August 2018 to December 2019

ANNUAL STATE OF THE ITR REPORT

PREFACE

This 2018-2019 Indiana Toll Road (ITR) *Annual State of the ITR Report* has been prepared in accordance with the Amended and Restated *Concession and Lease Agreement* ***("CLA")*** *for the Indiana Toll Road.*

The intention and goal of the annual report is to provide ITR Concession Company LLC (**"ITRCC"**) with a logical and systemic approach to infrastructure maintenance as well as developing its future capital expense projects. Further, with data contained herein, ITRCC can properly establish maintenance goals and standards to maximize the safety and protection of the public through the identification of hazardous conditions thereby allowing ITRCC to eliminate and correct the observed deficiencies.

ITRCC strives to exceed expectations by delivering a safe, reliable and efficient service to its customers. Since 2015, ITRCC has invested over $400 million in infrastructure and technology upgrades delivering major rehabilitation projects to pavement, highway bridges, and travel plazas.

In 2019 IFA and ITRCC agreed to amend the submission date for the *Annual State of the ITR* from July 1st 2019 to December 1st 2019. With this change in submission, this report will contain data from 2018 and 2019. Continuing forward the reports will remain on a calendar year review cycle.

In summary and as a professional message from Lochner, it is important to note that the development of this project was only possible with the assistance and cooperation of personnel in several departments at ITRCC. A few of the people directly aiding in completion of this annual report include:

- Mr. Nic Barr, Chief Executive Officer
- Mr. Rick Fedder, Chief Operating Officer
- Mr. Brian Cherry, EI, Infrastructure Manager
- Mr. Todd Gaugler, Asset Management Analyst
- Mr. Jeff Dabkowski, Roadway Maintenance Manager (West)
- Mr. Bill Warble, Roadway Maintenance Manager (East)
- Mr. Brian Taylor, Environmental Health & Safety Manager
- Mr. Dave Sergent, Infrastructure Field Technician

For their direct and indirect assistance, the Lochner team is truly appreciative.

Listing of Project Personnel

LOCHNER TEAM

Dan Herring, PE, SE
LOCHNER
- *Program Manager*

Eric Wilson, PE
LOCHNER
- *QA/QC Review*

Scot Spoljaric, PE
LOCHNER
- *Project Engineer*
- *NBIS Routine Team Leader*
- *High Mast / Sign Structure Team Leader*
- *Fracture Critical Team Leader*

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Cardno
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PART A: CONDITIONS REPORTS SUMMARY

Executive Summary

As the operator of the Indiana Toll Road, ITR Concession Company LLC (**"ITRCC"**) strives to deliver a world-class asset for their customers and communities. ITRCC seeks to accomplish this objective by maintaining a long-term perspective in all aspects of their operation. They focus on delivering a safe, efficient, and sustainable toll facility and in doing so, continue to operate as a valued and trusted partner of the State of Indiana.

In accordance with the Amended and Restated Concession Lease Agreement (**"CLA"** or **"Concession Lease Agreement"**), ITRCC has completed and submitted the following *Annual State of the ITR Report – July 1, 2018 to December 1st, 2019* to the Indiana Finance Authority (the **"IFA"**). Primarily, the report outlines five major areas that comprise the Indiana Toll Road (**"ITR"**) System and are included as required reports by the CLA (Volume II, Section J.2.3., and Page 96):

1. Bridge and Structure Condition Report, Fracture Critical Member Report (Summary), and Underwater Condition Report (Summary).
2. Roadway Condition Report.
3. Maintenance Items Report.
4. Facilities Condition Report.
5. Treatment Plants and Other Environmental Issues Report.

ITRCC uses an Organizational Performance Index (OPI) to monitor progress in attaining the established goals in each of the performance areas. Each OPI rating highlighted in this section has a direct bearing on ITRCC's ability to achieve its' overall performance goals.

ITRCC divides the Toll Road System into five maintenance districts. The boundaries for each of the districts are presented in **Table 1.1: Maintenance Districts and Corresponding Mile Points and Plazas** (located in Appendix B).

Bridge and Structure Condition Report Summary

Overview of Bridge OPI Measures

ITRCC is responsible for 333 bridges. Each bridge is inspected every two years. Volume II, Section J.3.10.2 of the Concession Lease Agreement states that the bridge summary shall include the following items:

1. Deck
2. Superstructure
3. Substructure
4. Paint

Summary of NBI Ratings and Asset Sufficiency Rating

For each bridge category, the ratings from the National Bridge Inspection Standards (NBIS) will be used. Ratings are on a numeric scale from 0 – 9, with 9 meaning the bridge component is in excellent condition and 0 meaning the component has failed. The Bridge Sufficiency Rating is a means to assess the overall adequacy of the bridge to remain in service, in which a sufficiency rating of 100% represents an entirely sufficient bridge and 0% represents an insufficient or deficient bridge. The Bridge Sufficiency Rating is calculated based upon the formula and guidelines provided by the Federal Highway Administration (FHWA). A detailed technical explanation is outlined in the bridge **Part B: Bridge and Structure Condition Report.**

Summary of Bridge Conditions and Ratings

Indiana Department of Transportation (INDOT) Certified Bridge Inspection Team Leaders performed the most recent inspections. The bridge information within this report contain information provided by the 2019 routine inspection program and the 2019 special inspection program. Lochner has compiled information for this report by reviewing the submitted reports to the ITRCC as well as reviewing the NBIS data and their respective executive summaries. The information provided contains exact language used in these reports.

The average sufficiency rating is listed in **Table 1.2: Average Bridge Sufficiency Ratings and Percent Deficiencies of Elements for 2019**, which has been updated with current sufficiency rating data available from NBIS. This table represents all 317 bridges not currently within the PUSH 2.0 project. The PUSH 2.0 structures have not been added to these metrics due to the fact the all elements of these structures were under construction during the 2019 inspections. Additionally, the previously applied ratings, prior to that of 2019, for the 16 PUSH 2.0 structures have not been added to this list since the previous ratings would not represent a true state of the ITR for the 2019 inspection year.

The ITRCC began the PUSH 2.0 project in 2019 and included bridge rehabilitation and maintenance for the 16 structures excluded from the following tables. The PUSH 2.0 scope directly calls for the minimum sufficiency ratings and NBIS ratings per each bridge. The PUSH 2.0 NBIS ratings will be completed by the design build team and directly inputted to NBIS. These metrics will be reflected in the *2019-2020 Annual State of the ITR Report*.

The state of the ITR structures in general have increased in their overall percentages of satisfactory and greater condition ratings, which is the result of lower deficiencies discovered during inspections. Wearing surface and deck deficiencies have improved as well, due to rehabilitation projects outside that of the PUSH I and PUSH 2.0 project. The rehabilitations and new construction applied to many structures have increased the Deck, Superstructure, and Substructure ratings. In 2017 ITRCC implemented a complete reevaluation of the 10 year capital improvement program for all bridge assets. Using the 2015/2016 bridge inspection data and the advanced asset planning system of VUEWorks, a new budget and plan was generated to help lower the amount of deficiencies and further increase the overall condition of the ITR structures.

2019 ITR Bridge Conditions (Excluding PUSH 2.0)			
	Def. Rating	Avg. Suff. Rating	% Def.
Wearing Surface	<= 5	87.56	7.26%
Deck	<= 5		5.68%
Paint	<= 5		19.24%
Superstructure	<= 4		1.26%
Substructure	<= 4		0.32%

Table 1.2: Average Bridge Sufficiency Rating and Percent Deficiencies of Elements for 2019

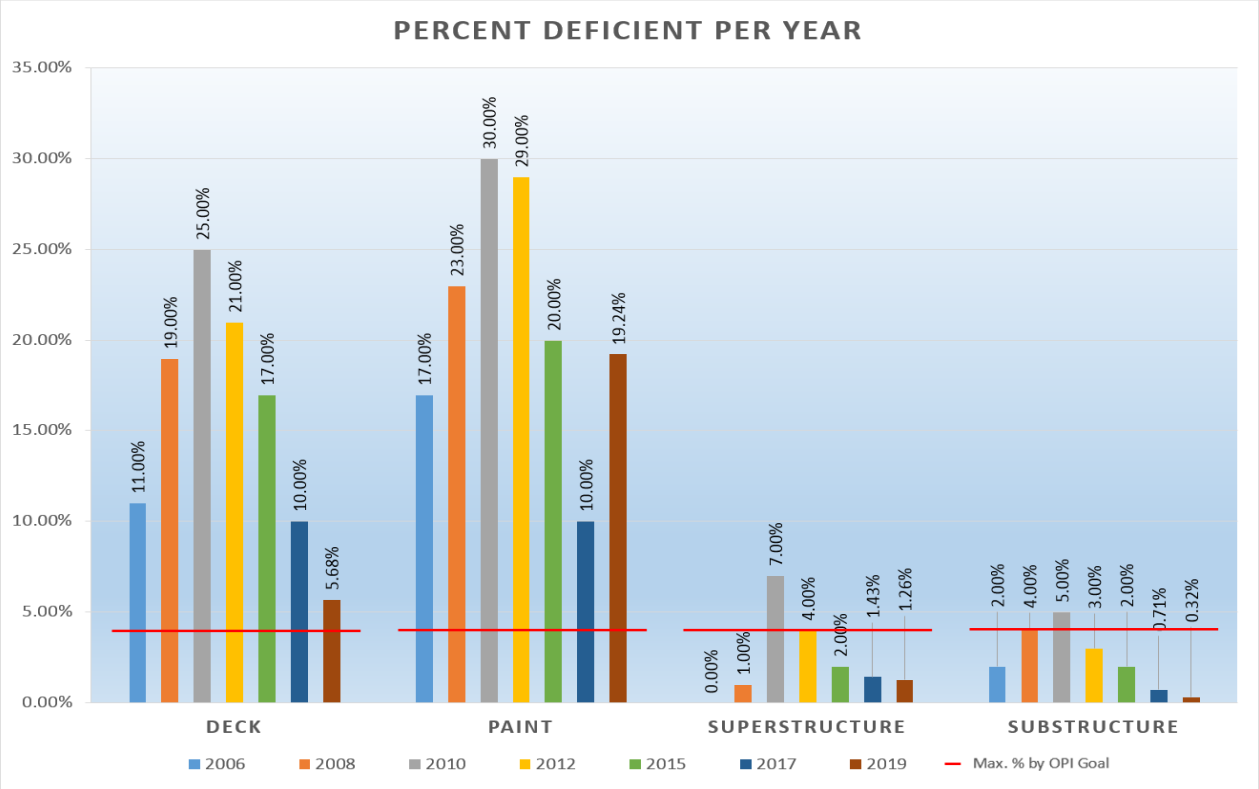


Figure 1.1: Bridge Condition Ratings

Note: To address the upward trend for paint ratings, compared to 2017, the ITRCC is working on new strategic procurement process with the issuance of job order contracts to address superstructure painting across the corridor. Current preliminary plans are to implement these job order contracts in 2020. Further narrative is provided in the Bridge Report Section.

Roadway Condition Report Summary

Overview of Pavement Lease Requirements and OPI Measures

The CLA establishes three main pavement criteria that ITRCC must meet – the International Roughness Index (IRI), the Rutting Criteria (RUT), and the Pavement Surface Friction (FNS) criteria:

1. The roughness index on the mainline pavement shall be maintained below an average of 150 in / mi. The average of any given 1-mile section is not to exceed 170 nor is any individual 1/10th mile section to exceed 190.
2. The rutting on the mainline pavement shall not exceed an average depth of 3/8" (0.375") in any given 1-mile section nor is any individual 1/10th mile section to exceed a 5/8" (0.625") rut depth.
3. Any readings of the surface friction (FNS) below 30 shall require investigation by INDOT for possible remediation and shall be reported to the Concessionaire.

A detailed technical explanation is outlined in the bridge **Part B: Roadway Condition Report.**

Summary of Pavement Measurements

Following a review of the electronic data provided by Applied Research Associates and a visual inspection of the mainline pavement during the maintenance Organizational Performance Index (OPI) inspection, it is the conclusion of Lochner that the mainline pavement, in general, is meeting the goals and criteria as outlined in the CLA. Measurements for the Pavement OPI were taken during a week in the fall of 2018 and in the late summer of 2019 by Applied Research Associates, Inc. and are further summarized in the field report named *"Pavement Condition Inspection for the Indiana Toll Road,"* dated March 03, 2019 and September 30, 2019.

In 2017 per requirements of ITRCC, IRI is being reported on 0.1-mile intervals. This requirement removes the natural filtering of data, shows more scattered IRI values, and raises the average across the network. With this change, 2017 data and beyond will represent a new benchmark against which future years may be compared.

Table 1.4: Pavement Condition Measurement Summary illustrates the measurements for IRI, RUT, and FNS assessments along the length of the ITR. The friction numbers represented below included the combination of both the mainline pavement and the mainline bridge decks.

Measurement	Interval of Data Accruement	Required Average of Entire Mainline	Average of Entire Mainline	Required Average of One Mile Interval	# of Exceedances in One Mile Intervals	Required Average of One-Tenth Mile Interval	# of Exceedances in One-Tenth Mile Intervals
2018 IRI	one-tenth mile	< 150	71.9	N/A	N/A	< 190	163
2019 IRI	one-tenth mile	< 150	76.6	N/A	N/A	< 190	217
2018 RUT	one-tenth mile	N/A	0.034	N/A	N/A	< 0.625 inch	0
2019 RUT	one-tenth mile	N/A	0.068	N/A	N/A	< 0.625 inch	0
2019 FNS	approx. one mile	N/A	44.617	> 30	75	N/A	N/A

Table 1.4: Pavement Condition Measurement Summary

Summary of Pavement Ratings

The mainline pavement ratings are determined quantitatively from the Pavement Quality Index (PQI) formula and ranges detailed in roadway section of this report. The pavement ratings for the toll and travel plazas are based on engineering judgment during visual inspections and are summarized in **Table 1.5: PQI Rating Percentages for Mainline**, **Table 1.6: Toll Plaza Ramp Conditions**, and **Table 1.7: Travel Plaza Ramp Condition**.

ITR MAINLINE PQI				
Category	**2015**	**2017**	**2018**	**2019**
Average PQI	93.3	92.1	89.9	88.2

Table 1.5: PQI Rating Percentages for Mainline

Summary of Deficiencies and Ratings Decrease

Although the data provided illustrates a decrease in PQI and increase in IRI exceedances, the ITR has taken many preventative actions to address these deficiencies that are not captured in the above values. The main contributing factor is the time of year in which the pavement data was captured, July 2019. At the time of collection the ITR was addressing the 2018 data by procuring a contract for a mill and fill program from MM 93 to MM 156. This project was completed during the months of August 2019 and September 2019 and therefore was not reflected in the values. Similarly, the PUSH 2.0 project was in its summer moratorium phase and approximately 40% of the project had yet to receive newly reconstructed pavement. The PUSH 2.0 project will be completed in November 2019. With these two projects, there is an expectation for the overall PQI to increase and IRI exceedances to decrease in the 2020 annual report.

Toll Plaza	MP	2015 Condition	2016 Condition	2017 Condition	2018 Condition	2019 Condition
Indianapolis Boulevard	0	Fair	Fair	Fair	Fair	Excellent
Westpoint	1	Good	Good	Good	Fair	Excellent
S.R. 912	3	Poor	Fair	Fair	Fair	Excellent
Calumet Ave. (EB Entr.)	5	Fair	Poor	Poor	Poor	Excellent
Calumet Ave. (WB Exit)	5	Fair	Poor	Poor	Poor	Excellent
Cline Avenue	10	Fair	Poor	Poor	Poor	Excellent
Gary West	14A	Excellent	Fair	Poor	Poor	Poor
Broadway	14B	Excellent	Fair	Fair	Fair	Fair
Gary East	17	Good	Fair	Fair	Fair	Fair
Lake Station	21	Poor	Fair	Excellent	Excellent	Good
Portage	23	Good	Good	Excellent	Excellent	Good
Mainline Barrier	24	Good	Good	Excellent	Excellent	Excellent
Valparaiso-Chesterton	31	Good	Poor	Excellent	Good	Good
Michigan City	39	Good	Good	Excellent	Good	Good
LaPorte	49	Fair	Fair	Excellent	Good	Good
South Bend West	72	Good	`Fair	Excellent	Excellent	Good
South Bend-Notre Dame	77	Good	Good	Good	Excellent	Good
Mishawaka	83	Fair	Good	Excellent	Good	Good
Elkhart	92	Fair	Fair	Good	Good	Good
Elkhart East	96	Good	Fair	Fair	Fair	Fair
Bristol	101	Good	Good	Fair	Fair	Fair
Middlebury	107	Fair	Good	Fair	Fair	Fair
Howe-LaGrange	121	Good	Good	Fair	Fair	Fair
Angola	144	Fair	Fair	Fair	Fair	Fair
Eastpoint	153	Good	Good	Poor	Fair	Poor

Table 1.6: Toll Plaza Ramp Conditions

Travel Plaza	MP	2016 General Condition	2017 General Condition	2018 General Condition	2019 General Condition
Eastbound					
TRP - 1S	21.7	Fair	Excellent	Excellent	Good
TRP - 2S (Trucks only)	37.5	Poor	Poor	Poor	Excellent
TRP - 3S	55.9	Poor	N/A - Under Const.	Excellent	Good
Dist. 11 ISP	76	Excellent	Poor	Closed	Closed
TRP - 5S	90	Poor	Poor	N/A - Under Const.	Excellent
TRP - 6S (Trucks only)	108	Fair	Poor	Poor	N/A - Under Const.
TRP - 7S	125.8	Good	Excellent	Excellent	Good
TRP - 8S	145.7	Closed	Closed	Closed	Closed
Westbound					
TRP - 1N	21.7	Poor	Excellent	Excellent	Good
TRP - 2N (Trucks only)	37.5	Poor	Poor	Poor	Excellent
TRP - 3N	55.9	Poor	N/A - Under Const.	Excellent	Good
TRP - 5N	90	Poor	Poor	N/A - Under Const.	Excellent
TRP - 6N (Trucks only)	108	Fair	Poor	Poor	N/A - Under Const.
TRP - 7N	125.8	Good	Excellent	Excellent	Good
TRP - 8N	145.7	Closed	Closed	Closed	Closed

Table 1.7: Travel Plaza Ramp Conditions

NOTE: 2019 Ratings for the Travel Plaza marks the first time since the initial lease of the ITR in 2006 that the travel plazas have an OPI score greater than 0. The 2019 OPI score is 6 out of 6.

Areas that previously received an excellent rating in 2018 and were downgraded to a good rating in 2019 follow the expected degradation curve for newly paved asphalt. A good rating is expected to sustain longer through the life of the pavement as an excellent rating can only truly be achieved in the first year or two of the pavement life.

MAINTENANCE ITEMS REPORT SUMMARY

Overview of Maintenance OPI Measures

In addition to bridges and pavement, ITRCC is responsible for the following nine maintenance items:

1. Guardrail Deficiency
2. Pavement Deficiency
3. Vegetation Obstructions
4. Litter
5. Drainage Obstructions
6. Signs
7. Pavement Markings
8. Fences
9. Lighting

Summary of Maintenance Deficiencies and Ratings

The inspections of the maintenance items are categorized between the mainline pavement, toll plaza ramps, and the travel plaza parking lots. OPI inspection results separated by maintenance district can be found in **Part B: Maintenance Items Report**. The ratings range from 0 to 6 with 6 being the highest.

The visual inspections ratings for the OPI measurements are measured in accordance with the OPI maintenance manual and are not directly rated to the overall good condition of the pavement represented in the ratings found in section 4 of the roadway condition report. Additionally, ITRCC has added in-lay pavement markings to the PUSH I & PUSH 2.0 contracts. This addition has resulted in an increased OPI score for pavement markings.

OPI Measures	Toll Plaza Maintenance Item Deficiencies			
	2019			
	Deficiencies	Def/Ramp	OPI Goal	OPI Rating
Guardrail Deficiency	18	0.419	>=4	5
Pavement Deficiency	28	0.651	>=4	4
Vegetation Obstruction	0	0.000	>=4	6
Litter	1	0.023	>=4	6
Drainage Obstruction	1	0.023	>=4	6
Sign deficiency	2	0.047	>=4	6
Pavement Marking Deficiency	5	0.116	>=4	6
Fence Deficiency	4	0.093	>=4	6

Table 1.9: Toll Plaza Ramp Maintenance Items for ITR

OPI Measures	Travel Plaza Maintenance Item Deficiencies			
	2019			
	Deficiencies	Def/Plaza	OPI Goal	OPI Rating
Guardrail Deficiency	0	0.000	>=4	6
Pavement Deficiency	0	0.000	>=4	6
Vegetation Obstruction	1	0.100	>=4	6
Litter	5	0.500	>=4	6
Drainage Obstruction	1	0.100	>=4	6
Sign deficiency	2	0.200	>=4	6
Pavement Marking Deficiency	0	0.000	>=4	6
Fence Deficiency	7	0.700	>=4	4

Table 1.10: Travel Plaza Maintenance Items for ITR

OPI Measures	Mainline Maintenance Item Deficiencies			
	2019			
	Deficiencies	Def/mile	OPI Goal	OPI Rating
Guardrail Deficiency	19	0.121	>=4	6
Pavement Deficiency	23	0.147	>=4	6
Vegetation Obstruction	2	0.013	>=4	5
Litter	2	0.013	>=4	6
Drainage Obstruction	0	0.000	>=4	6
Sign deficiency	6	0.038	>=4	6
Pavement Marking Deficiency	18	0.115	>=4	5
Fence Deficiency	0	0.000	>=4	6

Table 1.11: Mainline Maintenance Items for ITR

Facility Condition Report Summary

The facilities inspections were intended to assure compliance with the spirit of the "Acceptance Criteria" listed in the CLA (Volume I, Sections K.3.4 and L.3.4, Pages 97 – 98 and 108 – 110) and the "Acceptance Standards" listed in the CLA (Volume II, Section J.2.4., Pages 97-98). In February 2019, Group A facilities were inspected. Conditions of the facilities can be found in the **Part B: Facilities Condition State** section of this report with a breakdown of all building inspections in Appendix F. The building inspections were noted to be 98% in compliance receiving "Good" ratings and 2% of the facilities receiving "Fair" ratings. Buildings that were schedule to be decommissioned and demolished were not inspected.

It should be noted that ITRCC has budgeted and programmed a comprehensive facility repair and upgraded plan to address both structure, cosmetic and aesthetic repairs in 2019 and 2020.

Treatment Plants and Other Environmental Issues Report Summary

Environmental Facilities

During the 2019 inspection, the majority of major equipment at ITRCC facilities was observed to be in operable condition by audit personnel. Management of regulatory environmental records were well kept and in excellent order. Environmental inspections took place during the period of August 20, 2019 through August 23, 2019. A detailed technical explanation is outlined in the bridge **Part B: Treatment Plants and Other Environmental Issues Report.**

In line with the $70M travel plaza rebuild project and in partnership with the IFA, LaPorte and LaGrange Counties, LaPorte County assumed ownership and operational oversight in 2018 of the W/WWT plant located at travel plaza 3, while LaGrange County is on track to fully connect to the travel plaza 7 site in December 2019. Once complete, ITRCC will have no further responsibilities in operating and maintaining treatment plants.

Additionally, the ITRCC has continued to show initiative in developing programs to encourage protecting the environment and natural resources. Key among recent initiatives is the formation of an ambitious Environmental Social and Governance ("**ESG**") program within ITRCC. Within the ESG program, key initiatives and goals have been developed to further ITRCC's environmental excellence. These include, among others:

- Carbon reduction/offset program, including planting of 800 trees and entire fleet replacement;
- LED lighting upgrade/replacements for facilities along the ITR;
- Completion of the diesel generator underground storage tanks (UST) removal program replaced with natural gas generators;
- Solar power energy generation at the Travel Plazas and the new Administration Building located in Elkhart, IN;
- Research into electric charging stations at various location across the ITR;
- Research and testing of recycled asphalt millings and bio-based polymer to create "cold patch" alternative for pothole patching;
- Develop formal recycling program;

- Removal of underground fuel storage tanks. Operating Fuel now sourced through ITR Travel Plazas;
- Partnership with the Shirley Hines Land Trust for wetland preservations creating employee volunteer opportunities; and
- Partnership with the Portage Township Trustees office for their trail connectivity project.

Capital Improvement Program Report

The purpose of this report section is to describe the condition of the ITR infrastructure, describe the procedures used to assess the condition of the infrastructure, present findings as to the condition of the infrastructure, and to define the anticipated capital improvements needed which culminates in the presentation of a 10-year Capital Improvement Program ("CIP"). This report is reviewed and revised annually, based upon the above mentioned assessment coupled with engineering judgement. The report is then submitted annually to the Indiana Finance Authority (the "IFA"). In 2019, ITRCC and IFA amended the CLA to revise the submission date of the *Annual State of the ITR Report* with the inclusion of the CIP within.

Projects	Total Costs
80/90 PUSH 2.0 Project	$66,000,000
80/90 PUSH 3.0 & 4.0 Projects	$175,000,000
Intelligent Transportation System – Phase 2	$36,000,000
Truck Parking Lots	$7,000,000
Building/Roadway/Lighting CIP	$52,856,091
Bridges CIP	$19,901,536
2019-2029 Total CIP	**$356,757,627**

VUEWorks Integration

In 2017, ITRCC completed an 18-month needs assessment and integration of an asset management database utilizing the program VUEWorks. In order to implement the data into VUEWorks, a GIS file has been created and assets were assigned a unique ID number. These ID numbers were provided to Lochner along with accompanying work orders that allowed all inspection findings to be inputted directly into the VUEWorks database. The positive implementation of VUEWorks can already been seen along the ITR and the improvements that have been made and planned for the future.

Lochner worked closely with ITRCC throughout the inspection process to ensure data is provided in the appropriate format for the ease of uploading information into VUEWorks. ITRCC has implemented an industry leading standard in managing their multitude of assets. VUEWorks not only incorporates the assets relating to the State of the ITR Report, but also the inclusion of signs, sign structures, high mast light structures, cobra head light structures, and small drainage structures. The assets that are reported within this report include all 333 bridge structures, all facility buildings, and the roadway sections broken down into tenth mile segments. With this level of detail, the assets can be tracked based on inspection data and planned for maintenance and construction with a greater accuracy and level of detail. This process will also allow ITRCC to plan future projects by bundling assets into comprehensive projects allowing for greater economy of scale.

2: BACKGROUND

PART B: DETAILED REVIEW

Background

On May 27, 2015, ownership of ITRCC transferred from Cintra/Macquarie to IFM Investors ("**IFM**") for the remaining 66 years of the 75-year agreement for $5.725 billion. Prior to IFM acquisition, there had been a historical underinvestment in the ITR infrastructure. Since taking over, significant progress has been made to remedy these issues and set up appropriate long term plans to allow the ITRCC to ensure outperformance of CLA requirements over the life of the CLA. This includes the more than $400 million in projects such as PUSH I and PUSH 2.0 that has been invested in capital improvements since 2015 delivering material improvements to pavement, bridges, travel plazas, and roadway safety.

Additionally, as part of ITRCC's commitment to Governor Eric Holcomb's Next Level Connections Initiative, an additional $50 million in projects are underway to continue to deliver road-safety and customer experience enhancements on the ITR over the next three years. Once complete, together with other planned major capital projects, a total of $500 million of capital improvements will have been made to the ITR between 2015 and 2025. The additional funds are expected to be used to expand the intelligent transportation system across the ITR, which includes the completion of a fiber optic network, truck parking improvements, and explore smart trucking parking and electric truck parking station infrastructure.

3: BRIDGE AND STRUCTURE CONDITION REPORT

BRIDGE AND STRUCTURE CONDITION REPORT

General

Lochner completed bridge inspections, consisting of a routine, fracture critical, and special inspections for the assessment of each bridge within ITRCC's jurisdiction in 2019. Routine NBIS inspections were performed on 317 bridges with National Bridge Inventory (NBI) Reports for each bridge prepared utilizing INDOT's web-based Bridge Inspection Application System (BIAS). The 16 remaining structures under the PUSH 2.0 contract received durability reports from the projects design build team and were under construction during the 2019 inspections. Fracture critical, pin & hanger, steel pier cap, post-tensioned, and small structures inspections were also performed in 2019 as required by Federal, State, and Concession Lease Agreement regulations. State highway bridges, federal land bridges, privately owned bridges, and bridges carrying railroad traffic were not included in the report.

Routine Bridge Inspections

The 2019 NBIS Bridge Inspection Report is the result of visual observations and data obtained during field inspections performed by Lochner between July and September 2019 with conclusions based on relatively evident deficiencies. No invasive or destructive testing was performed unless specifically authorized by ITRCC and so noted. A great deal of emphasis is placed on the judgment and expertise of the Engineer performing the field inspections. As such, all field work was completed by a Bridge Inspection Team Leader qualified by INDOT. The highest level of professional judgment was used throughout this report; however, it is noted that concealed deficiencies are possible and may remain unnoted in some cases. The ITRCC is encouraged to maintain a program of continuing observation, particularly in the case of deficient and decayed structures, to anticipate future problems before they develop.

Fracture Critical Inspections

Fracture Critical Inspections are required on an annual basis for a total of five bridges under ITRCC jurisdiction as noted in **Column A** of **Table 3.0: Special Detail Bridges** (located in Appendix C). Lochner performed these inspections in the summer of 2019 as part of the 2019 Bridge Inspection Program cycle.

Underwater Inspections

Underwater inspections are required on a 5-year cycle for a total of 10 bridges under ITRCC jurisdiction as noted in **Column B** of **Table 3.0: Special Detail Bridges** (located in Appendix C). These inspections were performed in June 2017 by SJCA Engineers, and will not require inspection again until 2022 inspection cycle.

Special Inspections

Special Inspections are required for a total of 7 bridges under ITRCC jurisdiction as noted in **Column C** of **Table 3.0: Special Detail Bridges** (located in Appendix C). Special Detail Inspections are required on an annual frequency. Lochner completed Special Detail Inspections (steel pier cap "hands-on", pin & hanger "hands-on", or post-tensioned structures inspections) for each of these structures in 2019.

Scour Inspections

Special Inspections are typically required for bridges deemed scour critical, meaning that the bridge substructure units may be vulnerable to undermining from scour during a high-water event. The scour depths used to determine the risks are theoretical and based on various hydraulic analyses. The evaluation does not necessarily mean that scour exists at the bridges, though actual scour history is a contributing factor to the evaluation.

All ITR structures with substructure units (piers and/or abutments) in the water are checked for actual scour as part of the routine NBIS inspections and underwater inspections, if required. In 2019, during the routine inspections, probing around substructure units submerged in less than 3 feet of water did not reveal ongoing local or general scour around the units.

Bridge Organizational Performance Index (BOPI)

As previously noted, all bridges within the jurisdiction of the ITRCC undergo routine NBIS inspections on a biennial basis in keeping with FHWA requirements. The FHWA scale of 0 to 9 (worst to best) is used as the Performance Index (PI) for the bridge items.

The following categories, as defined in the OPI Manual, are evaluated for the purpose of establishing the BOPI:

- **Bridge Wearing Surface** – Defined as the top concrete or HMA (Hot Mix Asphalt) surface of the bridge that provides smooth ride ability for the vehicles and protection for the bridge deck. If this item is rated ≤5 it should be considered deficient. The deficiency should be measured in square foot of the deck area.

- **Paint** – The protective item for the superstructure (steel beams and girders) against rust and corrosion. If the paint is rated ≤ 5 it should be considered deficient. The deficiency is measured in percentage of bridges with a rating ≤ 5.

- **Deck** – Represents one of the bridge's major components which transfer the live (vehicular) load to the beams and girders (superstructure). If the deck is rated ≤ 5, it should be considered deficient. The deficiency is measured in percentage of bridges with a rating ≤ 5.

- **Superstructure** – Represents the load carrying components of the bridge. If the item is rated ≤ 4 it should be considered deficient. The deficiency is measured in percentage of bridges with a rating ≤ 4.

- **Substructure** – Defined as the support for beams, girders, deck, railings, and other features. If the item is rated ≤ 4 it should be considered deficient. The deficiency is measured in percentage of bridges with a rating ≤ 4.

The numerical condition ratings given to deck, superstructure, and substructure conditions are as outlined in the Bridge Coding Guide as follows:

Rating	Condition	Description
N	Not Applicable	Structural element does not exist
9	Excellent	Newly constructed
8	Very Good	No problems
7	Good	Some minor problems
6	Satisfactory	Minor structural deterioration
5	Fair	Minor section loss, spalling, cracking
4	Poor	Advanced section loss, deterioration
3	Serious Poor	Failure is possible
2	Critical Poor	Advanced deterioration or primary elements
1	Imminent Failure	Major deterioration, closed
0	Failed	Beyond correction, out of service

The numerical condition ratings given to paint condition are as outlined in the Bridge Coding Guide as follows:

Rating	Condition	Description
N	Not Applicable	No paint
9	Excellent	Recently painted, good seal
8	Very Good	Maybe several years since painting, still a good seal, some chalkiness
7	Good	A few areas of light rust, possibly some chalkiness, some peeling
6	Satisfactory	light rust in many areas, lots of chalkiness, some peeling
5	Fair	Many areas of light rust, localized areas of medium to heavy rust buildup, peeling
4	Poor	Many areas of medium rust, localized areas of heavy rust buildup, lots of peeling
3	Very Poor	Many areas of heavy rust, lots of peeling
2	Very Poor	Many areas of heavy rust, lots of peeling
1	Total Paint Failure	Large areas of extremely heavy rust, little paint remains
0	Total Paint Failure	Large areas of extremely heavy rust, little paint remains

Bridge sufficiency ratings are calculated based on the formula and guidelines provided by the FHWA in the "Recording and Coding Guide for the Structure Inventory and Appraisal of the Nation's Bridges," also known as the *Bridge Inspections Coding Guide*.

The sufficiency rating formula is a method of evaluating data by calculating four separate factors (S1, S2, S3 and S4) to obtain a numeric value which is indicative of bridge sufficiency to remain in service.

The result of this method is a percentage in which 100% would represent an entirely sufficient bridge and 0% would represent an entirely insufficient or deficient bridge. It is reasonable to conclude that bridges with a sufficiency rating of:

90% - 100%	are generally in Excellent Condition
80% - 90%	are generally in Good Condition
70% - 80%	are generally Fair Condition
60% - 70%	are generally Marginal Condition
Below 60%	are generally in Poor Condition

Bridge Sufficiency Rating = S1 + S2 + S3 - S4

S1 represents the Structural Adequacy and Safety of the bridge which is indicative of the bridge's main element conditions such as Superstructure, Substructure, Culvert and the load carry capacity of the bridge. These elements are evaluated or rated based on the scale of 0-9. If rating of any of these elements falls below 6, it will deduct a percentage value from the 100 depending on the rating, up to a maximum of 55% total.

S2 represents the Serviceability and Functional Obsolescence which is indicative of the bridge's geometry, structure type and the importance of the facility that the bridge carries. It includes 13 different items and is evaluated based on the 0-9 scale using the current standards. If the rating of any of these elements falls below 6, it will deduct a percentage value from the 100 depending on the rating, up to a maximum of 30% total.

S3 represents Essentiality for Public Use which includes the Detour Length, Average Daily Traffic and Defense Highway Designation. These items are evaluated according to the guidelines provided by the FHWA in the Bridge Inspections Coding Guide. If rating of any of these elements falls below 6, it will deduct a percentage value from the 100 depending on the rating, up to a maximum of 15% total.

S4 represents Special Reductions (and is used when S1 + S2 + S3 is equal to or less than 50%). Guidelines for evaluating this item are provided in the Bridge Inspections Coding Guide. If rating of any of these elements falls below 6, it will deduct a percentage value from the 100 depending on the rating, to a maximum of 13% total.

Bridge Condition Summary

Table 3.1: 2006-2019 Percent Deficiencies and 2019 OPI ratings depicts the change in percentages from year to year since the lease of the ITR. The 2019 percentages show decreases in nearly all categories with the superstructure and substructure receiving is greatest OPI scores since the initial lease.

Indiana Toll Road Bridge Road Conditions									
	Def. Rating	2006	2008	2010	2012	2015	2017	2019	2019 OPI RATING
Wearing Surface	<=5	N/A	23.00%	N/A	39.00%	13.00%	8.93%	7.26%	0
Deck	<=5	11.00%	19.00%	25.00%	21.00%	17.00%	10.00%	5.68%	0
Paint	<=5	17.00%	23.00%	30.00%	29.00%	20.00%	10.00%	19.24%	0
Superstructure	<=4	0.00%	1.00%	7.00%	4.00%	2.00%	1.43%	1.26%	5
Substructure	<=4	2.00%	4.00%	5.00%	3.00%	2.00%	0.71%	0.32%	6
Avg. Suff. Rating	N/A	N/A	86.2	85.9	83.8	85.6	87.38	87.56	NA

Table 3.1 2006-2019 Percent Deficiencies and 2019 OPI Rating

Figure 3.1: Bridge Condition Ratings illustrates that there has been a decrease in the percent deficiencies of the individual items compared to the previous years. This decrease is due to the implementation of the PUSH I and PUSH 2.0 projects as well as other structure specific contractors the ITR has procured since 2015. The PUSH projects have addressed over 20% of the structures within the ITR corridor. At completion of the PUSH 2.0 project, the new ratings will decrease the overall deficiency averages even further.

The paint condition rating is the only deficiency that has shown an increase. This increase is directly attributed to previous years inspection ratings containing a larger number of structures rated a 6 (satisfactory condition) which were lowered in the 2019 inspection cycle to a rating of a 5 (fair condition). This has resulted in a larger number of structures falling into the paint deficient category. The ITRCC is planning to address this deficiency group with job order contracts across the corridor specific to superstructure blasting and painting.

Bridge Element Inspections were also completed on all ITR bridges in 2019, from which calculated quantities for total bridge deck area and wearing surface area for the entire system were obtained. These quantities can be used to help develop a more focused view of the condition of the bridge and areas of possible future rehabilitation and/or preventative maintenance.

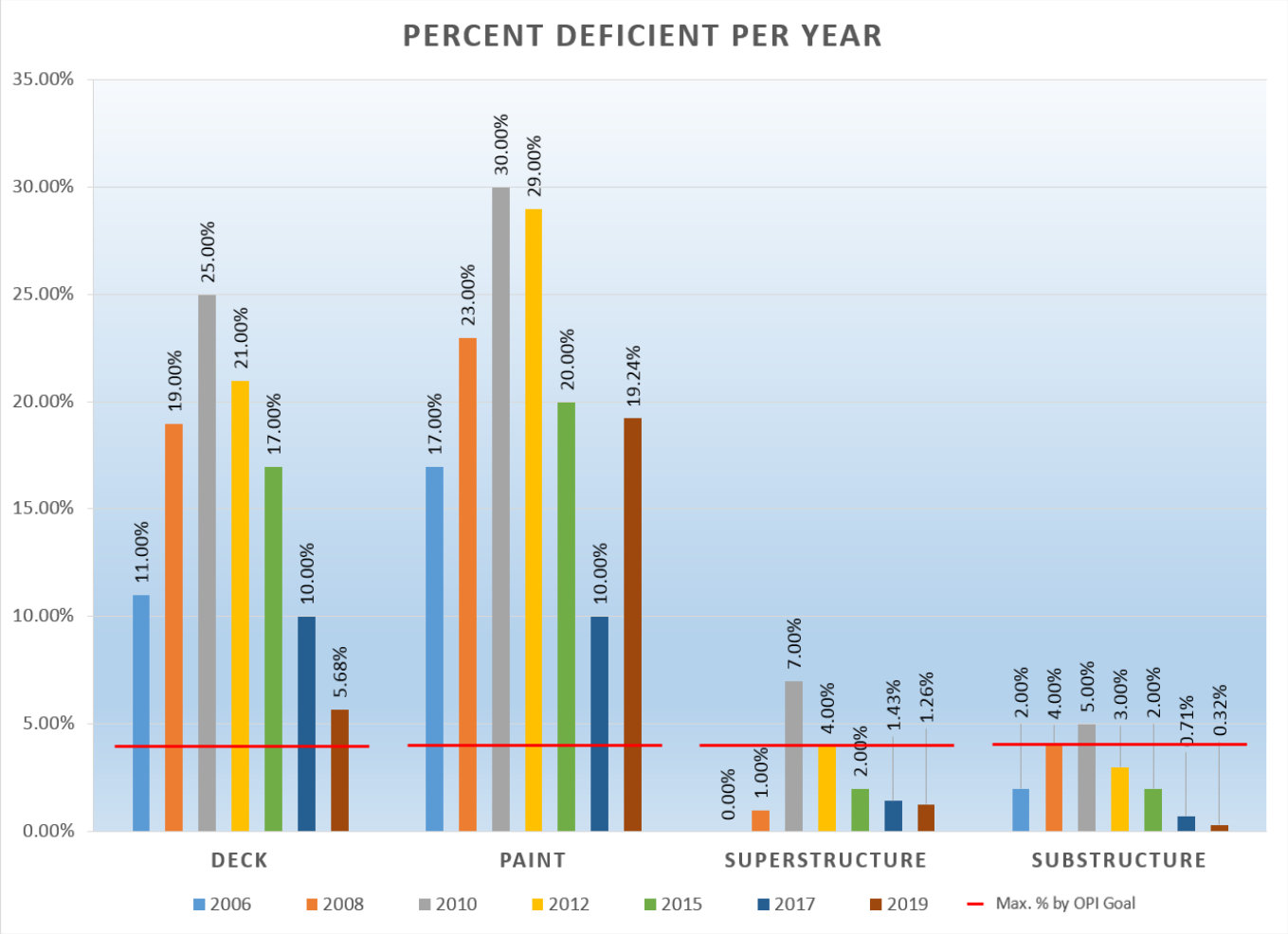


Figure 3.1: Bridge Condition Ratings

The ITRCC has implemented a preventive maintenance plan to address additional annual cleanings and maintenance across all 333 structures. The plan includes annual bridge washing of the deck, superstructure, and substructures from travel debris and winter maintenance residuals, along with correcting minor drainage, joint, and patching needs. ITRCC employs one preventative bridge maintenance crew that was trained by the Transportation Training Institute in 2017. This crew and plan will help to lower and maintain low deficiencies throughout the bridge structures' surface life.

All ITR structure condition ratings can be found in Appendix C on **Table 3.3: National Bridge Inventory (NBI) and Bridge Sufficiency Ratings for all Bridges on ITR (Minus PUSH 2 structures).**

Fracture Critical Member Report (Summary)

Five bridge structures were inspected in 2019 as part of the most recent fracture critical inspection program completed during the Bridge Inspection Program. These structures include:

Structure	No. Mile Point	Feature Intersected
1A-1	0.08	US 12/20 & US 41
1-3 EBL	1.56	Indiana Harbor Belt Railroad (IHB)
1-3 WBL	1.56	Indiana Harbor Belt Railroad (IHB)
28-1 EBL	75.97	St. Joseph River
28-1 WBL	75.97	St. Joseph River

The following synopsizes contains language directly used from the NBIS inspections summaries completed in 2019 by Lochner. Each bridge contains a full fracture critical and/or special inspections report that has been completed by Lochner and attached to the asset in NBIS.

Bridge 1A-1 over US 12/20 & US 41

Fracture critical elements in Bridge 1A-1 include the steel column/bents that make up the bridge substructure. Steel plates and angles riveted as built-up members comprise the bents. An arms-length visual and tactile inspection focusing on the tension zone areas and connections of the bents was performed in August 2019 in order to locate potential defects such as cracks, section loss, pack rust, and damage.

The structure is in overall fair condition. Typically observed on the north bridge railing were rust staining and in numerous spans with exposed rebar. The median railing exhibited closely spaced vertical cracks throughout the structure. The exposed rebar along the railing is in need of repairs. The wearing surface on the deck was in satisfactory condition with areas of wearing and cracking observed. Overhang areas along both sides of the bridge typically had spalling with exposed rebar running the full length of the structure. Deficiencies noted at multiple areas of the deck underside included spalls with exposed rebar, delamination, and efflorescence. The steel portion of the super and sub structure exhibit varying states of corrosion, with moderate corrosion found at areas where the downspouts were located and along the fascia where the joints above become discontinuous or terminated allowing for moisture to effect the steel elements below.

The overlay, deck, expansion joints, and superstructure should be maintained on a periodic basis to prolong the life of the structure, to the extent possible, while bridge rehabilitation options are considered and implemented.

Bridge 1-3 EB & WB

Fracture critical elements in Bridges 1-3 EBL and WBL include the built-up riveted cross-girders supporting the main superstructure spans over the IHB railroad. The cross-girders are supported by concrete columns at each end and span across the railroad tracks.

The overall condition of the steel fracture critical cross-girders is satisfactory. The Fracture Critical Inspection completed by Lochner in July 2019 did not find noticeable changes from previous conditions. Leakage through the joints were still observed, and routine bridge cleaning is needed at all bents with a focus put on the interior cross-girder surfaces to eliminate chlorides. Eliminating joints above the interior cross girders will help sustain the life of the girders and decrease the chances of further corrosion. Previous defects found consisted of measurable section loss in the cross-girder webs found in the 2012 inspection. Load rating analysis of the deterioration and

cleaning and painting of the entire superstructure were completed in 2013. The load rating found no reduction in capacity of the cross-girders for supporting the main superstructure, despite the measured loss.

There were no issues with the bottom flange taper plates. At piers 15 and16 the steel pier cap exhibits moderate deterioration of the top flange between the double 72" plate girder, with some deterioration due to active corrosion but most due to corrosion activities prior to the painting in 2013.

Routine maintenance power washing of the interior surfaces and exterior ends of the cross girders is recommended to remove debris and chlorides that may leak through the joints or splash over onto the girders. The concrete portions of the substructure had deterioration in the vicinity of the widened areas. It is recommended that within the next 3 to 5 years that consideration be given to replacing the LMC overlay and completing full depth repairs to the deck. Rehabilitation of the joints should also be done at this time.

Bridges 28-1 EBL and WBL over St. Joseph River

Fracture critical elements in Bridges 28-1 EBL and WBL include the two main girders supporting the deck beams and stringers. The two main girders are comprised of riveted steel plate and angles and were last painted in 1987 as part of a bridge widening/rehabilitation project.

The steel fracture critical main longitudinal girders are in fair condition overall and the fracture critical riveted floorbeams are in overall satisfactory condition. The Fracture Critical Inspection completed by Lochner in July 2019 did not find noticeable changes from previous conditions. Some active corrosion exists on both structures, especially on the fascia girders. Pack rust between the bottom flange cover plates at several locations on the riveted girders were measured and noted. There is visible deformation/minor section loss on the bottom flanges with pack rust; these areas should be continued to be monitored. The floorbeam end connections at the main girders should also continue to be monitored for active corrosion resulting in section loss. The paint system is performing fair over much of the structures but is faded and failing at multiple locations.

Underwater Condition Report (Summary)

In 2017, underwater inspections were performed by SJCA engineers on the ten structures shown in the table below. The inspections assed the conditions of the channel, in-water elements, and scour. Previous underwater reports were provided and reviewed prior to conducting all inspections. Condition ratings summaries were provided for each in-water element along with supporting pictures.

All inspections also included water visibility, surface velocity, maximum channel depth, maximum depth of water at substructure unit, and water surface elevation. The water level reference marker location was also noted.

Inspection findings requiring further evaluation were found at 10-03EX. A Level III inspection is recommended to evaluate the interior damage and loss of cross sectional area of each steel encased concrete pile at Bent No. 16. The channel bottom, concrete delamination, steel encased concrete piles, and cracks should be monitored in future inspections. The structure is still recommended to remain on the underwater inspection cycle of 60 months.

Structure No.	Mile Point	Feature Intersected
5-2 EBL	6.56	Over Grand Calumet River (Roxana Drive)
5-2 WBL	6.56	Over Grand Calumet River (Roxana Drive)
10(02) WX	10.16	Over Grand Calumet River
10(03) EX	10.15	Over Grand Calumet River
10(04) EN	10.05	Over Grand Calumet River
10(05) WN	10.05	Over Grand Calumet River
28-1 EBL	75.97	Over St. Joseph River
28-1 WBL	75.97	Over St. Joseph River
36-1 EBL	100.14	Over St. Joseph River
36-1 WBL	100.14	Over St. Joseph River

Pin & Hanger Inspection

Structure	No. Mile	Point Feature Intersected
5-2 EBL & WBL	6.56	Over Grand Calumet River & Roxana Drive

The I90-45-005-2 EBL & WBL bridges contain the pin & hanger detail on the span crossing the Grand Calumet River. In 2012, secondary supports called “catcher beams” were added to the underside of this detail. The seats installed below each pin & hanger assembly are designed to fully support the suspended span loading to the anchored span and provides the primary support for the suspended span rendering the pin& hanger assembly redundant. Pin & hanger and girder ends were also blast cleaned and painted.

The previous consultant performed “hands-on” inspection of the pin & hangers and newly installed catcher beams in 2013 and 2014. All elements were found to be in good condition. An under-bridge access truck was used in 2019 to perform a “hands-on” inspection of this detail. Lochner’s July 2019 special inspection concluded the overall condition of the pin & hanger assemblies on both structures are satisfactory. The superstructure area within 10 feet of each assembly is free of corrosion and is in good condition for both the WBL and EBL structures. The hands-on inspection did not reveal additional measurable loss of section or other issues of concern.

Because of the improvements noted above, the Special Feature Detail inspection frequency has been increased from the current 12 month frequency to 24 months. Additionally, the UT inspection should be performed on an as needed basis. If further corrosion is observed around the pin & hanger assembly a UT inspection should be completed.

Post Tension Inspection

Structure	No. Mile	Point Feature Intersected
35-1.6	96.10	Ramp (County Road 17) Over ITR
32-1.6 EBL & WBL	90.98	Over County Road 7

Bridge 35-1.6 carrying County Road 17 Ramp over Mainline ITR

This unique overpass structure consists of a welded steel plate girder superstructure supporting a reinforced concrete bridge deck. The bridge was built in the mid-1990s. Posttensioned tendons are draped externally within the interior girder bays adjacent the girders. The tendons are high-strength steel strands placed within thin Polyvinyl Chloride (PVC) ducts anchored at both bridge abutments. A lean grout mixture is placed within the duct in order to protect the steel strands from moisture and corrosion. Investigation has found that the main purpose of the post-tensioning was to provide additional compressive force to the concrete deck in order to reduce overall deck cracking.

The post-tensioning system was inspected using a hammer to acoustically sound the post-tensioning ducts. The purpose of this sounding is to ascertain the condition of the grout protecting the strands. Voided and hollow areas of grout are indicated by the unique sound generated when tapping the ducts. Any breakdown in the grout material could result in the intrusion of moisture within the duct and promote corrosion of the steel strands. The test does not determine the actual condition of the strands, nor the overall tension being carried by the strand structure.

During Lochner's August 2019 inspection, the only potentially unsound locations noted were in ducts that were noted in previous inspection reports by others as areas of soft grout (unhydrated material with putty consistency). These areas were unable to be grouted in 2015 from their initial findings because the gaps were too small. Their report indicated that the strands within the ducts appeared to be in good condition with no corrosion noted. No additional deficiencies were found.

Bridges 32-6 EBL & WBL over County Road 7

Both structures are concrete slab bridges with longitudinal and transverse post-tensioned tendons within the slab. The longitudinal tendons are indicated by the exposed grout ports at each end of the slab. Transverse tendon anchorages, although covered with grout, are outlined along the outside elevation view of the slabs. Tight hairline longitudinal cracking in the undersides of the slabs was noted shortly after construction. Previous inspections by others monitoring these cracks have noted no change over the years.

Lochner's July 2019 inspections found that overall the post tensioned deck slab appears to be in good condition. Both of the structures have tight longitudinal cracking at isolated locations with light or no efflorescence present. Several epoxy chairs and localized honeycombing from the initial construction are visible on the underside of the EB structure. These locations have been randomly patched and have not worsened over time. Both piers of both structures have tight full length vertical cracks at the 1/3 points on each side.

Preventive bridge maintenance recommendations include having the exposed grout ports of the longitudinal tendons drilled out approximately 2 inches and filled with epoxy to prevent contaminants from entering the tendon duct and possibly exposing the tendons to corrosion. It is recommended that some of the tendons from both structures have corrosion rate calculations performed and grout samples obtained to assess the condition of the tendons. The tendons of both structures should have a determined number subjected to borescope testing to confirm that no voids exist in the duct tubes.

Steel Pier Cap Inspection

Two bridge structures were inspected in August 2019 as part of the most recent detailed steel pier cap inspection completed during the Bridge Inspection Program. These structures include:

Structure No.	Mile Point	Feature Intersected
40/44-1 EBL & WBL	112.55	Over Pigeon River

Lochner's 2019 inspection found the fracture critical steel pier caps to be overall in very good condition. There was no evidence of crack propagation in the welds of the fracture critical steel box pier caps. Only isolated locations of light freckled surface rust were noted. It is recommended to continue monitoring the structures on a 12 month inspection frequency.

Vertical Clearance

All bridges crossing over the ITR mainline are required to have a minimum vertical clearance of 16'-0" per the *INDOT Design Manual*, Chapter 53 (Future Chapter 302), "Geometric Design Criteria for Freeways" (Figure 53-1), and "Existing Overpassing Bridge." At present, 37 existing bridges provide a vertical clearance below this minimum as listed in Appendix C under **Table 3.4: Bridges with Minimum Vertical Clearance of less than 16'-0"**.

ITRCC will implement a corrective action plan into all future bridge replacement and rehabilitation scopes to address the correction of the vertical clearance deficiencies were applicable and feasible.

Per bridge inspection memorandum No. 17-02:

> *The Roads and Highways Database, accessible through ArcMap, is to be the authoritative source for NBI Item 053 Minimum Vertical Clearance over Bridge Roadway and NBI Item 054 Minimum Vertical Underclearance. These two values will no longer be editable in BIAS.*

Bridge Structures Maintained and Inspected by Others

Bridge Number (NBIS 8B)	Features Intersected (NBIS 6)	Facility Carried (NBIS 7)
7-1B	I-90	SR 912/Cline Avenue
16-3	I-90	SR 49
21-4	I-90	US 20
34-1	I-90	SR 19
1-80-16	I-90	I-94
31-71-5807N	I-90	US 31 Bypass
31-71-5807S	I-90	US 31 Bypass

Table 3.5: Bridge Structures Maintained and Inspected by Others

Bridge Structures Maintained by Others but Inspected by Toll Road

Bridge Number (NBIS 8B)	NBI Number (NBIS 8A)	Features Intersected (NBIS 6)	Facility Carried (NBIS 7)
I90-45-07-1A	46270	I-90	CSS & SB Railroad
I90-71-027-A	47650	I-90	Bendix Drive SBL
I90-64-013-6	46780	I-90	CR 600W/Willow Creek
I90-71-027-B	47660	I-90	Portage Road
I90-71-030-3	47847	I-90	Main Street
I90-71-030-6	47867	I-90	SR331NB,Capital Avenue
I90-71-030-6	47868	I-90	SR331SB,Capital Avenue

Table 3.6: Bridge Structures Maintained by Others but Inspected by Toll Road

Reconstructed and Rehabilitated Bridge Structures

The PUSH project was completed in spring of 2018 and included a commendable achievement of no lost time injuries throughout the duration of the project. The project was successful in completing the rehabilitation of a 73-mile section (292 lane miles) of the Indiana Toll Road. The project completed pavement rehabilitation for a full depth, crack and seated mainline and HMA overlayed shoulders. Additionally, the project installed a new fiber optic cable across the entirety of the project limits. The project bridge scope focused on rehabilitation and/or replacement of bridge structures along with the replacement of a majority of the transverse expansion joints. The transverse joints were rehabilitated via the construction of “link-slabs” and integral end-bent conversions. Substructure and superstructure repairs were also completed throughout the 53 structures. The success of this project is reflected in the overall increase in condition ratings.

In 2019 ITRCC began the PUSH 2.0 project. The project contained 16 bridges that would receive complete in-kind deck replacements with the addition of new PCCP approaches. This project is schedule to have final acceptance in spring of 2020.

Transferred and Decommissioned Structures

No bridges were transferred or decommissioned between the years of 2017 through 2019.

4: ROADWAY CONDITION REPORT

ROADWAY CONDITION REPORT

Recent Pavement History

In 2016, ITRCC implemented the PUSH I Project. This project consisted of rehabilitating the roadway and interchanges from MM 20 to MM 93. The rehab process consisted of milling the mainline existing asphalt material down to the original concrete pavement. The original concrete pavement was crack and seated and then resurfaced with five inches of asphalt containing intermediate and surface layers. The shoulder consisted of milling and replacing the surface layer.

In spring of 2019, ITRCC implemented the PUSH 2.0 Project. The roadway sections of this project consisted of pavement rehabilitation of the entire mainline of I-90 from ITR MM 0 to 10. The mainline pavement was crack and seated with a new 5" asphalt overlay. All shoulders received a minimum of a 1.5" asphalt resurface and shoulders tangent to the bridge approaches received full depth pavement replacement to accommodate construction phase changes. Pavement rehabilitation, to areas receiving notable deficiencies, from ITR MM 10 to MM 20 received a 1.5" asphalt resurface and pavement markings. As with the first PUSH project, a 7-year pavement warranty was included to ensure at project conclusion, ITRCC was handed a first-class project in which the Design-Build Team stands behind from a maintenance standpoint.

In fall of 2019 ITRCC implemented a 1.5" Mill and Fill project from ITR MM 93 to MM156, elevating the project scope and spend to address over five hundred (500) 1/10th of a mile segments. This project also received 10 locations of full depth patching and pavement markings.

Overview of Deficiencies and Ratings Decrease

Although the data provided illustrates a decrease in PQI and increase in IRI exceedances the ITR has taken many preventative actions to address these deficiencies that are not captured in the above values. The main contributing factor is the time of year in which the pavement data was captured, July 2019. At the time of collection the ITR was addressing the 2018 data by procuring a contract for a mill and fill program from MM 93 to MM 156. This project was completed during the months of August 2019 and September 2019 and therefore was not reflected in the values. Similarly, the PUSH 2.0 project was in its summer moratorium phase and approximately 40% of the project had yet to receive newly reconstructed pavement. This 40% includes full depth pavement from MM 6 to MM 10, Exit 5 and Exit 10 full depth reconstruction and a mill and fill program from MM 10 to MM 20. The PUSH 2.0 project will be completed in November 2019. With these two projects, there is an expectation for the overall PQI to increase and IRI exceedances to decrease in the 2020 annual report.

Pavement Organizational Performance Index (POPI)

The pavement condition measurements that follow (with the exception of the surface friction data) were procured in November 2018 and July 2019 by Applied Research Associates, Inc. (ARA) and provided to Lochner for use in developing the POPI. The 2018 & 2019 friction data was provided to ITRCC by INDOT. The "Pavement Condition Inspection for the Indiana Toll Road" report was provided by ARA; the following sections contain direct language and graphics from the ARA report to present the POPI information. The toll road pavement is assessed in three different areas and with a composite rating index as stated in the OPI manual:

Mainline Pavement – Defined as the entire pavement associated with the main driving lane, the passing lane, and the shoulders from MP 0 to MP 156.73.

Toll Plaza Ramp Pavement – Defined as the pavement on both the entrance and exit ramps of the Toll Road.

Travel Plaza Parking Lot Pavement – Defined as the entire pavement associated with the Travel Plaza primarily the parking lot but also the entrance and exit ramps for the Travel Plazas.

Mainline Pavement

Mainline Pavement – Pavement Quality Index (PQI) – Overall Condition Rating

Since 1998, ITRCC has used PQI as the primary method to rate pavement conditions for monitoring purposes. The PQI is a composite score of pavement ratings and measurements used to determine the overall condition of the roadway. The variables used in the determination of the PQI such as Pavement Condition Rating (PCR), IRI and RUT are detailed in this section.

The OPI Manual states:

> *The PQI rating is a calculated composite index of the following three measured factors and ranges: Pavement Condition Rating (PCR)... International Roughness Index (IRI)... [and] Rutting Depth (RTI). The PQI rating is from 0 to 100 with excellent pavements in the 90 to 100 range, good pavements in the 80 to 90 range, fair pavements in the 70 to 80 range, and poor pavements below 70. The Toll Road District's goal for mainline pavement is an average PQI of 80 with no more than 10% of the pavement in the "poor" condition.*

The equation for determining PQI is as follows:

$$PQI = (10 * PSI) + (0.5 * PCR) - (25 * RUT)$$
$$\text{where } PSI = 9.0 * e^{(-0.008747*IRI)} \leq 5,$$
$$RUT \leq 1 \text{ inch, and } e \approx 2.71828$$

The rating ranges are as follows:

90 – 100: Excellent
80 – 89: Good
70 – 79: Fair
< 70: Poor

The calculated PQI indicates that the Indiana Toll Road has fallen from excellent condition overall to good condition. The overall average PQI for the eastbound lanes are 87.9 and 88.5 for the westbound lanes. These averages are lower than the 2018 averages (89.6 and 90.2, respectively) but in line with general expectations for pavement deterioration. Approximately 10.8% (707 out of 6,501 0.1-mile sections) of the pavement is considered in poor condition. This number is higher than the 2018 value of 8.5% and is mostly driven higher rutting values across the network.

Table 4.0: Summary of Low PQI Results due to High IRI Results (located in Appendix D) shows the locations of areas with an IRI greater than 190 in/mi. These short sections are determined to be in poor condition.

The goal for mainline pavement is an average PQI of 80 with no more than 10% of pavement in "poor" condition. With the below data the ITRCC has met the mainline pavement average goal with an 88.2 but has 10.8% of the pavement in poor condition. With these results, the OPI score for mainline pavement is a 0 on a scale from 0 (worst) to 6 (best). **Table 4.1: Summary of Overall PQI Results by Lane** and **Table 4.2: Summary of Overall Network PQI Results by Category** provide details of the PQI results for each lane and PQI category. **Figure 4.1** and **4.3** (located in Appendix D) illustrate the PQI values for 2019 with each pavement section represented as a point. To see rating percentages and averages from 1999 to 2019, refer to **Table 4.3: Pavement Quality Index (PQI) Rating Percentages and Averages from 1999 to 2019** (located in Appendix D).

Direction	Lane	PQI, 2019	PQI, 2018	PQI, 2017
EB	1	88.50	90.5	92.3
EB	2	87.40	89.3	91.4
EB	3	85.00	80.5	84.7
EB	**OVERALL**	**87.90**	**89.6**	**91.6**
WB	1	88.60	90.2	91.3
WB	2	88.60	90.9	90.3
WB	3	86.30	80.5	83.9
WB	**OVERALL**	**88.50**	**90.2**	**90.5**
NETWORK	**OVERALL**	**88.20**	**89.9**	**91.1**

Note: The averages shown are the averages of all points taken weighted by lane miles, not necessarily the average of each lane's mean PQI value.

Table 4.1: Summary of Overall PQI Results by Lane

Category	Percent of network, 2019	Percent of network, 2018	Percent of network, 2017
Excellent	62.1	66.6	68.7
Good	15.1	14.3	15.3
Fair	11.6	10.2	9.8
Poor	10.8	8.5	5.9

Table 4.2: Summary of Overall Network PQI Results by Category

Mainline Pavement – International Roughness Index (IRI)

The International Roughness Index (IRI) is a measurement of pavement smoothness. The Concession Lease Agreement (Volume I, Section B.3.2., Page 13) states:

> *Pavement surface smoothness shall be maintained below an average of 150 in/mi as determined by the International Roughness Index (IRI). The IRI shall be measured annually on all traveled Mainline surfaces including Bridges and reported as an average IRI per 0.1 mile segment throughout the length of the ITR. IRI readings shall start at the 0 Mile Post. The average of any given one (1) mile section shall not exceed 170 IRI. No individual 1/10th mile segment average IRI shall exceed 190 in/mi.*

The rating ranges are as follows:

60 – 100: Excellent
101 – 150: Good
151 – 200: Fair
>200: Poor

IRI values were recorded over 100% of the mainline network except in those areas where the DSV could not travel due to construction. In accordance with the *Federal Highway Administration's Highway Performance Monitoring System (HPMS) Field Manual, Appendix E: Measuring Pavement Roughness*, DSV operators flag major pavement discontinuities, such as bridges, when encountered. Data from these discontinuities can cause erroneous data that is not otherwise indicative of the true pavement condition. However, in accordance with the CLA, the IRI data presented herein contains reading for all points including bridges. The IRI summaries are provided in **Table 4.4: International Roughness Index (IRI) Summary**.

Direction	Lane	IRI (in/mi), 2019	IRI (in/mi), 2018	IRI (in/mi), 2017
EB	1	73.2	68.5	66.6
EB	2	83.2	75.0	74.1
EB	3	86.2	98.3	96.5
EB	**OVERALL***	**78.5**	**72.7**	**71.3**
WB	1	70.4	67.7	67.0
WB	2	78.2	72.3	76.2
WB	3	85.0	100.7	96.9
WB	**OVERALL***	**74.7**	**71.2**	**72.6**
NETWORK	**OVERALL***	**76.6**	**71.9**	**72.0**

Table 4.4: International Roughness Index (IRI) Summary

The IRI data for 2019 is, on average, slightly higher than the 2018 data. In both directions, Lanes 1 and 2 IRI values increased 5-8 in/mi. Conversely, IRI in Lane 3 decreased substantially from 2018 to 2019. The overall network average increased by 4.7 in/mi. Prior to 2017, ARA reported IRI by sections defined by PCR breaks, which were nominally broken into 1-mile segments at each mile post though additional sections were created where pavement changes of either type or age occurred. However, starting in 2017 per requirements from the ITRCC, IRI is being reported on 0.1-mile intervals. This requirement removes the natural filtering of data, shows more scattered IRI values, and raises the average across the network. As such, comparison of 2017 and 2018 data to 2016 and prior years is not relevant, and 2017 data should represent a new benchmark against which future years may be compared.

IRI values in the EB direction generally decreased from MP 0 to 23 and then are low and generally consistent between MP 23 and 92 where new pavement exists. Beyond MP 93, the IRI is highly scattered but is generally steady from west to east. **Figure 4.5** and **4.7** (located in Appendix D) shows the IRI generally mimics the IRI trends of the eastbound lanes.

The average IRI measurement is 76.6 for the mainline, which falls within the rating range "excellent." The averages provided are the averages of all points taken weighted by lane miles, not the average of each lane's mean IRI value.

Mainline Pavement – Rutting (RUT)

Rutting is the measurement of surface deformation that occurs in wheel paths of pavement. The Concession Lease Agreement (Volume I, Section B.3.2., Page 13) states:

> *Rutting in Asphalt pavement in the wheel paths shall be minimized to prevent steering and hydroplaning problems. The RUT depths in the wheel paths shall be measured in accordance with INDOT Standard Specifications, but more detailed methods are acceptable. The average RUT depth shall not exceed 3/8" average in a one (1) mile segment and no individual 1/10th mile segment shall exceed 5/8".*

Rutting values are higher across the entire network compared to previous years, but this increase is likely due to a move from a bumper-mounted laser rutting measurement system to rutting measured by LCMS in 2019.

Rutting on the ITR was collected with the same equipment and at the same time as the IRI. As such, data was recorded over 100% of the mainline network except in those areas where the DSV could not traverse due to construction. In accordance with the *Federal Highway Administration's Highway Performance Monitoring System (HPMS) Field Manual, Appendix E: Measuring Pavement Roughness*, DSV operators flag major pavement discontinuities, such as bridges, when encountered. As most bridge decks have concrete surfaces, little rutting is expected from these locations. Thus, including rutting from bridge decks artificially lowers the overall rutting average for the network. However, in accordance with the CLA, the rutting data presented herein contains reading for all points including bridges. The rutting summaries provided in **Table 4.5: Rutting (RUT) Summary** and **Figure 4.9** and **4.11** (located in Appendix D) show all data with each pavement section represented as a point.

Direction	Lane	RUT (in.), 2019	RUT (in.), 2018	RUT (in.), 2017
EB	1	0.060	0.032	0.020
EB	2	0.079	0.034	0.025
EB	3	0.087	0.058	0.046
EB	**OVERALL**	**0.070**	**0.034**	**0.023**
WB	1	0.059	0.031	0.022
WB	2	0.073	0.034	0.029
WB	3	0.079	0.043	0.046
WB	**OVERALL**	**0.066**	**0.033**	**0.026**
NETWORK	**OVERALL**	**0.068**	**0.034**	**0.025**

Table 4.5: Rutting (RUT) Summary

Rutting throughout the entire network is negligible and currently presents little to no danger to the traveling public. The highest rutting average in both directions is found in Lane 3, as would be expected with a standard traffic distribution. Both directions also indicate that Lane 3 has a significantly higher rutting value, percentage wise, compared to Lanes 1 and 2, a result that is expected given the higher amounts of truck traffic in Lanes 3 compared to Lanes 1 and 2. It is also expected that Lane 2 would have a higher rutting average than Lane 1 in both directions as most trucks use this lane once Lane 3 ceases to exist east of MP 20.

The LCMS considers a nearly-continuous line of points across the pavement surface as opposed to only five points in a bumper laser rutting system. Nonetheless, in consideration of the magnitude of the rutting measurements, rutting is not considered a problem at any location.

Mainline Pavement – Pavement Condition Rating (PCR)

The Pavement Condition Rating (PCR) is a measurement of the distresses on a pavement surface. The rating varies between 0 to 100 with the scale starting at excellent pavements in the 90 to 100 range, good pavements in the 80 to 90 range, fair pavements in the 70 to 80 range, and poor pavements below 70. The ITRCC considers the system's pavement is deficient when the PCR is below 65 points. The pavement of the system is evaluated annually using the PCR.

The calculation of PCR for in-service pavements is based on subtracting deducts per distress type from an initial value of 100. An individual distress rating is determined based upon the severity and frequency of the distress over the 0.1-mile evaluation section, and a distress weighting factor determines the magnitude of the deduct value as governed by pavement type. Detailed descriptions of each distress type can be found in the *INDOT PCR Data Collection Manual*.

The results from the PCR survey indicate that the pavement is in excellent condition functionally throughout the network. Nearly all pavements in both the eastbound and westbound directions were rated with a PCR of 80 or above. Only 128 of 6,505 0.1-mile pavement sections (2.4%) exhibited PCR values below 80. **Table 4.6: Pavement Condition Rating (PCR) Summary** summarizes the PCR results for the entire network. **Figure 4.13** and **4.15** (located in Appendix D) illustrates all data with each pavement section represented as a point.

Direction	Lane	Average 2019 PCR	Average 2018 PCR	Average 2017 PCR
EB	1	92.1	92.6	94.5
EB	2	94.4	94.0	95.5
EB	3	91.6	87.5	92.0
EB	**OVERALL**	**93.2**	**93.1**	**94.9**
WB	1	91.5	91.8	92.9
WB	2	94.5	94.9	94.5
WB	3	93.8	87.4	91.2
WB	**OVERALL**	**93.0**	**93.1**	**93.6**
NETWORK	**OVERALL**	**93.1**	**93.1**	**94.2**

Table 4.6: Pavement Condition Rating (PCR) Summary

A major pavement rehabilitation effort between mileposts 23 and 92, from the PUSH I project, resulted in new surface pavement and significantly higher PCR values across a large portion of the eastbound and westbound lanes. Much of the increase was noted in the 2016 pavement condition report that ARA prepared directly for the ITRCC. The pavement is still performing well, as expected, and PCR results remain high. Some areas of the PUSH section, however, are beginning to show some low-severity distresses, such as transverse and longitudinal cracking. Though most of these distresses are low severity, occasional medium severity cracks are also starting to be noticed. Only in very isolated areas are the distresses advancing to medium severity.

Other areas of the network continue to perform and deteriorate as in previous years. The eastbound PCR average of 93.2 was nearly identical to the 2018 value of 93.1. Likewise, the average westbound PCR of 93.0 was also nearly identical to the 2018 value of 93.1. The overall 2019 average PCR was 93.1, the same as 2018.

The results from the PCR should not be interpreted to indicate that the pavement is in overall excellent condition. Because the PCR method has relatively minor deductions for each individual type of distress, the PCR survey method tends to show pavements in better conditions than they are in reality. Pavement ratings are artificially high in a section that has only one or two types of distresses, regardless of the severity of those distresses. When making decisions on future maintenance and rehabilitation needs, the PCR should be used in conjunction with roughness, faulting, and rutting data as well as other factors such as predicted traffic loadings and non-destructive structural testing results to assess base and subgrade strength.

Surface Friction (FNS)

Surface friction is a measurement of the adhesion between tires and pavement. The Concession Lease Agreement (Volume I, Section B.3.2., Page 14) states: “The IFA or its designee will periodically monitor and measure the pavement surface for the tire friction capabilities of the pavement surface. Any readings of the surface friction below 30 shall require investigation by INDOT for possible remediation and shall be reported to the Concessionaire.”

	EB Avg.	WB Avg.	Combined Avg.
2019 FNS	44.4	44.9	44.6
2018 FNS	43.4	45.4	44.4
2017 FNS	46.5	46.1	46.3
2016 FNS	55	52.6	53.8
2015 FNS	55.6	57	56.3
2014 FNS	53.6	55	54.3
2013 FNS	56.6	59	58

Table 4.9: Friction Number (FNS) Summary

The average FNS for the ITR mainline is 44.6, which is a positive increase from 2018. There were 75 exceedances (FNS measurements under 30) found by INDOT on the mainline in one mile intervals. There were 30 in the eastbound lane and 45 in the westbound lane. To further breakdown the friction values they have been separated below into two mainline pavement and mainline bridge decks. This further illustrates that it is the mainline bridge decks holding most of the low values.

Surface Friction (FNS) – Mainline Pavement

The average FNS for the ITR mainline pavement is 48.23. There were 7 exceedances (FNS measurements under 30) found by INDOT on the mainline pavement in one mile intervals. There were 3 in the eastbound lane pavement and 4 in the westbound lane pavement.

Surface Friction (FNS) – Bridge Decks

In July 2012, INDOT performed their annual pavement surface friction tests. It was in this year that INDOT began recording friction readings with the inclusion of bridge deck data.

In order to improve the surface friction on the ITR bridge decks, ITRCC implemented a diamond grooving/grinding remediation plan (as recommended by INDOT). This plan involves diamond grinding of all sound bridge decks in the eastbound and westbound direction of the ITR. The grooving operation began in May of 2018 and will continue annually, if needed, to address areas of concern found in the INDOT data.

In July of 2019, INDOT performed their annual pavement surface friction tests. The overall bridge deck surface friction average was 36.8. The average reading in the eastbound direction bridges were 37.64 and the westbound average was 35.93. The number of bridge decks below the required minimum of 30 was 27 in the eastbound direction of these bridges, and 4 were below 20. In the westbound direction, there were 41 readings below the minimum of 30 with 9 of these below 20.

Toll Plaza and Travel Plaza Lot Pavement

The toll and travel plazas were inspected for pavement condition from September 9th through the 13th. In accordance with precedent and engineering judgment, the following qualitative ratings were applied to the toll plaza ramps and travel plaza lots based on visual assessments:

Qualitative Pavement Rating Criteria			
Rating	**Approximate Corresponding PQI Index**	**Asphalt Pavement Condition**	**Concrete Pavement Condition**
Excellent	90 to 100	Pavement shows virtually no visible deterioration.	Same
Good	90 to 80	Pavement shows some indication of initial deterioration present, but not yet requiring appreciable amounts of maintenance. Distress items include the start of small transverse and/or longitudinal cracks. Slight rutting may be apparent in the wheel path.	Pavement shows some indication of initial deterioration present, but not yet requiring appreciable amounts of maintenance. Distress items may include the start of small transverse and/or longitudinal cracks, or slight seam and joint separation. Joints may show very small amounts of deterioration.
Fair	70 to 80	Pavement shows average deterioration requiring occasional routine maintenance. Distresses may include minor transverse and longitudinal cracking; becoming continuous throughout the segment. Severe cracking is patched effectively. Rutting may be a little more severe and hold small amounts of water.	Pavement shows average deterioration requiring occasional routine maintenance. Distresses may include minor transverse and longitudinal cracking; becoming continuous throughout the segment. Severe cracking is patched effectively. Through lanes and shoulders may begin to show separation from failing tie bars.
Poor	Below 70	Pavement shows excessive deterioration requiring frequent maintenance and warrants resurfacing soon. Distress may be evident in wide transverse and longitudinal cracks. Severe "shallow cracking" could be evident if the pavement is composite. If the segment has been patched, the cracks may be showing through. Rutting is severe and may affect driving.	Pavement shows excessive deterioration requiring frequent maintenance and warrants resurfacing soon. Distress may be evident in wide transverse and longitudinal cracks. If the segment has been patched, cracks may be showing through. Joint repairs could begin to fail. Shoulder and/or through-lane separation may be apparent. Pop outs or spalling could also be present in the section.

Table 4.10: Pavement Condition Survey Qualitative Rating System

Toll Plaza Ramp Pavement

ITRCC's goal is to have 90% of the toll plaza ramp pavement rated in the "good" range. The "good" range is assumed to include the "fair," "good," and "excellent" ratings. These ratings correlate with the approximate PQI indices over 70, which is the corresponding deficient rating on the mainline per the OPI Manual. **Table 4.11: Pavement Condition Survey of Toll Plaza** shows two toll plaza ramps fall within the "poor" rating. The OPI rating according to the OPI Manual is 0 (with 6 being the best). The toll plaza pavement ratings have increased overall from the previous year's ratings. This is due to PUSH I and PUSH 2.0 projects reconstruction of the toll plaza pavement.

A seven year pavement warranty on all pavement ramps within the PUSH I and PUSH 2.0 project (MM20 to MM93 and MM0 to MM10) has been established through the design build teams for the ITRCC. This warranty includes routine maintenance as well any deficiencies that may occur.

Toll Plaza	MP	2015 Condition	2016 Condition	2017 Condition	2018 Condition	2019 Condition
Indianapolis Boulevard	0	Fair	Fair	Fair	Fair	Excellent
Westpoint	1	Good	Good	Good	Fair	Excellent
S.R. 912	3	Poor	Fair	Fair	Fair	Excellent
Calumet Ave. (EB Entr.)	5	Fair	Poor	Poor	Poor	Excellent
Calumet Ave. (WB Exit)	5	Fair	Poor	Poor	Poor	Excellent
Cline Avenue	10	Fair	Poor	Poor	Poor	Excellent
Gary West	14A	Excellent	Fair	Poor	Poor	Poor
Broadway	14B	Excellent	Fair	Fair	Fair	Fair
Gary East	17	Good	Fair	Fair	Fair	Fair
Lake Station	21	Poor	Fair	Excellent	Excellent	Good
Portage	23	Good	Good	Excellent	Excellent	Good
Mainline Barrier	24	Good	Good	Excellent	Excellent	Excellent
Valparaiso-Chesterton	31	Good	Poor	Excellent	Good	Good
Michigan City	39	Good	Good	Excellent	Good	Good
LaPorte	49	Fair	Fair	Excellent	Good	Good
South Bend West	72	Good	Fair	Excellent	Excellent	Good
South Bend-Notre Dame	77	Good	Good	Good	Excellent	Good
Mishawaka	83	Fair	Good	Excellent	Good	Good
Elkhart	92	Fair	Fair	Good	Good	Good
Elkhart East	96	Good	Fair	Fair	Fair	Fair
Bristol	101	Good	Good	Fair	Fair	Fair
Middlebury	107	Fair	Good	Fair	Fair	Fair
Howe-LaGrange	121	Good	Good	Fair	Fair	Fair
Angola	144	Fair	Fair	Fair	Fair	Fair
Eastpoint	153	Good	Good	Poor	Fair	Poor

Table 4.11: Pavement Condition Survey of Toll Plaza Ramps

Travel Plaza Lot Pavement

ITRCC's goal is to have 90% of the travel plaza ramp pavement rated in the "good" range. The "good" range is assumed to include the "fair," "good," and "excellent" ratings. These ratings correlate with the approximate PQI indices over 70, which is the corresponding deficient rating on the mainline per the OPI Manual.

The OPI rating according to the OPI Manual is 6 (with 6 being best). 2019 Ratings for the Travel Plazas marks the first time since the initial lease of the ITR in 2006 that the travel plazas have an OPI score greater than 0. The toll plaza pavement ratings have increased overall from the previous year's ratings. Per the OPI ratings metrics travel plazas and truck parking lots are rated together. The ITRCC has implemented improvements to the travel plaza pavement of a $70M investment in reconstruction and additional $10M investment to the truck parking only lots.

Travel Plaza	MP	2016 General Condition	2017 General Condition	2018 General Condition	2019 General Condition
Eastbound					
TRP - 1S	21.7	Fair	Excellent	Excellent	Good
TRP - 2S (Trucks only)	37.5	Poor	Poor	Poor	Excellent
TRP - 3S	55.9	Poor	Under Const.	Excellent	Good
Dist. 11 ISP	76	Excellent	Poor	Closed	Closed
TRP - 5S	90	Poor	Poor	Under Const.	Excellent
TRP - 6S (Trucks only)	108	Fair	Poor	Poor	Under Const.
TRP - 7S	125.8	Good	Excellent	Excellent	Good
TRP - 8S	145.7	Closed	Closed	Closed	Closed
Westbound					
TRP - 1N	21.7	Poor	Excellent	Excellent	Good
TRP - 2N (Trucks only)	37.5	Poor	Poor	Poor	Excellent
TRP - 3N	55.9	Poor	Under Const.	Excellent	Good
TRP - 5N	90	Poor	Poor	Under Const.	Excellent
TRP - 6N (Trucks only)	108	Fair	Poor	Poor	Under Const.
TRP - 7N	125.8	Good	Excellent	Excellent	Good
TRP - 8N	145.7	Closed	Closed	Closed	Closed

Table 4.12: Pavement Condition Survey of Travel Plaza Lots

5: MAINTENANCE ITEMS REPORT

MAINTENANCE ITEMS REPORT

General

The OPI Manual lists the following nine maintenance items to be inspected annually:

1. Guardrail
2. Pavement Deficiency
3. Vegetation Obstruction
4. Litter
5. Drainage Obstruction
6. Sign
7. Pavement Marking
8. Fencing Deficiency
9. Lighting Conditions

The ITR roadway maintenance items were inspected from September 9th through the 13th of 2019. These maintenance items are assessed in three different areas: mainline (subdivided by maintenance district), toll plazas, and travel plazas. ITRCC has completed multiple updates to the lighting and implemented energy efficient practices. Therefore the metrics for the lighting are reported on separate from the other eight general OPI items to highlight its different conditions and circumstances.

Route System	Mainline Miles		Toll Plazas	Toll Plaza Ramps	Travel Plaza Parking Lots
	Eastbound	Westbound			
Toll Road	156.7	156.7	24	43	14
M-1	30.3	30.3	11	18	2
M-2	31.7	31.7	3	6	4
M-3	30.0	30.0	4	8	2
M-4	31.6	31.6	4	8	2
M-5	32.9	32.9	2	3	4

Table 5.1: Summary of ITR System Quantities

Maintenance Items – Organizational Performance Index (OPI)

The OPI Manual details specific deficiencies to be noted for each one of the nine items:

1. Guardrail Deficiency
2. Pavement Deficiency
3. Vegetation Obstruction
4. Litter
5. Drainage Obstruction
6. Signs
7. Pavement Marking
8. Fences
9. Lighting

The OPI Manual provides descriptions of the deficiencies and an OPI rating in accordance with the number of deficiencies found in each category per mile (mainline), per plaza ramp (toll plazas for all

maintenance items except lighting), or per plaza (toll plazas for lighting and travel plazas for all maintenance items). The ranges of deficiencies per mile or plaza as they relate to the OPI rating can differ between maintenance districts, but the ITRCC's goal is to achieve an OPI rating of 4 or better for every category in every maintenance district. This goal was achieved by the ITRCC in 2019.

The 2019 OPI inspection also utilized the asset management software VUEWorks to capture the major deficiencies found during the inspections. By using the MOBILEVUE application, pictures were taken of the deficiencies and populated into maintenance work orders. With these additional steps taken, many deficiencies noted in this report can be addresses quickly.

Items Excluded From OPI Deficiency Count

The ITRCC has implemented an engineering study to address the cable guardrail system in the M2 maintenance district. This study was being conducted at the time of the OPI inspections therefore, deficiencies directly related to this item were not included.

Pavement and pavement markings within the project limits of PUSH I and PUSH 2.0 have a seven year warranty provided by the design build team. Therefore all maintenance deficiencies found relating to these items within the project limits are the sole responsibility of the design build team. Quarterly inspections are conducted by the ITRCC and the design build team to create a deficiency list and corrective action plan.

A program to detect, report and correct warrantied deficiencies exists between ITRCC and the design build team. This program has been successful in identifying multiple deficiencies with corrections being made by the design build team, meeting their contractual obligations.

Mainline Maintenance Items

Table 5.2: Mainline Maintenance Items for ITR provides the total accumulated deficiencies for the entirety of the mainline. **Tables 5.3 – 5.7**, located in Appendix E, represent each maintenance district and list the number of deficiencies, deficiency rates, and OPI ratings for the eight mainline maintenance items. The ratings range from 0 to 6, with 6 being the highest. **Figure 5.1: Mainline Yearly OPI Ratings** (located below) illustrates the mainline maintenance OPI rating progression over the past four years in comparison to the 2019 ratings.

For reference, ITRCC completes an annual pavement marking refresh which begins in June or July, based on weather conditions. ITRCC has added the application of warrantied grooved pavement markings within the Project PUSH I and PUSH 2.0 limits. This enhancement will result in an improved OPI rating prior throughout the warranty period.

Previous pavement deficiencies noted in Maintenance Areas 1, 4 and 5 were addressed through ITRCC's annual Mill and Fill Program in 2019 and the PUSH 2.0 project. This resulted in a positive increase in ratings for 2019. Additionally, major pavement restoration activities for future PUSH III and PUSH IV have been programmed as part of ITRCC's Capital Improvement Planning.

OPI Measures	Mainline Maintenance Item Deficiencies			
	2019			
	Deficiencies	Def/mile	OPI Goal	OPI Rating
Guardrail Deficiency	19	0.121	>=4	6
Pavement Deficiency	23	0.147	>=4	6
Vegetation Obstruction	2	0.013	>=4	5
Litter	2	0.013	>=4	6
Drainage Obstruction	0	0.000	>=4	6
Sign deficiency	6	0.038	>=4	6
Pavement Marking Deficiency	18	0.115	>=4	5
Fence Deficiency	0	0.000	>=4	6

Table 5.2: Mainline Maintenance Items for ITR

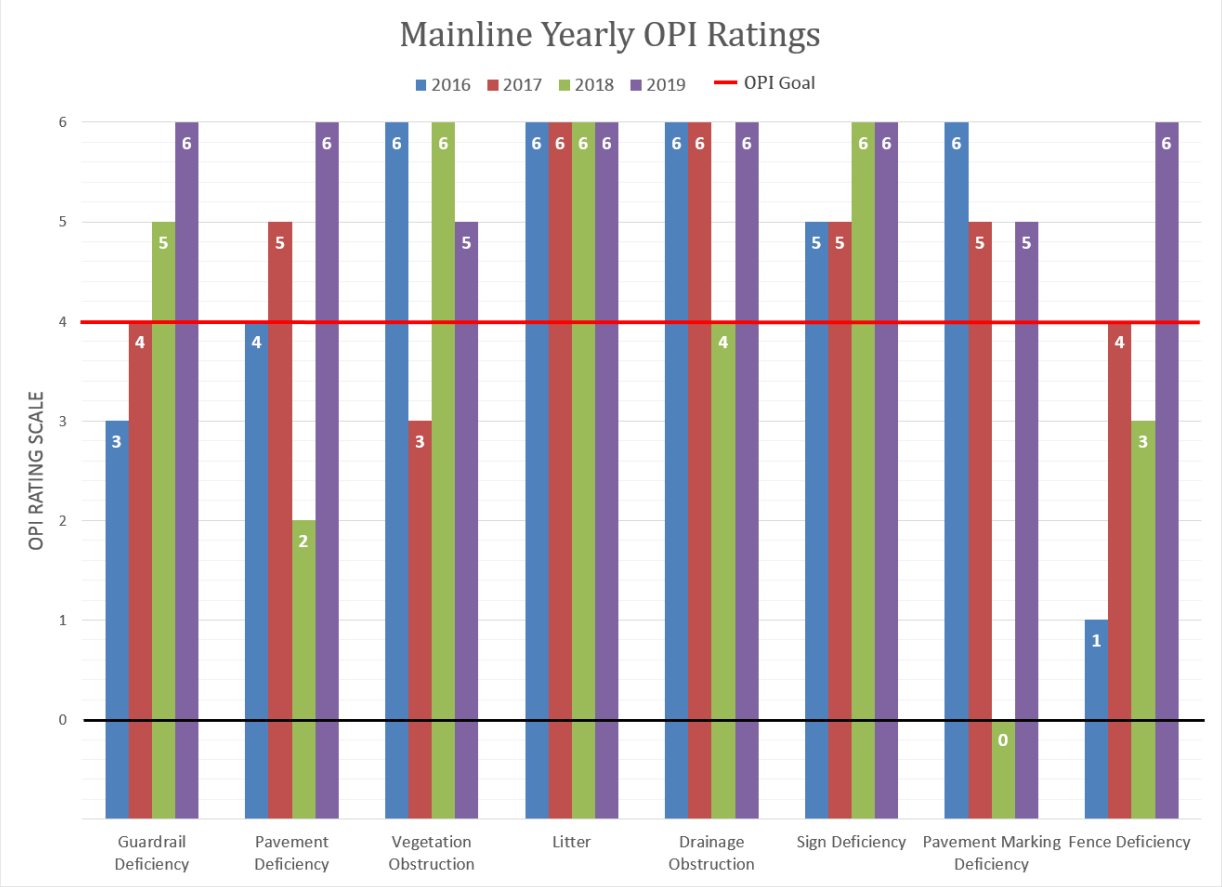


Figure 5.1: Mainline Yearly OPI Ratings

Toll Plaza Ramp Maintenance Items

Table 5.8: Toll Plaza Maintenance Items for ITR provides the total accumulated deficiencies for the entirety of the toll plazas. **Tables 5.9 – 5.13**, located in Appendix E, represent each maintenance district and list the number of deficiencies, deficiency rates, and OPI ratings for the eight toll plaza maintenance items. The ratings range from 0 to 6, with 6 being the highest. **Figure 5.2: Toll Plaza Ramp OPI Ratings** (located below) illustrates the Toll Plaza Ramp Maintenance OPI rating progression over the past four years in comparison to the 2019 ratings.

It should be noted that the positive increase in the sign rating is due to the ITRCC 3-year extensive sign rehabilitation program with large deficient panel signs replaced in late 2018, and smaller sheet signs in 2019. Additional smaller sheet signs will also be replaced in 2020. In total, the program will replace approximately 700 signs.

Although the pavement deficiencies are in compliance with an OPI rating of a 4, the ITRCC is still planning improvements to the toll plazas which received pavement deficiencies. These improvements will be incorporated into the future PUSH III and PUSH IV projects.

OPI Measures	Toll Plaza Maintenance Item Deficiencies			
	2019			
	Deficiencies	Def/Ramp	OPI Goal	OPI Rating
Guardrail Deficiency	18	0.419	>=4	5
Pavement Deficiency	28	0.651	>=4	4
Vegetation Obstruction	0	0.000	>=4	6
Litter	1	0.023	>=4	6
Drainage Obstruction	1	0.023	>=4	6
Sign deficiency	2	0.047	>=4	6
Pavement Marking Deficiency	5	0.116	>=4	6
Fence Deficiency	4	0.093	>=4	6

Table 5.8: Toll Plaza Maintenance Items for ITR

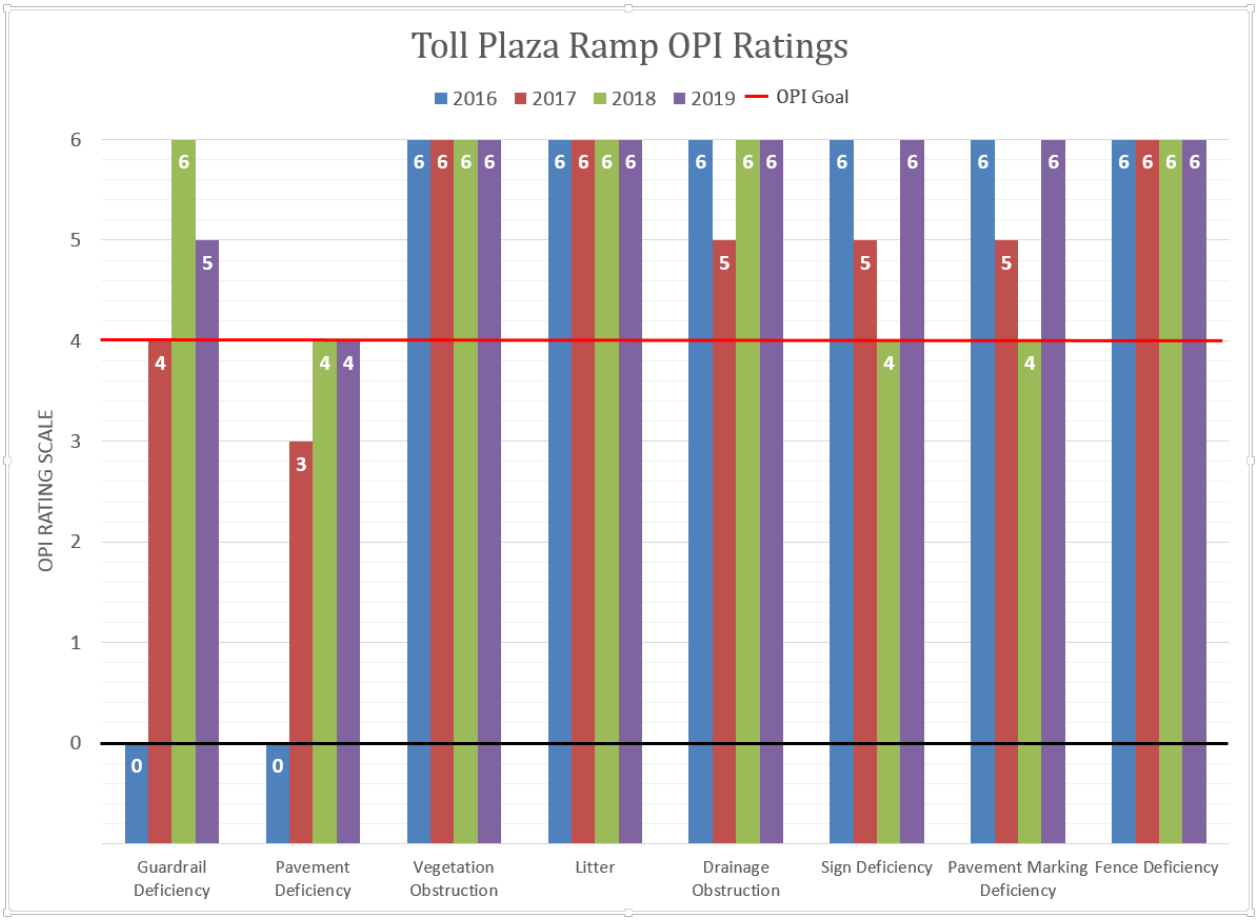


Figure 5.2: Toll Plaza Ramp OPI Ratings

Travel Plaza and Truck Parking Lot Maintenance Items

Table 5.14: Travel Plaza and Truck Parking Maintenance Items for ITR provides the total accumulated deficiencies for the entirety of the travel plazas. **Tables 5.15 – 5.19**, located in Appendix E, represent each maintenance district and list the number of deficiencies, deficiency rates, and OPI ratings for the eight travel plaza maintenance items. The ratings range from 0 to 6, with 6 being the highest. **Figure 5.3: Travel Plaza Ramp OPI Ratings** (located below) illustrates the Toll Plaza Ramp Maintenance OPI rating progression over the past four years in comparison to the 2019 ratings.

OPI Measures	Travel Plaza Maintenance Item Deficiencies			
	2019			
	Deficiencies	Def/Plaza	OPI Goal	OPI Rating
Guardrail Deficiency	0	0.000	>=4	6
Pavement Deficiency	0	0.000	>=4	6
Vegetation Obstruction	1	0.100	>=4	6
Litter	5	0.500	>=4	6
Drainage Obstruction	1	0.100	>=4	6
Sign deficiency	2	0.200	>=4	6
Pavement Marking Deficiency	0	0.000	>=4	6
Fence Deficiency	7	0.700	>=4	4

Table 5.14: Travel Plaza and Truck Parking Maintenance Items for ITR

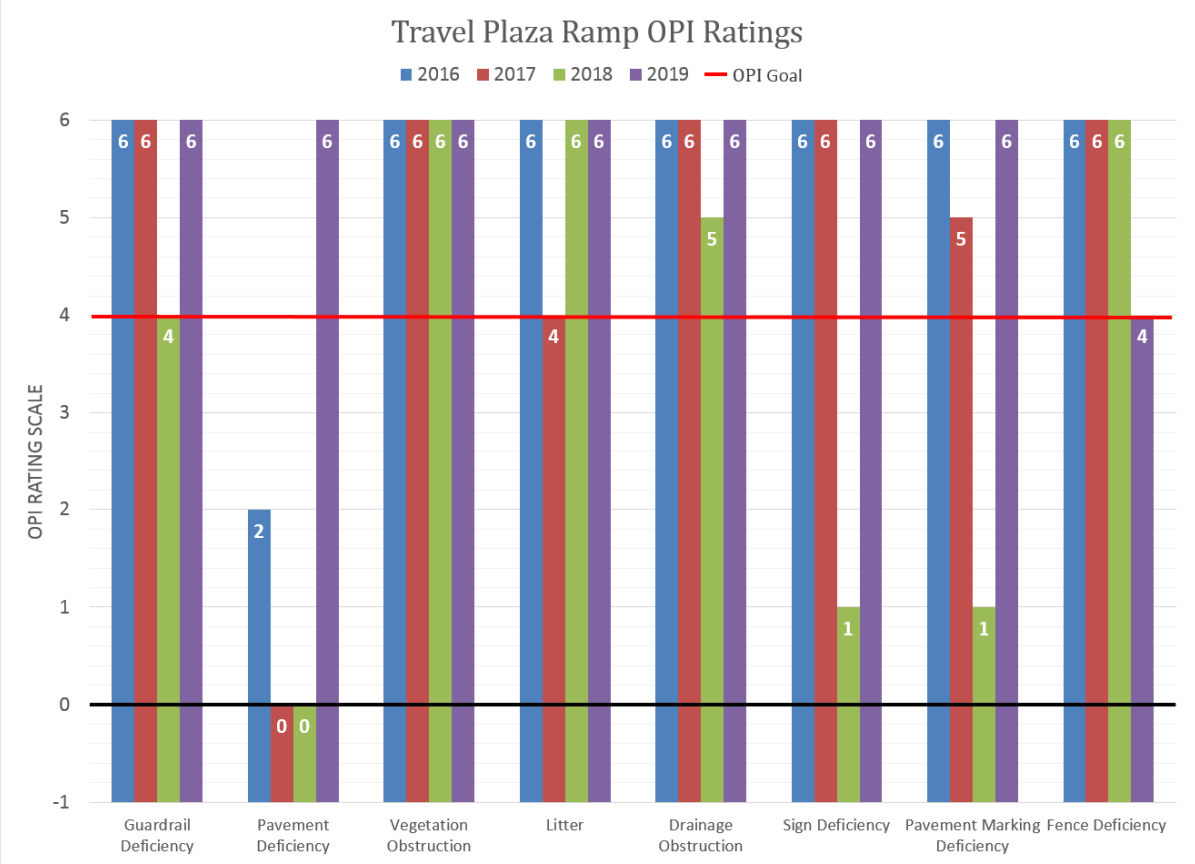


Figure 5.3: Travel Plaza Ramp OPI Ratings

Lighting OPI Measurements

The following two tables list the number of deficiencies, deficiency rates, and OPI ratings for the lighting maintenance items. Lighting is only included in toll and travel plazas. In 2018, ITRCC updated all required cobra head lighting structures to LED as well as implementing lighting patterns to the high mast lighting for energy conservation and need. Therefore bulbs that were not on due to these practices were not counted as deficient. The ratings range from 0 to 6, with 6 being the highest.

OPI Measures	Toll Plaza Lighting Deficiencies			
	2019			
	Deficiencies	Def/Plaza	OPI Goal	OPI Rating
Toll Road	6	0.140	>=4	6
M1	3	0.167	>=4	6
M2	0	0.000	>=4	6
M3	0	0.000	>=4	6
M4	1	0.125	>=4	6
M5	2	0.667	>=4	6

Table 5.5 Toll Plaza Lighting Deficiencies

OPI Measures	Travel Plaza Lighting Deficiencies			
	2019			
	Deficiencies	Def/Lot	OPI Goal	OPI Rating
Toll Road	0	0.000	>=4	6
M1	0	0.000	>=4	6
M2	0	0.000	>=4	6
M3	0	0.000	>=4	6
M4	0	0.000	>=4	6
M5	0	0.000	>=4	6

Table 5.6 Toll Plaza Lighting Deficiencies

6: FACILITIES CONDITION REPORT

FACILITIES CONDITION REPORT – GROUP A

General

The Concession Lease Agreement (Volume I, Section L.3.1., Page 102) states:

> *The objective of Facility maintenance is to ensure to the greatest extent reasonably possible that all Facilities and the components, elements and systems located within such Facilities are properly maintained in such a manner that they remain safe, habitable, and continually operational in their functions of supporting the ITR.*

In accordance with the Concession Lease Agreement (Volume II, Section J.2.3., Page 96), a Facilities Condition Report shall be completed once every four years. Previous reports have divided the facilities along the toll road into four groups and inspected one group of buildings every year. **Table 6.1: Facilities Condition Report Schedule** outlines the inspection schedule:

	Facilities	Next Inspection Year
Group A	MP 0 to MP 24.1	2019
Group B	MP 24.1 to MP 62	2020
Group C	MP 62 to MP 115	2017
Group D	MP 115 to MP 156.9	2018

Table 6.1: Facilities Condition Report Schedule

A detailed inspection was conducted of all buildings in Group A during February 2019. An ITRCC staff member accompanied inspection personnel throughout the inspection process to provide access to all building areas and mechanical equipment.

Each main building component was assessed and rated by the following categories:

Excellent – New Condition
Good – Minor deficiencies noted
Fair – Deficiencies and deterioration present
Poor – Advanced deterioration present
Critical – Major deterioration of primary elements

Each finding or remark in the database was assigned a priority level for repair of either 1 or 2 to identify the criticality and/or impact on the facility:

Priority Level Timeline for Repair

High - Suggested for immediate attention in current year
Low - Schedule for repair/rehabilitation within 1 to 3 years

An Appendix of all noted findings and remarks was created and reports were generated from the field investigations and appendix. All inspection reports included in the Appendix were created in VUEWorks utilizing the MOBILEVUE application.

The majority of Group A facility components, elements, systems, and appurtenances were found to be operational, secure, clean, sound, and in all ways safe and suitable for use. Some specific issues were observed in various structures, but the majority of noted items can be completed by ITRCC maintenance personal and be scheduled as normal maintenance schedules allow. The building inspections were noted to be 98% of the facilities receiving “Good” ratings and 2% of the facilities receiving “Fair” ratings. Buildings that were schedule to be removed were not inspected.

It should be noted that ITRCC has programmed a comprehensive facility repair and upgrade plan to address both structure, cosmetic and aesthetic repairs for 2019 and 2020. Several areas noted in this report as deficient have works planned to address, but had not occurred prior to the inspection.

Preventative Maintenance Program

A program for preventative maintenance has be established in order to maintain mechanical equipment located at all buildings belonging to the ITRCC. The program contains both a general facility review and checklist as well as a major facility component checklist.

The Preventative Maintenance checklist has been implemented to maintain ITRCC facilities and its components, equipment and systems at the original design standards throughout their intended life span. The checklist include periodic and scheduled inspections, adjustment, calibration, and cleaning. These reviews led to replacement of parts and minor repairs to restore equipment to normal function. ITRCC has utilized DTS VUEworks as its asset management tool in conjunction with its preventative maintenance reporting.

Buildings Overview:

2019 Facility Assessment-Group A			
Structure Number	Building Description	TP#	General Condition
M1 45-1	1 Westpoint Barrier Main Building	1	Good
M1 45-2	Westpoint Barrier Booth 1	1	Good
M1 45-3	Westpoint Barrier Booth 2	1	Good
M1 45-4	Westpoint Barrier Booth 3	1	Good
M1 45-5	Westpoint Barrier Booth	1	Good
M1 45-7	Westpoint Barrier Booth 5	1	Good
M1 45-8	Westpoint Barrier Booth 6	1	Good
M1 45-9	Westpoint Barrier Booth 7	1	Good
M1 45-10	1 Westpoint Barrier Stairwell	1	Good
M1 45-11	Westpoint Barrier Booth 8	1	Good
M1 45-13	Westpoint Barrier Booth 9	1	Good
M1 45-14	Westpoint Barrier Booth 10	1	Good
M1 45-15	Westpoint Barrier Booth 11	1	Good
M1 45-16	Westpoint Barrier Booth 12	1	Good
M1 45-17	Westpoint Barrier Booth 13	1	Good
45-18 M1	1 Westpoint Barrier Stairwell	1	Fair
M1 45-20	Westpoint Barrier Booth 14	1	Good
M1 45-22	Westpoint Barrier Booth 15	1	Good
M1 45-23	Lake Maintenance -Maintenance Building	3	Good
M1 45-24	Lake Maintenance Pole Barn	3	Good
M1 45-25	Lake Maintenance Salt Storage Building	3	Good
M1 45-26	Lake Maintenance Communications Hut	3	Good
M1 45-27	5(W) Calumet Avenue Main Building	5	Good
M1 45-29	Calumet Avenue - W Booth 2	5	Good
M1 45-30	Calumet Avenue - W Booth 1	5	Good
M1 45-32	5(W) Calumet Avenue Toll Canopy	5	Good
M1 45-34	5(W) Calumet Avenue Storage Shed	5	Good
M1 45-35	Calumet Avenue - E Booth 1	5	Good
M1 45-36	Calumet Avenue - E Booth 2	5	Good
M1 45-37	5(E) Calumet Avenue Toll Canopy	5	Good
M1 45-38	5(E) Calumet Avenue Communication Hut	5	Good
M1 45-39	10 Cline Avenue Main Building	10	Good

2019 Facility Assessment- Group A			
Structure Number	Building Description	TP#	General Condition
M1 45-41	Cline Avenue Booth 1	10	Good
M1 45-42	Cline Avenue Booth 2	10	Good
M1 45-43	Cline Avenue Booth 3	10	Good
M1 45-44	Cline Avenue Booth 4	10	Good
M1 45-46	10 Cline Avenue Stairwell	10	Good
M1 45-47	Cline Avenue Booth 6	10	Good
M1 45-48	Cline Avenue Booth 7	10	Good
M1 45-49	Cline Avenue Booth 8	10	Good
M1 45-50	10 Cline Avenue Stairwell	10	Good
M1 45-53	10 Cline Avenue Toll Canopy	10	Good
M1 45-54	10 Cline Avenue Toll Canopy	10	Good
M1 45-55	Cline Avenue Booth 5	10	Good
M1 45-56	17 Gary East Main Building	17	Good
M1 45-57	Gary East Booth 1	17	Good
M1 45-58	Gary East Booth 2	17	Good
M1 45-60	Gary East Booth 3	17	Fair
M1 45-61	Gary East Booth 4	17	Good
M1 45-62	Gary East Booth 5	17	Good
M1 45-63	17 Gary East Stairwell	17	Good
M1 45-64	17 Gary East Stairwell	17	Good
M1 45-65	Gary East Booth 6	17	Good
M1 45-66	Gary East Booth 7	17	Good
M1 45-67	Gary East Booth 8	17	Good
M1 45-68	Gary East Booth 9	17	Good
M1 45-69	17 Gary East Stairwell	17	Good
M1 45-71	17 Gary East Toll Canopy	17	Good
M1 45-72	17 Gary East Toll Canopy	17	Good
M1 45-73	17 Gary East Storage Shed	17	Good
M1 45-75	Gary East Booth 10	17	Good
M1 45-76	21 Lake Station Main Building	21	Good
M1 45-77	Lake Station Booth 1	21	Good
M1 45-78	Lake Station Booth 2	21	Good
M1 45-79	Lake Station Booth 3	21	Good
M1 45-81	Lake Station Booth 4	21	Good

2019 Facility Assessment- Group A			
Structure Number	Building Description	TP#	General Condition
M1 45-82	21 Lake Station Stairwell	21	Good
M1 45-83	21 Lake Station Stairwell	21	Good
M1 45-84	Lake Station Booth 5	21	Good
M1 45-85	Lake Station Booth 5	21	Good
M1 45-86	Lake Station Booth 6	21	Good
M1 45-87	Lake Station Booth 7	21	Good
M1 45-88	21 Lake Station Stairwell	21	Good
M1 45-89	21 Lake Station Toll Canopy	21	Good
M1 45-90	21 Lake Station Toll Canopy	21	Good
M1 64-1	1 (South) Main Building	21	Good
M1 64-3	1 (South) Gas Island	21	Good
M1 64-4	1 (South) Diesel Island	21	Good
M1 64-5	1 (North) Main Building	21	Good
M1 64-7	1 (North) Gas Island	21	Good
M1 64-8	1 (North) Diesel Island	21	Good
M1 64-9	21 Salt Storage Salt Storage	21	Good
M1 64-11	21 Salt Storage Loader Shed	21	Good
M1 64-12	21 Salt Storage Communication Hut	21	Good
M1 64-13	Porter Maintenance Main Building	23	Good
M1 64-14	Porter Maintenance Pole Barn (W)	23	Good
M1 64-16	Porter Maintenance Pole Barn (E)	23	Good
M1 64-17	Porter Maintenance Ice Ban Tank	23	Good
M1 64-18	23 Willow Creek Main Building	23	Good
M1 64-19	Willow Creek Booth 1	23	Good
M1 64-20	Willow Creek Booth 2	23	Good
M1 64-21	23 Willow Creek Toll Canopy	23	Good
M1 64-22	Willow Creek Booth 3	23	Good
M1 64-23	Willow Creek Booth 4	23	Good
M1 64-24	24 Portage Barrier Main Building	24	Good
M1 64-25	Portage Barrier Booth 4	24	Good
M1 64-26	Portage Barrier Booth 5	24	Good
M1 64-27	Portage Barrier Booth 6	24	Good
M1 64-28	Portage Barrier Booth 7	24	Good
M1 64-29	Portage Barrier Booth 8	24	Good

2019 Facility Assessment- Group A			
Structure Number	**Building Description**	**TP#**	**General Condition**
M1 64-30	Portage Barrier Booth 9	24	Good
M1 64-31	24 Portage Barrier Stairwell	24	Good
M1 64-32	Portage Barrier Booth 10	24	Good
M1 64-33	Portage Barrier Booth 11	24	Good
M1 64-34	Portage Barrier Booth 12	24	Good
M1 64-35	Portage Barrier Booth 13	24	Good
M1 64-45	Portage Barrier Booth 14	24	Good
M1 64-46	24 Portage Barrier Stairwell	24	Good
M1 64-47	Portage Barrier Booth 1	24	Good
M1 64-48	Portage Barrier Booth 2	24	Good
M1 64-49	Portage Barrier Booth 3	24	Good

6.2: Condition Rating and Deficiencies Log

7: TREATMENT PLANTS AND OTHER ENVIRONMENTAL ISSUES REPORT

TREATMENT PLANTS AND OTHER ENVIRONMENTAL ISSUES REPORT

General

The 2018-2019 site reviews were conducted from August 20-23, 2019. Field visits to many of the Indiana Toll Road (ITR) facilities were made on August 21-22, 2019. Record reviews and interviews also occurred during this period.

Major equipment at ITR facilities was observed to be in operable condition by reviewing personnel. Continued routine and preventative maintenance efforts will provide a useful life for the major process equipment components. Capital Improvement Projects were discussed as they related to existing and future environmental infrastructure. The most significant changes are the travel plaza demolition and re-development projects that have been recently completed or are on-going. The following table summarizes the planned and completed schedules for the travel plazas:

Plaza	Closed	Re-opened	WWTP/WTP Plans
Travel Plaza 1	July 2016	April 2017	Not applicable, connected to municipal water and sewer
Travel Plaza 3	May 2017	January 2018	Not applicable, connected to municipal water and sewer
Travel Plaza 5	Spring 2018	July 2018	Not applicable, connected to municipal water and sewer
Travel Plaza 7	September 2016	July 2017	Supply provided by municipal system, third party currently operating WWTP, will eventually connect wastewater to municipal system (LaGrange County) by Quarter 4 2019

Table 7.1: Summary of Planned and Completed Schedules for Travel Plazas

Environmental Records

Most environmental records are under the control of the Environmental Health & Safety Manager and stored in the Administration Building. The ITRCC procurement group at Central Facility handles recycled materials including batteries and paper/cardboard tracking and associated reports. Lead contaminated paint waste is tracked by the ITRCC Environmental Health & Safety Manager and submitted to the IFA Environmental Manager in the form of an annual report. Selected first level documents such as operator licenses and Spill Prevention, Control and Countermeasures (SPCC) plans are maintained at work locations per Federal and State requirements. Operator licenses and certificates are also stored in an electronic database that is controlled by the ITRCC Human Resources Department.

Requested records and related documentation during the audit were provided in a complete, timely manner, and in good order. Records of correspondence with authorities and a detailed log of important environmental events throughout the year are maintained by the Environmental Health & Safety Manager on the ITRCC network L drive. ITRCC environmental staff use VUEWorks software to assist with compliance schedules and Training Tracker software to assist with training documentation and schedules.

The ITRCC has continued to make strides in converting environmental paper files to digital files.

Wastewater Treatment

Treatment Plants

ITRCC operates one wastewater treatment plant (WWTP) under National Pollutant Discharge Elimination System (NPDES) discharge permits at Travel Plaza 7. **Table 7.2: NPDES Permits** below shows pertinent information regarding the permits issued by the Indiana Department of Environmental Management (IDEM).

Travel Plaza	NPDES Permit Number	Effective Date	Expiration Date
7 South	IN 0050300	August 1, 2017	July 31, 2022

Table 7.2: NPDES Permits

Monthly Reports of Operation (MROs) are submitted to IDEM for the permitted WWTP at Travel Plaza 7. The WWTP process laboratories are adequately equipped to perform analysis for routine operational and regulatory compliance reporting.

The WWTP at Travel Plaza 7 was part of the original ITR construction in 1956. Due to its age, the concrete floors and common tank walls at the facility are deteriorating, spalled, and cracking. The WWTP was shut down in September 2016 during construction activities while the travel plaza was being re-built. It was restarted in July 2017 and since that time the plant has been operated by a third party vendor to ITRCC.

ITRCC is in discussion with the LaGrange County Regional Utility District (LCRUD) to connect and discharge wastewater from the travel plaza to the municipal system once the LCRUD has completed the necessary infrastructure improvements. It is anticipated that this will be completed in 2020-2021.

Septic Systems

Due to the increased automation of toll plazas, the load on septic tanks at certain locations has decreased significantly. Therefore, ITRCC has extended the scheduled pumping frequency to three (3) years. Other septic tanks (and grease traps) are pumped out more frequently.

The pumping log, maintained by the Environmental Health & Safety Department, details the last date serviced for each unit. Details of pumping / maintenance frequency can be found in **Table 7.3: Pumping Frequency for Certain Wastewater Treatment Units**.

Location	Frequency
Septic Tanks (Maintenance/Old Admin)	2 years
Septic Tanks (Toll Plazas)	3 years

Table 7.3: Pumping Frequency for Certain Wastewater Treatment Units

Note: The new administration building is connected to municipal services. The old administration building will receive one final service prior to demolition.

ITRCC has contracted with a vendor to provide vacuum truck services for pumping out flooded manholes and low areas, maintaining restaurant grease traps, and pumping septic tanks. It is anticipated that ITRCC will continue to use a third party vendor for vacuum truck services.

Lift Stations

Lift stations are listed in **Table 7.4 ITR Septic Systems and Lift Stations Stand-Alone or Connected to a System other than an ITR Wastewater Treatment Plant** (located in Appendix F). ITRCC has placed signs located near each lift station with a phone number to call if anyone observes the warning light flashing. Lift stations are inspected by ITRCC staff at least every three years.

Backflow Preventers

Backflow preventers are installed throughout the facilities along the ITR. Inspections are conducted once per year on each reduced pressure backflow preventer and each double check valve backflow preventer by a certified backflow technician. This is per regulation 327 IAC 8-10-8 finalized November 13, 2012. **Table 7.5: Licensed Backflow Technicians**, below, includes a list of Certified Backflow Technicians employed by the ITRCC during the audit period.

Name	License	Type / Number
David Smith	Backflow Technician	BF18-6248
Matthew McLaughlin	Backflow Technician	BF11-4345

Table 7.5: Licensed Backflow Technicians

There are approximately 65 backflow preventers throughout facilities along the ITR. **Table 7.6: Backflow Preventers to be Relocated** lists backflow preventers not installed to current code. These preventers should be relocated when replaced to meet the Indiana Amendments to the Uniform Plumbing Code 603.3.3.

MP	Location	Location at Site	Type
20.8 E	Lake Station Toll Plaza	Above boiler	Public
23.5 W	Porter Maintenance	Above boiler	Public
23.8 W	Willow Creek Toll Plaza	Above boiler	Public
30.9 W	Valparaiso Toll Plaza	Above boiler	Private
51.9 E	LaPorte Maintenance	Above boiler	Private

Table 7.6: Backflow Preventers to be Relocated

Wells

Certain water supply wells along the ITR are still the original pit wells installed in 1956. Due to their age, the casings are in less than optimal condition. Pit wells terminate in below-grade pits which collect water around the casings and also pose a freezing hazard. At the end of their service life, these wells should be replaced without pits. Based on known performance, well replacement is recommended to occur in the same order as **Table 7.7: Drinking Water Wells Recommended for Replacement.**

ITRCC is currently providing bottled water to toll plaza staff for drinking purposes in most locations with aging wells. The wells may continue to be used for all other non-drinking water purposes. The increased automation of toll plazas has significantly reduced the demand for drinking water.

MP	Location	Notes
30.9 W	Valparaiso Toll Plaza	The ITCC will be planning on connecting to municipal services in 2021 following an INDOT modification on the SR 49 interchange
107.1 W	Middlebury Toll Plaza	
143.9 E	Angola Toll Plaza	
38.9 W	Michigan City Toll Plaza	

Table 7.7: Drinking Water Wells Recommended for Replacement

The ITRCC operates four Significant Water Withdrawal Facilities which require annual reporting to the Indiana Department of Natural Resources (IDNR). These wells are located at Elkhart Maintenance, the Administration Building and Travel Plazas 3 and 7.

Many sites undergoing remediation along the toll road were closed (No Further Action) in 2015 and 2016. Remediation activity has been completed at the District 21 State Police site due to legacy contamination. All components of the remediation effort are under the responsibility of the IFA. Water samples are taken periodically which require the flushing of the well. The purge volume is captured in drums and stored as non-hazardous waste at the perimeter of toll plaza parking lots.

Presently, the ITRCC maintains a closed drinking water well affected by the remediation activities at Travel Plaza 3 North. While the remediation activities have now been completed at

this location, the water quality of the groundwater is still above the minimum standards for acceptable drinking water use thus the well cannot be put back into use in the near term. Per Indiana Administrative Code, if the original purpose and use of a well has been discontinued for more than five years, the well is considered abandoned, and must be permanently plugged. Further guidance can be found in 312 IAC 13-10. ITRCC plans to abandon this well during the decommissioning of the Water Treatment Plant. To see the status of other IFA remediation activities, view **Table 7.8: Status of IFA Remediation Activities** (located in Appendix F).

Hazardous Material Management/Response to Hazardous Substance Emergencies

The ITRCC is currently designated at a Large Quantity Generator (LQG) under a single Environmental Protection Agency (EPA) waste identification. As a result, all ITRCC facilities must comply with LQG requirements.

The majority of hazardous waste generated along the ITR is due to waste from removal of leaded paint from bridges. For the paint removal, hazardous material handling and waste management is under the responsibility of contractors performing work with tracking by the ITRCC Environmental Health & Safety Manager. The ITRCC Environmental Health & Safety Manager retains an electronic copy of the signed manifests and an electronic log sheet (on the network L drive) before sending the original manifest paperwork to the IFA.

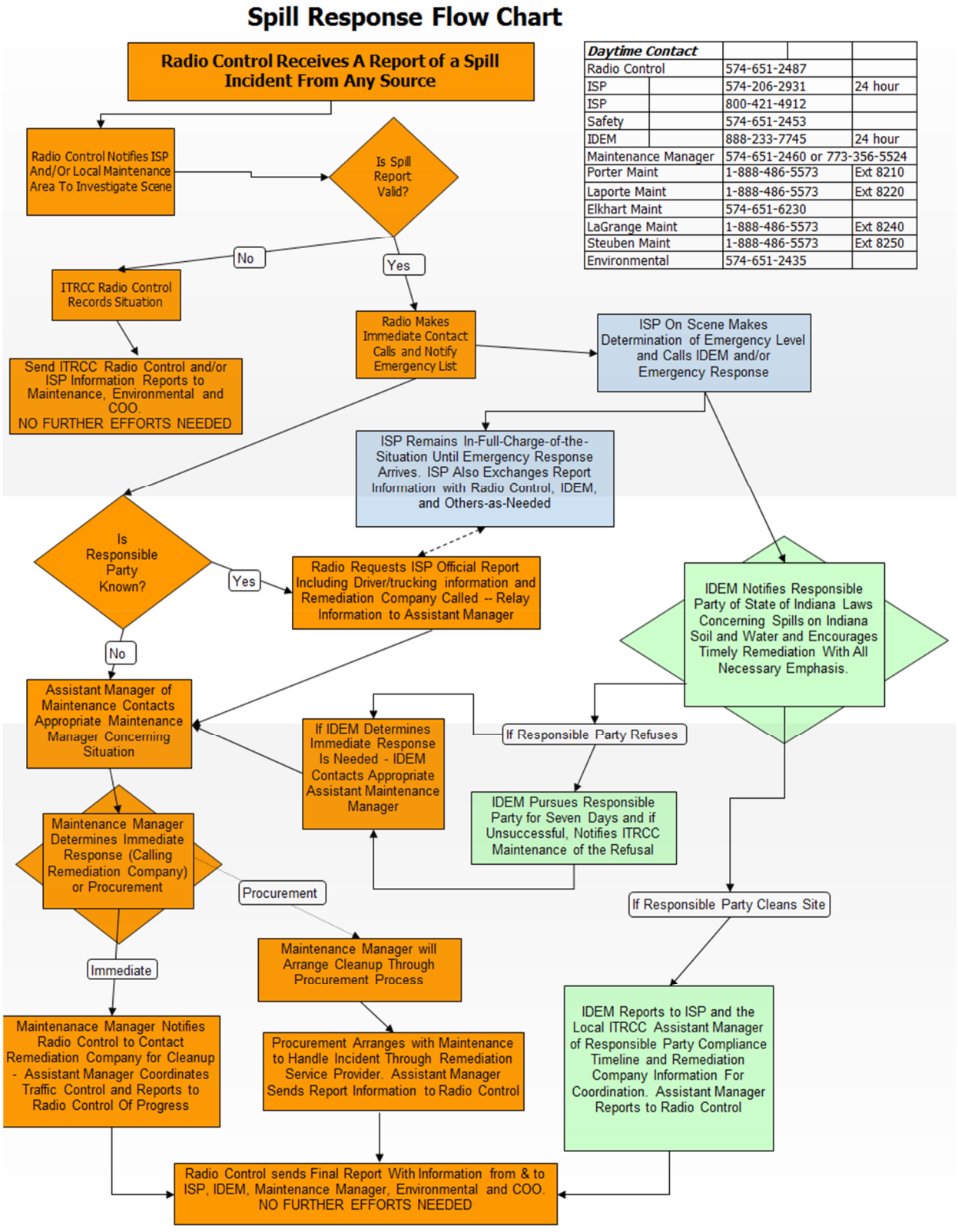
Universal waste is handled by ITRCC Procurement Department. The Procurement Department purchases chemical supplies for facilities, coordinates the waste vendor contracts, and arranges pick-ups.

The Environmental Health & Safety Manager coordinates with the environmental representative of the IFA for generating and submitting annual hazardous waste reports to IDEM. Various ITRCC departments coordinate the facility level inspections and organization of labeling and storage of materials and waste.

Response to Patron Related Released Substance Emergencies

ITRCC has developed an effective strategy to address all patron releases along the ITR. **Figure 7.2: Spill Response Flow Chart** demonstrates the process for responding to a release.

Each reported incident is added to a spill incident tracking spreadsheet kept on the ITRCC network L drive. The spill tracking spreadsheet includes information such as the date, location, type of spill or release, responsible party, IDEM Incident number, and other additional information. All major spills are handled by a third-party spill response contractor hired by either the ITRCC or responsible party. In general, the spill response contractor or the responsible party will forward the spill cleanup report to the ITRCC, however not all of these reports are always obtained. A quarterly report of this information is submitted to the IFA.



Daytime Contact		
Radio Control	574-651-2487	
ISP	574-206-2931	24 hour
ISP	800-421-4912	
Safety	574-651-2453	
IDEM	888-233-7745	24 hour
Maintenance Manager	574-651-2460 or 773-356-5524	
Porter Maint	1-888-486-5573	Ext 8210
Laporte Maint	1-888-486-5573	Ext 8220
Elkhart Maint	574-651-6230	
LaGrange Maint	1-888-486-5573	Ext 8240
Steuben Maint	1-888-486-5573	Ext 8250
Environmental	574-651-2435	

Figure 7.2: Spill Response Flow Chart

Hazardous Waste

The ITRCC may generate greater than 1000 kg (2200 pounds) of hazardous waste in a calendar month which would categorize the ITRCC as a LQG. The ITRCC has notified IDEM regarding their status as a LQG. LQGs must comply with 40 Code of Federal Regulations (CFR) 262 and portions of 40 CFR 265 as incorporated, as well as 40 CFR 268.

As a requirement, the following documents must be maintained and made available:

- Contingency Plan
- Complete Manifests and Land Disposal Restriction (LDR) Forms
- Biennial Reports/Annual Reports
- Waste Analyses/Determinations
- Personnel Training Program & Records
- Inspections (weekly for containers, monthly for safety equipment)
- Waste Minimization Program

In accordance with the lease agreement, the above documentation is maintained by the IFA with coordination and communication with ITRCC environmental staff.

The ITRCC is operating under a single EPA waste identification number (ID) for all its facilities, IND078918000. As a result the LQG status applied to the EPA waste ID, all ITRCC facilities under the ID must comply with LQG requirements. This may include toll plazas, maintenance buildings, administrative buildings, storage structures, etc.

Bridges are periodically repainted along the ITR. Prior to repainting, the old paint is removed through sandblasting. The age of the bridges is such that lead based paint may be present. The sandblasting waste from each bridge is sampled and analyzed for proper waste determination. The analytical results are primarily reviewed to determine if the waste is hazardous for the toxicity characteristic of lead (D008). Even though the contractor packages the sandblasting hazardous waste and preparing it for shipment as the "offeror," ITRCC is still responsible for LQG requirements (70 FR 10776).

Hazardous wastes may not be kept on site by large quantity generators for more than 90 days without modifying the regulatory status of the facility to a treatment, storage and disposal site (40 CFR 265), and other materials cannot be stored in designated hazardous storage areas. Areas previously defined as hazardous storage areas at each maintenance facility have been reclassified for use as material storage or storage of used oil which relieve them of certain inspection requirement for those areas. Employees must be appropriately trained to ensure that no hazardous waste is then stored in these areas to comply with requirements, and instead store any future hazardous waste separately and in a correct fashion.

The ITRCC uses the Hazardous Materials Identification System (HMIS) labeling system for hazardous materials which is a four-bar label with numerical values indicating the level of hazard in different hazard categories: Health, Flammability, Reactivity and Protective Equipment. Some containers, primarily at maintenance facilities, were found unlabeled. Occupational Safety and Health Administration (OSHA) regulations require that all virgin chemicals be labeled and Resource Conservation and Recovery Act (RCRA) and Department of Transportation (DOT) regulations require that hazardous wastes be labeled. Some containers at facilities along the visit were found without any label or identification. It is recommended training should continue to raise staff awareness of proper container labeling, storage, etc.

New OSHA Standards have been created to be consistent with the United Nations Globally Harmonized System of Classification and Labeling of Chemicals (GHS). As a result, labeling requirement for all related chemicals must be compliant with the new standards by June 15, 2015. ITRCC employees have received GHS training. These and most other training records are maintained either in the outgoing "Click Safety" training system or the incoming JJ Keller recordkeeping system as the records are currently in the process of being transferred from one system to the other.

The U.S. EPA requires that all persons involved in the handling, labeling, manifesting, and shipment of hazardous wastes for LQGs receive annual training on the facility RCRA Contingency Plan. This is required in all contracts with vendors who generate waste such as bridge painters. Some contractors have contingency plans more stringent than the IFA produced plan. The U.S. DOT requires that all persons involved in the labeling, completion of bills of lading and shipment of hazardous materials receive HAZMAT Shippers training every three years. Providing this information is required in all contracts with venders who generate waste on ITRCC or IFA behalf such as bridge painters. Documents need to be maintained and available.

The ITRCC Environmental Health & Safety Manager distributes a monthly reminder email to all pertinent employees reminding these employees of proper reporting requirements for hazardous waste generation, spill reporting, and other helpful environmental information. ITRCC employees are not allowed to perform actions related to hazardous waste shipping. Empty barrels, if not triple washed, should be contained indoors or covered in secondary containment. Improvements in empty barrels storage were noted during field visits. This practice should be continued.

Storage of flammable materials is strictly regulated under 29 CFR 1926.152. According to these regulations:

1. Not more than 60 gallons of Category 1, 2 and/or 3 flammable liquids or 120 gallons of Category 4 flammable liquids shall be stored in any one storage cabinet. Not more than three such cabinets may be located in a single storage area.
2. Quantities in excess of this shall be stored in an inside storage room.
3. Inside storage rooms shall be constructed to meet the required fire-resistive rating for their use.
4. No more than 25 gallons of flammable liquids shall be stored in a room outside of an approved storage cabinet. For storage of liquefied petroleum gas, refer to 29 CFR 1926.153

In general, flammable storage cabinets were found to be closed, well organized and without any conflicting materials.

Universal Waste Such as Lamps and Lead Acid Batteries

Universal waste handlers are required to:

1. Designate and maintain a secure and orderly universal waste accumulation area.
2. Store universal wastes in the appropriate U.S. DOT approved containers for shipping, with the containers upright and closed when not in use.
3. Provide secondary containment for liquid pesticides, batteries and mercury.
4. Appropriately label universal wastes and mark the accumulation start date on each container.

The ITR generates Universal Wastes and are regulated under 40 CFR 273. Universal Wastes include lamps, batteries, used electronics and mercury containing equipment. A small quantity handler of universal waste may accumulate less than 11,000 pounds (5,000 kg) of total universal waste, (i.e., batteries, pesticides, mercury thermostats or mercury containing lamps) for periods up to one year. Universal waste handlers are required to manage universal wastes in a way that prevents releases of any universal waste or component of a universal waste to the environment. ITRCC employees are trained in the proper management of Universal Wastes by being required to review a PowerPoint presentation on the network L Drive. The training, as well as the training documents, should continue to be maintained and reviewed with appropriate staff.

Universal wastes were found to be better organized and properly stored including batteries, light bulbs and e-waste.

Training should continue to be conducted to inform employees on the distinction between universal waste and hazardous waste. Training documents should continue to be updated to meet current guidelines in 40 CFR 273.

Used Oil

The ITRCC generates used oil, regulated under 40 CFR 279, at maintenance facilities along the ITR. Used oil is stored in tanks and containers which are subject to SPCC (40 CFR 112) requirements. SPCC requirements are addressed below under **Spill Prevention Control and Countermeasures Plan** of this report. Used oil is not considered waste if it is intended to be recycled. Used oil should, therefore, not be stored with waste or in waste containment, but separately in designated areas. Containers and tanks of used oil should be stored with covers closed to reduce evaporation of used oil, reduce the possibility of spills and minimize the likelihood of contamination. Any amount of used oil, if mixed with any amount of a hazardous waste, reclassifies the used oil as hazardous waste and increases handling requirements and disposal fees. Used oil should not be mixed with windshield wiper solution, antifreeze, etc. All oil drain pans or other equipment containing spent used oil need to be labeled at maintenance facilities.

Education Waste Tires

On November 9, 2000, waste tire management regulations were revised under 329 IAC 15. Indiana code (13-20) was changed to read, shops that generate 12 or more tires per year must keep records indicating the number of tires generated, and how these tires are managed. The ITRCC maintains copies of the waste tire manifests received from the waste tire transporter. These documents are to be maintained for one year.

Spill Prevention Control and Countermeasures Plan

Per 40 CFR 112.5(b), a review and evaluation of the SPCC Plan must be completed every five years. The SPCC plans are present at appropriate locations throughout the ITR (one copy is kept at each of the Maintenance Facility fueling stations as well as in the Maintenance Facility office). Electronic copies are also available at the Administration Building and on the L: drive. The current SPCCs are dated 2018 and are due for review and updating in 2023.

ITRCC employees are trained to respond only to small spills. Small spills (likely oil) are dealt with by applying oil-dry. According to an interview with a maintenance worker, oil-dry is reused to saturation and then moved to a drum for disposal. For larger spills, employees are instructed to contact a third party contractor that will respond to and remediate the spill.

In recent years the ITRCC has installed new containment berms in each maintenance facility. Oil changes and other vehicle maintenance activities are completed inside the containment berm to provide additional spill control. These new habits must be reinforced periodically to ensure that employees do not deviate from this practice.

The drainage design in maintenance areas is still such that spills are not necessarily directed to the appropriate floor drains (which pass through an oil water separator). Instead, oil contaminated water has the potential to overflow onto the parking lot and enter an open storm water conveyance system. Spills can result from vehicle oil changes, overturned or leaking drums, lead acid batteries, and other liquid contained within the maintenance areas. Completing maintenance activities inside the installed containment berms helps mitigate this potential. The implications of this for storm water contamination and permitted discharges will be discussed further under Storm Water Management.

SPCC training is required for employees with oil handling responsibilities. Current training records for all employees with oil handling responsibilities should be made easily available. It is recommended that ITRCC track and document SPCC training for employees and ensure that required staff complete the training periodically.

There were 65 patron spills or releases along the ITR since the previous site visits in 2017. In general, patrons and/or responsible parties are responsible for remediation of the contamination.

The ITRCC Environmental Health & Safety Manager maintains spill remediation reports when the patrons or their consultants submit them.

Training and Education

Training is discussed throughout this report. Many environmental and safety regulations require training to affected employees. A compliance review of the ITRCC training program should be kept under review to ensure that it is complete and up to date.

The ITRCC has undertaken a new initiative to use a software solution (Training Tracker) for tracking and documenting personnel training. It is anticipated that this initiative will help ensure that training requirements are fulfilled in a timely manner and that appropriate documentation is maintained.

Underground Storage Tanks

After evaluating the costs of achieving full compliance with the UST regulatory updates against the environmental benefits of eliminating fuel storage sites, the ITRCC elected to close and remove all remaining USTs located at its facilities. ITRCC now operates solely through the travel plazas for fuel. All UST's have been emptied and removed to date. ITRCC will continue to source operating fuels directly from travel plaza sites utilizing a fleet card program.

The EPA published updates to the UST Regulations in 2015, with many of the new requirements taking effect in October 2018. Many of the new requirements apply to newly installed equipment or take effect when older equipment is replaced. ITRCC had been working towards achieving compliance with new leak detection requirements for previously exempt tanks (generator tanks) including the replacement and upgrades of 17 UST spill containers throughout the toll road facilities.

The following table summarizes the recent UST removal/closures and USTs that are currently scheduled for removal and closure.

UST Location	MP Reference	Status	Tank Size (Gal)	Fuel Type
Lake Maintenance Unleaded	4.5	Removed	10,000	Unleaded
Lake Maintenance Diesel	4.5	Removed	10,000	Diesel
M1 Unleaded	23	In place, but no longer in use, to be removed	10,000	Unleaded
M1 Diesel	23	In place, but no longer in use, to be removed	10,000	Diesel
MP 37.5 Diesel	37.5	In place, but no longer in use, to be removed	10,000	Diesel
M2 Unleaded	52	In place, but no longer in use, to be removed	10,000	Unleaded
M2 Diesel	52	In place, but no longer in use, to be removed	10,000	Diesel
MP 72 Diesel	72	In place, but no longer in use, to be removed	10,000	Diesel
Administration Building	87	Removed Closure Complete	10,000	Unleaded
M3 Unleaded	87	Removed	10,000	Unleaded
M3 Diesel	87	Removed	10,000	Diesel
MP 99 Diesel	99	Removed Closure Complete	4,000	Diesel
M4 Unleaded	114	Removed	10,000	Unleaded

UST Location	MP Reference	Status	Tank Size (Gal)	Fuel Type
M4 Diesel	114	Removed	10,000	Diesel
M5 Unleaded	137.5	Removed Closure Complete	10,000	Unleaded
MP 156 Diesel	156.5	Removed Closure Complete	2,500	Diesel
Calumet Exit Toll Plaza	5	Removed Closure Complete	550-600	Diesel
Gary East Toll Plaza	17	Removed Closure Complete	550-600	Diesel
Lake Station Toll Plaza	21	Removed Closure Complete	550-600	Diesel
Willow Creek Toll Plaza	23	Removed Closure Complete	550-600	Diesel
Michigan City Toll Plaza	39	Removed Closure Complete	550-600	Diesel
LaPorte Toll Plaza	49	Removed Closure Complete	550-600	Diesel
Middlebury Toll Plaza	107	Removed Closure Complete	550-600	Diesel
Howe/LaGrange Toll Plaza	121	Removed Closure Complete	550-600	Diesel
M4 Generator	114	Removed Closure Complete	550-600	Diesel
M5 Generator	137.5	Removed Closure Complete	550-600	Diesel
Angola Toll Plaza	144	Removed Closure Complete	550-600	Diesel
Relay B	70	Removed Closure Complete	550-600	Diesel
Relay A	45	Removed Closure Complete	550-600	Diesel

Section 1524 of the Energy Policy Act of 2005 stated that the EPA, in coordination with States, must develop training guidelines for three distinct classes of operators who operate and maintain federally-regulated underground storage tank systems. On August 8, 2007, EPA published the operator training guidelines. States not meeting the 2009 deadline must ensure all three classes of operators are trained according to state-specific training requirements by August 8, 2012. ITRCC has been staying current on the associated IDEM rule for applicable regulations to ITR sites. The ITRCC has trained over 20 Class B and Class A operators in compliance with the IDEM training and certification program. It is anticipated that once the ITRCC has closed the remaining USTs that an operator training program will no longer need to be maintained.

Air

The following activities associated with the ITR commonly contribute to air emissions:

1. Emergency Generators – RICE NESHEP, 40 CFR 63 ZZZZ
2. Boilers
3. Leaking Underground Storage Tank (LUST) remediation activities
    - As a condition of the lease, all LUST activities are the responsibility of the IFA, owner of the toll road
4. Maintenance Facility Activities: used oil storage, parts washers, etc.
5. Wastewater treatment activities
6. Fueling stations

The National Emission Standards for Hazardous Air Pollutants (NESHAP) for Source Category: Gasoline Dispensing Facilities, 40 CFR 63 Subpart CCCCCC was published on January 10, 2008 in the Federal Register. It applies to all existing and new gasoline dispensing facilities (GDF) that are not otherwise covered by a major source permit. Notification for GDF with a throughput of greater than 10,000 gallons per month was completed in 2010. Compliance with the standard which includes recordkeeping and possible retrofits was achieved by January 10, 2011.

Parts washers were observed to be closed when not in use. An initiative is underway to change the current solvent used by the parts washers from DynaClean, a solvent used to remove grease, to a solvent with lower flammability and hazardous properties. This practice is highly recommended. As each washer runs out of DynaClean, the solvent will be changed out.

Refrigerants

Refrigerant storage, recycling and disposal is regulated under 40 CFR 82 *Protection of Stratospheric Ozone*. Storage of units with refrigerant still in them brings the risk of the refrigerant leaking into the atmosphere resulting in an adverse environmental impact and possible EPA violation (40 CFR 82.154 (a) (1) - (2)). The refrigerant in each air conditioner must be evacuated by a State of Indiana certified Air Conditioning Technician unless the appliance has five pounds or less of a Class I or Class II substance used as a refrigerant. Proof of the evacuations for all of the air conditioners must be maintained. Once an invoice is received for the recycling/incineration, no further recordkeeping is required. Currently, the ITRCC has State Certified Air Conditioning Technicians in its employment.

Asbestos

Due to the age of the facilities, many of them built in 1956, asbestos may be present. Prior to demolition or remodeling, a review for the presence of asbestos should be performed. Asbestos studies for ITRCC buildings have been completed and reports are on file.

Herbicides and Pesticides

The pesticides and herbicides being used on the ITR contain chemicals that are available to the general population for home use. Every attempt is made to purchase only what is needed to avoid excess storage. ITRCC endeavors to follow the proper storage, application and use of personal protective equipment when handling all herbicides and pesticides in accordance with manufacturer's regulations and the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). The ITRCC currently has six registered technicians that are able to apply chemicals for the purpose of right-of-way management along the ITR.

Storm Water Management

Considerations for storm water quality best management practices include maintaining closed dumpsters for trash and steel recycling and better management of areas surrounding salt domes, including removal of spilled salt, and improved management of stockpiled borrow materials.

In 2017 the salt dome located at the Elkhart maintenance facility incurred storm damage to the roof which allowed precipitation to wash out some salt onto the adjacent pavement and become exposed to storm water. This salt dome has now been demolished and removed and construction of a new salt dome is nearly complete. In addition, a new salt dome is also under construction at the 4N site (MM 72) and is anticipated to be fully operational in 2019.

During 2017-2018, ITRCC made significant repairs to existing salt domes that had exhibited deteriorating conditions including newly constructed roofs. The salt dome at mile post 72 was re-built and new roofs were completed at salt domes at mile posts 156 and at the Lake Maintenance facility. It is recommended that ITRCC continue to monitor and evaluate the integrity of the salt domes and repair or replace as necessary to maintain salt under proper cover and minimize the potential for salt impacts to storm water or surrounding property.

The ITR's facilities and operations are covered by INDOT's Municipal Separate Storm Sewer System (MS4) permit. Inspections of the ITR by IDEM in 2019 identified deficiencies with regards to their MS4 permit requirements. The ITR has communicated with IDEM and INDOT and committed to correcting the deficiencies and has engaged a consultant to assist with this task. ITR is currently developing Storm water Pollution Prevention Plans (SWPPPs), documenting current storm water infrastructure and existing BMPs, and implementing public outreach and education initiatives to comply with existing MS4 permit requirements. ITR has committed to making storm water compliance a focus of their environmental program for the remainder of 2019 and 2020.

Other Point Source Discharges

The ITRCC currently does not maintain NPDES permits for their five (5) vehicle maintenance facilities because there are no storm water discharges to "Waters of the State" as defined in the NPDES regulations (most recent update October 2015).

Indiana Rule 6 (see 327 IAC 15-6-2) outlines the types of facilities that are required to have NPDES permits based on Standard Industrial Classification (SIC) code. The ITRCC is operating their vehicle maintenance facilities under the code 4173, *Terminal and Service Facilities for Motor Vehicle Passenger Transportation*. According to Indiana Rule 6, facilities with SIC Code 4173 must have a NPDES permit for discharging storm water associated with industrial activity. Facilities with this SIC code may only discharge storm water without a permit if they do not have any industrial activities exposed to storm water, and submit a signed certification to IDEM stating this.

Each maintenance facility with exception of the Porter Maintenance (MP 23.5), discharges water used within the covered maintenance areas through a floor drain system to an oil-water separator and then to an on-site leach field. Storm water that falls on outdoor areas used for storage and parking is conveyed by overland flow to open storm water conveyance. ITRCC has determined that there is no discharge to waters of the state that would require an NPDES permit at the four maintenance facilities.

The Calumet Entry MP 5 parking lot is currently leased as a way station to multiple shipping companies. Several of these tenants have and use small drums (10-30 gallons) of grease for use with semi-trailers at the lot. In order to ensure that pollutants are not discharged to Indiana State Waters, appropriate measures must be taken to prevent exposure of these materials to rain, snow, snow melt, and runoff. In accordance with the Code of Federal Regulations (40 CFR 122.26), a "no exposure" exclusion may be obtained in lieu of an NPDES permit if these products are stored in a storm resistant shelter. If drums are tightly sealed without operational taps or valves and do not leak, no storm resistant shelter is required.

During the inspection of the MP5 parking lot, most of the tenants were observed to be using storm resistant shelters for storage of the small grease drums. It is recommended that ITRCC continue to encourage this practice and periodically remind the tenants of this requirement.

Community Right-to-Know

Under the Superfund Amendments and Reauthorization Act (SARA), Tier II Emergency and Hazardous Chemical Inventory forms are submitted by March 1 of each year to IDEM, local fire departments, and Local Emergency Planning Committees (LEPC). The ITRCC has continued to comply with this requirement.

MP	Location	Forms Submitted to Local Emergency Planning Committees
153	East Point Toll Plaza	Completed
137	Steuben Maintenance	Completed
56	Travel Plaza 7 WWTP	Completed
114	LaGrange Maintenance	Completed
99	Salt Storage MP - 99 WB	Completed
72.9	4N Maintenance Storage Building	Completed
52	LaPorte Maintenance	Completed
37.5 E	2 South Salt Storage Area	Completed
23	Porter Maintenance	Completed
4.6	Lake Maintenance	Completed

Table 7.9: Community Right-to-Know Hazardous Chemical Inventory Forms

A Toxic Release Inventory (TRI or Form R) is not required because the ITRCC does not fall under an SIC code covered by the regulation (40 CFR 372).

Materials Management

The ITRCC stores and stockpiles many materials inside and outside throughout the entire length of the ITR. These materials include, but are not limited to:

1. Petroleum products
2. Scrap metal (empty used drums, tanks, damaged guardrail, old sign trusses, road signage, etc.)
3. Cement
4. Cold patch
5. Recycle material (ground up asphalt pavement)
6. Brush, wood, untreated lumber, wooden pallets
7. Plastic, corrugated metal, and concrete reinforced piping
8. Concrete culvert boxes and manhole rings
9. Obsolete machinery
10. Construction materials for reuse, abandoned by contractors or considered waste
11. Old tires
12. Road sweepings
13. Pavement markers
14. Sand, stone, riprap, and other fill materials
15. Deer/Animal carcass and sawdust
16. Old limestone
17. Impact attenuators

Outdoor, uncovered storage of the above-listed items could contribute pollutants to storm water runoff. Removing or reducing the amount of stockpiled materials will reduce the potential of these sites being designated solid waste disposal facilities. Much of the stockpiled material is surplus and is not being stored for future use.

Best management practices of surplus materials include:

- Sell or recycling or disposal of materials that will not be used by the ITRCC. Please note that there is a significant amount of scrap metal including steel, aluminum and electronic materials that has monetary value.
- Conduct an inventory of the materials that may likely be used. This inventory will prevent the purchase of materials that are already on-site and will increase the chance that the materials may be used before their useful life has expired.
- Mark the locations and extents of allowed storage. Particular attention should be made for mislabeled containers. Find indoor storage or hard surface with tarping whenever possible of materials that may release pollutants to runoff. Protect stockpiled materials, including closing open dumpsters, from wind erosion.
- Require contractors to use specified lay down areas. Include requirements in standard conditions of construction contracts for the contractor to remove all construction materials including pipe, casting, prefabricated concrete castings, etc. prior to closing out a job (paying the retainage) unless otherwise approved by the ITRCC.

Regulatory Compliance

Numerous State and Federal environmental regulations continue to be promulgated regarding such topics as underground fueling systems, wastewater effluent discharge limits, potable water quality, hazardous waste disposal, air quality, storm water quality, groundwater protection, industrial hygiene, and other related topics. Environmental inspection and enforcement are expected to increase. ITRCC has already seen an increase in IDEM inspections. It is expected that the permit burden on the ITRCC will not decrease in the foreseeable future.

Volume III of III, Environmental Management Manual of the *Concession and Lease Agreement for the Indiana Toll Road* defines a scope of work for an Environmental Management Plan to ensure that ITRCC has considered, trained, addressed, and planned for situations that could be deemed as creating an endangerment to human health or the environment within or adjacent to the ITR. This Plan has been generated and will be reviewed and revised on an annual basis. The report should be reviewed by all ITRCC to find opportunities for continuous improvement.

Additional Initiatives

ITRCC has continued to show initiative in developing programs to encourage protecting the environment and natural resources. Key among recent initiatives is the formation of an ambitious Environmental Social Governance (ESG) program within the ITRCC. This program demonstrates ITRCC's commitment to environmental sustainability and corporate social responsibility. Within the ESG program, key initiatives and goals have been developed to further ITRCC's environmental excellence. These include, among others:

- Carbon reduction/offset program, including planting of 800 trees (with 300 more in 2018) and fleet replacement initiative
- LED lighting upgrade/replacements
- Diesel UST to natural gas conversion for generators
- Electric plug in stations at commuter lots and Sonoco stations
- Recycle roadway rubber/purchase grinder equipment for use as weed control at buildings and guardrail
- Convert overhead Cobra lights from electrical grid to powered by solar
- Develop formal recycling program
- Begin fuel storage dependency through Sunoco Fleet Card partnership
- Explore partnership with US Fish & Wildlife for native planting to reduce carbon emissions due to roadside mowing
- Wind turbine installation for powering dynamic message sign
- Construction of a new gold LEED certified Administration Building with associated solar farm

ITRCC has established a vision and culture that continues to look for improvement in environmental practices with established goals of increasing staff engagement and operational excellence. Many projects are underway with more anticipated to start during the next year. Progress towards these goals will be reviewed annually.

8: CAPITAL IMPROVEMENT PROGRAM REPORT

CAPITAL IMPROVEMENT PROGRAM REPORT

In accordance with the Amended and Restated Concession Lease Agreement ("**CLA**" or "**Concession Lease Agreement**"), ITRCC is required to complete a 10-year Capital Improvement Program ("**CIP**") Report annually for submission to the Indiana Finance Authority (the "**IFA**"). The purpose of this report is to briefly describe the condition of the ITR infrastructure, present the procedures used to assess the condition of the infrastructure, present findings as to the condition of the infrastructure, and to define the anticipated capital improvements needed which culminate in the presentation of a 10-year CIP for the period 2018 to 2028, contained herein.

Primarily, the report focuses on four major areas of the ITR infrastructure, where capital expenditure is planned, and are included as required reports by the CLA (Volume II, Section J.2.3., Page 96). These four areas are:

1. Bridge and Structure
2. Roadway Components and Elements
3. Facilities
4. Environmental Items

Planned Capital Improvement Work

The following is a description of the planned major capital projects. The below information details the highlights of each of these projects.

Major Project Highlight: PUSH Phase II Project

The PUSH 2.0 Project, currently in construction, contains an approximate value of $66,000,000. PUSH 2.0 is a major rehabilitation and upgrade of a 10-mile section of the Indiana Toll Road. PUSH 2.0 is scheduled to be completed in November 2019 and has been executed as a Design Build contract; which incorporates the successes of the initial PUSH project. The abbreviated scope of the project is as follows:

- Pavement rehabilitation of the entire mainline of I-90 from ITR MM 0 to 10. The mainline pavement was crack and seated with a new 5" asphalt overlay. All shoulders received a 1.5"asphalt resurface. At the bridge approaches and interchanges, the pavement received a full depth replacement or complete reconstruction to maintain the existing vertical profile grade.
- Pavement rehabilitation, to areas receiving notable deficiencies, from ITR MM 10 to MM 20 received a 1.5" asphalt resurface and pavement markings.
- Bridge rehabilitation includes 16 bridge locations based off the 65 year Capital Improvement Plan/Program. All 16 structures received complete deck replacements. The DBT will also provide a minimum performance criteria for meeting NBIS Ratings, Sufficiency Ratings, Service Life, Inventory Ratings, and Friction Numbers.

Major Project Highlight: PUSH Phase III and IV Projects

The PUSH III and IV projects will look to continue the success of PUSH I and 2.0 with a major rehabilitation of pavement and bridges from ITR MM 93 to MM 156. These projects will again focus on performance based criteria for the pavement and structures but also look to introduce a design-bid-build approach. PUSH III is currently being scheduled to begin the scoping phase of the project in late 2019 with design beginning in spring 2020. PUSH III will look to have a construction delivery date in 2021. PUSH IV will look to beginning its scoping in 2022. The estimated budget for PUSH III and PUSH IV is a combined $175,000,000 which will be subject to their respective scoping exercises.

Major Project Highlight: Intelligent Transportation System ("ITS") Along the ITR

The ITS project contains an approximate total value of $36,000,000. The project began in the spring of 2017 ($8,000,000 previously spent in FY 2017) and is scheduled to be completed by the fall of 2020. The abbreviated scope of the project includes the following:

- ITS devices include Dynamic Message Signs ("**DMS**"), Pan-Tilt-Zoom Closed Circuit Television ("**CCTV**"), Automatic Incident Detection ("**AID**"), Wrong Way Driver Detection System ("WWDS") and Variable Speed Limit Signage ("**VSL**"). VSL signs shall be collocated and integrated on each DMS board.

The Project is designed and delivered as a turn-key project to include:

- Complete fiber optic cable across the ITR for internal operational use;
- All geotechnical work required to construct and deploy structures used to mount DMS and CCTV equipment;
- All structural design of DMS gantries and CCTV poles;
- Individual site build out: cabinets, switches, guardrail protection;
- All procurement activities to complete the project;
- CCTV, DMS and VSL specifications;
- ATMS design, procurement and installation;
- Systems integrations, testing and validation;
- Recommendations, procurement and installation to upgrade workstations within the ITRCC Control Center (TMC) to accommodate an ITS environment;
- Training of ITRCC operational staff on all ITS deployments as well as ATMS reporting capabilities;
- Delivery of documentation and manuals relative to training, deployed devices and warranties;
- Technology designed to detect, warn and report wrong-way drivers.

Major Project Highlight: Truck Parking Lots

The Truck Parking Lot project, which began in 2018 and is scheduled to be completed in 2021, has an approximate value of $7,000,000. The scope of the project has involved repaving and striping to deliver an increase in overall parking capacity. Additionally, ITRCC has begun the scoping phase to deploy smart truck parking technology across the ITR. Once deployed, the technology will provide commercial customers with advanced informational guidance on vacant parking spots to better coordinate their trip across the Indiana Toll Road.

Total CIP Schedule of Values

The following table summarizes the value of the planned capital improvement work including the major projects highlighted above, the Building/Roadway/Lighting CIP (See Appendix 8 for detailed breakdown) and the Bridge and Structure CIP (See Appendix 8 for detailed breakdown) for the period 2019 thru 2029. In total, and based upon the work detailed by this report, ITRCC has scheduled an estimated total value of $355,757,627 for the CIP works for next 10-year period.

Projects	Total Costs
80/90 PUSH 2.0 Project	$66,000,000
80/90 PUSH 3.0 & 4.0 Projects	$175,000,000
Intelligent Transportation System	$36,000,000
Truck Parking Lots and Technology	$7,000,000
Building/Roadway/Lighting CIP	$52,856,091
Bridges CIP	$19,901,536
2019-2029 Total CIP	**$356,757,627**

Total Capital Improvement Program (CIP) Schedule of Values 2019 to 2029