and Monroe Counties, Indiana, into an interstate facility which will be designated as I-69. As part of the conversion, the existing partially-controlled limited access facility will be upgraded to have fully controlled access and will include four new interchanges at Fullerton Pike, Tapp Road, Sample Road and Liberty Church Road. The improvements also include the construction of four grade separated crossings at Rockport Road, Vernal Pike, Kinser Pike and Chambers Pike. After construction

is complete, access to I-69 will be provided via new parallel services roads to locations where existing or new Interchanges are located.

The south terminus of Section 5 is located at the intersection of That Road/SR 37 in Monroe County just north of the I-69/SR 37 interchange (currently being constructed as part of the Section 4 project). The corridor proceeds to the northeast through northern Monroe County into southern Morgan County. The north terminus of Section 5 is the south bridge approach of the Indian Creek Bridge which is located south of the existing SR 39/SR 37 interchange within the Section 6 project limits. Within the I-69 Section 5 corridor, existing SR 37 runs along the west side of the City of Bloomington, through rural Monroe and Morgan counties, ending south of the City of Martinsville. The Project is located in the Indiana Department of Transportation's Seymour District and is part of the I-69, Evansville to Indianapolis, corridor. [Figure 4.2-1](#) illustrates the I-69 DP Section 5 Project Limits and Construction Zones. For purposes of reference and analysis,

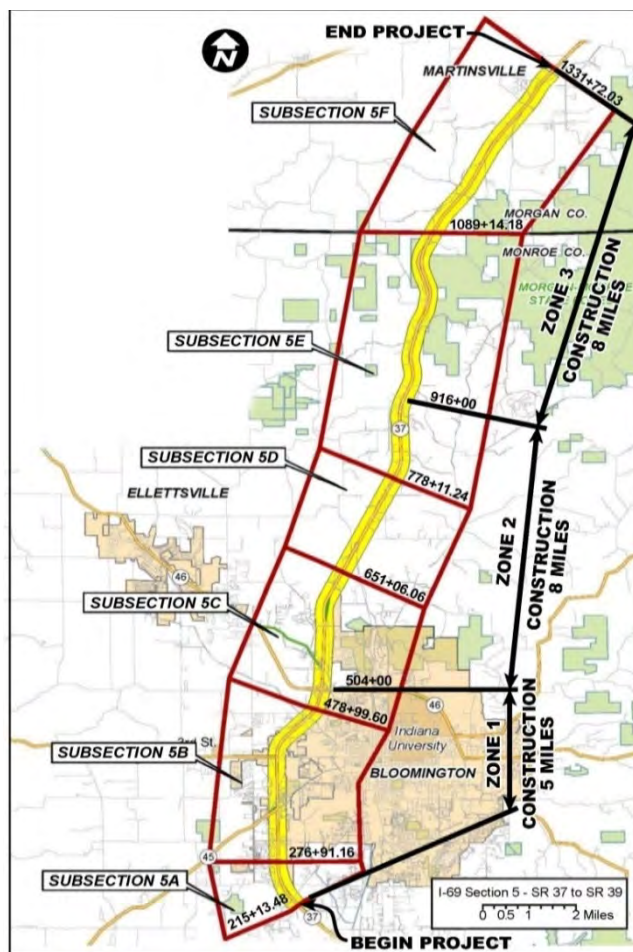


Figure 4.2-1: I-69 Section 5 Project Limits and Construction Zones.

the I-69 Section 5 corridor was divided into six (6) subsections. Each subsection was designated with a “5,” representing Section 5 of the I-69 EIS Tier 2 corridor, and a letter – 5A, 5B, 5C, 5D, 5E, and 5F. Subsections were deemed necessary to meet varying topography, urban/rural design criteria, design speeds and jurisdictional differences.



The I-69 DP Team have reviewed the RFP documents in great detail and through months of refinement are providing IFA/INDOT with an improved construction plan that will better serve the public interests and increase construction efficiencies through a well-organized and easier to maintain facility. In creating our improved plan, we developed a number of Alternative Technical Concepts (ATCs). The IFA ultimately approved seven of them (six of which will be implemented). The I-69 DP Team also developed added value items which, along with the approved ATCs, are shown in [Figure 4.2-3](#).

4.2.1.1.a Construction Staging & Traffic Control

4.2.1.1.a.i Traffic Management and Control and Sequencing



The I-69 DP Team has developed detailed Transportation Management Plans (TMP), which will ensure a safe, continuous operating roadway for the traveling public and limit disruptions during construction. The TMP includes elements listed in [Figure 4.2-2](#).

Traffic Management Plan Elements

- Temporary Traffic Control Plan with MOT plans & traffic analysis
- Temporary pavement design and unrestricted access details for all businesses & residents
- MOT phase change procedures with clear responsibilities and processes for temporary signage markings that provide for safe traffic diversions with limited disruptions
- Work zone access, truck routes, & haul route maps to allow for safe ingress/egress for personnel and traveling public
- Detour routes & project closures to be approved by IFA
- Traffic Operations Plan describing key personnel & responsibilities
- Emergency Plan & coordination with emergency responders
- Coordination meetings with adjacent projects, transit operators, utility owners, & local public agencies
- Coordination with Public Involvement Plan & public communication implementation
- Maintenance of roadway drainage during construction, including temporary drainage facilities as needed

Figure 4.2-2: Traffic Management Plan Elements

With approval of I-69 DP's ATC to allow the SR 45/2nd Street Interchange to remain in its current configuration, Bloomington residents will have an unencumbered route across SR 37 for the duration of the project

4.2.1.1.a.ii Conceptual Construction Staging Diagrams

The I-69 DP Team's conceptual construction staging is shown in [Figure 4.2-1](#). Zone 1, construction will include all of Subsections 5A and 5B ending just north of the SR 46 overpass. Zone 2 will start just north of SR 46 and continue to a point one-half mile south of Chambers Pike. Finally, Zone 3 will construct the remainder of the project from Chambers Pike to the northern project limits. In order to maximize mobility during construction, there will be no restrictions to consecutive intersections on SR 37. To accommodate this mobility initiative, the Fullerton Pike interchange will be constructed in Zone 2, allowing all other Bloomington interchanges to be completed in 2014 and 2015.

The I-69 DB Team developed detailed construction staging and MOT plans to ensure all components of the Project are coordinated. Staging and MOT was developed jointly by the Design Team and the Construction Team in intensive focus meetings.

Detailed MOT staging roll plots are included in the Volume 2 Appendices (H-2: Technical Drawings)

4.2.1.1 a. iii Access to Business and Residential Properties



The sequencing of all construction activities will prioritize accessibility to all existing SR 37 at-grade access points by ensuring that an adjacent at grade intersection is kept fully operational and by opening and maintaining alternative access routes to both sides of SR 37. In many cases, the alternative access route will require the construction of either permanent or temporary access roads. These connections will be fully operational prior to the closure of the affected at-grade intersection.

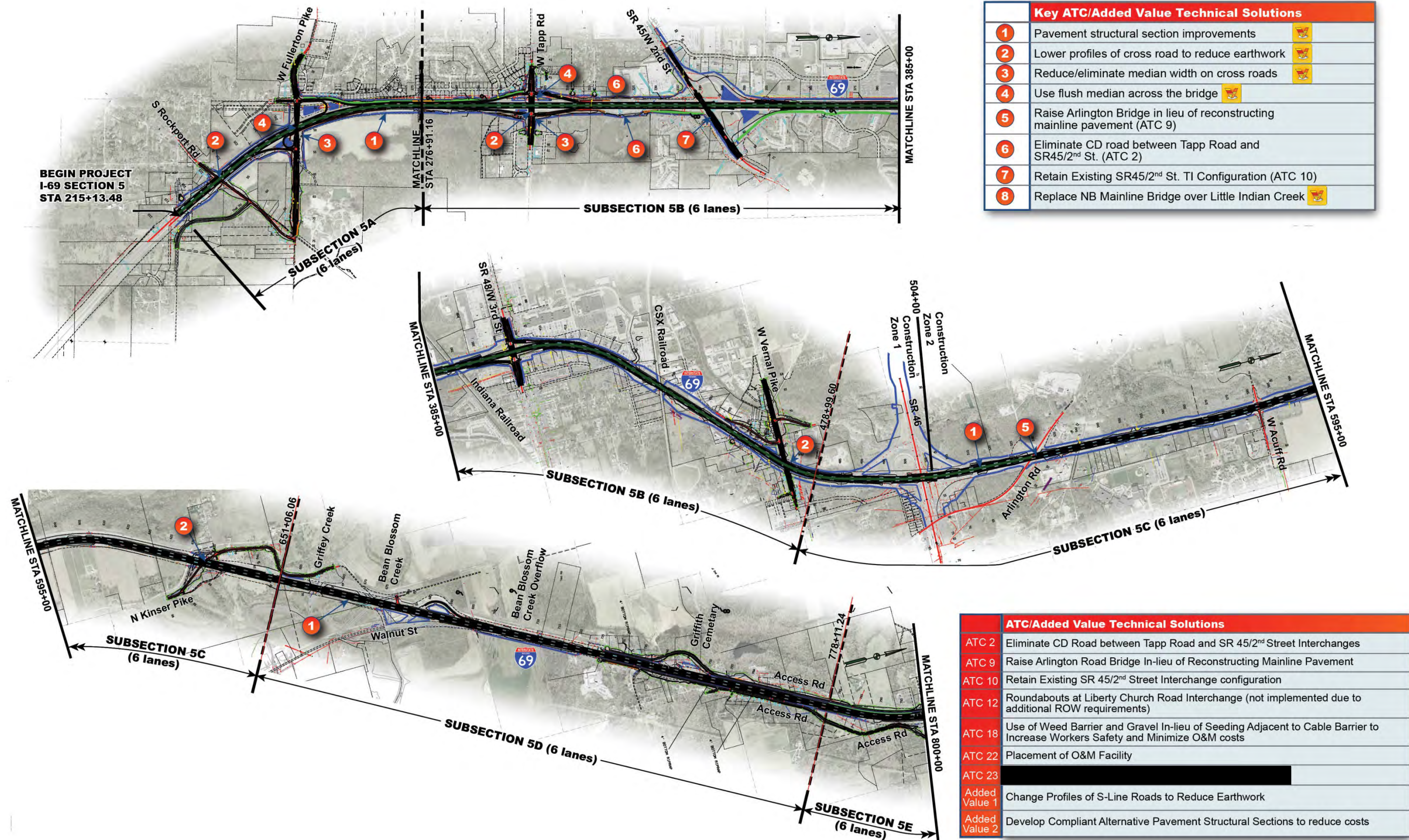


Figure 4.2-3: I-69 DP ATCs and Value-Added Solutions

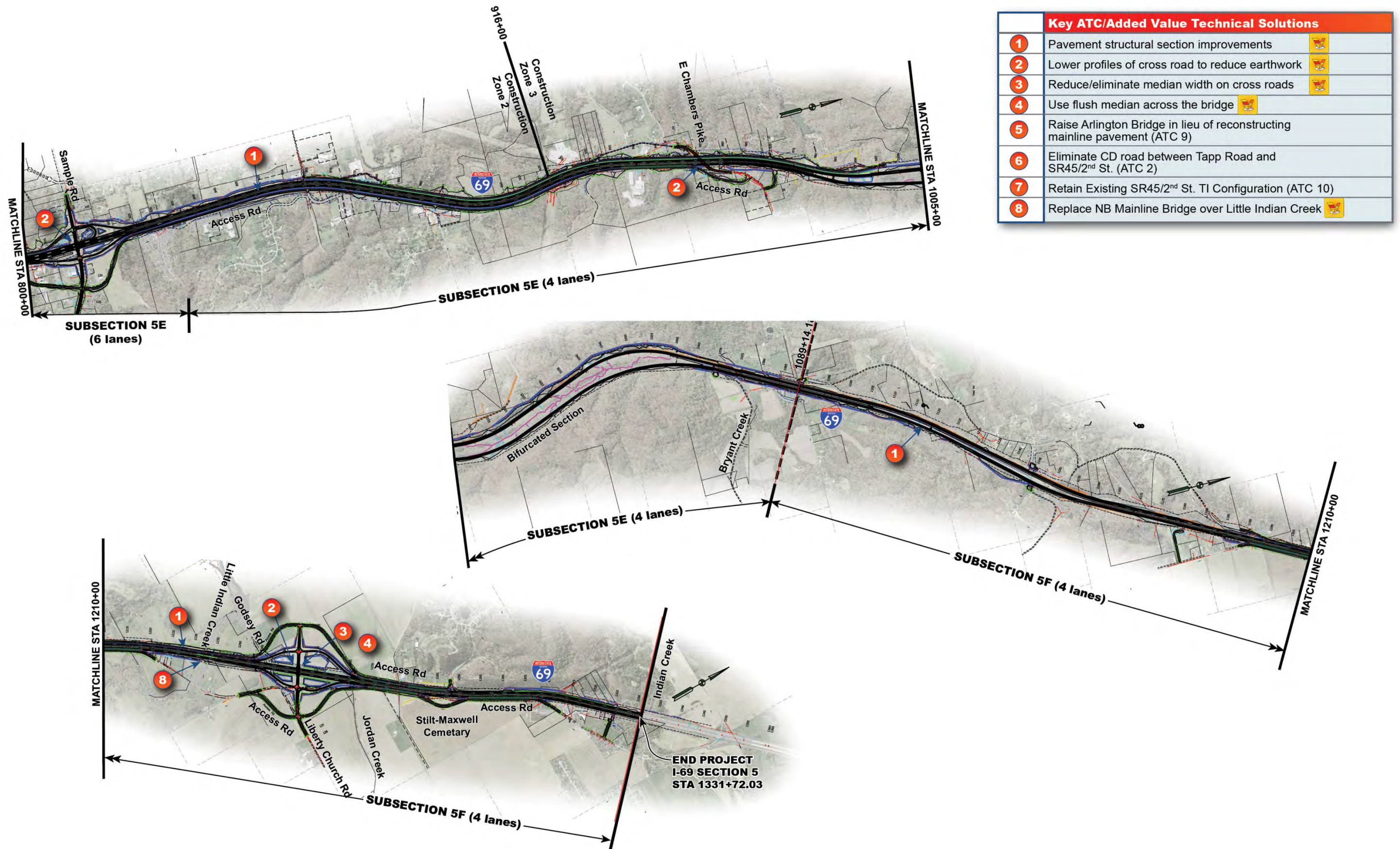


Figure 4.2-3: I-69 DP ATCs and Value-Added Solutions (continued)

The I-69 DP Team’s PIP will include specific procedures for interacting with local residents, businesses and other stakeholders near each interchange, including the Fern Hills National Conference, Tapp Road Medical Park, Monroe County Fair and Indiana University.

The I-69 DP Team will ensure that local stakeholders are informed of potential construction impacts throughout the duration of Interchange construction. Our intent is to build on the INDOT “Kitchen Table Meeting” (KTM) process used for land acquisition. We will hold preconstruction and construction update meetings where local access plans will be presented and discussed in detail for each Interchange construction staging phase. These measures are in addition to our proactive public relations approach to maintain public trust and integrity. **Figure 4.2-4** summarizes this proactive approach.

Proactive Public Relations
Sponsor local pre-construction and update meetings
A toll free hotline will accept public feedback which will be discussed at weekly progress meetings
An Emergency Response Plan will be developed in coordination with police and fire departments
Monitor local roadways used for alternative access – maintain driving surface
Portable Variable Message Signs will inform drivers of upcoming traffic control changes and detours
Detours and closures will be publicized in local newspapers and on local TV and radio stations

Figure 4.2-4: I-69 DP Team’s Proactive Public Relations

4.2.1.1.a.iv Scheduling and Sequencing Construction

I-69 DP Team has developed a sequencing plan which will construct a great part of the mainline I-69 in the Bloomington area, with the exception of the Fullerton Pike Interchange, during the 2014

construction season. In the 2015 construction season, work will begin just north of the SR 46 overpass and includes access roads, the Sample Road Interchange, the Kinser Pike overpass and the Chambers



Figure 4.2-5: Sequencing Meeting

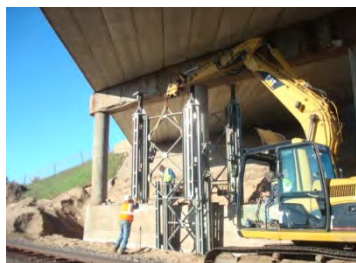


Figure 4.2-6: Jacking Existing Bridge

Pike overpass, among other workfronts. The I-69 DP Team proposes raising the Arlington Road overpass bridge (rather than lowering the I-69 mainline grade) to expedite construction and

prioritize mobility on mainline I-69 and SR 46 ramp access. From Chambers Pike to the north, mainline I-69, access roads, and the Liberty Church Interchange will be constructed during second half of 2015 construction season. This sequencing plan prioritizes accessibility in the Bloomington area and overall system mobility. As indicated in **Figure 4.2-7**, we will complete all required milestones on or before the dates required in the ITP.

Schedule Item	Milestone Date	
Bloomington Area	Initiated in 2014	✓
That Road - Local Access Roads & Improvements	Completed by June 1, 2015	✓
Rockport Road Local Access Roads & Improvements	Completed by June 1, 2015	✓
Fullerton Pike – Interchange & Associated Ramps	Completed by December 31, 2015	✓
Tapp Road - Interchange & Associated Ramps	Completed by December 31, 2015	✓
Vernal Pike Overpass	Completed by December 31, 2015	✓
Substantial Completion	October 31, 2016	✓

Figure 4.2-7: ITP Milestones

The I-69 DP Team has incorporated environmental protection and mitigation into the sequencing plan for construction, including:

- Specific erosion control plans for all construction stages
- Minimize temporary pavement which expands the construction footprint
- Protect and avoid karst features during all construction activities
- Avoid tree clearing between April 1 and September 30 (Indiana Bat)

These mitigation measures will ensure that our construction activities respect the existing landscape, ultimately providing a facility with minimal environmental impact.



Throughout the design of Section 5, alternative design solutions will be developed to expedite construction and limit the impacts to the traveling public. The options below not only reduce costs for the project, they also reduce construction time and impacts to traffic.

- **Fullerton Pike** – Reduced overpass bridge width will expedite the opening of the Fullerton Pike Interchange by one month
- **Arlington Overpass** – Jacking the Arlington Bridge prioritizes mainline traffic flow and access to SR 46 while reducing overall construction duration by one month
- **Liberty Church Road** – Reduced overpass bridge width will expedite the opening of the Liberty Church Road Interchange by two months

The I-69 DP D-B approach allows significant construction in the Bloomington area in 2014, which will allow IFA/INDOT to meet its commitments.

4.2.1.1.a.v Locations to be used during Construction

Due to the length of the project and the sequencing of the works, multiple locations will be used during construction as staging areas and laydown yards. In addition, we will utilize off-site borrow pits to import materials needed for embankment construction. A portable asphalt plant for this Project will be strategically located to minimize transportation costs. INDOT approved material sources will be delivered to the plant site for asphalt production.



Figure 4.2-8: E&B Paving Portable Asphalt Plant.

Equipment will be staged at various cross-road locations to allow for refueling and maintenance access in the evening and to minimize transportation expenses. The staging areas will be carefully delineated and all environmentally sensitive areas will be marked to prevent accidental intrusion. Spill containment areas and truck cleanout sites will also be provided at the staging areas.

For structures, laydown areas located immediately adjacent to each structure will be provided. We will also take advantage of just-in-time deliveries, so that the laydown area required is reduced as much as possible and all environmentally sensitive areas are avoided.

In all cases, we will coordinate staging areas and laydown yard locations with local agencies and residents to minimize noise and traffic impacts.

Drainage Design Approach

The key to drainage design for this project is to upgrade the existing storm drainage system to handle the increased runoff from the widened highway and to not increase flows downstream of the facilities. Existing culverts will be extended to drain to their historic outlets and to fix any hydraulic deficiencies. Detention basins will be designed and placed in locations to assure the appropriate volumes and flow rates of storm water arrive at these outlets. In addition, karst mitigation features such as geomembrane liners along the drainage ditches will be provided in accordance with the Technical Provisions.

I-69 hydrology and hydraulics will utilize the 100-year storm in the analysis of the existing and proposed drainage facilities.

Materials unsuitable for embankment will be used for ditch and detention basin bottoms

Proposed I-69 on-site drainage features include roadside ditches, detention basins, inlets (roadside and curb), manholes, storm drain, and pavement underdrains. Existing drainage facilities will be used where practical.

The Technical Drawing roll plots identify the location of all of the drainage improvements. **Figure 4.2-10 and 4.2-11** list the mainline culvert improvements provided.



Figure 4.2-9: Existing Drainage Facilities Will Be Retained If Feasible.

Circular Pipe Size	Pipe Type	Left Side Extension Length (ft)	Right Side Extension Length (ft)	Total Constructed Length (ft)	Quantity of New End Sections
15"	CMP	0	67	67	1
15"	RCP	0	12	12	1
24"	CMP	15	0	15	2
24"	RCP	10	125	135	4
30"	RCP	0	12	12	1
36"	CMP	844	110	954	15
36"	RCP	120	162	282	9
36" Inside 54"	CMP	20	0	20	1
42"	CMP	15	0	15	1
48"	CMP	70	0	70	1
48"	RCP	60	65	125	2
54"	CMP	95	0	95	2
66"	CMP	0	44	44	1
72"	CMP	10	0	10	1
84"	CMP	60	0.0	60	1
90"	CMP	262	156	418	4

Figure 4.2-10: I-69 Section 5 Mainline Culvert Summary

CMP – Corrugated Metal Pipe Culvert
RCP – Reinforced Concrete Pipe Culvert

Box Culvert Size	Type	Left Side Extension Length (ft)	Right Side Extension Length (ft)	Total Constructed Length (ft)	Quantity of New Headwalls
2' x 3'	RCB	0	147	147	5
3' x 3'	RCB	90	60	150	4
3' x 4'	RCB	0	60	60	1
4' x 4'	RCB	0	60	60	2
4' x 5'	RCB	0	40	40	2
5' x 5'	RCB	0	90	90	1
6' x 4'	RCB	0	20	20	1

Elliptical Pipe Size	Pipe Type	Left Side Extension Length (ft)	Right Side Extension Length (ft)	Total Constructed Length (ft)	Quantity of New End Sections
56" x 72"	CMP	140	80	220	4
78" x 102"	CMP	60	0	60	2
28" x 42"	CMP	0	75	75	1
34" x 48"	CMP	0	35	35	1
43" x 63"	CMP	16	0	16	1

Figure 4.2-11: I-69 Section 5 Mainline Culvert Summary Table

CMP-Corrugated Metal Pipe Culvert
RCB- Reinforced Concrete Box Culvert

Signing and Pavement Marking Approach

Prior to starting design, we will conduct an inspection of all existing signs in the project limits to assess the condition of the sign sheeting and mountings. Wherever possible, existing signs will be reused. Signs that need replacement and new signs will use diamond grade sign sheeting. The use of diamond grade sheeting provides reflectivity consistent with the requirements of the Indiana Manual of Uniform Traffic Control Devices (InMUTCD), alleviates the need for sign lighting and

requires minimal maintenance over the life of the sign.

Thermoplastic pavement markings will be used throughout the project limits and will meet all INDOT standards for design, materials and reflectivity. Snowplowable Raised Pavement Markers will also be provided. All pavement marking and signing design will conform to the InMUTCD

The design life of the signs is approximately 15 years which coincides with the I-69 DP Team's pavement design life. Thus, signing will be refreshed with each new paving cycle.



Traffic Signals Design Approach

Figure 4.2-12 lists the work required for new and existing traffic signals within the Project limits.

New signals will be constructed as span, catenary, and tether support signals. Modernization of existing signals will include replacement of signal heads (with backplates), new pedestrian signal heads/pushbuttons, new loops (where widening of change of lane position occurs), possible replacement or relocation of controller cabinet and signal electrical service, and in some cases new strain poles and span, catenary and tether supports. Span wire mounted signs will be replaced or rehabilitated as necessary.

Any new traffic signal interconnect installed under the Project will use wireless communications. Existing fiber-optic interconnect will remain in place if it meets the Project Standards.

Design and construction will be in accordance with the IDM Chapter 502 Traffic Design Draft, the INDOT MUTCD and the INDOT Standard Specification/Recurring Special Provisions.

Highway Lighting Design Approach

Full interchange lighting will be provided at the following interchanges with I-69; Fullerton Pike, Tapp Road and Sample Road. Partial interchange lighting will be provided at the Liberty Church Road/I-69 interchange.

Existing interchange lighting will be retained at the following interchanges with I-69; SR 45/2nd Street,

SE 48/3rd Street, SR 46 and Walnut Street. Where local roads are currently lit, the lighting system will be retained, relocated or replaced in kind.

If lighting of local roads is required, the I-69 DP Team will work with the local agencies for standards they may have for lighting levels and equipment.

A key lighting decision will be the height of light poles at the Sample Road interchange as the area is more rural than Fullerton Pike or Tapp Road and light intrusion may be an issue.

4.2.1.1.b Addressing Geotechnical-related Issues

From a geotechnical standpoint, I-69 Section 5 is a somewhat complicated project. Besides the considerable amount of karst present on the project, there is also limestone and shale.

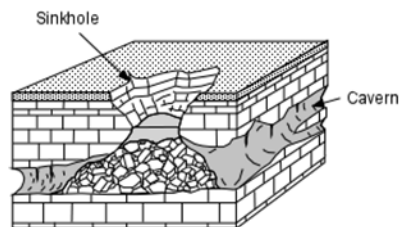


Figure 4.2-13: Sinkhole Formation

In addition, based on the density tests conducted as part of IFA's geotechnical exploration, approximately 49% of the soils are classified as A-7-6

(Clay). This correlates to approximately 22% of the samples tested exhibiting a maximum Proctor Density less than 100 pcf. Soils with unit weights less than 100 pcf will not be useable as embankment fill without modification. However, these clay soils have a low permeability rate and can be used to line ditches and detention ponds. Where good materials are encountered in ditches or detention ponds, we will over excavate to mine the suitable embankment materials and replace them with the unsuitable material.

Location	New Signal	Signal Modernization	Signal Interconnect
SB and NB I-69 Ramps at Fullerton Pike	✓		✓
SB and NB I-69 Ramps at Tapp Road	✓		✓
SB and NB I-69 Ramps at SR 45/2nd Street		✓	✓
SR 45/2nd Street at Basswood Drive		✓	✓
SR 45/2nd Street at Liberty Drive		✓	✓
SB and NB I-69 Ramps at SR 48/3rd Street		✓	✓
SR 48/3rd Street at Franklin Road		✓	✓
SR 48/Gates Avenue			✓
SB & NB I-69 Ramps at SR 46			✓

Figure 4.2-12: I-69 Section 5 New and Existing Traffic Signals



Additional soil borings will be obtained to further identify the bedrock surface and rock characteristics along the project.

Geophysical testing will be a critical part of identifying the presence of previously undetected karst features. This will be especially important at structure locations. A combination of Refraction Microtremor (Re-Mi) analysis and 2-dimensional electrical resistivity will be used at each structure where karst features are suspected. Based on the results of the geophysical testing, additional soil borings and rock coring will be conducted to confirm the extent of the karst feature and develop a mitigation procedure. The goal of the karst mitigation is to obtain the most economical solution with minimal environmental impact and adequate performance of the structure in question. **Figure 4.2-14** explains our proposed karst mitigation.

Karst Feature	Mitigation
Exposed Sinkhole	Excavate to remove the soil and bedrock void. Fill with rip rap and cap.
Drainage ditches within 50 feet of an exposed sinkhole, depressed existing ditch or springs	Line with riprap and an impervious geomembrane for the limits +10' of the surveyed feature
Storm water detention basins within the karst sinkhole or buried sinkhole regions	Line with geomembrane
Roadway drainage that discharges to sinking streams or sinkholes	Treat storm water in accordance with SWPP BMPs

Figure 4.2-14: I-69 DP Team Karst Mitigation

Approach to Pavement Design

At Handback, the pavement is required to have 10 years of useful life. The I-69 DP Team's approach is to use an initial 15 year pavement design, followed by two 15-year renewals (at year 15 and year 30 of the Operating Period. Preliminary pavement designs were completed using ASSHTOWare.

We propose an initial 15 year pavement design with subsequent renewals at year 15 and 30 of the Operating Period

Based on overall construction cost, schedule and ease of maintenance/renewals, full depth hot-mix asphalt (HMA) and mill and overlay with HMA will be employed throughout the project.

Traffic loading for the pavement design was based on the traffic volume and truck percentage information contained in Chapter 9 of the Technical Provisions. To determine traffic loading in years beyond 2035, a 1.0% compounded growth factor was used. We believe that the initial pavement may last longer than the 15 year life, as traffic growth predicted by the travel demand model for the Project is quite high and it may take more than 15 years to reach those volumes. Subsequent renewals will be based on updated traffic projections.

4.2.1.1.c Maintaining and Protecting ROW and Adjacent Roads



The I-69 DP Team will maintain and protect the right-of-way (ROW) and adjacent roads during the Project Term. The processes and procedures to accomplish this task include:

- Permanent noise walls will be constructed early to mitigate noise impacts
- Haul routes will be strategically identified to minimize dust and impacts to residents
- Project-specific vibration plan/monitoring will be prepared
- Local roads will be maintained and protected from damage
- S-Lines profiles will be lowered to reduce the amount of fill required
- Dust palliative will be used to control dust
- Erosions control plans and measures will be prepared and implemented
- All on-site contractor use areas, borrow sites and waste sites will be identified
- Local water wells and properties will be protected
- Existing animal crossings will be maintained

When combined with regular and periodic maintenance, I-69 DP's proposed rehabilitation activities will extend the service life of the existing bridges through to Handback

The PIP will include provisions for Project Hot Line signs and flyers to foster community interaction from project inception.

4.2.1.1.d Preliminary Roadway Schematic

The Preliminary Roadway Schematic has been prepared and is presented on 36" x 120" color roll plot drawings (1"=100' scale) which are described further in [Appendix H-2](#). There are thirteen roll plots depicting the mainline roadway, ramps and access roads. There are four additional roll plots showing the interchanges and grade separated cross roads for the project. The Technical Drawing roll plots are presented with different colored shapes and hatching to represent the multiple types of pavement overlay, widening and replacement throughout the project. Included on the roll plots are:

- Existing & Proposed Drainage Features
- Retaining & Noise Walls
- Guard Rail & Median Cable Barrier
- Limits of Karst Buried Sinks, Sinkholes & Sinking streams
- Mainline Roadway Profiles
- Replacement & Widening of Bridges
- Concrete Median Barrier
- Curbs, Sidewalks & Bike Lanes
- Proposed ROW with Cut & Fill Grading Lines to Delineate Construction Limits
- Typical Sections

4.2.1.2 Bridge Structures, Retaining Walls, Noise Walls and Other Structures

There are 32 bridges within the project limits; twenty are existing and twelve will be newly constructed. Nineteen of the twenty existing bridges will undergo varying degrees of rehabilitation and widening; one of the twenty existing bridges will not be modified during this project. Twelve bridges are newly constructed to provide grade-separated crossings over I-69 or to allow access roads and ramps to cross creeks and rivers. [Figure 4.2-15](#) provides a brief description of each structure and scope of work to be performed.

In addition to widening, existing bridges will undergo rehabilitation aimed at extending their service life and minimizing service interruptions. Cracked and spalled concrete will be repaired; steel bearing assemblies will be replaced with elastomeric bearing pads; end bents will be made semi-integral; steel bridges not painted within the past five years will be painted; wearing surfaces with less than 10 years of remaining life will be replaced.

There are 33 proposed retaining walls within the project limits. 15 retaining walls are constructed around the end bents of new bridges crossing over I-69 to retain the embankment of the cross roads and reduce bridge span lengths. 18 retaining walls are located along the I-69 mainline or cross roads to reduce the reach of cut and fill slopes. The majority of retaining walls are constructed in fill conditions; however, two walls are constructed in cut conditions. [Figure 4.2-16](#) provides a description of the wall type.

There are three noise walls within the project limits. They are located along the I-69 mainline in the more populated areas between Fullerton Pike and SR48. The walls range in height from 12 feet to 18 feet. Two of the noise walls are ground mounted while one of the noise walls is mounted to the top of a retaining wall. [Figure 4.2-17](#) indicates the location and limits of each noise wall.

4.2.1.2.a Approach to Materials Selection

Concrete, with its lower initial cost and lower life-cycle maintenance cost, is the preferred material for structures and its aesthetic characteristics also compliment the local environment of Monroe and Morgan Counties. All new bridge structures will be constructed with prestressed concrete bulb-tees or prestressed concrete box beams.

The D-B Team and the O&M Team have had extensive interaction on determining bridge materials, methods and rehabilitation strategies.

Existing bridges which require additional beams for widening will be widened in-kind with reinforced concrete beams, prestressed concrete beams, rolled steel beams, or welded steel plate girders. Steel superstructures will be painted: no weathering steel will be used on bridges since none has been used on any of the existing bridges throughout the project limits.



Mechanically Stabilized Earth (MSE) with concrete facing panels will be used for retaining walls in fill conditions to expedite construction. Cast-in-place concrete will be used for retaining walls in cut conditions to reduce the amount of over excavation required behind the wall.

Bridge Name	Improvements	Structure Type	Spans	Abutment Type	Pier Type	Vertical Clearance
Rockport Road over I-69	New Structure	Prestressed Concrete Bulb-Tee	98' – 98'	Integral on Driven HP Piles	Multi-Column on Driven HP Piles	16'-9"
Fullerton Pike over I-69	New Structure	Prestressed Concrete Bulb-Tee	105' – 119'	Integral on Driven HP Piles	Multi-Column on Driven HP Piles	16'-9"
Tapp Road over I-69	New Structure	Prestressed Concrete Bulb-Tee	83' – 83'	Integral on Driven HP Piles	Multi-Column on Driven HP Piles	16'-9"
SR45/2nd Street over I-69	Existing Structure to be Reconfigured	Welded Steel Plate Girder	149' – 146'	Semi-Integral on Driven HP Piles	Multi-Column on Spread Footing	16'-10"
Indiana Railroad Overpass	Existing Structure to Remain As-is	Welded Steel Through Plate Girder	77.5' – 77.5'	Full-height on Spread Footing	Wall on Spread Footing	16'-0"
SR48/3rd Street over I-69	Existing Structure to be Widened	Welded Steel Plate Girder	117' – 117'	Semi-Integral on Driven HP Piles	Multi-Column on Driven HP Piles	16'-5"
I-69 NB over CSX Railroad	Existing Structure to be Widened	Rolled Steel Beam	60' – 75' – 70'	Semi-Integral on Driven HP Piles	Multi-Column on Driven HP Piles	22'-1"
I-69 SB over CSX Railroad	Existing Structure to be Widened	Rolled Steel Beam	60' – 75' – 70'	Semi-Integral on Driven HP Piles	Multi-Column on Driven HP Piles	22'-1"
Vernal Pike over I-69	New Structure	Prestressed Concrete Bulb-Tee	131' – 120'	Integral on Driven HP Piles	Multi-Column on Driven HP Piles	16'-9"
SR46 over I-69	Existing Structure to be Enhanced	Post-tensioned Concrete Bulb-Tee	131.8' – 131.8'	Integral on Driven HP Piles	Multi-Column on Driven HP Piles	16'-9"
Arlington Road over I-69	Existing Structure to be Raised	Welded Steel Plate Girder	110' – 110'	Semi-Integral on Spread Footing	Multi-Column on Spread Footing	16'-0"
Kinser Pike over I-69	New Structure	Prestressed Concrete Bulb-Tee	110' – 103'	Integral on Driven HP Piles	Multi-Column on Spread Footing	16'-9"
I-69 NB over Griffy Creek	Existing Structure to be Widened and Lengthened	Prestressed Concrete I-Beam	55.5' – 55.5' – 57' – 56.25' – 55.5'	Semi-Integral on Driven HP Piles	Wall on Driven HP Piles and Spread Footing	NA
I-69 SB over Griffy Creek	Existing Structure to be Widened	Prestressed Concrete I-Beam	55.5' – 55.5' – 57' – 56.5' – 55.5'	Semi-Integral on Driven HP Piles	Wall on Driven HP Piles and Spread Footing	NA
I-69 NB over Beanblossom Creek	Existing Structure to be Widened	Welded Steel Plate Girder	90' – 112.5' – 90'	Semi-Integral on Driven HP Piles	Wall on Driven HP Piles	NA
I-69 SB over Beanblossom Creek	Existing Structure to be Widened	Welded Steel Plate Girder	90' – 112.5' – 90'	Semi-Integral on Driven HP Piles	Wall on Driven HP Piles	NA
Walnut Street Overpass	Existing Structure to be Enhanced	Welded Steel Plate Girder	133' – 129'	Semi-Integral on Driven HP Piles	Wall on Driven HP Piles	16'-0"
I-69 NB over Beanblossom Creek Overflow	Existing Structure to be Widened	Prestressed Concrete Box Beam	38' – 38.5' – 38.5' – 38'	Semi-Integral on Driven Pipe Piles and Driven HP Piles	Wall on Driven Pipe Piles and Driven HP Piles	NA
I-69 SB over Beanblossom Creek Overflow	Existing Structure to be Widened	Rolled Steel Beam	38' – 38.5' – 38.5' – 38'	Semi-Integral on Driven HP Piles	Wall on Driven HP Piles	NA
Sample Road over I-69	New Structure	Prestressed Concrete Bulb-Tee	103' – 89'	Integral on Driven HP Piles	Multi-Column on Spread Footing	16'-9"
Chambers Pike over I-69	New Structure	Prestressed Concrete Bulb-Tee	94' – 119' – 119'	Integral on Driven HP Piles	Multi-Column on Spread Footing	16'-9"
I-69 NB over Bryants Creek	Existing Structure to be Widened	Prestressed Concrete I-Beam	44.6' – 53.1' – 44.6'	Semi-Integral on Driven HP Piles	Wall on Spread Footing	NA
I-69 SB over Bryants Creek	Existing Structure to be Widened	Rolled Steel Beam	44' – 54.5' – 44'	Semi-Integral on Driven HP Piles	Wall on Spread Footing	NA
I-69 NB over Little Indian Creek	Existing Structure to be Replaced	Post-tensioned Concrete Bulb-Tee	85'	Integral on Driven HP Piles	NA	NA
I-69 SB over Little Indian Creek	Existing Structure to be Widened	Rolled Steel Beam	75'	Semi-Integral on Driven Timber Piles and Driven HP Piles	NA	NA
Liberty Church Road over I-69	New Structure	Prestressed Concrete Bulb-Tee	89' – 89'	Integral on Driven Pipe Piles	Multi-Column on Driven Pipe Piles	16'-9"
I-69 NB over Jordan Creek	Existing Structure to be Widened	Reinforced Concrete Beam with Monolithic Deck	43'	Semi-Integral on Driven Timber Piles and Driven Pipe Piles	NA	NA
I-69 SB over Jordan Creek	Existing Structure to be Widened	Reinforced Concrete Beam with Monolithic Deck	43'	Semi-Integral on Driven Timber Piles and Driven Pipe Piles	NA	NA
Liberty Church SB Exit Ramp over Jordan Creek	New Structure	Prestressed Concrete Box Beam	57.5'	Integral on Driven Pipe Piles	NA	NA
Liberty Church West Access Road over Little Indian Creek	New Structure	Prestressed Concrete Bulb-Tee	77.25'	Integral on Driven Pipe Piles	NA	NA
Liberty Church West Access Road over Jordan Creek	New Structure	Prestressed Concrete Box Beam	57.5'	Integral on Driven Pipe Piles	NA	NA
Liberty Church East Access Road over Jordan Creek	New Structure	Prestressed Concrete Box Beam	51.25'	Integral on Driven Pipe Piles	NA	NA

Figure 4.2-15: I-69 DP Team Bridge Structures to be Widened or Constructed

Noise Walls	Location	Type	Length (FT)	Height (FT)	Area (SF)
NW-1	I-69 SB, Sta. 251+80 to Sta. 300+00	Ground Mounted	4820	12	57840
NW-2	I-69 NB, Sta. 326+50 to Sta. 341+00	Wall Mounted	1450	18	26100
NW-3	I-69 NB, Sta. 347+30 to Sta. 389+70	Ground Mounted	4240	14	59360

Figure 4.2-16: I-69 DP Noise Walls

Retaining Wall	Location	Type	Length (FT)	Area (SF)
RP-1	Rockport Road Bridge Abutment 1	MSE	185	3520
RP-2	Rockport Road Bridge Abutment 2	MSE	220	4450
F-1	Fullerton Pike Bridge Abutment 1	MSE	270	5900
F-2	Fullerton Pike Bridge Abutment 2	MSE	270	6300
T-1	Tapp Road Bridge Abutment 1	MSE	270	6160
T-2	Tapp Road Bridge Abutment 2	MSE	270	6160
V-1	Vernal Pike Abutment 1	MSE	220	3900
V-2	Vernal Pike Abutment 2	MSE	300	8450
K-1	Kinser Pike Abutment 1	MSE	190	3200
K-2	Kinser Pike Abutment 2	MSE	200	4110
S-1	Sample Road Abutment 1	MSE	230	5860
S-2	Sample Road Abutment 2	MSE	210	4740
C-2	Chambers Pike Abutment 2	MSE	215	4090
LC-1	Liberty Church Road Abutment 1	MSE	240	5980
LC-2	Liberty Church Road Abutment 2	MSE	240	5980
RW-1	Fullerton Pike EB, Sta. 68+50 to Sta. 70+85	MSE	235	1680
RW-2	Fullerton Pike WB, Sta. 67+25 to Sta. 73+94	MSE	669	8042
RW-3	I-69 SB, Sta. 275+00 to Sta. 280+00	CIP	500	5285
RW-5	SR48 WB, Sta. 42+50 to Sta. 47+00	MSE	450	5400
RW-6	SR48 EB, Sta. 41+80 to Sta. 47+05	MSE	525	5250
RW-7	SR48 EB, Sta. 53+00 to Sta. 57+90	MSE	490	7680
RW-8	I-69 NB, Sta. 727+08 to Sta. 734+57	CIP	749	9415
RW-9	I-69 SB, Sta. 756+18 to Sta. 757+78	MSE	160	2242
RW-10	I-69 NB, Sta. 765+09 to Sta. 774+84	MSE	800	24000
RW-11	I-69 SB, Sta. 940+41 to Sta. 943+28	MSE	287	3012
RW-12	I-69 NB, Sta. 945+50 to Sta. 947+50	MSE	200	3000
RW-13A	I-69 SB, Sta. 953+04 to Sta. 959+65	MSE	674	12037
RW-13B	I-69 SB, Sta. 951+93 to Sta. 958.38	MSE	746	16353
RW-14	I-69 SB, Sta. 1146+00 to Sta. 1157+75	MSE	1175	8120
RW-15	I-69 NB, Sta. 1159+00 to Sta. 1168+50	MSE	950	9545
RW-16	I-69 SB, Sta. 1173+75 to Sta. 1176+75	MSE	300	2945
RW-17	I-69 SB, Sta. 1180+50 to Sta. 1182+50	MSE	200	2000
RW-18	I-69 NB, Sta. 1181+50 to Sta. 1185+58	MSE	408	4636

Figure 4.2-17: I-69 DP Retaining Walls

It will also be used when the retaining wall must support a noise wall. Precast concrete panels with limestone veneer form liner pattern mounted between painted wide flange steel posts will be used for all noise walls. Noise walls will be accentuated with wide, limestone-clad pilasters at regular spacing. The materials and methods chosen are commonly used throughout the State and have a

MSE – Mechanical Stabilized Earth // CIP – Cast-in-Place

performance record that, with proper Routine Maintenance and Rehabilitation Work, will provide structures with at least the required Residual Life at Handback. All materials and methods used in the construction of the bridges and walls will be accordance with the Department Standard Specifications.

4.2.1.2.b Structures Schematics



The preliminary designs have been advanced with the goal of providing the most cost effective and attractive structures that can be constructed efficiently and with the least disruption to existing traffic. The Technical Drawing roll plots identify the location of each of the bridges, retaining walls, and noise walls throughout the project. The Technical Drawing roll plots are identified in [Appendix H-2](#).

4.2.1.2.c Preliminary Durability Plan

Implementing a transportation structure Durability Plan is a key element in the overall Asset Management program for Section 5. The Durability Plan prepared by the I-69 DP Team will present a uniform approach and implementation to the design, construction, and operation and maintenance of bridges with goals to specifically exceed the specified condition rating of each structure at substantial completion.

The Durability Plan will include:

- Identification of deterioration mechanisms
- Materials selection during design
- Design detailing in accordance with durability goals
- Verification that construction quality and components are in compliance with durability requirements
- Development of an in-service inspection and deterioration modeling program to plan, prioritize and budget maintenance activities

The major stages in the Durability Plan implementation include:

- Preliminary and Final Engineering Design
- Construction Stage Methods and Detailing
- In-Service Operation and Maintenance and Inspection
- Residual Life at Handback

It will allow designers to make good decisions on materials, design details, construction methods and operational aspects, such as inspection access, with the goal of increasing service life and lowering maintenance costs.



The principal deterioration mechanisms for bridges and structures in Indiana are climatic and environmental. Freeze-thaw

cycles, rain, snow and de-icing materials accelerate the rate of degradation of structure elements. Other impacts to service life come from wear and traffic use and include traffic volumes, trucks over the load limit, and even extreme events that include petroleum spills, fires and earthquakes.

The type of concrete design used for various elements will consider special mix designs for low-permeability for decks, barriers and other areas exposed to weather and water splashing. Epoxy-coated reinforcing steel for bridge decks, barriers and portions of the substructure connected to the deck will reduce potential for corrosion and deterioration. The use of protective elements such as concrete sealants and paint and overlays for deck wearing surface are also planned for this project and will further slow deterioration.

The use of concrete for new bridge decks, girders and crash-tested barriers will lower the risk of environmental and life cycle events and decrease the rate of deterioration.

Past experience has shown that significant long-term maintenance issues are caused by poor design and/or poor construction detailing practices. An example of design detailing is the use of deck joints. It is well-documented that water intrusion occurs through deck joints, and in combination with ice and snow, will cause concrete spalling and deterioration of abutment and pier seats and accelerate bridge bearing failure. Use of integral and semi-integral abutments proposed for this project eliminates deck joints. Our design has been coordinated with both O&M and LCM to provide the most cost effective design.



The quality of construction can also be determinant to the overall service life. The quality and durability of construction materials and the processes taken to ensure conformance to the specifications and expected service life will be outlined in a Construction Quality Management Plan (CQMP). The CQMP will outline processes and methods that ensure quality control and testing and proper verification of quality conformance. Contractor and Sub-contractor work, manufacturers, products and materials suppliers will be subject to compliance with durability requirements.

Bridge inspection and reporting is a major component of the on-going evaluation of structure condition and the basis for establishing a baseline of deterioration models that measure deterioration rates of structure elements over life cycle and for predicting maintenance costs. Each bridge will be



Figure 4.2-18: Spalling of Concrete on Bridge Deck

inspected at least every two years and in-depth for critical elements such as fracture critical steel at intervals that vary depending on structure type. The conditions will be input to

deterministic deterioration models using the AASHTOWare BrM software and enable us to prioritize, budget and plan for annual maintenance activities. Additional discussion regarding our overall Project Durability Plan is provided in [Section 4.1.5.2](#).

Bridge inspection reports will be prepared in NBIS format and include element-level condition assessments in accordance with the AASHTO Guide Manual for Bridge Element Inspection

4.2.1.3 Context Sensitive Solution Elements

The Section 5 corridor is visually separated into urban, rural, forested and agricultural segments. Our Aesthetic and Landscape Concept Master Plan will be designed to enhance the qualities of those areas. Contour grading, slope treatments, planting schemes and landscape surface treatments will reflect the landscape character of the overall regional landscape. For instance, the planting schemes in urban areas are more formal than those in rural or forested lands, Indiana Limestone outcroppings will be carefully excavated to expose features as they would appear in nature and retaining walls and sound walls will be designed to be reminiscent of these local limestone features. The Technical Drawing roll plots in Appendix H-2 depict the concepts to be employed. Context

sensitive site level solutions involve line, form, texture and color selections of landscape architectural treatments that create a sense of place. Examples of site level context sensitive solutions we will employ include the detailed design of the unique architectural treatment of abutments at bridges, enhanced light fixtures along sidewalks, and railings and parapets at bridges. Pedestrian and bicycle accommodations further enhance the settings and help introduce a pedestrian scale to the project.

Bridge Enhancements – Seven bridges, a combination of new and existing, have been



Figure 4.2- 19: Indiana Limestone Veneer

selected to receive bridge aesthetic enhancements. These four types of aesthetic enhancements include Community Identifiers, Indiana Limestone Veneer/texture in

bridge elements, Ornamental Lighting, and Enhanced Architectural Railing.

- Tapp Road and Fullerton Pike bridges will receive all identified enhancements
- The SR 48/3rd Street and SR 45/2nd Street bridges will receive all identified enhancements except for the Indiana Limestone Veneer/texture
- SR 46 and Walnut Street bridges will only receive Community Identifiers
- Sample Road bridge will only receive the Community Identifier and the Indiana Limestone Veneer

In addition, all seven bridges will incorporate a natural color palette on the bridge structure elements such as the parapet walls, pilasters, girders, and bridge piers. Ornamental lighting will also be incorporated into the bridges to highlight the Community Identifiers and bridge sidewalks. The design team's landscape architects and bridge engineers will work together in the development and incorporation of these aesthetic enhancements, as shown in [Figure 4.2-20](#).



Figure 4.2-20: Example of the bridge aesthetics the I-69 DP Team will incorporate on the Project

Streetscape Enhancements and Vegetation – The landscape palette selected for this Project includes a strategic array of native plants to provide visual interest in all seasons, introduce shade and minimize extensive maintenance.



Figure 4.2-21: SR 45/2nd Street Landscape Concept Bicycle and Pedestrian Facilities - Bicycle and Pedestrian Facilities are integrated with the planned landscape, roadway and bridge structures. A concerted effort has been made to promote and encourage bicycle and pedestrian use of the overpasses through widened sidewalks and trails as well as signage to direct the users. Street tree planting concepts are planned to further make these areas more pleasing and compatible with pedestrian and bicycle travel. The City of Bloomington Bike Plan provides a wealth of background information to help accommodate the needs of the bicycle community. This Plan was referenced in the design of the Project.

Retaining Walls – Retaining walls will generally be less visible to the traveling public since they are constructed in cut sections and placed lower within

a traveler's viewshed, while the noise barrier walls loom as high as 20 feet above the landscape and often follow the roadway for long distances. The lower retaining walls will appear as limestone outcrops with Limestone Veneer form liners texturing the wall's face.



Noise Barrier Walls – Three noise barrier walls have been identified within the project limits. These walls range in heights from 12 feet to 18 feet and would be constructed of pre-cast concrete panels set between wide flange beam posts and pre-cast 30" wide pilasters. These noise barrier walls provide the opportunity for the introduction of texture and color. The pre-cast panels would have a natural limestone texture with a random pattern viewable from I-69. A color similar to that of the natural limestone will be applied as paint or stain.

The neighborhood side of the noise barrier walls will have a different texture. Three alternatives have been proposed, Running Bond Brick Pattern,



Figure 4.2-22: Indiana Limestone Outcropping

Horizontal Groove Pattern, and the Random Ashlar Pattern. These patterns along with other patterns and color alternatives will be presented to the public to determine the final neighborhood wall pattern and color.

Rock Cuts/Slope Rounding - Indiana Limestone will definitely be encountered throughout the corridor with concentrations in Segments 5D, 5E and 5F. Rock cuts will be carefully excavated to reflect the character of the limestone outcrops as they appear naturally creating additional visual interest along the roadway. The near vertical limestone faces will transition between sloped earth-cut slopes that will further accentuate the limestone outcrop as a visual feature. Earth slopes will be generously rounded to facilitate blending the project with the existing rolling terrain and dominant agricultural character of the area. Slopes will be seeded with native seed varieties and wild flowers to further blend the project with the

environment. All slopes will be protected with temporary and permanent erosion control features that include progressive grading and seeding, erosion control blankets and fiber rolls and a program to continually evaluate and maintain the landscape and erosion control features.

Woodlots – Mature woodlands and mixed hardwood trees are spaced randomly throughout the corridor. Where trees have to be removed to accommodate the widening, the result is a tree line of bare tree trunks with leaves clustered at the tree tops. The foliage that once reached to the ground

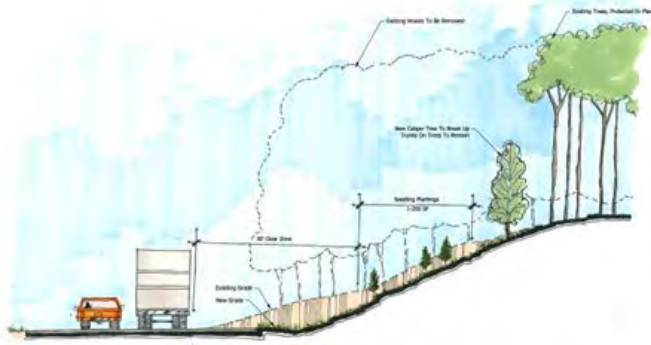


Figure 4.2-23: I-69 DP Woodlot Planting Scheme

forming an attractive visual barrier will be gone. One way to help blend this roadway with the natural landscape is to reestablish a solid tree line edge. This will be done by planting caliper hardwood trees near the ROW where mature trees have been removed. Seedlings will also be planted on the grassy slopes closer to the roadway to create a vegetative transition between the roadway and mature forest vegetation. Over time, this planting scheme will provide visual interest to the traveling public and reestablish a visual screen for adjacent residents.

Selected Intersection Enhancements – We have taken the opportunity to enhance existing and new traffic interchanges and selected intersections within the context sensitive approach. Enhancements will include streetscape improvements include street tree and shrub plantings in medians and street furniture along sidewalks and bike and pedestrian amenities, where trails or multi-use paths are adjacent to or across the road.



Figure 4.2-24: SR 48/3rd Street Intersection Enhancements

4.2.1.4 Utility Relocation and Adjustment Work Elements

The I-69 DP Team has developed a Utility Master Plan included in the Technical Drawing roll plots. The plan includes protection in place, relocation concepts and priority relocation stages to ensure the highway construction stays within the allotted schedule and budget.

Included in our utilities approach is the overall goal to reduce protection work and utility relocations through value engineering, construction sequencing and clear understanding of the utility relocation process as it relates to overall construction.

We have identified and been in communication (with IFA's consent) with the following thirteen utility companies:

- AT&T (Distribution and Long Distance)
- City of Bloomington Utilities (CBU)
- Comcast Central Indiana
- Duke Energy
- Hoosier Energy Rural Electric Cooperative
- Indiana University
- Martinsville Utilities
- South Central Indiana REMC
- Southern Monroe Water Corporation
- Smithville Communication
- Washington Township Water Corporation
- Vectren Energy
- Zayo Fiber Solutions

4.2.1.4.a Performance of Utility Relocations, Adjustments and Protections

While all utilities within the project limits are critical facilities that must be protected in place or relocated, we have identified three major utilities that require immediate attention due to their:

- Relocations costs
- Location within the proposed first phase of construction
- Facility being critical to the utility company and/or the local users



Duke Energy: Duke Energy Transmission has existing 138kV overhead transmission within a 100' easement on the west side of I-69 from Fullerton Pike to 3rd Street. In a meeting held with Duke Energy on October 24, 2013, it was identified that this line could remain in the current alignment within their 100 foot easement with new, raised poles installed to meet clearance requirements above newly placed roadway embankment for the cross roads. This is circuit is part of a redundant system therefore it is permissible to take the line out of commission



Figure 4.2-25: Duke Energy Transmission Line

during the allowable outage dates of September 15th to June 1st. Construction of Rockport Road and Tapp Road crossroads and bridges will be sequenced to allow relocation of Duke Energy facilities prior to the start of work. In addition, Duke Energy has identified an existing pole at the intersection of the two circuits in the system. This pole, located just south of 2nd Street and must be protected in place as relocation of this pole would necessitate a shutdown of the entire redundant system, which is both costly and has the potential to impact the surrounding area. **Our plan to retain the existing configuration of the SR 45/2nd Street interchange allows this pole to remain in place.**

Vectren Energy: Vectren Energy Transmission has an existing 16" high pressure gas main on the west side of I-69 at both Fullerton Pike and Tapp Road. The existing line is located within a 50 foot

easement, which Vectren has requested be retained outside the LARW. INDOT has recently converted this relocation to a Type 1 relocation and although the this agreement will now be between the Utility and the State, easement acquisition for this relocated facility has the potential to impact scheduling of Phase 1 of construction. Our team will develop workarounds, like the one we proposed



Figure 4.2-26: CBU Lift Station on Vernal Pike

in an ATC which would allow the transmission line to remain in place until the bypass line is installed and two diversion valves are installed. The existing line could then be abandoned in place.

City of Bloomington: City of Bloomington Utilities (CBU) exists throughout the corridor at the southern end of the project. CBU has developed preliminary work plans for review by both INDOT and the development teams. In reviewing the work plan provided by the City and in a meeting held on October 10, 2013, the team has identified three requests by CBU which should be considered a betterment, meaning the costs of such request should be paid for by CBU:

- Dual casings at every crossing of I-69. The second casing is for future use and should be considered a betterment.
- Casings for sewer crossings. Per the INDOT Utility Accommodation Policy, one casing is required for crossings of utilities under pressure. Casings for gravity systems should be considered at the request of the utility and thus a betterment.
- Casings for future utilities. CBU is requesting several casings for future water line crossings.

4.2.1.4.b Construction Staging

In addition to those utilities listed above, we have created a Utility Matrix to continually track progress of all utilities at specific locations, expanding upon the Matrices provided by IFA during the bidding phase of the project. Our team has added tracking information such as required relocation timeline, agreement status, prior rights

determinations and comments. This matrix consists of 208 line items that will be used throughout design and construction of the project to guarantee utilities do not affect the critical path schedule.

4.2.1.4.c Coordination with Utility Owners

The I-69 DP Team has attended and/or held meetings with utility companies listed in [Figure 4.2-27](#). In these meetings, we gained valuable insight including location specific solutions for protection-in-place and/or utility relocations which will be utilized and further expanded during final design to complete the relocation agreements and the relocations themselves in a timely manner and within budget. We will continue this proactive coordination during final design.

Date	Utility
Sept. 25, 2013	IFA Utility Forum
Oct. 10 & Dec. 19, 2013	Vectren Energy
Oct. 10, 2013	Hoosier Energy Rural Electric Cooperative
Oct. 24, 2013	Indiana University
Oct. 24 & Dec. 20, 2103	Duke Energy
Oct. 10 & Dec. 19, 2013	City of Bloomington Utilities
Oct. 10 & Dec. 19, 2013	Smithville Communications
Oct. 11, 2013	Washington Township Water Corporation
Oct. 24, 2013	AT&T Distribution
Dec. 20, 2013	South Central Indiana REMC

Figure 4.2-27: I-69 DP Team Utility Meetings

4.2.2 Design-Build Management Approach

The I-69 DP Team's approach to D-B management is based on the full integration of design, construction and quality control. This allows our team to provide timely input during the process to efficiently and effectively fulfill the IFA goals.

4.2.2.1 Organization

4.2.2.1.a Project Management Organization for Design and Construction

The I-69 DP Team organization will provide services of the highest quality, consistent with the best transportation P3 management practices and in accordance with the requirements of the RFP. [Section 4.1.1.a.i](#) and [Figure 4.1-5](#) identifies our overall project management organization and the participating firms and individuals involved in the design and construction of the project.

4.2.2.1.a.i Management Approach for Design Development and Coordination

Vicente Ferrio, our Construction Manager, will be responsible for the overall management of the D-B Team. Our Lead Engineer, Mike Riggs will manage the design team and coordinate with Vicente throughout the D-B process. This will result in an integrated, efficient, quality project that meets all of the IFA/INDOT objectives. Our coordination approach will include: Early Design Workshop, Internal Morning Design Coordination Briefings, Design Status Meetings and Task Force (TF) Meetings. All meetings will be held at the Project Office in Bloomington. Each of these meetings is described in [Figure 4.2-28](#).

4.2.2.1.a.ii Approach for Design Delivery

Project Team Location

The Key Personnel of the I-69 DP Team will be located in the Project Office 100 percent of the time as required in the PPA. The other design members will perform their work in their respective offices, but will be available to attend meetings and perform other activities at the Project Office. It is anticipated that the Project Office will be in Bloomington, Indiana.

Integration of Design to Ensure Consistency and Quality



To ensure consistency and quality, all I-69 DP Team members will be trained in a full-day workshop known as: "Our Success Design-Build Processes" which will include but is not limited to:

- Contract Requirements
- Documentation Requirements
- Filing Requirements
- Quality Control Requirements
- Electronic Document Procedures
- Utilization of INDOT CADD Standards
- Use of Project Wise to Control the Integrity of our CADD files
- Understanding the Baseline Project Schedule
- Project Team Commitments

The I-69 DP Design Team and the Construction Team has been working closely together for the past six months to develop a superior design and approach to constructing the project.

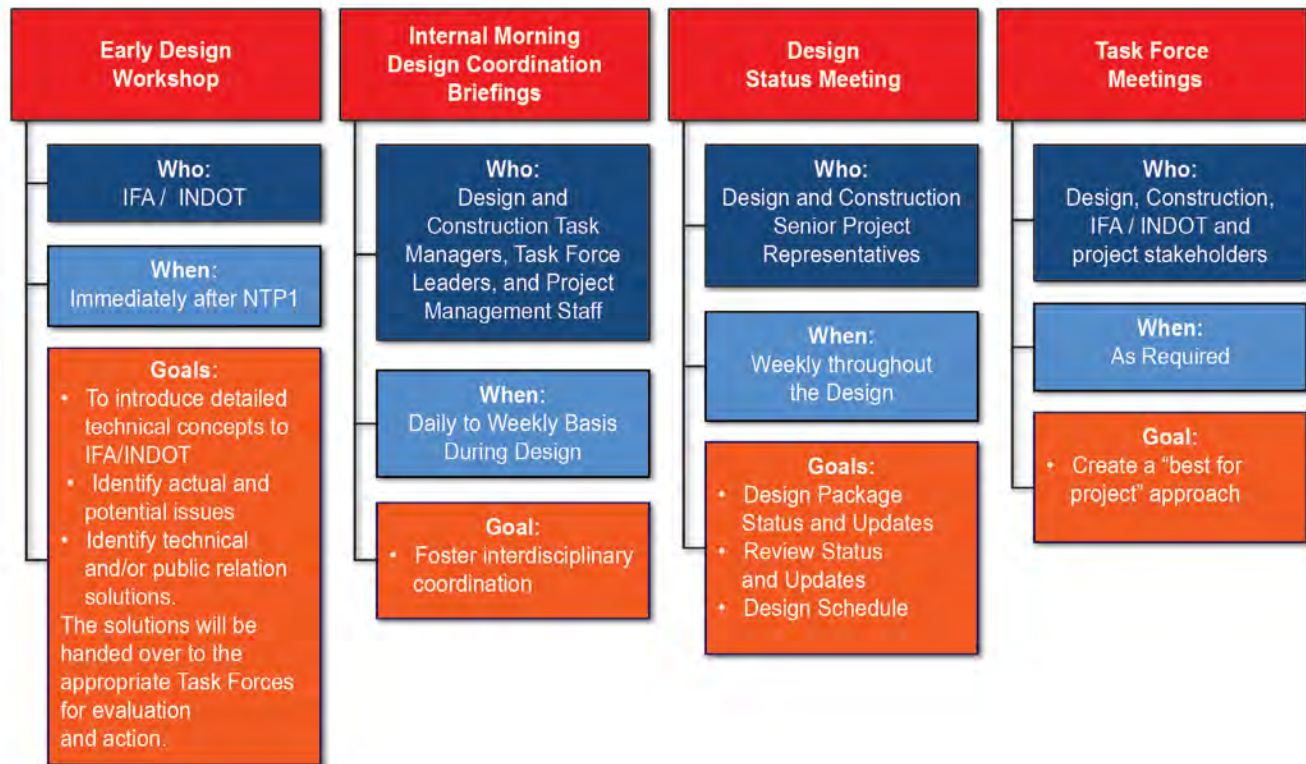


Figure 4.2-28: The I-69 DP Team Coordination Meetings

4.2.2.1.b Internal Organization Systems

The I-69 DP Organization System enables full design and construction integration. We have a proven management and delivery team that is results based driven and has successful completed projects similar in nature to this project. The features of our Organization System include:

- Safety First Mentality
- Integration of the Design and Construction Personnel
- Ownership of Work
- Accurate Reporting
- Informed Decision Making
- Coordination with Utilities and Project Stakeholders
- Coordination with O&M Personnel
- Dispute Resolution at the Lowest Staff Levels
- Schedule Driven Results

4.2.2.1.b.i Management Approach for Construction



As is shown in [Figure 4.1-5](#) (the I-69 DP Team Organization Chart), clear lines of responsibility have been determined from

the Construction Manager to the various managers and superintendents. The Construction Manager will be responsible for coordinating the activities of the various managers and superintendents who in turn will manage subconsultants and subcontractors. The managers and superintendents will be empowered to make key decisions affecting the day-to-day construction of the Project. Weekly meetings will be held with the entire construction management team to plan for upcoming activities, and to discuss and reach resolution on any outstanding issues. Another very key element in the management approach for construction will be the inclusion of the design team in interaction with the construction team. For the past six months, the designers have been working closely with Corsan staff and representatives from the three major subcontractors (Gradex, E&B Paving and Force Construction) to ensure that the preliminary designs we are presenting have been fully vetted for constructability and value. This interaction will continue throughout the project.

4.2.2.1.b.ii Approach to Providing a Unified Work Effort

For design, we have broken the project into ten Design Units, each of which will be led by a Design Unit Manager, who will report to the Lead Engineer. Within the Design Units, various AZTEC/TYPSA disciplines and subconsultants will be tasked to develop portions of the design. The Design Unit Manager will be responsible for leading the Design Unit's efforts, making sure that all work efforts are unified. We will utilize Project Wise as a collaboration tool to share information between Design Unit team members. The Lead Engineer will manage the Design Unit Managers, making sure that they have adequate resources, clear design direction and that questions and issues are resolved in an expeditious manner. As with the construction team, the Design Unit Managers will be empowered to make key decisions affecting the day-to-day design of the Project.

Breaking the design portion of the Project into Design Units, each of which will have a Design Unit Manager, improves the span of control for the Lead Engineer.

4.2.2.2 Design-Build Baseline Schedule

The I-69 DP Team utilized Primavera P6 to develop the Design-Build Baseline Schedule. All major tasks associated with the design, construction, and O&M have been included and the critical path items have been determined for monitoring purposes. The Schedule is more fully discussed in [Section 4.1.2](#) and [Appendix H-3](#).

4.2.2.2.a Schedule

4.2.2.2.a.i Approach for Updating Schedule

The I-69 DP Team Lead Scheduler will update the baseline schedule on a monthly basis beginning with the first full month after receiving NTP1. The process will involve obtaining and documenting the percentage completed for all tasks started or in progress from the task manager in-charge of each work item. Once this information has been obtained, the P6 schedule will be updated and the appropriate data entered to determine the monthly progress for the project.

We will submit monthly progress reports to the IFA no later than 7 business days following the end of each month. The progress report will contain the updated project schedule along with a narrative including the following information:

- A description of the Project progress as a whole, including all phases of the Work. We will identify start date and completion dates on major areas of the Work. The information will be grouped based on the WBS
- A summarization of QA/QC findings
- Identification of any pending or resolved claims during the period
- Identification of schedule activities planned for the upcoming period
- Identification of any problems and issues that arose during the month and issues that remain to be resolved
- Summarization of resolution of problems/issues raised in previous progress reports or resolved during the period
- Identification of Critical Path issues and proposed resolution
- Provision of a report on the Project Schedule Deadlines showing the schedule dates for the immediate prior month and current month. We will provide a narrative to explain variations greater than 30 days
- Provision of monthly expenditure projection curves
- Provision of monthly earned value report for all activities and a total earned value for the Project
- Identification of requested and/or required IFA actions for the next month
- Provision of digital progress photographs that accurately depict project progress as outlined in the Progress Report narrative

4.2.2.2.a.ii Work Breakdown Structure (WBS)

The WBS defines tasks that can be completed independently of other tasks, facilitating resource allocation, assignment of responsibilities, and measurement and control of the project.

A complex and/or large project is made manageable by first breaking it down into individual components in a hierarchical structure, known as the WBS. The I-69 DP Lead Scheduler has developed a WBS for this project that follows the following elements:

- The scope of the deliverables of the project
- The start and end time of the deliverables of the project
- The budget for the deliverables of the project
- The name of the person, group, discipline, or division responsible for the deliverables of the project

This detailed Primavera P6 schedule is contained in [Appendix H-3](#).

4.2.2.2.a.iii Approach to Integrate Subcontractors

The I-69 DP Lead Scheduler has prepared the preliminary baseline schedule with input from subcontractors and suppliers and we will continue to integrate their input during monthly schedule updates to provide accurate information in the monthly progress reports. Future integration will be accomplished through a variety of methods including phone conversations, e-mails, visits to supplier's offices, and discussions with subcontractors at regularly scheduled project team meetings. We believe that the schedule is only as good as the information input and therefore we fully understand that all items must be updated accurately.

We will require our subcontractors to execute the work based on their contracted milestones to ensure schedule compliance.

4.2.2.2.a.iv Approach to Manage Resources and Activities

The I-69 DP Lead Scheduler will integrate the cost control module within Primavera P6 to manage resources and activities to take full advantage of the scheduling software capabilities. Should the work be delayed on any critical path item for the greater of either 30 days in the aggregate or the number of days in the aggregate equal to 5 percent of the days remaining until Substantial Completion, the next Project Status Schedule shall include a recovery schedule demonstrating the proposed plan to regain lost progress and how to achieve Substantial Completion by the specified date.

Sometimes the critical path items are not resources but are rather a supply issue. In this case, we will call other suppliers to try to obtain the materials sooner or we may ask to accelerate supplies scheduled in

later months to make up the negative schedule float. We have the experience and resources to deliver this project on our proposed schedule.

4.2.3 Design-Build Quality Management

Our DBQMP consists of the Design Quality Management Plan (DQMP) and the Construction Quality Management Plan (CQMP).

The I-69 DP Quality Manager, Mario Benitez, will be responsible for executing the Design-Build Quality Management Plan (DBQMP). The number one goal of our DBQMP is to ensure that the work conforms to the requirements of the PPA. We will produce the DBQMP by following the guidelines described in Section 2 of the Technical Provisions.

Implementation of a comprehensive and well-executed DBQMP will result in superior quality deliverables, shorter review times and a superior design product. I-69 DP has developed the plan to ensure preparation of quality products and compliance with IFA/INDOT requirements.

4.2.3.a Design Quality

Role	Responsibilities
Design Quality Manager (Tom Maki)	• Overall implementation of the DQMP • Verify that all design comments are appropriately resolved and incorporated • Verify that the review becomes part of the project record
Design Unit/Task Managers	• Selecting reviewers • Assembling the review packages for distribution by document control • Consolidating review comments • Resolving comments and their final disposition • Ensuring that comments are incorporated or addressed in their discipline's packages.
Document Control Manager	• Distributing the review packages • Recording receipt of review comments • Distributing the comments to the Design Unit/Task Managers • Maintaining a clear record of the reviews and updated design deliverables

Figure 4.2-29: Quality Team Responsibilities

All design documents that are submitted for formal review or release undergo detailed quality control checks beforehand. Detail checking is completed on all deliverables, including the following: Plans, Calculations, Computer Program Input, Specifications or Special Provisions, Structural Design Plans and Calculations and Studies, Reports, other Design Documents.

Several review procedures define the ongoing review of the design as it progresses from proposal stage to completed plan documents. These procedures include the following:

- **Coordination Reviews** that assure all aspects of the design are considered as the design progresses. These reviews are accomplished by routing the design documents of one discipline to all other disciplines for review and comment.
- **Technical Reviews** that utilize the technical expertise of senior staff to enhance the design process. The reviewers are chosen for their prior experience and extensive background and experience on similar projects. Reviewers are not involved directly in the project design, their reviews focus on assuring that the design meets all project requirements, utilizes the best technology and methodology available, and includes client-specific preferences. Their input is given periodically in formal comments that are written and tracked until resolution is reached

and the comments are incorporated into the design.

- **Constructability Reviews** assure that construction related expertise is incorporated into the design. Experienced construction engineers and managers will complete these reviews, adding practical construction considerations to the design. The reviews include the use of tracked and formal comments which are returned to the design team in written form. **The I-69 DP Team has been doing exactly this for the past six months, developing the preliminary design and Technical Proposal.**
- After all reviews are completed and comments are received, the Design Unit Team will assess the comments and meet with the reviewer to resolve them. Tracking forms will document this progress. Once all comments are resolved, the design package will be forwarded to the next steps in the agency review process.



The DQMP goes into detail for each of the listed functions, giving staff the quality roadmap for the project design development. Procedures will be included for preparing and checking all drawings, specifications, and other design submittals to ensure that they are independently checked by experienced and qualified professionals. Our Design Quality Management Process is shown in **Figure 4.2-30**.

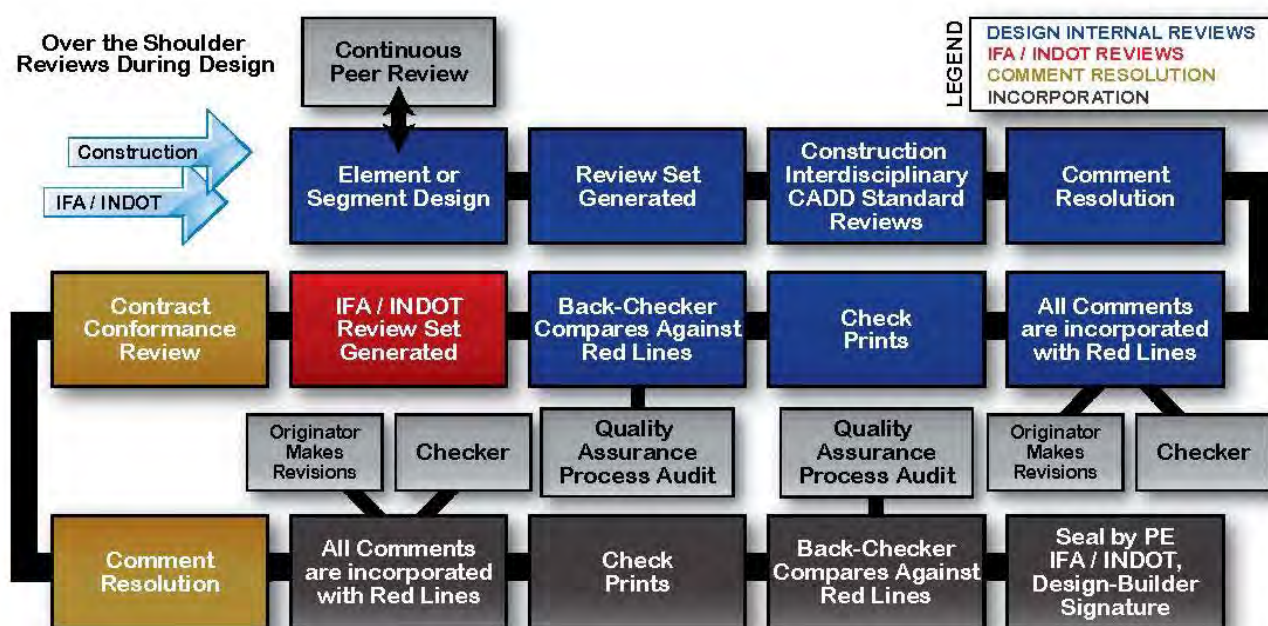


Figure 4.2-30: I-69 Design Quality Management Process

How the IFA/INDOT will be Involved

IFA/INDOT will have quality control personnel co-located with I-69 DP staff at the Project Office to oversee the I-69 DP Team QC efforts. On occasion, other organizations, such as municipalities, counties, or utilities will request to review and comment on the design. These reviews will be scheduled and scoped per the IFA's direction. The reviews will be documented and comment tracking forms will be used and entered into the standard review and comment resolution process.

Audits will be periodically performed by the IFA quality management staff to certify that the QC procedures and all applicable reviews have all been accomplished.

Proposers Approach to Working Relationships and Responsibilities

The I-69 DP Team believes positive working relationships lead to an on-time or early delivery of a high quality project. Through the one-on-one meetings with IFA/INDOT, we have begun development of a positive relationship. Internally, the six months of work between our designers, contractors and the concessionaire has built the foundation for continued synergy, which we will carry forward into final design, construction and the Operating Period. We will continually monitor the working atmosphere on the project and make improvements as necessary. All team members will fully understand their responsibilities and workshops will be held on a regular basis for updated procedures and policies.

IFA/INDOT Oversight Procedures to be Implemented

IFA/INDOT will perform Owner reviews in accordance with the contract requirements. Formal final reviews will include the use of electronically tracked, formal comments delivered to the design team for resolution. Each comment is tracked until resolution between the IFA/INDOT's reviewer and the designer is reached and the comment is incorporated into the design.

Conformance with Federal Oversight Requirements

The I-69 DP Team will review all Federal guidelines and implement procedures and training to all staff in

the Federal processes. We will incorporate the Federal guidelines into the design and design review procedures and follow through with the resolution of outstanding issues.

How Design Quality Management will be Documented

The Design Quality Manager will be responsible for the documentation of design quality management. All staff will be required to enter their quality management actions into ProjectWise (the document control system) at regular intervals.

The I-69 DP Team document control system will have a quality management tracking component that will contain all details of the quality management functions.

How Changes will be Made to Correct Design

Verification will be performed in accordance with DQMP procedures to ensure that the design packages have incorporated all applicable requirements and met all design standards. Validation will be performed in accordance with planned procedures to ensure that the resulting product is capable of meeting the requirements for the specified application and intended use. Non-conformances that are discovered will be addressed by corrective actions with follow-up by quality management staff for completeness. The I-69 DP Team will follow the detailed prescribed procedures in the DQMP for the resolution of non-conformances.

4.2.3.b Construction Quality



The documented benefits of a P3/DB project include faster delivery, improved constructability, less cost growth, early cost certainty, and fewer claims. To assure the Owner of a quality project, the I-69 DP Team will have an excellent CQMP managed by experienced quality professionals.

The Federal Highway Administration's Transportation Construction Quality Assurance (QA) Reference Manual defines QC as "The system used by a contractor to monitor, assess, and adjust their production or placement processes to ensure that the final product will meet the specified level of quality"

The Construction Quality Manager will report directly to the overall Quality Manager who in turn reports directly to the Board of Directors. This

conveys support for quality control and minimizes potential conflicts with the production staff. The CQMP describes all of the quality control activities that are required to meet the specified level of quality.

Our CQMP consists of the following core elements:

- Contractor Quality Control
- Agency Acceptance
- Independent Assurance
- Dispute Resolution
- Personnel Qualifications
- Laboratory Accreditation

Coordination and communication between the design-builder and the Owner is essential for effective quality management. By working together within a well-defined QA program, the IFA and the D-B team can meet the goal of delivering a high quality project to the travelling public.

CQMP reviews and audits at prescribed intervals will be used to monitor conformance and success in meeting plan goals. The reviews will consist of an evaluation of the effectiveness of the quality processes.

Approach for Integrating with Design

Working with the Construction Quality Manager, the Design Quality Manager will assure integration of the construction quality process into the design areas. When the Project is being constructed, the Design Quality Manager will verify that all engineering design requirements are met. Design reviews with construction personnel will be conducted to evaluate that appropriate design, safety, environmental, and technical standards are being incorporated into the final contract documents. These design services continue during construction, as follows:

- Field design changes
- Notice of design changes
- Requests for information from the field
- Coordination with the construction contractor to answer and resolve any design related questions
- Participation in the construction conferences
- Participation in construction meetings when requested
- Review of shop drawings, project information, shop and material certifications and test results
- Review requests for contractor change orders and provide recommendations

Discussions and decisions rendered during these meetings or communications will be documented in writing. These decisions will be considered as the recommended course of action and will follow the procedures outlined in the DQMP and CQMP.

Our Construction Quality Manager, Jason Bagwell,



is responsible for overall implementation of the CQMP. The I-69 DP CQMP will detail the procedures, criteria and directives to assure conformance with the contract. The plan

will highlight inspection requirements as well as management procedures and document preparation and control for such items as Inspector Daily Reports, Field Supplemental Agreements, Work Orders, Supplemental Agreements, and claim file development. Our construction quality management process is shown in **Figure 4.2-31**.

All personnel performing sampling and testing for QC used in the acceptance decision, verification, or Independent Assurance (IA) will be qualified. The D-B contract documents will specify the minimum qualifications for design-build personnel performing QC sampling, testing, and inspection. Minimum qualifications for the I-69 DP quality management personnel will also be clearly stated in the CQMP to ensure staff has a thorough understanding of QA principles and experience working under QA specifications.

I-69 DP will follow the processes and procedures contained in the CQMP plan and will document their quality control activities. Major features of the CQMP plan address quality objectives including: Analysis, Strategy, Staff, Administration, Procedures, Certifications, Records, Subconsultant Quality Management.



An example of our CQMP process, specifically our paving workflow chart, is shown in **Figure 4.2-32**. Quality

Assurance certifications for construction materials will be checked for conformance to project standards and specifications upon delivery to the project site. Materials will be tested by CEI staff prior to placement and used only when quality control measures have been verified. All material certifications will be filed in the field office for ease of access. Whether discovered by the D-B Team or the IFA, materials or workmanship that do not meet the specified level of quality will be properly

documented, including the nature of the non-conformance, location, extent, and disposition. The non-conformances will then be corrected as prescribed in the CQMP.

How the IFA/INDOT will be Involved

IFA/INDOT will be involved by having representatives at meetings concerning the development of the construction portion of the project. IFA/INDOT will convey their industry practices related to construction at each step of the development process.

During construction, IFA/INDOT will perform Independent Assurance (IA) functions related to construction. The purpose of the IA system is to assure the reliability of all data used by the agency in the acceptance determination. This includes the agency's verification data and the design-builder's QC data. This ensures validated quality control data is included in the final acceptance determination. Independent Assurance is intended to confirm that the sampling and testing activities performed by the agency and the design-builder are conducted by qualified personnel using proper procedures and properly calibrated and functioning equipment.

An engineering firm not associated with the I-69 DP Team or IFA will be retained to implement the CQMP procedures to control inspection, measuring,

and test equipment. The Quality Manager will work directly with this firm to ensure that they are implementing the control procedures without bias to the DB Team.

On this Project, it may be challenging to conduct verification testing at the specified rate due to the large quantities of material being placed and the fast-paced nature of the work. The I-69 DP Team will work cooperatively with IFA/INDOT to provide access and to find solutions to these issues to ensure quality will not be sacrificed due to large material quantities or fast-paced work.

Also, visual inspection will be a key part of IFA/INDOT acceptance on this project. We will provide all access for inspection of the component materials at the time of placement or installation, as well as the workmanship and quality of the finished product.

How Construction will be Documented and Corrected

During construction, a team of experienced construction inspectors and technicians will monitor and document all aspects of the construction process. Material tests will be completed at an acceptable frequency and reports issued for quality assurance record keeping.

A procedure for control of project documents and

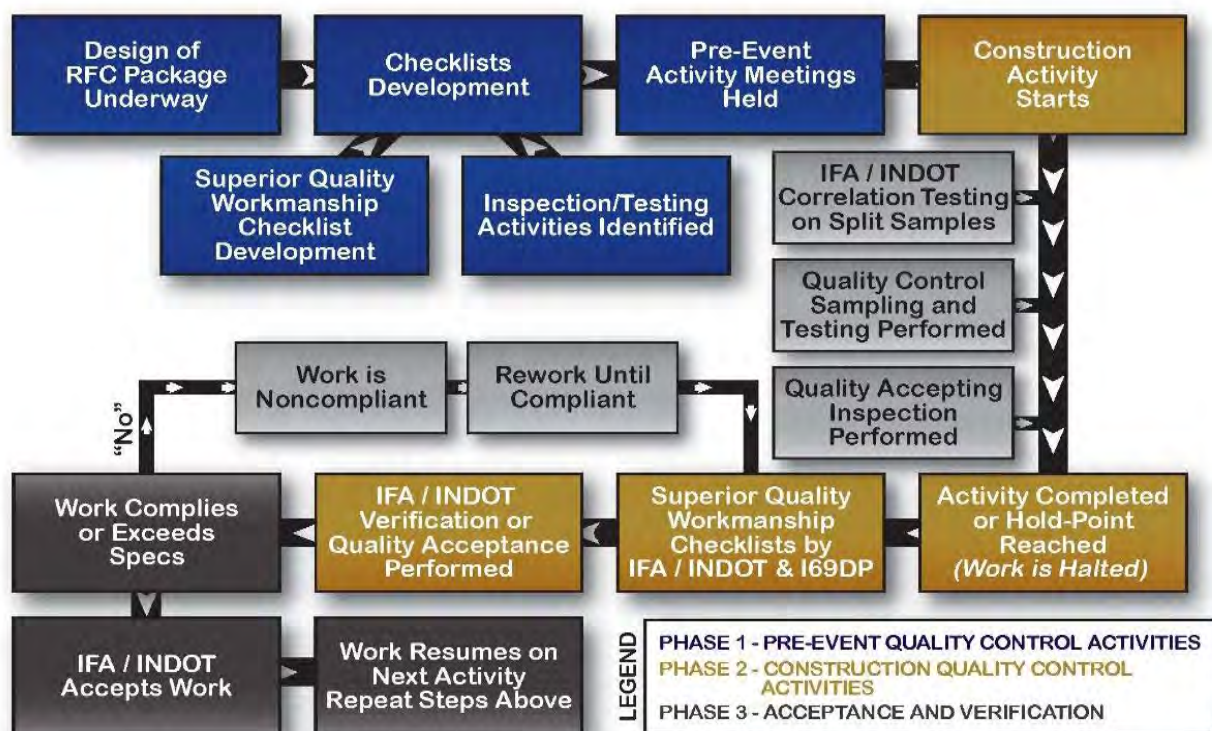


Figure 4.2-31: I-69 Construction Quality Management Process

records will be established and maintained, as discussed in [Section 4.1.1.2.6](#). This technical document control system will provide assurance that all approved contract drawings and specifications are available to all users.

The corrective action and dispute resolution process will be unbiased and timely. To address testing

related disputes, the use of retained splits of samples will be used in the acceptance decision with a well-defined decision process to determine the outcome of the dispute. The I-69 DP Dispute Resolution process is illustrated in [Figure 4.1-11](#).

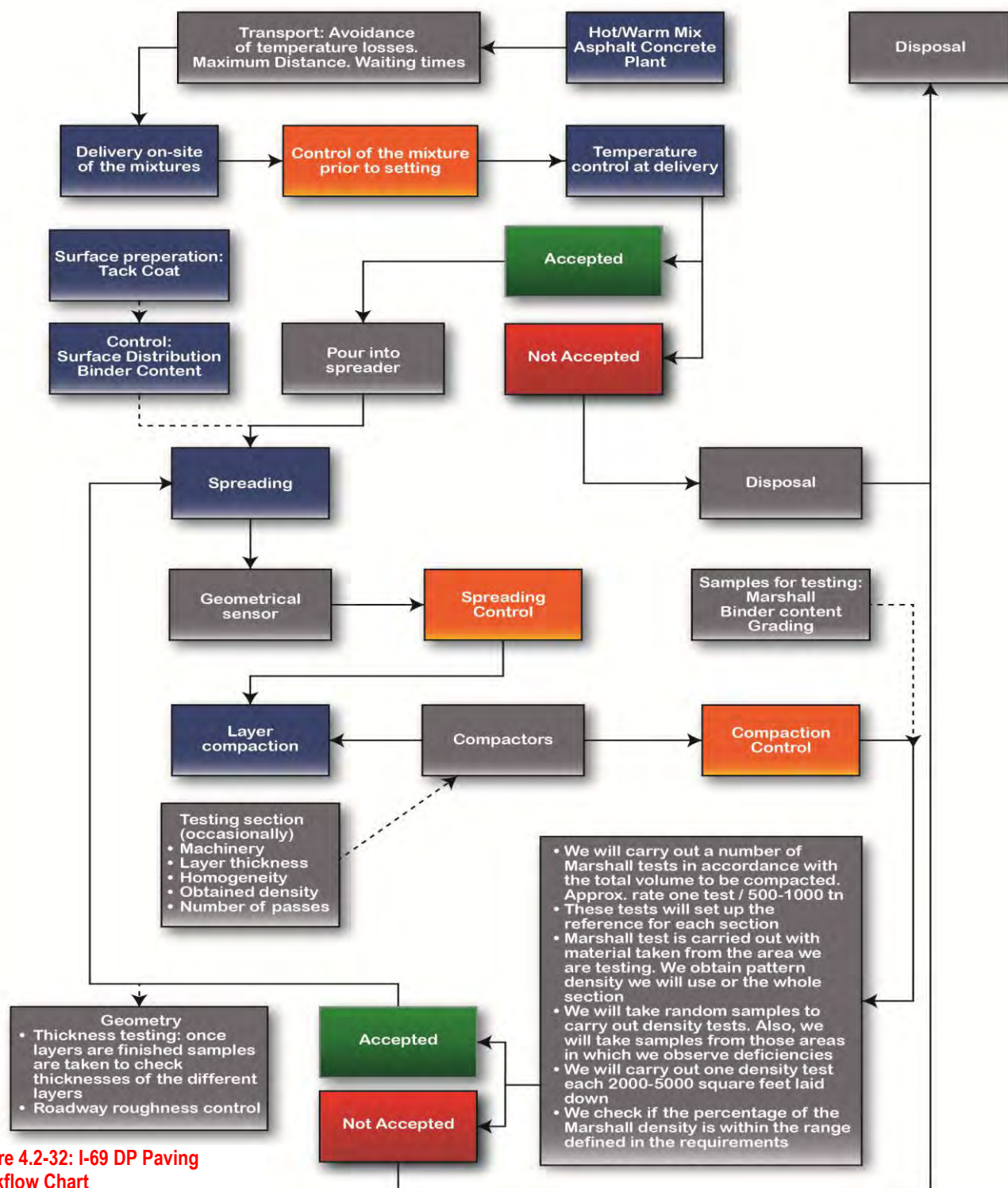


Figure 4.2-32: I-69 DP Paving Workflow Chart

4.3 Operations and Maintenance Approach



4.3 Preliminary Operations and Maintenance Plan



The main objective of Operations and Maintenance (O&M) is to safely provide high quality and rapid response service and to maintain the roadway with reduced disruption to the traveling public.

Isolux currently manages eight highway concessions. For all eight, Corsan has been or is the D-B Contractor. Two of the eight are under construction and three are fully operational. The remaining three, in which the construction part of the contract involves upgrades and expansion of existing roads, are simultaneously under construction and in operation.

Isolux has significant experience providing O&M activities to the satisfaction of its clients on a number of P3 projects. Safety and mobility are our main goals.

Isolux is currently performing O&M activities for more than 850 miles of highways/roads, including divided and undivided highways. The experience of Corsan and Isolux undertaking this type of O&M contract in an urban environment similar to I-69 Section 5 is listed in [Figure 4.3-1](#).

4.3.1 Operations and Maintenance Technical Solutions

The proposed I-69 DP Operation and Maintenance Team (O&M Team) will provide the IFA with

innovative and proven O&M technical solutions to maintain the safe and comfortable use of I-69 Section 5 by the traveling public throughout the Project's operational lifecycle. This will be accomplished by employing a variety of measures to ensure safe, cost effective routine maintenance activities; and through well managed scheduling and delivery of necessary rehabilitation works.

O&M will be managed according to our P3 Project Management System (P3PMS, as defined in [Section 4.1: Preliminary Project Management Plan](#)) and will comply with the requirements stated in the PPA and the Technical Provisions



4.3.1.1 Roadway and Bridge Operations

The O&M Team will be responsible for routine patrolling of the Project and for the Incident response during both the Construction Period and Operating Period O&M Limits. Incident detection and response will be fast, efficient and precise to ensure safe use of the roadway. The O&M Team understands the local context, including interaction and interfaces with stakeholders, local authorities, public information provision and the anticipation and management of potential hazardous situations.

The O&M Team will initially develop an Operations and Maintenance Plan (OMP) prior substantial completion that will be updated in order to address the transition to the Operating Period, and at least annually during the whole life of the Project to ensure all procedures are revised, upgraded or replaced as necessary.

Project	Country	Isolux Share	Length (mile)	Number of lanes	Status	Urban Areas	O&M Annual Cost
Via Bahia	Brazil	70%	423	1+1 and 2+2	In Operation/ Under Construction	Yes	
NH-1	India	61%	181	2+2 and 3+3	In Operation/ Under Construction	Yes	
NH-2	India	50%	120	2+2 and 3+3	In Operation/ Under Construction	Yes	
NH-6	India	50%	83	2+2	Under Construction	Yes	
NH-8	India	50%	58	3+3	Under Construction	Yes	
A-4	Spain	51%	42	2+2 and 3+3	In Operation	Yes	
Monterrey Saltillo	Mexico	100%	59	1+1 and 2+2	In Operation	Yes	
Perote Xalapa	Mexico	50%	37	2+2	In Operation	No	

Figure 4.3-1: O&M Contracts

4.3.1.1.a Monitoring the Roadway

The O&M Team's priority is safe passage for the traveling public and project staff. During the Construction and Operating Periods, the roadway will be patrolled 24 hours per day, every day of the year. The O&M Team will provide customized patrol vehicles dedicated to the Project. We will use equipment such as movable flashing arrows for safer traffic management during incidents or maintenance activities.



Figure 4.3-2: One of our customized patrolling vans.



The O&M Team will also provide two motorcycles in order to reach the Incident site as quick as possible to comply with the target set forth in the Technical Provisions

Attachment 18-1, Performance Requirements and Measurement Tables A&B (item 13.2.)

Detection of Emergencies:

The O&M Team will have access to several sources of information in order to promptly detect and respond to incidents:

- O&M Team roadway patrols
- Customer contact line
- Weather forecast monitoring
- Traffic Wise
- Web-site and I-800 system for 24 hours messages

Response to Emergencies:

The O&M Plan will include the Emergency Response Plan (ERP) that will designate the responses to be implemented in the event of an Incident within the O&M Limits. The ERP will include a comprehensive list of Incident types that could occur on the roadway and will include requirements and strategies for Incident detection,

I-69 DP will have the resources to provide quick Incident Response and keep Users safe.



responsibilities and procedures for Incident verification, and specific response strategies for each.

Upon notice of an event, the O&M Team will immediately inform the INDOT Traffic Management Center (TMC) and the Hoosier Helpers. After the detection of an incident, the O&M Team will proceed to secure the site and will provide immediate assistance. Patrollers located either at the O&M Management Center (OMMC) or patrolling on the Project, will be able to provide Incident response in less than 30 minutes. O&M Team managers will be available, if necessary, to attend to the Incident.

The O&M Team's focus will be to ensure safety for the traveling public, adjacent landowners and all Project staff. Team members will have specialized equipment on hand to secure the site. Quick installation of appropriate temporary traffic management measures will reduce the impacts of the Incident, including secondary crashes and excessive traffic delays.



Figure 4.3-3: We will work closely with the Hoosier Helpers and Traffic Wise

Keeping the TMC and Users Informed

The O&M Team will immediately inform and continuously update the TMC of any Incidents, its impact on traffic, response actions undertaken, restoration of normal traffic flow and any related information.

Once the O&M Team has informed the TMC, we will use the latest technologies and social media, such as Twitter, Facebook and email to inform users. This combined approach will minimize the impacts of Incidents and provide timely and accurate information to the Users of the facility.

4.3.1.1.b Coordination with Emergency Service Providers

Prior to the start of construction, the O&M Team will work with INDOT to coordinate the ERP with the specific emergency service providers, law enforcement agencies and relevant private sector responders. Within the ERP will be procedures to liaise with emergency services. Meetings will be held with the different agencies and departments involved on a monthly basis, to discuss any adjustments necessary to the ERP and to review any Incidents that did happen and how management of incidents and accidents could be improved.

In an emergency situation, the O&M Team will inform the appropriate authorities and will implement the procedures established in the ERP. An O&M Team roadway patroller will be sent to ensure the safety of the site and the traveling public. Once the emergency responders have arrived on site, they will take the lead. The O&M Team will stay on site to assist in traffic management under the direction of the emergency responders.



The O&M Team will also participate in quarterly traffic incident management team meetings led by INDOT. The ERP will be updated to take into account feedback received from INDOT and lessons learned. After consultation and discussion with INDOT, a contract will be established with local towing companies to enable them to respond to Incidents in accord with the Performance Requirements set forth in the Technical Provisions.

4.3.1.1.c Accident Analysis and Implementation of User Safety Improvements

Accidents will be reported on a daily and monthly basis, in accordance with requirements defined in the ERP. The quarterly Operations Report issued to IFA will include a summary of these reports.

Three different kinds of events are considered within the O&M Team's review and assessment process:

- Near misses: events that in slightly different conditions, would result in an Incident
- Incidents: events with non-significant consequences
- Accidents: Incidents with significant consequences

The ERP will describe the methodology for the tasks shown on the **Figure 4.3-4**.



Figure 4.3-4 The O&M Plan will describe the methodology to accomplish the above tasks.



Data provided will be analyzed by the O&M Team to identify the root causes of the events. Furthermore, we will obtain a historical record of traffic data, enabling a comprehensive analysis of traffic incidents to implement the correspondent measures to improve the motorist's safety.

Enhancing the safety of road users and project workers will be a priority for the I-69 DP on all O&M activities.

I-69 DP understands the importance of training and will periodically facilitate emergency exercises with the participation of emergency services and various third parties ([see 4.3.2.1.d](#)). At the end of each exercise and after each significant accident, a debriefing meeting will take place and a feedback report will be prepared to assess and refine procedures. In addition, full time maintenance staff will be responsible for cleaning litter and removing debris and graffiti in accordance with the Technical Provisions Attachment 18-1, Performance

Requirements and Measurement Tables B (items 1.1. and 3.10.)



The O&M Team will regularly carry out safety audits to assess effectiveness of the safety procedures for the Project, identify high accident locations that will be registered in the I-69 MMS ([see section 4.3.1.2.h](#)), implement mitigation measures, and review the Good Industry Practices. Any mitigation measures introduced throughout this process will be recorded and monitored to verify their effectiveness.

4.3.1.2 Routine Maintenance

I-69 DP's Routine Maintenance approach is centered on proactive preventive maintenance. Routine Maintenance is critical to maintain a safe and reliable roadway system. The Maintenance Plan, together with a frequent inspection program, ensures early identification of maintenance needs and their quick implementation to prevent small deteriorations from becoming larger problems.

4.3.1.2.a Life Cycle Cost Analysis over the Duration of The Agreement



The O&M Team will be fully involved throughout design development to assist with maintenance and lifecycle optimization of design and the anticipation of resulting maintenance costs.

During the design stage, I-69 DP Team is committed to ensure the designed infrastructure assets are durable and maintainable.

To determine expected material durability and Useful Life, I 69 DP will use benchmark data from its extensive list of projects in operation, combined with up to date Good Industry Practice guidelines and industry research data.

For each element of the project, the O&M Team will analyze potential technical solutions; accounting for variability of cost, increasing labor rate, and impacts of maintenance on roadway resources availability.

The analysis includes market research, and requests for quotations to compare and choose the most appropriate local firm to carry out each of the different Rehabilitation Works. Data bases and performance records from previous experiences will

Our primary O&M goal is to provide a high level of service to the traveling public while considering safety, availability, and reliability. Therefore we will implement continuous improvement actions measured against Performance Requirements

also be used to compare with the prices received. We will use escalation index databases for the items whose market prices are more sensitive to market conditions. This way, we will be able forecast inflation and estimate future prices for elements such as asphalt, steel, fuel oil, labor, or construction machinery.

A Rehabilitation Work Schedule with a five-year renewal works schedule, updated annually, will be submitted to the Department. The Rehabilitation Work Schedule ([see preliminary schedule in Figure 4.3-25](#)) will assess annual Performance Requirements.

4.3.1.2.b Details and Locations of Operation and Maintenance Management Center

For the Operating Period, the I-69 DP Team will construct the Operation and Maintenance Management Center (OMMC). These facilities and features of the OMMC will include:

- Parking lot for staff and visitors
- Vehicle and spare parts storage covered area
- Office building with public reception area
- Covered storage facility for de-icer materials



Figure 4.3-5: One of our OMMC office buildings

We believe that one of the parcels close to Sample Road as identified in ATC 22 would be an optimum location for our OMMC due to the following reasons:

- Its central location within the middle of the Project, allowing for better incidence response
- Easy access to the Project via the new Sample Road interchange.
- Greater availability of property
- More affordable prices compared with other areas adjacent to the project (for example, areas near the SR-46 interchange
- All the parcels are already affected by the right of way takes for the Project

The possible OMMC sites are shown in **Figure 4.3-6**



Figure 4.3-6: Possible OMMC parcels

4.3.1.2.c Preliminary List of Specialized Maintenance Equipment

During Construction Period, the O&M Team will use customized equipment for the maintenance activities they will directly carry out, such as mowing and vegetation control, snow and ice removal, incident response and assistance to Users. The D-B Contractor will be responsible for the rest of the routine maintenance works. The assignment of maintenance tasks during the Construction Period is better defined in **Figure 4.3-8**.

All our vehicles (snowplows, trucks, patrolling pickups) will be equipped with GPS to allow real-time tracking by O&M supervisors or other authorized parties.

The O&M Team's equipment for O&M During and After Construction will include the items shown in **Figure 4.3-7**.

O&M During Construction Equipment	O&M After Construction Equipment
4 Pickups	5 Pickups
2 Mid-size Cars	2 Mid-size Cars
2 Motorcycles	2 Motorcycles
1 Truck Mounted crane	2 Truck Mounted crane
1 Hydraulic Guardrail Installation Machine	1 Hydraulic Guardrail Installation Machine
3 Snowplows	3 Snowplows
2 Plows for Pickups	2 Plows for Pickups
4 Plow for Snowplows	4 Plow for Snowplows
2 De-icer Spreader and De-icer Tanks for Pickup	2 De-icer Spreader and De-icer Tanks for Pickup
	1 Man Lift
	1 Backhoe Loader
	1 Vibratory Roller
	2 Road Sweeper Cars

Figure 4.3-7: Specialized equipment for O&M

Other auxiliary equipment will include portable luminous arrow boards, portable changeable message signs, signal devices, trimmers, painting and welding equipment, and other equipment.

4.3.1.2.d Supply and Management of Maintenance Spare Parts



The O&M Team will use dedicated software to manage and monitor the supply and use of spare parts. This ensures an up-to-date inventory of all parts to support expected maintenance requirements plus a reasonable amount for emergencies. Quantities of spare parts used and ordered will be reviewed on an ongoing basis to identify and resolve any issues where parts are failing more often than expected. The most restrictive requirements for maintenance spare parts are light bulbs and electric equipment to support lighting maintenance, barriers, guardrail and impact attenuator components and signage elements, as set forth in sections 5, 7 and 8 of the Technical Provisions Attachment 18-1, Performance and Measurement Tables.



Within the scope of the Sustainability Management Plan that will be delivered nine months before the commencement of the Operating Period and updated each five years, as indicated in [Figure 4.3-25](#) in section 4.3.2, recycling of waste oil, tires, tire scraps and light bulbs will be routinely done.

4.3.1.2.e Routine Maintenance Activities Approach

The O&M Team approach is to maximize self-performance of the basic Routine Maintenance activities and working with specialty subcontractors where necessary in order to carry out specialized maintenance. This will allow us to utilize the specialist's knowledge, together with Good Industry Practices and research data from the specialized subcontractors.

Routine Maintenance During Construction

We are fully aware that good coordination with the Contractor is vital to fulfill the requirements of the O&M During Construction, ensure a smooth transition and avoid future maintenance issues during the Operating Period.

During construction, we will split the O&M task as defined in [Figure 4.3-8](#). We consider this the most sensible approach because in this way the Contractor will be responsible for ensuring their activities have a minimum effect on the existing infrastructure, as they will also be responsible for repairing whatever damage they may cause. Since they have the appropriate machinery and personnel in place for their construction activities, they will be in the best position to correct any defects and ensure that the Performance Requirements are achieved.

The rest of the activities will be monitored by the O&M Team through inspections in order to verify that the conditions maintain or exceed the initial values of the Baseline Asset Condition Report. The frequency and planning of these activities will be handled by the O&M Team as shown in [Figure 4.3-9](#). Our Deputy Project Manager – Technical, will ensure the coordination between Corsan and the O&M Team.

The allocation of O&M responsibilities are defined in the DB contract already in place, and we have used this same strategy to great success in all projects in which there was a O&M During

Construction phase, (766 miles in total: A4 Highway in Madrid (Spain), NH1 and NH2 in India and Viabahía in Brazil).

Activity	Corsan	I-69 DP
Sweeping and cleaning	✓	
Repairs (pavement, structures, barriers, guardrails, pavement marking, etc.)	✓	
Mowing and vegetation Control		✓
Snow and Ice Control		✓
Incident Response		✓
Attention to Users		✓

Figure 4.3-8: O&M during Construction Responsibilities

Routine Maintenance during the Operating Period

After the construction is complete, the O&M Team will carry out all Routine Maintenance with in-house resources (see Routine Maintenance crews in [Figure 4.3-10](#).) supplemented by specialty subcontractors for such activities as major repairs, special inspections of structures, pavement marking placement and winter maintenance support (if additional staff is necessary during winter events).

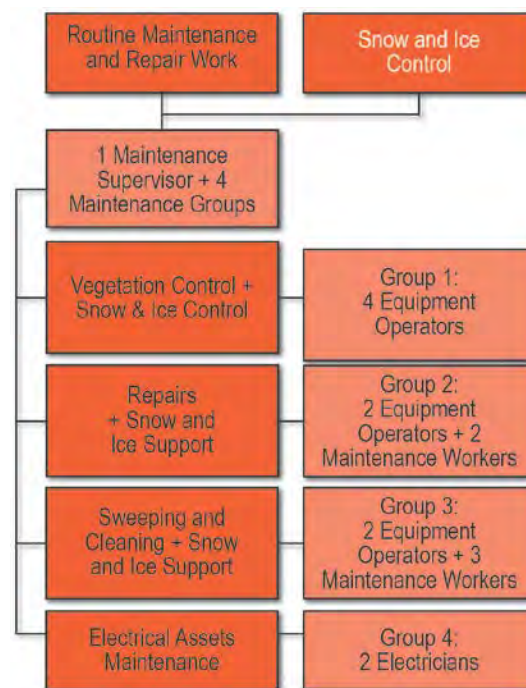


Figure 4.3-10: Routine Maintenance crews

Figure 4.3-9: O&M Schedule, resources associated and Project requirements addressed

Description	Frequency	Staff Group During Construction	Staff Group After Construction	PR *	January		February		March		April		May		June		July		August		September		October		November		December																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
					week 1	week 2	week 3	week 4	week 1	week 2	week 3	week 4	week 1	week 2	week 3	week 4	week 1	week 2	week 3	week 4	week 1	week 2	week 3	week 4	week 1	week 2	week 3	week 4	week 1	week 2	week 3	week 4																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
Check that electrical supply, feeder pillars, cabinets, switches and fittings are electrically, mechanically and structurally sound and functioning	Annually	Corsan/ Group 2	Group 4	8.2, 8.3,7.2																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		</

Figure 4.3-9: O&M Schedule, resources associated and Project requirements addressed (Continued)

This allocation of activities and responsibilities will be updated on a yearly basis to comply with Performance Requirements of the Technical Provisions Attachment 18-1. This figure contains a breakdown of all the programmed O&M activities, in order to meet the targets set forth for each road category element as defined in the Technical Provisions Attachment 18-1.



Whether self-performing or outsourcing O&M activities, the O&M Team will focus on safety. Working on a live roadway involves hazards for maintenance staff and motorists. Detailed procedures to ensure safety for workers and motorists will be developed and used, whether by internal maintenance staff or specialized subcontractors.

The O&M Team will organize and program the Routine Maintenance activities with the appropriate equipment and staff, as shown in [Figure 4.3-9](#), to comply with the Performance Requirements for each element.

Performance Requirements

The Performance Requirements will be managed with the resources shown in the [Figures 4.3-9 and 4.3-10](#) in order to meet the targets defined in the Technical Provisions Attachment 18-1.

Winter Maintenance

For winter maintenance, we will:

- Maintain staff and equipment in a state of readiness in order to keep the roadway safe during periods of snow and ice
- Use additional equipment



Figure 4.3-11: Pickups with plows will be used on ramps and intersections

We will use smaller vehicles such as a crew cab pickup truck with a plow and spreader to address areas that are difficult for the larger trucks to reach.

This will allow the larger snow plows to focus on the I-69 mainline, improving performance. The areas maintained by the smaller vehicles will be intersections, ramps and secondary roadways.

This will decrease the length of the area assigned to each plow, increasing the level of service as well as reducing clean-up time and proactively addressing problem areas. We will also:

- Maintain the roadway at all times and under all weather conditions
- Monitor weather forecasts
- Manage the use of de-icing materials

Prior to the winter maintenance season, we will obtain and stockpile adequate de-icing materials in our storage facilities.



Figure 4.3-12: Isolux's Snowplow



Surface Patrol Pavement Temperature Sensors will be mounted on O&M vehicles to measure and record temperatures changes of the pavement surface to accurately predict the need for application of de-icer thus allowing optimization of the quantities used.



We are currently exploring the use of alternative environmentally friendly de-icers. Special care will be taken to minimize de-icer use close to the karst areas.

We will subscribe to a weather reporting service with the purpose of automatically receive alerts for storm events that may require winter maintenance.

Bare Pavement Event

During winter season, I-69 DP will use its own in-house staff and equipment to plow and de-ice the roadway. These efforts will be supported, when necessary, by local subcontractors. The O&M Team's maintenance procedures will ensure that, following any winter weather event, plowing and

de-icing will finished within two hours in line with IFA's requirement 12.1 of the Technical Provisions Attachment 18-1, Performance Requirements and Measurement, Tables A&B. We will issue a monthly report including the documenting performance achievements relating to the bare pavement events.



Figure 4.3-13: Bare pavement successfully achieved at A4 (Spain)

Snow and Ice Control Plan

All winter maintenance measures will be described in the Snow and Ice Control Plan. This plan will be updated annually to incorporate changes in strategy, Good Industry Practice and lessons learned, and submitted to IFA for its review and approval.

The preliminary proposed anti-icing and de-icing routes are shown in **Figure 4.3-15**.



The O&M Team will carry out an annual winter maintenance exercise at the beginning of each winter season. During this exercise, the staff and the specialized subcontractor partners will be trained in all related methods, risk and safety requirements. This exercise will also check that all winter maintenance equipment is operational and ready for the winter season.

4.3.1.2.f Traffic Management During Maintenance



I-69 DP understands that traffic management during maintenance activities is critical to ensuring a safe place of work for both O&M staff and the road users. Through training of our staff and specialty subcontractors on our proven traffic management approaches, we will ensure that proper and effective maintenance related traffic control is carried out. We understand disruption to traffic flow is viewed

critically by INDOT and will focus on keeping travel lane disruptions to a minimum.

All lane closures for Planned Maintenance work will comply with the INDOT Interstate Highways Lane Closure Policy. Where any deviation from the monthly Planned Maintenance schedule lane closures are required, the O&M Team will coordinate maintenance activities and associated lane closure requirements with IFA/INDOT a minimum of 14 days in advance of planned activities. Should the closures affect all lanes in the same direction of I-69, entrance ramps, exit ramps or frontage roads and access roads, the O&M Team will coordinate with the IFA/INDOT 28 days in advance.

Referring to this last issue, I 69-DP will thoroughly comply with all the restrictions indicated in section 18.2.3 of the Technical Provisions.

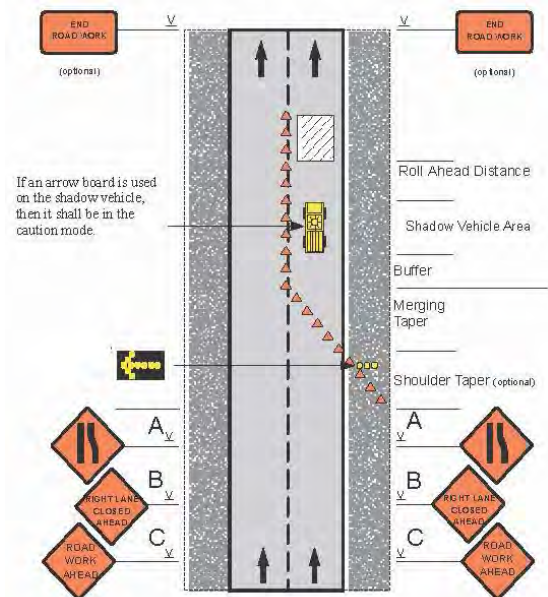


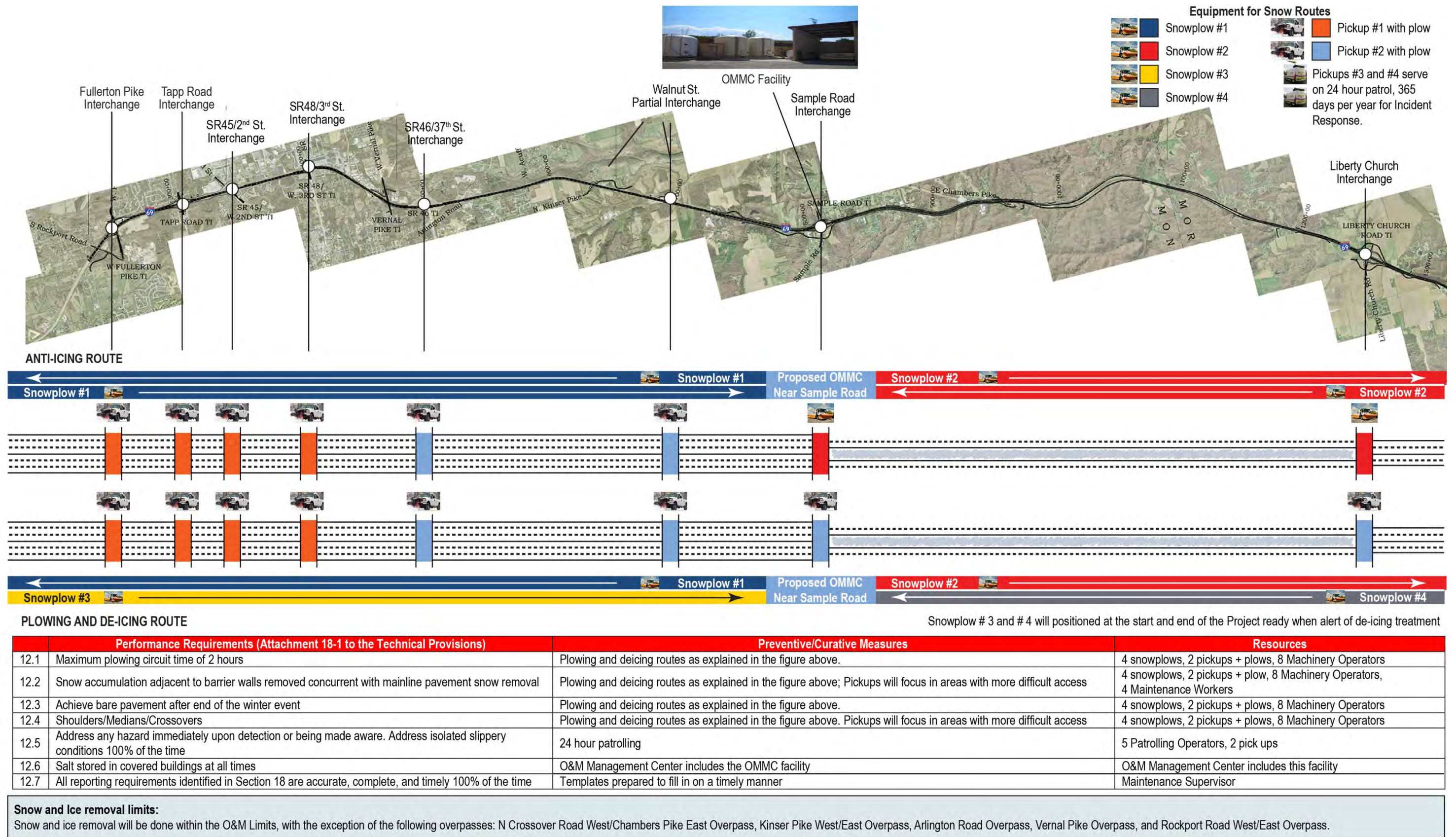
Figure 4.3-14: Traffic Management example

Event Planning

The O&M Team is responsible for planning and coordinating all routine and rehabilitation maintenance whether performed by the I-69 DP team, a specialty subcontractor or by other entities, such as public agencies.

Notification

Monthly Planned Maintenance and Routine Maintenance schedules will be submitted to IFA for approval at least 30 days in advance of the works. Annual Planned Maintenance schedules will be



submitted for IFA review and approval at least 90 days in advance of the commencement of the year. The schedules will describe, for each section of the works, all maintenance tasks or activities, dates, times and durations for each activity; the total quantity of Planned Maintenance hours and the permit closures required for Planned Maintenance

Preparation

The O&M Team will prepare a Temporary Traffic Control Plan for Planned Maintenance affecting the roadway, sidewalk or bridges, or any other event involving temporary traffic control. It will ensure safety of the staff and the traveling public. We will use QuickZone 2.0 software to determine queues associated with any lane closures or restrictions related to maintenance activities. The O&M Team will coordinate with the INDOT TMC to ensure that accurate information is supplied to the road users about lane closures or other traffic impacts. Communication of public information will be supported with press releases and other media (e.g. newspapers, radio, television, websites and social networks).

Implementation



The placement, maintenance and removal of traffic control devices and temporary signage will meet the approved Traffic Operations Plan. With the assistance of our patrollers and roadway maintenance operators, traffic safety will be monitored and corrective action taken. We will notify the User and the TMC if congestion is caused by the O&M Work.

Reporting



All Routine Maintenance and minor repair works will be recorded by the O&M Team in the I-69 Maintenance Management System (MMS). The information will then be streamed to INDOT's Computerized Maintenance Management System (CMMS). These records will be used to develop the quarterly Maintenance Work Reports that will be submitted for IFA review. Each month, the report will identify all maintenance and

rehabilitation activities planned, will detail actual activities performed and will confirm that completed work complies with the approved maintenance procedures. This reporting will feed into the quarterly Operations Report provided to IFA.

4.3.1.2.g Inspection, Testing and Defect Management



Regular inspections are a crucial part of our proactive, preventive maintenance approach as they identify early maintenance needs. This allows us to implement adequate mitigation measures before issues become problems that are difficult to fix. The inspections will:

- Determine deterioration rates
- Identify methods to mitigate deterioration
- Allow for adequate budgeting for future corrective actions
- Mitigate any potential disruption to road Users.

I-69 DP will also conduct the inspections shown in [Figure 4.3-17](#) to determine the condition of each Element after construction period. We will carry out the inspections to determinate the condition of each Element, allowing delivery of the Baseline Asset Condition Report (BACR) to IFA before the commencement of the Construction Period. We will summarize the results in the inspection and test reporting, which will identify, classify and prioritize any Defects (Category 1 or 2, as defined in the Technical Provisions) found. The inspection reports will be comparable with the Technical Provisions Attachment 18-1.

For Category 1 Defects, the O&M Team will take the necessary action to ensure that any hazard to Users is mitigated within the period specified in the column entitled "Category 1 Hazard Mitigation" in the Performance and Measurement Table A provided in the Technical Provisions Attachment 18-1, and will permanently remedy the Defect within the period specified in the column entitled "Category 1 Permanent Remedy".



Figure 4.3-16: Traffic Management process for Routine Maintenance Activities

Element Category	Required Task	Measurement Method	Frequency
ROADWAY			
Bridge Deck	Inspect pavement surface in accordance with Inspection and Measurement Method Table	Visual inspection	Monthly
	IRI in accordance with the requirements in the FHWA HPMS Field Manual. Skid Resistance in accordance with the requirements in ASTM E274 and ASTM E524 at 40MPH.	Automated condition distress survey and physical measurement	Annually
		IRI, Skid resistance	Annually
Flexible Pavement	Inspect pavement surface in accordance with Inspection and Measurement Method Table	Visual inspection	Monthly
	IRI in accordance with the requirements in the FHWA HPMS Field Manual. Skid Resistance in accordance with the requirements in ASTM E274 and ASTM E524 at 40MPH. Rutting shall meet requirements in ASTM E950, ASTM E1707	Automated condition distress survey and physical measurement	Annually
		IRI, Skid resistance, Rutting	Annually
DRAINAGE			
Stormdrains & Drainage Features	Inspect drainage elements in accordance with Inspection and Measurement Method for Table 18-B - Technical Provisions	Visual inspection and records	Culverts, drains, ditches, inlets: Bi-Annually
	Inspect in accordance with the requirements of NBIS of the Code of Federal Regulations, 23 Highways-Part 650, the Department Bridge Inspection Manual and the Federal Highway Administration's Bridge Inspector's Reference Manual	Visual inspection supplements by CCTV where required to inspect buried pipe work	Underdrains, channels and pipes: Annually
Erosion and Sediment Control	Ensure that all erosion control measures are functioning as designed.	Visual inspection	Annually
STRUCTURES			
Minor Damage	Repair Minor Damage.	Visual inspection and records	Any incident involved in structural damage
Major Damage	Evaluate structural damage to structures in case of incident involved in structural damage	Visual inspection and records	Routine inspection: Bi-Annually
Bridges	Inspect structural elements in accordance with Inspection and Measurement Method Table, National Bridge Inspections Standards Regulation (NBIS) of the Code of Federal Regulations, 23 Highways-Part 650, the INDOT Bridge Inspection Manual and the Federal Administration's Bridge Inspector's Reference Manual	Inspection will taken Bi-Annually by Specialist Inspectors	Bi-Annually
Load Ratings	Inspect and assess in accordance with the requirements of AASHTO's Manual for Bridge Evaluation and Load, the INDOT Bridge Inspection Manual and the Federal Highway Administration's Bridge Inspector's Reference Manual	Inspection will taken Bi-Annually by Specialist Inspectors	Bi-Annually
Retaining Walls and MSE Walls	Inspect retaining walls in accordance with Inspection and Measurement Method Table	Inspection will taken Bi-Annually by Specialist Inspectors	Bi-Annually
Surface Coating	Inspect structural elements in accordance with Inspection and Measurement Method Table	Visual inspection	Annually
PAVEMENT MARKING, OBJECT MARKERS, BARRIERS MARKERS AND DELINEATORS			
Pavement Markings Delineators	Inspect Markings, Symbols and Delineators in accordance with Inspection and Measurement Method for Table 18-B - Technical Provisions	Retroreflectivity as specified in Standard 808.07 and Indiana Test Method (ITM) 931	Annually
TRAFFIC SIGNS			
Signage	Inspect Signage in accordance with Inspection and Measurement Method for Table 18-B - Technical Provisions	Visual inspection	Annually
	Values of retroreflectivity below the requirements of InMUTCD	Retroreflectivity	Every four years
SLOPES			
Slopes	Inspect slopes in accordance with Inspection and Measurement Method for Table 18-B - Technical Provisions	Visual inspection by geotechnical specialist and recorded instances of slope failure	Annually
KARST FEATURES			
Water Quality Sampling	Collect water quality samples. Two (2) of the quarterly samples will be sampled at base flow conditions and two (2) of the quarterly samples will be sampled at storm flow conditions. One (1) of the Semi-Annually samples will be sampled at base flow conditions and one (1) will be sampled at stormflow conditions	Sampling results	Quarterly in first year and Semi-Annually in following five (5) years
Cave Fauna Sampling	Cave fauna areas will be sampled for three (3) years after construction to determine if there are any changes in the faunal community	Sampling results	Annually in the first three (3) years
Karst Hazardous Spill Containment Measures	Inspect karst hazardous spill containment measures	Visual Inspection and reports	Semi-Annually for first five (5) years. Then every two (2) years by maintenance staff and every ten (10) years by a karst specialist
Karst Feature Water Quality Mitigation Measures	Inspect karst feature water quality mitigation measures and other stormwater control measures	Visual Inspection and reports	
Karst Feature Structural Treatment Measures	Inspect karst feature structural treatment measures	Visual Inspection and reports	

Figure for 4.3-17: Reporting Inspections After Construction

For Category 2 Defects, the O&M Team will undertake the permanent repair within the period specified in the column entitled “Category 2 Permanent Repair” in the Technical Provisions Attachment 18-1, Performance and Measurement Table B

4.3.1.2.h Maintain Accurate As-Built, Inspection and Maintenance Records

During the Construction Period, the DB Team will maintain a database of all as-built drawings and construction records. This will be transferred to the O&M Team before Substantial Completion as part of the transition process. This database will include all assets to be maintained throughout the Operating Period and a description of each item and piece of

The I-69 MMS utilizes GIS and GPS for data collection, analysis, and creating reports.



equipment.

I-69 DP has its own Maintenance Management System (I-69 MMS) that will be fully compatible and integrated with INDOT’s Computerized Maintenance Management System database (CMMS). Its functionality will be demonstrated to IFA for approval 30 days prior to NTP2.

The O&M Team will be responsible for data collection and operation of the CMMS database and procedures for all records and reports as required. The CMMS database will include the preventive

maintenance activities required, as well as details of activities performed including dates and repair history. It will also include detailed information regarding any failures experienced, repairs carried out and all routine maintenance work performed. The O&M Team will use the CMMS for the quarterly Maintenance Work Reports.

I-69 DP will update and maintain the I-69 MMS database through the entire duration of the Term, and will identify all new and rehabilitated assets, for the purpose keeping a record of the Defects, the actions and the inspections through the Operating Period; all relevant information will be streamed to the CMMS on a daily basis. Some of the main automatic functions that the I-69 DP’s MMS will provide are:

- **Road Safety Module:** determining high accident locations and analyzing road safety
- **Pavement Expert Management Module:** obtaining non-destructive pavement test data and other data for predicting pavement conditions and life.
- **Routine Maintenance Module:** managing working reports related to maintenance activities



The Pavement Expert Management Module has been applied worldwide to more than 30,000 miles of roadways

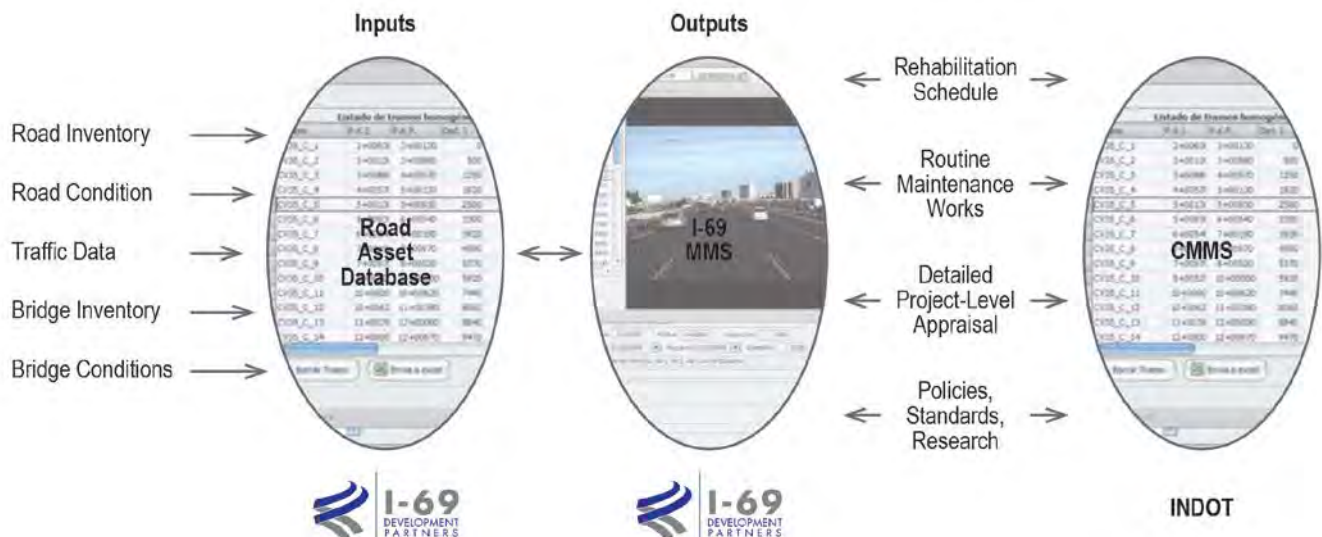


Figure 4.3-18: The I-69 DP MMS will fully compatible with the CMMS.

4.3.1.3 Rehabilitation Work



The O&M Team will take a proactive and preventive maintenance approach to the Project. Inspections and preventive maintenance will result in early identification and resolution of issues, minimizing cost impact and disruption for the road Users.

All major Rehabilitation Work will be subcontracted to local specialized subcontractors, who have already expressed their interest in collaborating on the Project.

The frequency and planning of these activities will be handled by the O&M Team through a Rehabilitation Work Schedule. This will be updated on a five-year basis to comply with Performance Requirements indicated in the Technical Provisions Attachment 18-1.

Rehabilitation Works will be managed according to a Rehabilitation Work Schedule that will be carried out considering the Maintenance Plan (MP) and the Performance and Measurement Tables included in the Technical Provisions Attachment 18-1. This program will set out the procedures for the inspection of assets determining:

- The need of Rehabilitation Works
- The planning and design of any major works required

Our preliminary Rehabilitation Work Schedule is compliant with the requirements of the Technical Provisions Attachment 18-1 and the Handback Requirements set forth in Section 19 of the Technical Provisions. Our approach is that all preventive rehabilitations are essential, thus we have scheduled all Rehabilitation Work prior to when possible issues are likely to appear, allowing us to avoid having them and becoming a problem which would be more difficult and expensive to fix.

Our rehabilitation strategy has been adapted to replace, renew or refurbish highway assets at appropriate intervals to meet service requirements and

During the full term of the Operating Period, we will maintain the highway to rigorous standards, exceeding those required within the Technical Provisions, to allow for a high degree of User satisfaction and allowing for the best product at Handback.

comply with the Handback Requirements. This Rehabilitation Work Schedule is combined with the proactive Routine Maintenance regime to maximize the life of roadway assets.

Renewal Work will also be required to upgrade assets when standards change and to maintain assets in a condition that meets Handback Requirements. Most renewal work activities are programmed based on asset deterioration models with the primary criteria being to maintain the prescribed condition rating levels.

The proposed major element Rehabilitation Works required to provide adequate service for the 35 years are described in the following sections.

All major rehabilitations/renewals will be developed as a construction project, with plans, specifications and estimates prepared by a local engineering company for approval by IFA/INDOT.

4.3.1.3.a Rehabilitation of Pavement

The surface condition dictates the safety of the operation of the roadway and is the most visible to the public in terms of User's safety, comfort and general awareness of the performance of the management of the roadway. Our constant knowledge of pavement conditions will be used to plan repairs and renewals in a way that will minimize delay and disruption to the User.

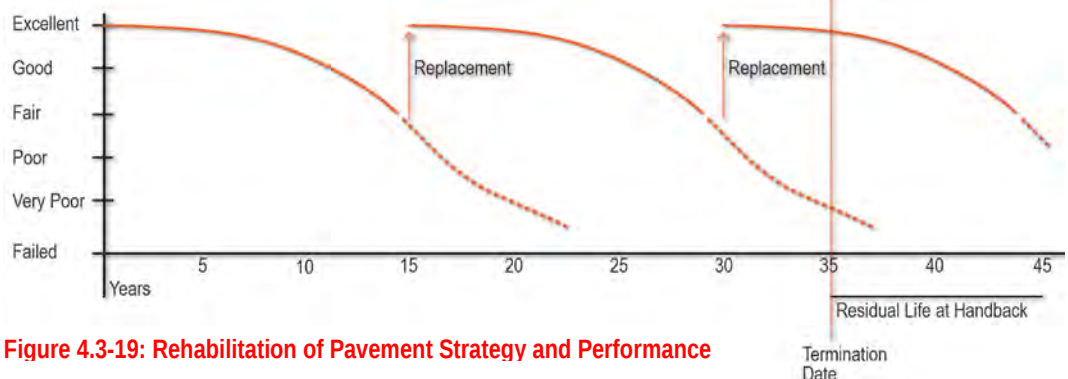


Figure 4.3-19: Rehabilitation of Pavement Strategy and Performance

The O&M Team will subcontract the rehabilitation of pavement to local firms.

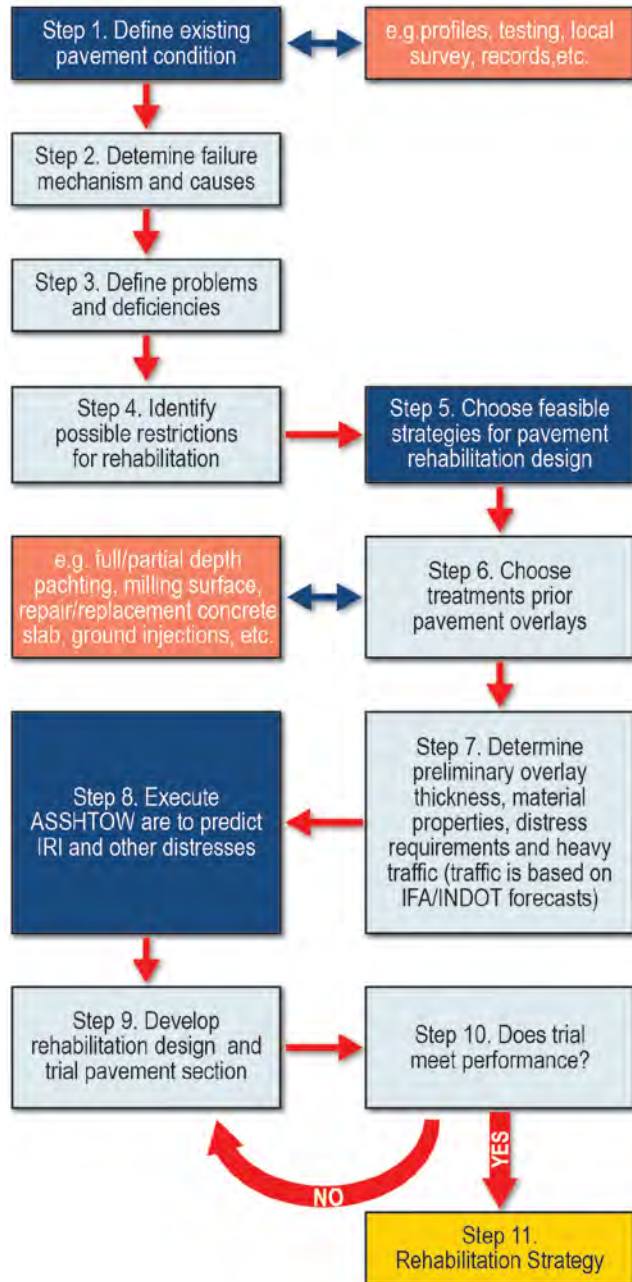


Figure 4.3-20: Pavement Rehabilitation Strategy Process

Rehabilitation of the pavement is scheduled at year 15 and 30 of the Term. The renewal strategy will be determined at the time of the rehabilitation based on the traffic data that is predicted at the time of the renewal, on advances in pavement materials or design methods and any other pertinent factors. However, we have assumed a conservative

preliminary pavement rehabilitation strategy, developed in conjunction with the construction design:

	Mainline	Ramps
Major Pavement Rehabilitations		

Figure 4.3-21: Pavement Rehabilitation Strategy

4.3.1.3.b Rehabilitation of Structures

There are 31 bridges to be maintained by the O&M Team; 12 which are being constructed as part of the Project and 19 which exist. The rehabilitation program proposed for most bridges includes a major rehabilitation during construction in order to restore some deficient bridge elements to an optimum state. For those bridges that are not being rehabilitated during construction, the O&M Team will engage local subcontractors for the rehabilitation of the structures.

The bridge program proposed for most bridges includes a major rehabilitation During Construction in order to restore some bridge elements to an optimum state.

Preventive maintenance activities have been considered (steel painting, bearings replacement) during the O&M period for all bridges. Moreover two rehabilitation/repair periods have been projected in order to extend the lifetime of the existing and new structures beyond the required Residual Life defined in the Handback requirements.

The maintenance strategy for the new and existing structures is defined below:

- Group 1 – This includes 18 bridges that are either new, are being replaced during construction or that have been constructed or replaced in the last 20 years. Cyclical preventive maintenance activities such as replacing of wearing surface, steel painting, and replacing of bearings have been considered.
- Group 2 – This includes nine bridges that were erected in 1972 and reconstructed during the 1990's. The aim of rehabilitation work for Group 2 is to extend the life of the structural elements over the O&M period and to comply with the Residual Life at Handback. It has been assumed that the deck will be in a worse condition than the superstructure as it is more exposed to traffic and weather conditions.
- Group 3 - This group includes four bridges constructed in 1972 or prior but that have not been reconstructed since they were built. The rehabilitations for these bridges are most extensive due to lack of or minimal rehabilitation/reconstruction works having been carried out since the construction.

4.3.1.3.c Rehabilitation of Road Signs and Pavement Marking

Pavement markings will be renewed as follows: renewal of lane lines every year, renewal of the right edge line every 2 years in urban mainline and 3 years in rural mainline, and the renewal of the left edge line every three years, regardless of whether they are in the urban or rural areas.

Roadway sign panels will be renewed every 15 years and sign structures will be renewed every 20 years.

The O&M Team will subcontract to local firms the rehabilitation/renewal of road signs and structures and pavement marking.

4.3.1.3.d Rehabilitation of Highway Lighting

Replacement of the lamps is scheduled every three years, and the luminaires every ten years. Lighting poles will be



Figure 4.3-22: Lamp replacement

replaced to meet the Handback Requirements. (See [Figure 4.3-24.](#))

4.3.1.3.e Costing

During the Operating Period, the O&M Team will produce an updated annual budget to meet the Rehabilitation Works Schedule.

The cost of Rehabilitation Works will be budgeted according to market prices obtained from quotes requested from local suppliers and subcontractors. Throughout the Construction Period, the budget will be reviewed and adjusted to match the expected rehabilitations.

4.3.1.3.f Handback Requirements

Together with the DB Team, the O&M Team will analyze again the Performance and Handback Requirements of the Project elements set forth in Table 19-1 of the Technical Provisions. These requirements will establish the design/materials of some elements, such as bridge deck and pavement, to meet or exceed targets.

The O&M Team will be responsible for developing the Rehabilitation Work Schedule and allocating resources to meet the requirements. A Handback Plan will be developed five years before the end of the Term of the contract. This plan will describe the three Residual Life Inspections (60 months, 18 months and 19 days before the end of the Term) to be performed and establish an approach for any Rehabilitation Works needed to meet the Handback Requirements.

We will provide O&M training to at least 10 members of INDOT, so that they will have a complete understanding of the infrastructure and the O&M activities required to maintain adequate performance.

4.3.1.3.g Schedule

The preliminary Rehabilitation Work Schedule is presented in the [Figure 4.3-24.](#)

4.3.1.3.h Staged Construction and Management of Rehabilitation Work Simultaneously with Standard O&M



Under leadership of Operations and Maintenance Manager, Miguel Angel Barranco, the O&M Team will use an integrated approach to handle both

Routine O&M After Construction and Rehabilitation Work. This single point of leadership provides a coordinated approach to:

- Activity planning
- Traffic management
- Safety
- Quality control

Expressions of Interest	103
Prequalified by INDOT	101
DBE/MBE/WBE	16

Figure 4.3-23: Received Expression of Interest

The O&M Team has analyzed the roadway and bridge design to confirm that future rehabilitations and renewals can be accommodated through staged construction.

The Rehabilitation Work has been coordinated with complementary activities that can be carried out at the same period (e.g: pavements and safety barriers), so that temporary

mainline lane closures are minimized so to disrupt the Users to the least degree possible.

To that end, where feasible, activities will be scheduled in the same location and time to minimize impacts to the traveling public. Routine Maintenance schedule will be adapted to avoid possible interferences with Rehabilitation Work.

As was previously mentioned, the O&M Team will subcontract local firms to perform the major rehabilitation/renewal activities, such a rehabilitation of pavement structures, pavement markings and road signs. We have already contacted many local construction firms that will be available to provide different services through the Operating Period and have obtained their Expression of Interest to collaborate on future work.

4.3.2 Operations and Maintenance Management Approach

This section outlines the preliminary Operations and Maintenance Plan (OMP) which is part of the general Project Management Plan described in 1.5.2.5 of the Technical Provisions.

In order to fulfill with the Project Management Plan (PMP) requirements, I-69 DP Team has developed its own P3 Project Management System (P3PMS) as defined in 4.0.

The development of the plans that are required During and After Construction and through the Operating Period are summarized in **Figure 4.3-25**

4.3.2.1 Organization

The I-69 DP organization reflects Good Industry Practice and the experience and skills obtained in operating and maintaining similar facilities. All disciplines are effectively integrated within our team, including specialist subcontractors. Team members are chosen for technical expertise and

The O&M Team uses an integrated approach with one team and one Operations and Maintenance Manager, Miguel Angel Barranco, handling both routine O&M After Construction and Rehabilitation Work.

their collaborative attitude.

4.3.2.1.a.i Organization Chart

The O&M Team is depicted in the complete I-69 DP organization chart shown in **Figure 4.1-5**.

4.3.2.1.a.ii Roles and Responsibilities

The O&M Team's proposed organizational structure is shown in the I-69 DP organizational chart, with the interrelation and lines of communication and reporting between all Project partners indicated. Each key partner's roles and responsibilities are found in Section 4.1 **Figure 4.1-6**.

The key person within the O&M Team is our Operations and Maintenance Manager, Miguel Angel Barranco. Miguel Angel Barranco is currently carrying out similar managing tasks in the operation and maintenance of Monterrey-Salttillo roadway. He will bring his extensive experience in O&M (described in Section 4.1.1.a) to the Project.

O&M AFTER CONSTRUCTION																																			
Rehabilitation Work Schedule	Year 1 2017	Year 2 2018	Year 3 2019	Year 4 2020	Year 5 2021	Year 6 2022	Year 7 2023	Year 8 2024	Year 9 20215	Year 10 2026	Year 11 2027	Year 12 2028	Year 13 2029	Year 14 2030	Year 15 2031	Year 16 2032	Year 17 2033	Year 18 2034	Year 19 2035	Year 20 2036	Year 21 2037	Year 22 2038	Year 23 2039	Year 24 2040	Year 25 2041	Year 26 2042	Year 27 2043	Year 28 2044	Year 29 2045	Year 30 2046	Year 31 2047	Year 32 2048	Year 33 2049	Year 34 2050	Year 35 2051

Figure 4.3-24 Preliminary Rehabilitation Work Schedule

4.3.2.1.a.iii Qualification and Experience

To ensure personnel meet and exceed IFA’s requirements for safe and high quality O&M delivery, the O&M Team will only employ suitably qualified and experienced personnel. For every position, requirements, responsibilities, experience and qualifications have been established (Figure 4.1-8). Once hired, candidates will be given site specific training as required and periodic performance reviews.

4.3.2.1.b Unified Approach to O&M

The I-69 DP O&M Team is committed to working collaboratively as a joint venture and with IFA/INDOT at every stage. The common integrated management system applied is set out in section 4.1 Preliminary Project Management Plan.

4.3.2.1.c Decision-Making Process and Dispute Resolution

Every O&M Team manager is aware of empowerment to make decisions. This encourages correct and rapid resolution of issues at the lowest possible level. To facilitate decision making we will use a matrix of potential issues that could arise. This will clarify the hierarchy and reporting process that will be applied in each case. All partners are committed to resolve any internal disputes according to the terms of the Contract. The priority in the event of any dispute will be preserving the efficient continuation of O&M activities.

The decision-making process and dispute resolution system applied is set out in 4.1 Preliminary Project Management Plan and Figure 4.1-11

4.3.2.1.d Training Program



To ensure continuous improvement and safe O&M, staff will receive initial training with regular updates. O&M



Team will be trained to understand the importance of the O&M quality management system, focusing on the safety of users and workers.

The O&M Manager will be responsible for the organization of the training for patrollers and maintenance operators, assuring that subcontracted staff is also familiar with the procedures of the Quality Management Plan (see [Section 4.1.5](#)) and the safety procedures. Subcontracted firms will be trained as required for major maintenance works.

The O&M Manager will conduct team courses in order to address a complete skills and training matrix. These team courses, which will be required for all levels of the project organization, are participative action programs designed to develop individuals' abilities to contribute effectively in teams. Representatives from I-69 DP, operations staff, the contractor's team leaders and subcontractors, together with nominees from the IFA, its agents and major subcontractors will attend to the courses. Initial and ongoing training in Health and Safety, Quality and Environment will be main subjects of the training for all levels of the organization.

4.3.2.1.e Communication and Documentation

Internal lines of communication and reporting during the Operating Period will follow the O&M organizational structure set forth in [Figure 4.1-5](#) of the Preliminary Project Management Plan.

Document sharing requirements will be detailed in the O&M management system procedures of the OMP, including methodologies and reporting templates.

Internal Communication

Internal communication will be provided through multiple formal and informal channels to maximize collaboration and trust within the O&M Team (including supply chain). This will help support continuous performance improvement. Co-location of our O&M Team in the OMMC will assure

regular communications and close collaborations among its members.

Meetings

A schedule of meetings (see I-69 DP Team Key Internal Meetings in [Figure 4.1-12](#)) will be developed and implemented to enable the O&M management team and specialist subcontractors to review performance, ensure good governance and project control, support effective communication and facilitate decision making during the Operating Period of the Project. If subcontractor performance is inadequate it will be discussed at the regular performance meetings and an improvement plan will be implemented and monitored. Apart from the meetings held by managers, the O&M Manager will weekly meet with the Maintenance Supervisor, who will give briefings to O&M Team crews on a daily basis. The idea of these informal meetings is to review ongoing activities as well as to plan future activities.

Documentation and Data

Project management documentation data will be stored electronically and shared via collaboration tools and the I-69 MMS. Asset management and O&M Records will be stored in the INDOT-supplied CMMS. Access to both systems will facilitate document sharing and review by allowing information to be issued electronically by selecting from pre-stored list of email addresses. Maintaining centralized document controlling will ensure the availability and use of up to date information, by clearly identifying and tracking the superseded documents. I-69 DP will comply with security back-up for project documentation as explained in [Section 4.1.1.b.vi](#).

Reporting

The O&M Team has clear reporting responsibilities within our organization. Report templates will be agreed with IFA and used to make sure the current data is available, to ensure consistency and facilitate interpretation of results. Senior managers will use these reports to support continuous improvement.

The reporting process method applied is set out in [Section 4.1.1.b.ii](#). Preliminary O&M Reporting Schedule is provided in [Figure 4.3-27](#).

4.3.2.1.f Approach to O&M Prior and Following Substantial Completion



During the Construction Period, the O&M Team and contractor will split the activities as set forth in the [section 4.3.1.2. e](#).

Once IFA has issued Substantial Completion, the O&M Team will take over all O&M activities.

During construction, the O&M Team will be gradually ramped up until it is fully staffed at least one month before Substantial Completion. The time leading up to Substantial Completion will be used for O&M staff training.

4.3.2.1.g Interfaces during O&M

Throughout the Operation Period, establishing open and honest relations with the IFA, INDOT and all applicable third parties will be vital for safe operation and maintenance of I-69. The overall approach described in Section 4.1 will be employed. [Figure 4.1-13](#), shows key O&M interfaces.

Our Deputy Project Manager – Technical, Carlos Ursúa will remain involved in the Project during the first year after Substantial Completion, ensuring a smooth transition to the Operating Period.

José R. Ballesteros, will be the main point of contact for IFA and INDOT. He will be supported by Carlos Ursúa, who will ensure the smooth transition from the Construction to the Operating Period though the first year of the Operating Period, and the O&M Manager, Miguel A. Barranco, who will coordinate with applicable third parties. The O&M Team will regularly report on performance in relation to Project progress, quality and safety as well as upcoming Planned Maintenance works.

4.3.2.1.h Public Information and Communications Approach

Customer Response

The O&M Team will ensure that an effective and quick response to the road Users is provided in compliance with the performance requirements. A dedicated website will be available for the User to request any type of information or register comments about any day-to-day issues that could

arise. A customer telephone contact line will be manned during normal business hours, with the option to leave voice mail messages at any time



Figure 4.3-26: The I-69 DP Website will provide users with real time information.

Public Information and Communications Approach During O&M

The O&M Team understands the importance of providing clear, reliable and prompt information to the public throughout the Operating Period. This will be important to maximize safety and maintain a high quality image of the Project. We will provide regular O&M information via press releases and access to a company spokesperson when needed. The O&M Team will provide advanced information to IFA for approval prior to distribution to the public.

Public information and communication in all project stages will be controlled by Tony Carpenter, our Public Information Coordinator as outlined in the I-69 DP Public Information Plan (PIP). This Plan will be updated to reflect the changing requirements for public communications during the Operating Period (and become the O&M PIP).

Operating Period PIP

Procedures set out in the O&M PIP will ensure the full and regular consultation of all parties. This will occur annually, prior to implementation of substantial changes or as a part of the planning process for activities with significant potential impacts to Users (e.g. major Rehabilitation Work). All relevant information will be provided in advance and sufficient notice given to allow all concerned parties to consider potential issues. Notification to the public about upcoming lane closures/lane adjustments and detours will occur after IFA's approval.

REPORTING			
Element Category	Required Task	Submittal Schedule	Frequency
O&M Plan During Construction	Submit Initial O&M Plan DC	Approved by IFA prior to Commencement of Construction	Once
	Annual Updates to the O&M Plan DC	90 days prior to the commencement of the year scheduled	Annual
O&M Plan After Construction	Submit Initial O&M Plan AF	Nine months prior to opening O&M segments to the general public	Once
	Annual Updates to the O&M Plan AF	90 days prior to the commencement of the year scheduled	Annual
Baseline Asset Condition Report		30 days prior to NTP2	Once
Monthly and Annual Planned Maintenance Plan Schedule	Planned Maintenance Plan Schedule	30 days prior to the commencement of the month scheduled	Monthly
		90 days prior to the commencement of the year scheduled	Annual
Monthly and Annual Routine Plans & Schedule	Routine Maintenance Plan Schedule	30 days prior to the commencement of the month scheduled	Monthly
		90 days prior to the commencement of the year scheduled	Annual
Quarterly and Annual Maintenance Work Reports	Maintenance and Rehabilitation Reports	M&R reports beginning at NTP2 and continuing until the Termination Date	Quarterly
		Maintenance reports 90 days after the end of year	Annual
Rehabilitation Work Plan & Schedule	Submit the Initial Renewal Work Plan	90 days before the beginning of 2nd full calendar year after Substantial Completion Date	Once
Updated Rehabilitation Work Plan	Annual Updates to the Rehabilitation Work Plan	90 days before the beginning of 3rd full calendar year after Substantial Completion Date and calendar year thereafter	Annual
Rehabilitation Work Report	Rehabilitation Work Reports	90 days after the end of year	Annual
Reporting Emergency	Emergency Reports	Developer MMS	When emergency occurs
Computerized Maintenance Management System (CMMS) Integrated	Provide inventory data to the Department for incorporation into the CMMS.	Developer MMS	Monthly
Quarterly Operations Report	Quarterly Operations Report (including lane closures and NC event)	Quarterly beginning at NTP2 and continuing until the Termination Date	Quarterly
Maintenance Patrols	Conduct a daily maintenance patrol and visual inspection of the entire facility to identify any incidents or deficiencies.	Developer MMS	Daily
Snow and Control Ice Plan	Submit Snow and Control Ice Plan	Prior to July 30	Annual
Snow and Control Ice Report	In accordance with Inspection and Measurement Method Table for Table 18-B - Technical Provisions		
Winter Patrols	Winter Patrol Diary	Within 24 hours upon IFA's request	Daily during Winter Season
Bare Pavement Data	Monthly Bare Pavement Report	Before the close of business seven days following each month's end	Monthly after each month that has a Winter Maintenance event
Performance Inspections Plan	Submit proposed performance sections to audit randomly selected and at least 5% of total	90 days prior physical inspection	Annual
Performance Inspections Report	In accordance with Inspection and Measurement Method Table for Table 18-B - Technical Provisions		
Karst Feature Erosion/Sediment Control Reviews	Inspection of Karst feature mitigation measures and other stormwater control measures	Quarterly beginning at NTP2 and continuing until the Substantial Completion Date	Quarterly during construction period
Karst Hazardous Spill Containment Measures	Inspect Karst hazardous spill containment measures		Semiannually for first five (5) years. Then every two (2) years by maintenance staff and every ten (10) years by a karst specialist during operating period
Karst Feature Water Quality Mitigation Measures	Inspect karst feature water quality mitigation measures and other stormwater control measures, (detention basins, hazardous materials traps, rock filters, peat filters, engineered wetlands, etc.)		
Karst Feature Structural Treatment Measures	Inspect karst feature structural treatment measures (concrete or aggregate caps, spring boxes, lined ditches, settlement markers, etc.)		
Sustainability Management Plan	Preparation of a revised Sustainability Management Plan for the O&M period	Nine months before the beginning of O&M period	Once
Updated the Sustainability Management Plan	Five-year update to the Renewal Work Plan		Every five (5) years
(S) Sustainability Monitoring and Reporting Program	Sustainability Monthly Reports	30 days after the end of month	Quarterly
Handback Plan	Submit Handback Plan	60 months prior the Termination Date	Once
Residual Life First Inspection Report	Residual Life test results and calculations	Between 56 and 59 months before end of term	Once
Residual Life Second Inspection Report	Residual Life test results and calculations	Between 14 and 17 months before end of term	Once
Residual Life Third Inspection Report	Residual Life test results and calculations	Not later than 60 days before end of term	Once
(Q) Road Safety Evaluation	Road Safety Inspection Audit. Assess accident data and evaluate roadway safety performance	Prior to July 30	Annual

Figure 4.3-25: O&M Reporting Schedule

4.3.2.2 Baseline Schedule

I-69 DP has developed a detailed O&M Work schedule showing all activities and resources to meet the targets defined in the Technical Provisions Attachment 18-1. This schedule is summarized in the preliminary baseline schedule as provided in [Figure 4.3-9](#). The baseline O&M schedule provides an outline of our expectations for all maintenance requirements over the 35-year Operating Period. This schedule has been developed based on the specific design of the Project and the experience performing similar services on other projects. This includes understanding of the latest Good Industry Practices, the expected Useful Life of the works constructed and manufacturer expectations of the materials to be used to construct the Project.

4.3.2.2.a Schedule – Proposed O&M Schedule Methodology

The O&M schedule will remain as a live document throughout the Project lifecycle and is subject to ongoing review and update. It will enable us to manage all O&M Work effectively, allocate resources efficiently and closely monitor performance in all areas to achieve continuous improvement. The O&M Schedule will also include the activities of all specialty subcontractors.

4.3.2.2.a.i Approach for Project Schedule and Payment Request

Preparing, Controlling and Updating the Schedule

The Planned and Routine Maintenance schedule will be an annual schedule showing all daily, weekly and monthly scheduled maintenance activities, as it is shown in [Figure 4.3-9](#). The O&M Manager has the flexibility to plan these activities according to local requirements, in response to the weather, special events or to minimize traffic disruption. This schedule will be updated weekly and submitted to IFA monthly. It will be reviewed internally to allow refinement of scheduling on a weekly/daily basis.

The Rehabilitation Works schedule is a 35-year schedule showing annual Planned Maintenance as described in [Figure 4.3-24](#). This will be updated yearly to allow activities to be planned for the

following years in response to issues identified during the periodic visual and detailed inspections.

Calculating Monthly Performance

Compliance with the Performance Requirements will be continually monitored throughout the Operating Period. Any issues, events or defects will be recorded as non-conformances.

The quarterly Operations Report provided to IFA will include the following O&M Records: complete records of any incidents, inspections, and assessments, details of rehabilitation works, monthly lane closures and supporting information necessary to identify the occurrence and confirm satisfactory resolution of any Noncompliance Events, Unavailability Events or defects. Based on this information, the report will include a high-level summary of Noncompliance Events, Unavailability Events and Noncompliance Point assessments.

All reports will be provided as required in the PPA and Technical Provisions and will be used in the performance calculation.

Using the I69 MMS, the O&M Team will be able to access real-time roadway O&M reports. Performance compliance data will be extracted monthly to enable real-time reporting and quick corrective actions to be undertaken in response to any Noncompliance Event.



Preparing Quarterly Payment Request

The O&M Team will calculate the Quarterly Payment Request using data from the CMMS and O&M reports.

4.3.2.2.a.ii Approach to Integrating Subcontract Activities

Some subcontractor repairing activities are planned and some are emergencies. In either case, direct communication and coordination with them at all times is important and will be contractually assured. The Performance Requirements of the Technical Provisions will be built into all subcontracts, including financial penalties, so as to ensure that our partners are aware of the Project quality, safety and environmental requirements and embrace them. All O&M subcontractors will be required to commit to the overall management objectives. These will be

defined in a charter which all project participants, including the O&M Team, subcontractors, inspection organizations and main suppliers, will be requested to review and sign upon joining the Team.

4.3.2.2.a.iii Approach to Achieve the Project Schedule and Recover Any Schedule Slippage

Managing Resources and Activities

Setting and communicating the goals for the scheduled maintenance activities will be the main way in order to manage in-house or subcontracted resources in order to achieve the OMP and the Rehabilitation Work Schedule. This will be supported by accurate on site updates of progress for incorporation into the schedules. These updates will identify any areas of delay and impacts of those delays. Updated schedules will be included in the quarterly Operations Report issued to IFA.

Recovering Schedules Slippage

Early identification of negative variance from either the OMP or Rehabilitation Work Schedule, through the ongoing review of performance against the schedules, will minimize the need for any schedule recovery. This will include the allocation of additional management resources if required and increased performance measurement until the slippage has been recovered.

4.3.3 Operations and Maintenance Quality Management



The O&M Team is committed to achieving exceptional quality performance and meeting all of IFA's quality expectations for the Operating Period of the project. The general approach to quality management has been described in [Section 4.1.5](#). I-69 DP will apply QMP throughout all project stages to achieve a consistent approach to quality management, from design to construction to O&M.

During the Operating Period our quality commitments will be to:

- Achieve or exceed the quality thresholds, deadlines and budget goals set forth in the PPA in accordance with the applicable legal framework and standards
- Ensure that the O&M Team meets all project O&M requirements in line with the contractual

requirements, public safety standards and environmental standards

- Establish best practices and foster continuous improvement through solicited and unsolicited feedback
- Communicate with all interested parties, including IFA, Users and nearby residents, to promote a positive image of the Project and anticipate and address any potential sources of dissatisfaction

The O&M Quality Plan identifies the means for monitoring and evaluating all aspects of project delivery against the Performance Requirements specified in the Technical Provisions. All the supporting data and calculations used will be submitted to IFA in the quarterly Operations Report. Since the final design, equipment selections and construction quality have an important influence in the requirements of the Plan, the O&M Team will further consider these requirements during the design development phase. At that time, our outlined Plan will be adapted to ensure it meets the specific requirements of the facilities that we design and build.

4.3.3.1 Description of Quality Assurance and Quality Control Function

As shown on [Figure 4.3-27](#), the O&M Team follows the same quality assurance and control principles used in the design and construction stages of the project detailed in [Section 4.1.5](#). The quality assurance system will include procedures to validate the data, times, dates and logs that are the basis to determine any Quarterly Payment Adjustments.



Our Quality Manager, Mario Benitez will be responsible for quality during the whole Term. The same approach and quality plan will apply during the design-build phase to provide a seamless and consistent process during the whole duration of the Project. Our Deputy Project Manager Technical, Carlos Ursua, will ensure a smooth transition from the Construction to the Operating Period. This includes our independent quality assurance team which will monitor and assess the activities carried out.

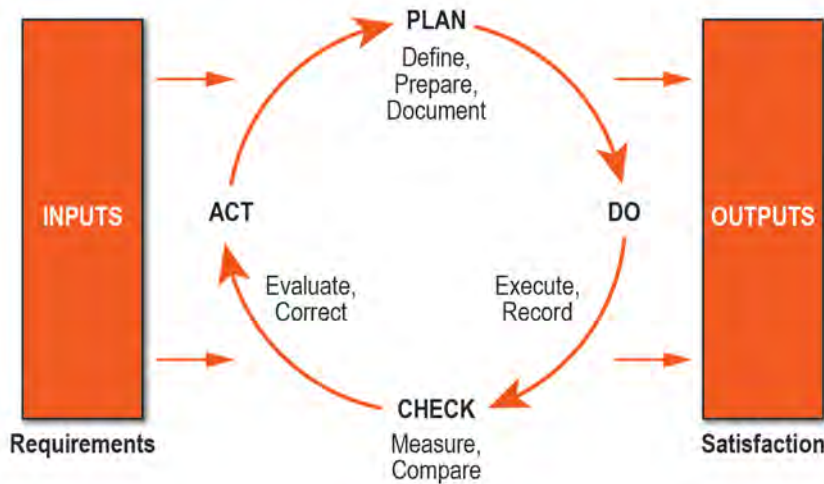


Figure 4.3-27: Quality Assurance

4.3.3.2 Approach to Involvement Reporting Relationships and Responsibilities for IFA and Department Oversight.

The quarterly Operations Report provided to the IFA form the basis of the IFA and Department's review of our performance and progress. This key report includes all quality system results, including reports on closures, Unavailability Events, Noncompliance Event and Incident log data. It includes all findings from the O&M Quality Plan as well as our assessment of O&M subcontracted activities, potential areas for performance improvement and lessons learned where appropriate.

During the Operating Period, IFA will be able to:

- Accompany the O&M Team on physical performance inspections, conduct its own performance inspections and assess and score the O&M Team's O&M Records.
- Monitor and audit the O&M Team's detection, reporting, response times and times to rectify breaches and failures for which Noncompliance Points or Unavailability Adjustments may be assessed pursuant to Section 11.3 of the PPA in accordance with Exhibit 10 (payment mechanism)

The O&M Team will coordinate and cooperate with IFA, its authorized representative and INDOT to facilitate IFA's and INDOT's oversight activities. IFA has the ability to use and access the CMMS to aid in these observations. Observations will be identified either as conforming or non-conforming

to related requirements of the PPA documents. The O&M Team will respond to all detected instances of Nonconforming Work using the CMMS and the I-69 MMS.

4.3.3.3 Internal Process for Preparing and Reviewing Reports

O&M Team patrollers and roadway maintenance operators will maintain a daily record of operations that will document all incidents, Noncompliance Events, Unavailability Events, lane closures and any issue that might arise on the

project. The O&M Manager will review and approve the record at the end of each day. These records will be reviewed weekly by the Project Manager.

4.3.3.4 Documentation and Correction of Non-compliance Issues.

The O&M Team procedure for issuing Nonconformance Reports is set out in the O&M Quality Plan. All Noncompliance Events are considered as non-conformances. Non-conformances could arise in relation to:

- Application of the project management system detected during audits, following complaints or via claims to/from IFA.
- The O&M services provided by the O&M Team.
- The Project assets, as identified during Project inspections.

Non-conformance will be documented on checklists and specialist's reports that will be included in the quality management activity procedures. The Quality Manager will be responsible for reviewing and submitting these documents, on a daily basis, and investigating reported instances to confirm or deny non-conformance. Confirmed instances of Nonconformance Event will be evaluated for their probability of reoccurrence.

Preventive or corrective action plans will be formulated and implemented for repeated problems. The development and implementation of these plans will be done by representatives from Quality and

O&M management. These plans will detail specific steps necessary to prevent or correct non-conformance and may include changes to O&M or quality management activity procedures. O&M and quality management will both agree on the plan and submit it to the Project Manager for approval.

The Quality Plan explains the methodology to deal with any current or potential non-conformances in a timely and efficient manner as well as for triggering corrective and improvement/preventive actions.

4.3.3.5 Continuous Improvement through Remedial and Preventive Actions

The O&M Team uses the results of our formal O&M quality performance audits, tests and

inspections, together with any team observations, claims or reported failures to comply with contract requirements, and identify continuous improvement opportunities. This list will include both remedial actions needed to correct deviations and avoid their recurrence and preventive actions needed to prevent future deviations from occurring.

As remedial and preventive actions are identified, they will be recorded in an actions list. This list explains how each action was defined, its approval cycle and related monitoring requirements. For all approved actions the list includes a detailed description, date of issue, deadline for action and identified owner.

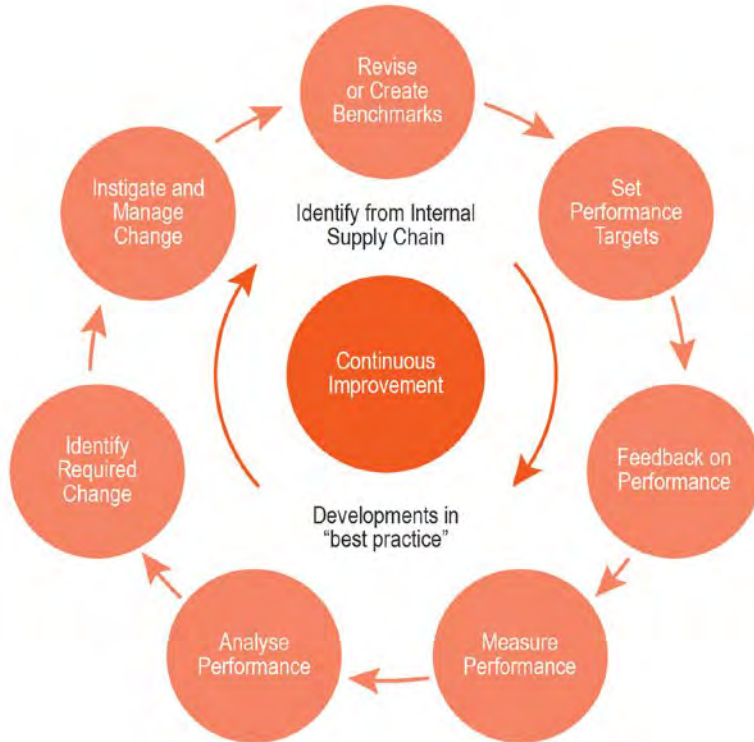


Figure 4.3-28: Continuous Improvement Cycle