



indiana
TOLL ROAD



January 2022 to December 2022

ANNUAL STATE OF THE ITR REPORT

PREFACE

This 2022 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 nearly \$1 billion in infrastructure, technology upgrades, and road-safety investments, such as the completion of the fiber optic network across the ITR and the Intelligent Transportation System (“**ITS**”), delivering major rehabilitation projects to pavement, highway bridges, and travel plazas.

In 2019, the Indiana Finance Authority (“**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 for the calendar year of 2022.

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 the 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. Chris Norvell, Director of Operations

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

Listing of Project Personnel

Scot Spoljaric, PE

LOCHNER

- *Project Manager*
- *NBIS Routine Team Leader*
- *High Mast / Sign Structure Team Leader*
- *Fracture Critical Team Leader*

Eric Bechinske, PE

LOCHNER

- *NBIS Routine Team Leader*
- *Fracture Critical Team Leader*
- *QA/QC Review*

Caitlyn Miranda

LOCHNER

- *Document Control*
- *Documents Editor*

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ARA

- *Roadway Inspection Team Leader*

Rajiv Huria, PE

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- *NBIS Underwater Team Leader*

John T. Voorhees, P.G.

Cardno

- *Environmental Inspection Team Leader*



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1: EXECUTIVE SUMMARY

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 – January 1, 2022 to December 31st, 2022* to the Indiana Finance Authority (the “IFA”). The report primarily 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

The ITRCC is responsible for 333 bridges. Each bridge is inspected every two years. The 2022 report contains ratings collected in 2021. The next round of routine bridge inspections will be completed in 2023. 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 **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 in 2022, per the INDOT and FHA 2-year frequency. The bridge information within this report contains information provided by the 2021 routine 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. In addition to this data Lochner completed the fracture critical and special detail inspections required per the CLA for the 2022 year. The information provided contains exact language used in the submitted fractural critical and special detail reports.

The average sufficiency rating is listed in **Table 1.2: Average Bridge Sufficiency Ratings and Percent Deficiencies of Elements for 2022**, which has been updated with current sufficiency rating data available from NBIS. This table represents all 333 bridges currently within the ITRCC network.

The 2022 inspections for the state of the ITR structures have maintained relatively consistent with the 2021 inspection data. A lower deficiency rating has been reported for the Wearing Surface, while ratings for the Deck, Paint, Superstructure, and Substructure have remained the same. PUSH 3.0 was delivered in 2021 and included six bridge deck replacements with bridge widening, two bridge deck overlays, nine structures with substructure patching and joint replacement, and bridge paintings on multiple structures.

2022 ITR Bridge Conditions			
	Def. Rating	Avg. Suff. Rating	% Def.
Wearing Surface	<= 5	87.37	7.81%
Deck	<= 5		4.80%
Paint	<= 5		13.81%
Superstructure	<= 4		1.80%
Substructure	<= 4		0.60%

Table 1.2: Average Bridge Sufficiency Rating and Percent Deficiencies of Elements for 2022

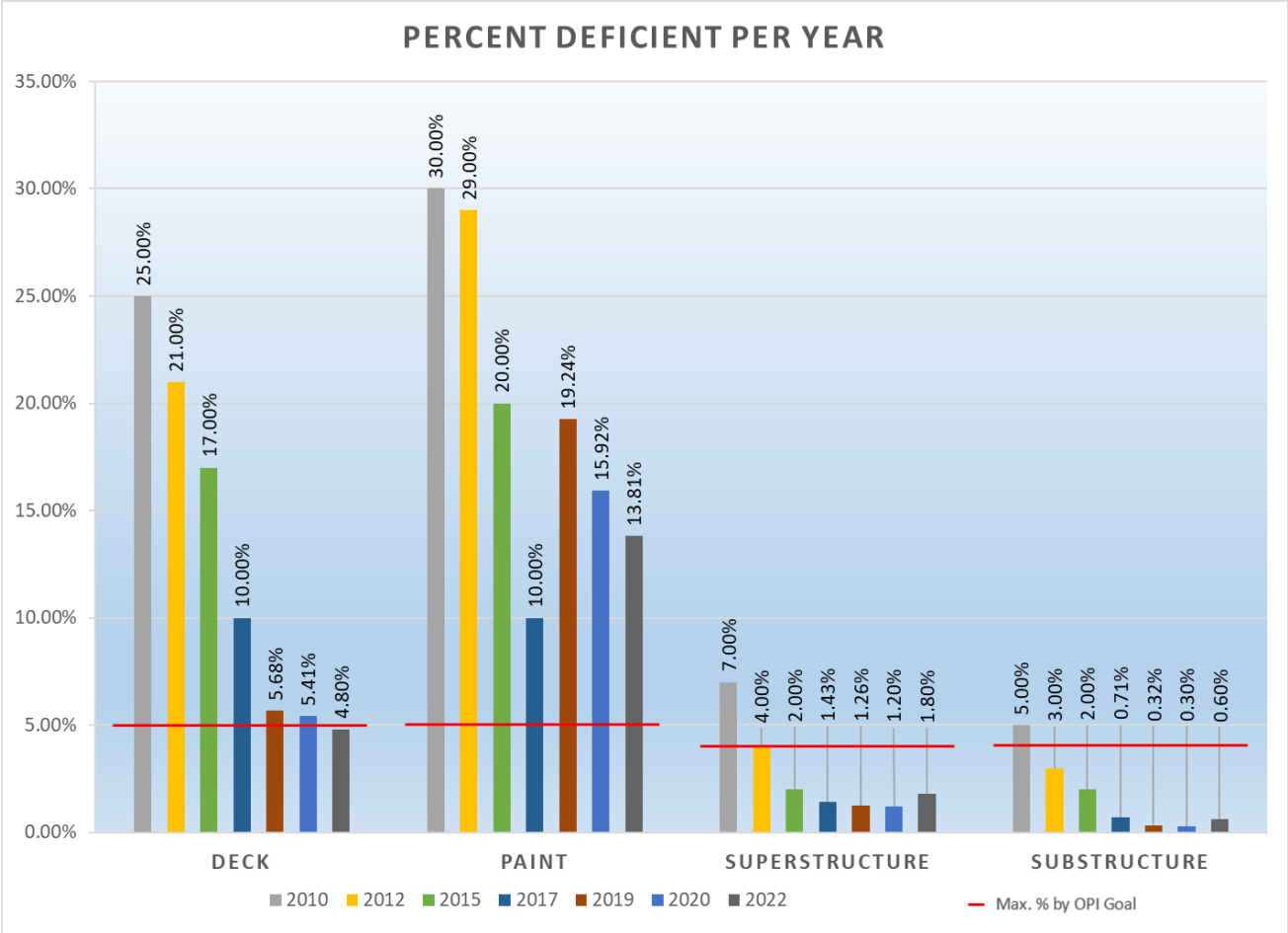


Figure 1.1: Bridge Condition Ratings

Roadway Condition Report Summary

Overview of Pavement Lease Requirements and OPI Measures

The CLA establishes three main pavement criteria that the 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, Inc. 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 the week of April 25th through the 27th of 2022 by Applied Research Associates, Inc. and are further summarized in the field report named “*Pavement Condition Inspection for the Indiana Toll Road,*” dated September 29th, 2022.

As of 2017, per requirements of 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. With this change, the 2017 data is represented as the new starting benchmark throughout this report.

Additionally, this change has been incorporated into the ITR’s asset management system creating individual asset identification for each tenth mile section. These assets are updated annually with the roadway condition data creating a visual GIS view of the ITR’s condition. This process is instrumental in the planning process for future rehabilitation, replacement, and annual maintenance.

Table 1.3: Pavement Condition Measurement Summary illustrates the measurements for IRI and RUT assessments along the length of the ITR.

Measurement	Interval of Data Accrument	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
2019 IRI	one-tenth mile	< 150	71.90	N/A	N/A	< 190	163
2020 IRI	one-tenth mile	< 150	69.95	N/A	N/A	< 190	137
2021 IRI	one-tenth mile	< 150	72.00	N/A	N/A	< 190	171
2022 IRI	one-tenth mile	< 150	64.50	N/A	N/A	< 190	153
2019 RUT	one-tenth mile	N/A	0.0340	N/A	N/A	< 0.625 inch	0
2020 RUT	one-tenth mile	N/A	0.0557	N/A	N/A	< 0.625 inch	0
2021 RUT	one-tenth mile	N/A	0.0649	N/A	N/A	< 0.625 inch	0
2022 RUT	one-tenth mile	N/A	0.0731	N/A	N/A	< 0.625 inch	0

Table 1.3: 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 1.4: PQI Rating Percentages for Mainline**, **Table 1.5: Toll Plaza Ramp Conditions**, and **Table 1.6: Travel Plaza Ramp Conditions**. The rating range for PQI to be considered “Excellent” is between 90-100, which means that the 2022 pavement ratings remain in overall excellent condition.

ITR MAINLINE PQI						
Category	2017	2018	2019	2020	2021	2022
Average PQI	92.1	89.9	88.2	90.6	90.0	91.6

Table 1.4: PQI Rating Percentages for Mainline

Toll Plaza	MP	2017 Condition	2018 Condition	2019 Condition	2020 Condition	2021 Condition	2022 Condition
Indianapolis Boulevard	0	Fair	Fair	Excellent	Excellent	Excellent	Good
Westpoint	1	Good	Fair	Excellent	Excellent	Excellent	Good
S.R. 912	3	Fair	Fair	Excellent	Excellent	Excellent	Good
Calumet Ave. (EB Entr.)	5	Poor	Poor	Excellent	Excellent	Excellent	Good
Calumet Ave. (WB Exit)	5	Poor	Poor	Excellent	Excellent	Excellent	Good
Cline Avenue	10	Poor	Poor	Excellent	Excellent	Excellent	Good
Gary West	14A	Poor	Poor	Poor	Poor	Poor	Poor*
Broadway	14B	Fair	Fair	Fair	Fair	Fair	Fair
Gary East	17	Fair	Fair	Fair	Poor	Poor	Poor*
Lake Station	21	Excellent	Excellent	Good	Good	Good	Good
Portage	23	Excellent	Excellent	Good	Good	Good	Good
Mainline Barrier	24	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Valparaiso-Chesterton	31	Excellent	Good	Good	Good	Good	Good
Michigan City	39	Excellent	Good	Good	Good	Good	Good
LaPorte	49	Excellent	Good	Good	Good	Good	Good
South Bend West	72	Excellent	Excellent	Good	Good	Good	Good
South Bend-Notre Dame	77	Good	Excellent	Good	Good	Good	Good
Mishawaka	83	Excellent	Good	Good	Good	Good	Good
Elkhart	92	Good	Good	Good	Good	Good	Good
Elkhart East	96	Fair	Fair	Fair	Fair	Good	Good
Bristol	101	Fair	Fair	Fair	Fair	Excellent	Excellent
Middlebury	107	Fair	Fair	Fair	Fair	Excellent	Excellent
Howe-LaGrange	121	Fair	Fair	Fair	Fair	Excellent	Excellent
Angola	144	Fair	Fair	Fair	Fair	Good	Fair
Eastpoint	153	Poor	Fair	Poor	Poor	Good	Fair

Table 1.5: Toll Plaza Ramp Conditions

*NOTE: The ITRCC has budgeted for the necessary improvements at the Gary West and Gary East ramps to improve the “poor” rating. In 2024 all ramps from MP 10-20 will be repaved.

Travel Plaza	MP	2017 General Condition	2018 General Condition	2019 General Condition	2020 General Condition	2021 General Condition	2022 General Condition
Eastbound							
TRP - 1S	21.7	Excellent	Excellent	Good	Good	Excellent	Excellent
TRP - 2S (Trucks only)	37.5	Poor	Poor	Excellent	Good	Good	Good
TRP - 3S	55.9	Under Const.	Excellent	Good	Good	Good	Good
TRP - 5S	90	Poor	Under Const.	Excellent	Good	Excellent	Excellent
TRP - 6S (Trucks only)	108	Poor	Poor	Under Const.	N/A - Under Const.	N/A - Under Const.	Fair
TRP - 7S	125.8	Excellent	Excellent	Good	Good	Good	Good
TRP - 8S	145.7	Closed	Closed	Closed	Closed	Closed	Closed
Westbound							
TRP - 1N	21.7	Excellent	Excellent	Good	Good	Excellent	Excellent
TRP - 2N (Trucks only)	37.5	Poor	Poor	Excellent	Good	Good	Good
TRP - 3N	55.9	Under Const.	Excellent	Good	Good	Good	Good
TRP - 5N	90	Poor	Under Const.	Excellent	Good	Excellent	Excellent
TRP - 6N (Trucks only)	108	Poor	Poor	Under Const.	N/A - Under Const.	N/A - Under Const.	Fair
TRP - 7N	125.8	Excellent	Excellent	Good	Good	Good	Good
TRP - 8N	145.7	Closed	Closed	Closed	Closed	Closed	Closed

Table 1.6: Travel Plaza Ramp Conditions

*Note: Sections of TRP-6S and N have sections of the parking lots closed off for use and are in the process of receiving subgrade treatment designs. These subgrade treatments will increase the stability of the pavement in order to sustain a longer life due to the high loads placed on them during overnight parking. The sections of the parking lots that were open for use are in fair condition.

MAINTENANCE ITEMS REPORT SUMMARY

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

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

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 added in-lay pavement markings to all three PUSH contracts (2017-2021). This addition has resulted in an increased OPI score for pavement markings.

OPI Measures	Toll Plaza Maintenance Item Deficiencies			
	2022			
	Deficiencies	Def/Ramp	OPI Goal	OPI Rating
Guardrail Deficiency	3	0.070	>=4	6
Pavement Deficiency	7	0.163	>=4	6
Vegetation Obstruction	0	0.000	>=4	6
Litter	1	0.023	>=4	6
Drainage Obstruction	0	0.000	>=4	6
Sign deficiency	6	0.140	>=4	6
Pavement Marking Deficiency	0	0.000	>=4	6
Fence Deficiency	1	0.023	>=4	6

Table 1.7: Toll Plaza Ramp Maintenance Items for ITR

OPI Measures	Travel Plaza Maintenance Item Deficiencies			
	2022			
	Deficiencies	Def/Plaza	OPI Goal	OPI Rating
Guardrail Deficiency	0	0.000	>=4	6
Pavement Deficiency	5	0.500	>=4	4
Vegetation Obstruction	0	0.000	>=4	6
Litter	21	2.100	>=4	6
Drainage Obstruction	0	0.000	>=4	6
Sign deficiency	0	0.000	>=4	6
Pavement Marking Deficiency	0	0.000	>=4	6
Fence Deficiency	3	0.300	>=4	5

Table 1.8: Travel Plaza Maintenance Items for ITR

OPI Measures	Mainline Maintenance Item Deficiencies			
	2022			
	Deficiencies	Def/mile	OPI Goal	OPI Rating
Guardrail Deficiency	19	0.121	>=4	6
Pavement Deficiency	32	0.204	>=4	5
Vegetation Obstruction	7	0.045	>=4	4
Litter	2	0.013	>=4	6
Drainage Obstruction	1	0.006	>=4	6
Sign deficiency	18	0.115	>=4	6
Pavement Marking Deficiency	4	0.026	>=4	6
Fence Deficiency	1	0.006	>=4	6

Table 1.9: 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 September 2022, Group D facilities were inspected. Conditions of the facilities can be found in **Part B: Facilities Condition State** section of this report with a breakdown of all building inspections in Appendix H. Buildings that were scheduled to be decommissioned and demolished were not inspected.

It should be noted that since these structures were last inspected in 2018, many of the repairs and recommendations were completed. The inspections noted that the ITRCC made substantial upgrades to the cosmetic and structural concerns. Furthermore, the ITRCC has budgeted and programmed a comprehensive facility repair and upgraded plan to address both structure, cosmetic, and aesthetic repairs to many additional structures that were not inspected in 2022. These repairs are reflected in the capital improvement section.

Treatment Plants and Other Environmental Issues Report Summary

Environmental Facilities

During the 2022 inspection, most of the 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 September 01-02, 2022. A detailed technical explanation is outlined in the bridge **Part B: Treatment Plants and Other Environmental Issues Report**.

In 2017-2020 the ITRCC went through the process of decommissioning its treatment plants and accessing the use of the local municipalities. Therefore, future Annual State of the ITR reports will no longer report on the treatment plants’ status, since the ITRCC no longer has any 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.

ITRCC has formally established a pathway to reduce carbon emissions by 50% by 2030, with an additional commitment of achieving carbon neutrality by 2050. The ambitious carbon reductions goals set forth by ITRCC focus on “Scope 1” and “Scope 2” emissions. These categories encompass emissions directly related to the ITRCC, such as vehicles and equipment, and indirect emissions from ownership and operations, such as electricity usage. These reductions align with the sustainability priorities of experts around the globe and the climate change targets established within the Paris Agreement. In support of these goals, ITRCC has been admitted to the Science Based Targets initiative, a global effort designed to define and promote best practices in emission reductions and net-zero targets. This partnership allows for collaboration with global sustainability experts who will independently assess and validate ITRCC’s targets, ensuring the goals are achieved.

A variety of projects and carbon-reduction efforts will support progress against these goals. Technology advances have made electric charging a possibility for passenger vehicles, and ITRCC is actively investing in the ongoing transition and electrification of the vehicles used for operations and maintenance on the Toll Road. The ITRCC is also further improving the efficiencies of electricity and natural gas usage in ITRCC buildings by reducing passive carbon waste generated because of older designs. The ITRCC is undertaking a project in 2023 that will deploy solar panels at 18 facilities across the ITR, aligning with the 2030 objective stated above.

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, the 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 for all future reports.

Projects	Total Costs
80/90 PUSH 4.0 & 5.0 Projects	\$150,000,000
Roadway Pavement CIP	\$72,144,615
Building/Roadway/Lighting CIP	\$166,900,000
State Line & Exit 10 Bridge Projects	\$75,033,526
Bridges CIP	\$244,949,377
2022-2032 Total CIP	\$709,027,518

Total Capital Improvement Program (CIP) Schedule of Values 2022 to 2032

In 2021, ITRCC completed a reevaluation of the 60-year capital improvement program for all bridge and roadway assets. Using the 2021-2022 bridge inspection data, the PUSH projects expenditures, and the advanced asset planning system of VUEWorks, a new budget and plan will be generated. This new Capital Expenditure (“CapEx”) plan will help to forecast the remaining costs for the ITR’s primary assets while reducing the number of deficiencies and further increasing the overall condition of the ITR.

VUEWorks Integration

The ITR has continued to utilize its asset management system (VUEWorks) to optimize its operational and capital expenditures budgets. To date, the ITR has incorporated all their assets into the system. 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. This incorporation operates with GIS layers, condition reports, and work order assignments per each asset. The system has become fully integrated into the field inspection process administered through Lochner.



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 operations, 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 \$1 billion in projects such as PUSH I, PUSH 2.0, and PUSH 3.0 that have been invested in capital improvements since 2015 delivering material improvements to pavement, bridges, travel plazas, and roadway safety.

Additionally, ITRCC has delivered on its commitments to the State of Indiana by investing an additional \$50 million in projects directly linked to road safety, including phase 2 of the Intelligent Transportation System (“ITS”), completion of the fiber optic network across the ITR, electric parking stations, wrong-way driver detection and alert system, and smart truck parking.



3: BRIDGE AND STRUCTURE CONDITION REPORT

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 2021. All 333 bridge structures' current condition ratings are reflected within this 2022 report. Fracture critical, pin & hanger, steel pier cap, post-tensioned, and small structures inspections were performed in 2022 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

Per Federal, State, and Concession Lease Agreement regulations, a full routine bridge inspection program was completed in 2021. The 2021 NBIS Bridge Inspection Report is the result of visual observations and data obtained during field inspections performed by Lochner between July and September 2021 with conclusions based on relatively evident deficiencies. A full routine bridge inspection program will be repeated in 2023 per Federal, State, and Concession Lease Agreement regulations. During the 2021 inspection, 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 fieldwork 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 2022.

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 2022 by SJCA Engineers and will not require inspection again until 2027 inspection cycle.

Special Detail Inspections

Special Inspections are required for a total of 5 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" or post-tensioned structures inspections) for each of these structures in 2022.

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 scour as part of the routine NBIS inspections (NBI Condition Rating 113) and underwater inspections, if required. Scour inspections were last performed in 2021, 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 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 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 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 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 the 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.

Indiana Toll Road Bridge Road Conditions											
	Def. Rating	2006	2008	2010	2012	2015	2017	2019	2020	2022	2022 OPI RATING
Wearing Surface	<=5	N/A	23.00%	N/A	39.00%	13.00%	8.93%	7.26%	6.91%	7.81%	0
Deck	<=5	11.00%	19.00%	25.00%	21.00%	17.00%	10.00%	5.68%	5.41%	4.80%	0
Paint	<=5	17.00%	23.00%	30.00%	29.00%	20.00%	10.00%	19.24%	15.92%	13.81%	0
Superstructure	<=4	0.00%	1.00%	7.00%	4.00%	2.00%	1.43%	1.26%	1.20%	1.80%	4
Substructure	<=4	2.00%	4.00%	5.00%	3.00%	2.00%	0.71%	0.32%	0.30%	0.60%	6
Avg. Suff. Rating	N/A	N/A	86.2	85.9	83.8	85.6	87.38	87.56	87.23	87.37	NA

Table 3.1 2006-2022 Percent Deficiencies and 2022 OPI Rating

Bridge Condition Summary

Table 3.1: 2006-2022 Percent Deficiencies and 2022 OPI ratings depicts the change in percentages from year to year since the lease of the ITR. The 2022 percentages show a slight increase in deficiencies for Wearing Surface, Superstructure, and Substructure, and decreased deficiencies for Deck and Paint.

Figure 3.0: Bridge Condition Ratings illustrates that there has been an overall slight increase in deficiencies in several of the individual items compared to previous years. Decreases in deficiencies for Deck and Paint are due to the implementation of the PUSH projects and additional job order contracts. The three phases of PUSH have addressed over 25% of the structures within the ITR corridor.

Bridge Element Inspections were also completed on all ITR bridges in 2022, 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.

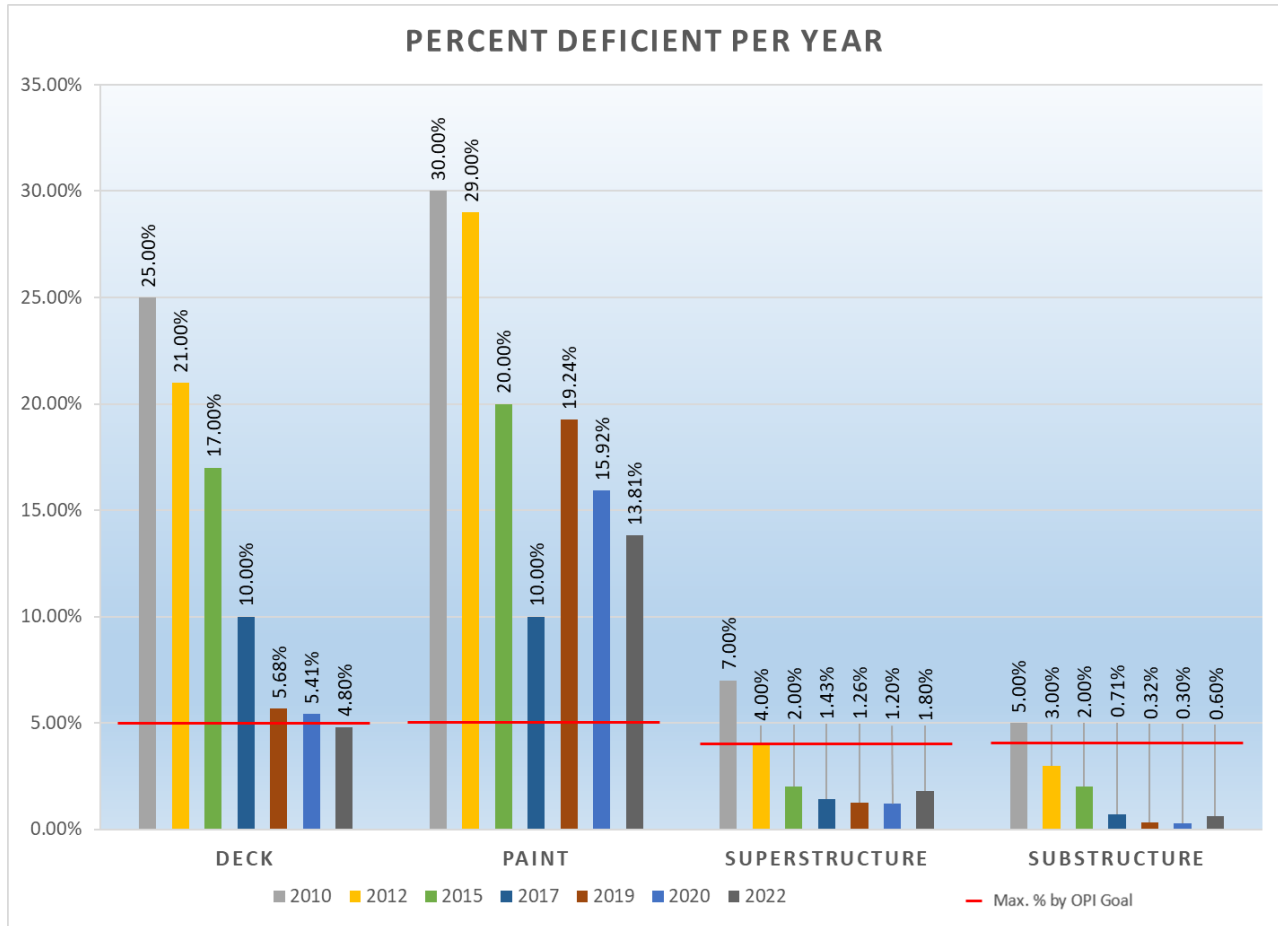


Figure 3.0: Bridge Condition Ratings

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.

All ITR structure condition ratings can be found in Appendix C on **Table 3.2: National Bridge Inventory (NBI) and Bridge Sufficiency Ratings for all Bridges on ITR.**

Fracture Critical Member Report (Summary)

Five bridge structures were inspected in 2022 as part of the most recent fracture critical inspection program completed during the Bridge Inspection Program. These structures include:

<u>Structure</u>	<u>No. Mile Point</u>	<u>Feature Intersected</u>
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 synopsis contains language directly used from the NBIS inspections summaries completed in 2022 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 on 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 2021 to locate potential defects such as cracks, section loss, pack rust, and damage.

The I90-45-01A-1 structure is approaching the end of the useful life of the overlay, deck, and bridge rail based on the anticipated original life of the structure and its current physical condition. Once the overlay and underlying deck reach a state of poor condition, the deck at a minimum will require replacement. At the end of the life of the overlay and deck, it is typical for deterioration to accelerate and the condition rating to rapidly drop as well. The structure contains many challenges due to its fracture critical design, age, and alignment. The overall path of rehabilitation is dependent on managing these issues within the overall scope of work for the structure.

The fracture critical steel cross-members are overall in poor condition. Several bents exhibit measurable section loss in positive and negative moment tension zones with active corrosion. This corrosion is caused by leaking joints and drain components, continual salt overspray exposure, and a marginally effective paint protective system. Per the 2013 load rating analysis, there is still ample capacity of the bents, even with the section loss, however since the rating was lowered last year it will receive an updated load rating in 2023. Future inspections will require continued monitoring for signs of additional active corrosion and section loss. Notable areas of concern and monitoring should be focused on the rivet heads. As the pack rust increases it will increase the deformation of the bottom flanges which can raise the probability of rivet heads becoming removed.

Blasting and painting of the steel is recommended within the next year, as well as repair or elimination of the joints and drainage components within a year to stop further deterioration. Regular power washing to remove debris and chlorides should then become part of the routine maintenance for this structure.

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.

The ITR has contracted a design firm to complete plans for rehabilitation of the structure to address the above-mentioned concerns. This project has issued a request for proposals from general contractors, and it is expected to be completed in 2023. The project is reflected in the CIP section under "State Line & Exit 10" project line item.

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 structure is in fair condition. The wearing surface has moderate scaling in the travel lanes and the deck underside has delamination with exposed rebar at various locations throughout. The strip seal joints need replacement due to the glands falling through. The non-fracture critical steel superstructure is in satisfactory condition with no issue visible on the bottom flange tapered cover plates. The concrete portions of the substructure have deteriorated in the vicinity of the widened areas. It is recommended that within the next 1 to 3 years that consideration be given to replacing the LMC overlay as well as rehabilitation/replacement of the joints.

The fracture critical steel cross members are all in fair condition. The steel piers exhibit moderate deterioration of the top flange between the double 72" plate girders, some deterioration due to active corrosion but most due to corrosion activities prior to the painting in 2013. Active rusting and minor corrosion on the bottom flanges and interior faces in both box girders and secondary members is common throughout. It is recommended that the fracture critical girders be blasted and painted within the next 1 to 2 years.

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. Annual repair and maintenance of the bridge joints is recommended to prevent leakage onto the superstructure below to help mitigate the corrosion progression.

The ITR has contracted a design firm to complete plans for rehabilitation of the structure to address the above-mentioned concerns. This project has issued a request for proposals from general contractors, and it is expected to be completed in 2023. The project is reflected in the CIP section under "State Line & Exit 10" project line item.

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 fracture critical riveted girders and floor beams are overall in fair condition. Previous corrosion exists on both structures, especially on the fascia girders, as well as pack rust between the bottom flange cover plates at several locations on the riveted girders. There is visible deformation/minor section loss on these girders that should be monitored annually. The floor beam end connections at the main girders should also continue to be monitored. The structure was completely blasted and painted in 2022. This new paint system will help to arrest the previous corrosion.

Regular power washing to remove debris and chlorides should become part of the routine maintenance for this structure. The inspection catwalk requires maintenance or removal before being used by an inspector for future inspections or maintenance.

Underwater Condition Report (Summary)

In 2022, underwater inspections were performed by SJCA engineers on the ten structures shown in the table below. The inspections assessed 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.

2022 Inspection Results

Structure No.	Mile Point	Sub	Chan.	Scour	Feature Intersected
5-2 EBL	6.56	7	8	8	Over Grand Calumet River (Roxana Dr.)
5-2 WBL	6.56	6	8	8	Over Grand Calumet River (Roxana Dr.)
10(02) WX	10.16	7	8	8	Over Grand Calumet River
10(03) EX	10.15	6*	8	8	Over Grand Calumet River
10(04) EN	10.05	7	8	8	Over Grand Calumet River
10(05) WN	10.05	7	8	8	Over Grand Calumet River
28-1 EBL	75.97	7	7	8	Over St. Joseph River
28-1 WBL	75.97	7	8	8	Over St. Joseph River
36-1 EBL	100.14	7	8	8	Over St. Joseph River
36-1 WBL	100.14	7	8	8	Over St. Joseph River

* Note: LEVEL III inspection is recommended

Structure 5-2 EB & WB

Overall, the in-water substructure units are in good condition. It is recommended to clean and patch the areas of spalled concrete. The channel bottom, spalls, and cracks should be monitored in future inspections.

In accordance with the National Bridge Inspection Standards (NBIS) and in consideration of the current condition of Indiana Toll Road Bridge 5-2 EB, 5-2 WB, it is recommended that the underwater inspection of this bridge continue to be performed at an interval not to exceed 60 months (5 years).

Structure 10-02

Overall, the in-water substructure units are in good condition. It is recommended to clean and patch the areas of spalled concrete. The channel bottom, spalls, and cracks should be monitored in future inspections. The steel encasements should be repaired to protect the concrete pile interiors.

In accordance with the National Bridge Inspection Standards (NBIS) and in consideration of the current condition of Indiana Toll Road Bridge 10-02, it is recommended that the underwater inspection of this bridge continue to be performed at an interval not to exceed 60 months (5 years).

Structure 10-03

Overall, the in-water substructure units are in satisfactory condition. The steel encased concrete piles should be repaired to protect the concrete pile interiors. In the interim, 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.

It is recommended to clean and patch the areas of spalled concrete. The deck drainpipe outlets should be relocated off the pile caps and shielding installed to protect against vehicle winter storm road salt splash. The channel bottom, spalls, delamination, cracks, and steel encased concrete piles should be monitored in future inspections.

In accordance with the National Bridge Inspection Standards (NBIS) and in consideration of the current condition of Indiana Toll Road Bridge 10-03, it is recommended that the underwater inspection of this bridge continue to be performed at an interval not to exceed 60 months (5 years).

Structures 10-04 & 10-05

Overall, the in-water substructure units are in good condition. The steel encasements should be repaired and fitted with anodes to protect the concrete pile interiors. It is recommended to clean and patch the areas of spalled concrete. The channel bottom, spalls, and cracks should be monitored in future inspections.

In accordance with the National Bridge Inspection Standards (NBIS) and in consideration of the current condition of Indiana Toll Road Bridge 10-05, it is recommended that the underwater inspection of this bridge continue to be performed at an interval not to exceed 60 months (5 years).

Structure 28-1 EB & WB

Overall, the in-water substructure units are in good condition. It is recommended to clean patch the areas of spalled concrete. It is recommended to remove the timber debris from Pier No.4 WB. The channel bottom, steel corrosion, concrete delamination, and cracks should be monitored in future inspections.

In accordance with the National Bridge Inspection Standards (NBIS) and in consideration of the current condition of Indiana Toll Road Bridge 28-1 EB & WB, it is recommended that the in-water elements of this bridge be inspected at intervals not to exceed 60 months.

Structure 36-1 EB & WB

Overall, the in-water substructure units are in good condition. It is recommended to patch the areas of spalled concrete near the steel icebreakers. The timber debris should be cleared from the substructure units as well as from the channel. The channel bottom,

concrete patches, and cracks should be monitored in future inspections.

In accordance with the National Bridge Inspection Standards (NBIS) and in consideration of the current condition of Indiana Toll Road Bridge 36-1 EB & WB, it is recommended the in-water elements of this bridge be inspected at intervals not to exceed 60 months.

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 pin & hanger assemblies inspected were found to be in satisfactory condition. Girder Line G1 of the West Joint of 5-2 WBL could not be inspected during the 2021 inspection cycle due to time restrictions of the Westbound Lane closure. The WBL and EBL structures were recently painted. The hands-on inspection did not reveal any areas measurable loss of section that had occurred since the previous paint or other any other issues of concern. The pins were inspected using ultrasonic testing for the 2021 inspection cycle and were previously ultrasonically inspected in 2012. The pins were only visually examined in the interim inspections. All of the pins’ surfaces exposed were fully cleaned and painted as part of the 2012 beam seat installation and again in 2016. With the installation of the beam seats for additional redundancy to the pin & hanger assemblies, visual inspection of the assemblies has been performed at a 24-month frequency, with UT inspection of the pin performed on an as needed basis. If considerable growth of corrosion is noted at or around the pin, a UT inspection should be performed. The installed catcher beams allow the pin and hanger system to no longer be considered a fracture critical structure because of the structural redundancy.

The 2021 inspection recorded 39 separate reflectors located near the shear plane above 20% screen height at the reference level. These indications were distributed through 25 of the 40 total pins on the WBL and EBL structures. Based on the screen height of these indications and the fact that none of the indications were corroborated by the normal beam probe suggest these pins are experiencing moderate corrosion of the pin surface with minimal section loss. No pin defects should be considered significant at this time

Because of the improvements noted above, the Special Feature Detail inspection frequency has been established at 24 months. Additionally, the UT inspection should continue to be performed on an as needed basis. If considerable growth of 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 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 to reduce overall deck cracking.

The 2022 post-tensioning system was again 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 2022 inspection, the 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. It is recommended that an updated in-depth inspection of the post-tensioned ducts be completed to check the integrity of the tension strands and the grout.

Bridges 32-6 EBL & WBL over County Road 7

Both structures consist of a continuous longitudinally post-tensioned reinforced concrete slab superstructure supported by reinforced concrete piers and abutments. Each structure has 28 post tensioning ducts, with each duct containing a tendon of (7) 12.7mm strands. 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 2022 inspections found that overall, the post tensioned deck slab appears to be in good condition. Both structures have tight longitudinal cracks that are sealed in the driving lanes. The crack sealant is intact but slowly wearing. Typical minor transverse cracks were also observed near the piers. There are locations where longitudinal cracks observed on the soffit and underside of spans have minor to moderate leeching showing efflorescence. Several epoxy chairs and localized honeycombing from the initial

construction were noted in previous reports on the underside of the EB structure. These locations were patched and have not worsened over time. The concrete bridge railing contains vertical full height cracking throughout. Cracking of the reinforced concrete approach slabs requires crack sealant.

Vertical full height cracking is present at third points on both faces of both piers. Debris with vegetation is found on the back side of both Piers which is holding moisture against the slope wall and pier wall. Pier 2 on the EB structure's reinforced concrete pier cap contains cracks on the north 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 2022 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 2021 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.

Additionally, the structure received full depth patching, a new overlay, new approaches, and new PCCP pavement under the PUSH 3.0 project. This rehabilitation will help to protect the fracture critical elements.

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 3.3: 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 3.4: 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
I90-71-030-3.5	47847	I-90	Main Street
I90-71-030-6.5	47867	I-90	SR331NB, Capital Avenue
I90-71-030-6.5	47868	I-90	SR331SB, Capital Avenue

Table 3.5: Bridge Structures Maintained by Others but Inspected by Toll Road

Major Capital 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 53 bridge structures. The project's bridge scope focused on rehabilitation and/or replacement of bridge structures along with the replacement of many 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, the ITRCC completed the PUSH 2.0 project. The project was successful in completing the rehabilitation of a 10-mile corridor section of the Indiana Toll Road from MM 0 to MM 10. Additionally, this project contained 16 bridges that received complete in-kind deck replacements with the addition of new PCCP approaches. Like the original PUSH project, PUSH 2.0’s success is reflected in the overall increase in condition ratings.

In 2021 the ITRCC completed the 30-mile-long PUSH 3.0 Project from Elkhart to Howe (MM93-MM123). The project included six bridge deck replacements with bridge widening, two bridge deck overlays, nine structures with substructure patching and joint replacement, and bridge paintings on multiple other structures.

In 2022, the ITR issued a request for proposals for the “State Line & Exit 10” CIP line item. This project is scheduled to begin construction in 2023 and will contain bridge deck replacements, deck overlays, deck patching, substructure patching, superstructure repairs and painting.

The following 18 structures are scheduled to be involved in the projects:

I90-45-01A-1	0.08	I90-45-10-07RR WBL	10.02
I90-45-1A3-1	0.1	I90-45-10-04EN	10.06
I90-45-1A3-2 EBL	0.34	I90-45-10-05WN	10.05
I90-45-1A3-2 WBL	0.34	I90-45-10-02WX	10.16
I90-45-001-3 EBL	1.56	I90-45-10-03EX	10.15
I90-45-001-3 WBL	1.56	I90-45-007-5 EBL	10.01
I90-45-10-01RR EBL	9.86	I90-45-007-5 WBL	10.01
I90-45-10-01RR WBL	9.86	I90-45-10-06ML EBL	10.2
I90-45-10-07RR EBL	10.02	I90-45-10-06ML WBL	10.2

Transferred and Decommissioned Structures

No bridges were transferred or decommissioned between the years of 2017 through 2022.

It is recommended that the ITRCC contact the owners of structure I90-45-07-1A to determine if there is any planned rehabilitation or demolition for the structure. The structure superstructure rating was lowered this year and it currently sits abandoned while still holding railroad ballast and rail. Future degradation of the superstructure could pose to be safety hazard to the ITR as it is its under record.

It is recommended that the ITRCC investigate the removal of structure PI90-45-009-8. The structure currently sits closed to traffic and is no longer in operation. The structure has concrete barricades permanently placed on either side of the structure preventing it from receiving any type of traffic. The structures superstructure was lowered this year making the structure categorized as structurally deficient.



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.

In 2021 the ITRCC completed the PUSH 3.0 project, which included the removal of all asphalt pavement, cracking and seating the original concrete pavement, and placing 5 inches of new HMA pavement for over 120 lane miles. All shoulders received a minimum of a 1.5" asphalt resurface. The project also included the resurfacing of exists 101, 107, and 121. Exit 96 received crack sealing of all the concrete joints, both transverse and longitudinal. As with the previous PUSH projects, a 7-year pavement warranty was included to ensure at project conclusion.

In 2022, as part of the ITRCC's annual Mill and Fill project, the ITRCC implemented a 1.5" mill and fill from ITR MM 0 to MM 20 and MM 123 to MM 157 to address various segments that contained pavement deterioration. This project received multiple locations of full depth patching and updated pavement markings.

Pavement Organizational Performance Index (POPI)

The pavement condition measurements that follow (except for the surface friction data) were procured in April 2022 by Applied Research Associates, Inc. (ARA) and provided to Lochner for use in developing the POPI. The 2022 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:

$$\text{PQI} = (10 * \text{PSI}) + (0.5 * \text{PCR}) - (25 * \text{RUT})$$

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

The rating ranges are as follows:

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

Considering the overall decrease in IRI and rutting values and the increase in PCR resulting from the completion of PUSH 3.0, it is expected the PQI would increase appropriately. As seen in **Table 4.1: Summary of Overall PQI Results by Lane**, the PQI in 2022 has indeed increased and is at the highest value since prior to 2018, indicating the Indiana Toll Road continues to be in good to excellent condition overall. The overall average increased from 90.0 to 91.6 with the eastbound and westbound averages increasing from 89.9 to 91.5 and from 90.1 to 91.7, respectively. These averages are both about 1.6 points higher than the 2021 averages. Approximately 5.6% (349 out of 6,198 0.1-mile sections) of the pavement is considered in poor condition with a PQI under 70. This represents the lowest percentage of “Poor” pavement since at least 2018. The percentage of pavement sections in the “Excellent” category (81.1%) is well above the 5-year average of 69.8% as shown in **Table 4.2: Summary of Overall Network PQI Results by Category**. If data from bridge decks

was excluded from the analysis, the number of excellent segments would be even higher, particularly in Lane 3. High IRI values from the bridge decks can have a major, detrimental effect on PQI and are masking many of the surface improvements resulting from the PUSH 2.0 project. Table 4.1 and 4.2 provide details of the PQI results for each lane and PQI category. **Table 4.3: Pavement Quality Index (PQI) Rating Percentages and Averages from 1999 to 2022** (located in Appendix D) tracks the yearly average PQI of both lanes over the last 23 years. **Figures 4.0 and 4.1** (located in Appendix D) illustrate the PQI values with each pavement section represented as a point.

Direction	Lane	PQI, 2022	PQI, 2021	PQI, 2020	PQI, 2019	PQI, 2018	PQI, 2017
EB	1	92.2	90.4	90.3	88.50	90.5	92.3
EB	2	91.0	89.5	91.1	87.40	89.3	91.4
EB	3	87.0	87.6	88.0	85.00	80.5	84.7
EB	OVERALL	91.5	89.9	90.6	87.90	89.6	91.6
WB	1	92.4	90.3	89.7	88.60	90.2	91.3
WB	2	91.3	90.2	91.8	88.60	90.9	90.3
WB	3	86.4	85.6	88.1	86.30	80.5	83.9
WB	OVERALL	91.7	90.1	90.6	88.50	90.2	90.5
NETWORK	OVERALL	91.6	90.0	90.6	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, 2022	Percent of Network, 2021	Percent of Network, 2020	Percent of Network, 2019	Percent of Network, 2018	Percent of Network, 2017
Excellent	75.0	68.5	70.8	62.1	66.6	68.7
Good	12.6	14.5	13.4	15.1	14.3	15.3
Fair	6.8	8.5	8.6	11.6	10.2	9.8
Poor	5.6	8.5	7.0	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 DSV could not traverse due to construction. (Most of these areas were within the project limits of the PUSH I project, where crews had long stretches of lanes closed for pavement patching). 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 readings for all points, including bridges. The IRI summaries provided in **Table 4.4: International Roughness Index (IRI) Summary**, and **Figures 4.2 and 4.3** (located in Appendix D) present all data, with each pavement section presented as a point.

Direction	Lane	IRI (in/mi), 2022	IRI (in/mi), 2021	IRI (in/mi), 2020	IRI (in/mi), 2019	IRI (in/mi), 2018
EB	1	60.2	69.0	67.7	73.2	68.5
EB	2	68.1	76.5	71.9	83.2	75.0
EB	3	82.8	86.3	82.7	86.2	98.3
EB	OVERALL	64.7	73.3	70.3	78.5	72.7
WB	1	60.9	67.3	69.4	70.4	67.7
WB	2	69.0	73.1	68.7	78.2	72.3
WB	3	87.1	87.9	84.8	85.0	100.7
WB	OVERALL	65.7	70.9	69.7	74.7	71.2
NETWORK	OVERALL	65.9	72.1	70.0	76.6	71.9

Table 4.4: International Roughness Index (IRI) Summary

The IRI results for 2022 are lower than the 2021 results across the entire network. In both directions, Lanes 2 and 3 are consistent with values recorded in 2020. Values in Lane 1 are substantially lower than 2021 in both directions and the lowest values recorded since at least 2018. The overall network average decreased 7.6 in/mi, reflecting new pavement surface on approximately 120 lane miles between MP 93 and 123.

IRI values in both directions are still largely scattered between MP 0 and 20 in spite of the PUSH 2.0 project being completed. This is likely due to the presence of many bridges in the area that affect the overall ride quality. PCR scores indicate the pavement is not distressed at this time even though IRI readings are higher than one might expect for recently resurfaced pavements. Values between MP 0 and 10 are lower, in general, than between MP 10 and 20, particularly in Lanes 1 and 2.

Between MP 20 and 92, IRI values are low and generally consistent where newer pavement exists as part of PUSH I. However, as distresses begin to slowly increase in both severity and quantity, IRI values are starting to show more scatter and generally increasing with increased distress levels. The recent completion of PUSH 3.0 has also substantially lowered the IRI for that section. East of MP 123, IRI remains both high in magnitude and highly scattered. Figures 4.2 and 4.3 show the IRI trends are very similar in the eastbound and westbound lanes.

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 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 **Figures 4.4 and 4.5** (located in Appendix D) show all data, with each pavement section represented as a point.

Direction	Lane	RUT (in.), 2022	RUT (in.), 2021	RUT (in.), 2020	RUT (in.), 2019	RUT (in.), 2018	RUT (in.), 2017
EB	1	0.062	0.057	0.049	0.060	0.032	0.020
EB	2	0.087	0.074	0.064	0.079	0.034	0.025
EB	3	0.096	0.072	0.065	0.087	0.058	0.046
EB	OVERALL	0.075	0.065	0.057	0.070	0.034	0.023
WB	1	0.061	0.057	0.051	0.059	0.031	0.022
WB	2	0.082	0.068	0.057	0.073	0.034	0.029
WB	3	0.092	0.075	0.074	0.079	0.043	0.046
WB	OVERALL	0.072	0.063	0.055	0.066	0.033	0.026
NETWORK	OVERALL	0.073	0.064	0.056	0.068	0.034	0.025

Table 4.5: Rutting (RUT) Summary

Rutting throughout the entire network is slightly higher in 2022 compared to 2021. Values are still negligible and currently present little to no danger to the traveling public. The highest rutting average in both directions was found in Lanes 2 and 3, as would be expected with a standard traffic distribution, although the average rutting in eastbound Lanes 2 and 3 was nearly identical. Westbound Lane 3 continues to show a higher rutting value than Lanes 1 and 2, a result that is not unexpected 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. No locations across the entire network had rutting values more than the maximum allowable 5/8”.

Though rutting values are generally consistent with measurements from 2021, they remain higher across the entire network compared to 2018. This increase is likely due to a move from a bumper-mounted laser rutting measurement system to rutting measured by the Laser Crack Measuring System (LCMS) in 2019. 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.

Table 4.6: Pavement Condition Measurement Summary illustrates the measurements for IRI and RUT assessments along the length of the ITR.

Measurement	Interval of Data Accrue ment	Required Average of Entire Mainline	Average of Entire Mainline	Required Average of One-Tenth Mile Interval	Number of Exceedances in One-Tenth Mile Intervals
2019 IRI	one-tenth mile	< 150	71.90	< 190	163
2020 IRI	one-tenth mile	< 150	69.95	< 190	137
2021 IRI	one-tenth mile	< 150	72.00	< 190	171
2022 IRI	one-tenth mile	< 150	64.50	< 190	151
2019 RUT	one-tenth mile	N/A	0.034	< 0.625 inch	0
2020 RUT	one-tenth mile	N/A	0.0557	< 0.625 inch	0
2021 RUT	one-tenth mile	N/A	0.0649	< 0.625 inch	0
2022 RUT	one-tenth mile	N/A	0.072	< 0.625 inch	0

Table 4.6: Pavement Condition Measurement Summary

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*. **Table 4.7: Summary of PCR Asphalt Pavement Distress Weight Factors** and **Table 4.8: Summary of PCR Concrete Pavement Distress Weight Factors** (located in Appendix D) depict the weight factor for each distress type for both asphalt and concrete pavement.

The results from the PCR survey indicate that the pavement is generally in good condition functionally throughout the network. A large majority of the pavement sections in both the eastbound and westbound directions were rated with a PCR of 80 or above. Only 168 of 6,202 0.1-mile pavement sections (2.7%) exhibited PCR values below 80. The number of sections below 80 in 2022 is lower than observed in 2021 when 271 sections had PCR values less than 80. This is mostly due to the completion of the PUSH 3.0 project between mileposts 93 and 123. However, it is still higher than observed in 2020, where only 81 sections had PCR values less than 80. All sections that fall into this category are located between milepost 10-20 and east of milepost 123. **Table 4.9: Pavement Condition Rating (PCR) Summary** summarizes the PCR results for the entire network. **Figures 4.6 and 4.7** (located in Appendix D) illustrate the individual values for the eastbound and westbound lanes, respectively, with each pavement section represented as a point.

Direction	Lane	Average 2022 PCR	Average 2021 PCR	Average 2020 PCR	Average 2019 PCR	Average 2018 PCR	Average 2017 PCR
EB	1	94.2	92.9	92.8	92.1	92.6	94.5
EB	2	95.1	94.1	95.5	94.4	94.0	95.5
EB	3	92.8	93.8	95.0	91.6	87.5	92.0
EB	OVERALL	94.6	93.5	94.2	93.2	93.1	94.9
WB	1	94.4	92.7	92.4	91.5	91.8	92.9
WB	2	95.4	93.6	95.3	94.5	94.9	94.5
WB	3	93.1	92.1	95.5	93.8	87.4	91.2
WB	OVERALL	94.8	93.1	93.9	93.0	93.1	93.6
NETWORK	OVERALL	94.7	93.3	94.0	93.1	93.1	94.2

Table 4.9: Pavement Condition Rating (PCR) Summary

As reflected in Figures 4.6 and 4.7 (located in Appendix D), a major pavement rehabilitation effort between MP 20 and 92 in 2016 and 2017, known as ITR PUSH, resulted in new surface pavement and high 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 distresses, such as transverse and longitudinal cracking. Though most of these distresses are low severity, occasional medium severity cracks are also starting to be observed. Only in very isolated areas are the distresses advancing to medium severity. ITRCC has begun to perform maintenance activities in these areas, and PCR results reflect the presence of cracking and patching through this location.

Completion of the PUSH 2.0 project between MP 0 and 10 in 2019 again increased the PCR in all lanes, with a more substantial increase being noted in Lane 3. Likewise, completion of the PUSH 3.0 project in 2021 substantially increased the PCR between MP 93 and 123. The eastbound PCR average of 94.6 was slightly higher than the 2021 value of 93.5 but reflects the completion of this project. Likewise, the average westbound PCR of

94.8 was moderately higher than the 93.3 average seen in 2021, and, again, reflects the completion of this project later in 2021. In both directions, Lane 3 results were similar to 2021 results, with the eastbound average decreasing by 1.0 and westbound increasing by 0.9 points. These results indicate the PCR is generally holding steady without significant decline through the portion between MP 10 and 20 in some of the lowest rated pavement of the network. ARA understands this section is tentatively planned for the next major PUSH effort.

Results from the PCR alone should not be interpreted to indicate that the overall network is in excellent condition. Considering that the PCR method has relatively minor deductions for each individual type of distress, the PCR survey method tends to indicate that pavements are in better condition than they are. In the PCR method, pavement ratings are artificially high in a section that has only one or two types of distresses, regardless of the severity of those distresses. For example, a pavement may have high severity wheel path cracking throughout the entire area of the section with no other distresses and still have a PCR of 91. This section would be regarded as failed pavement by most agencies but considered in excellent condition under the PCR method. For this reason, ARA does not recommend PCR as the sole indicator of true pavement condition. 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.”

In July 2022 the Indiana Department of Transportation Research Division's Traffic Safety and Pavement Friction Engineer stated the following on the ITR friction results.

The American Society for Testing and Materials (ASTM) standard, Standard Test Method for Skid Resistance of Paved Surfaces Using a Full-Scale Tire, Designation E-274, guides our data collection effort. The locked wheel skid test method is used to measure the coefficient of sliding friction over wetted pavement. The ASTM E-524 standard smooth tire is used for our inventory friction testing. To evaluate skid-resistance of all pavements on a common basis, all the friction numbers measured at different speeds are converted to the friction number at a travel speed of 40 mph by using speed correlation equations. The flagging value of friction numbers (FN) that warrants further examination for potential slippery condition is 20 or below, for a smooth tire at a testing speed of 40 mph.

As pavement friction testing is critical for INDOT to reduce wet weather skid accidents and related lawsuits, each district should appropriately use the friction data provided. For roadway sections with friction numbers lower than 20, a thorough pavement investigation is recommended to identify if there is a problem and if necessary, pursue appropriate

steps for restoring the pavement friction. A friction number between 20 and 25 indicates that the pavement may provide friction values lower than 20 in the coming year(s) requiring restoration actions.

Table 4.10: Friction Number (FNS) Summary illustrates FNS data for eastbound and westbound mainline pavement and bridge decks. Figures 4.8 and 4.9 (located in Appendix D) depict the FNS data for eastbound and westbound mainline pavement on a graph, with reference post locations. Figures 4.10 and 4.11 (located in Appendix D) depict the FNS data for eastbound and westbound bridge decks on a graph, with reference post locations. **Table 4.11: Friction Number (FNS) Yearly Summary** illustrates how the 2022 FNS data compares to 2019-2021 data.

Summary of Inventory Friction Test							
Direction	Test Section	To	From	# of Tests	# of FN < 20	AVG FN	ST DEV
ITR East	ML Pavement	1.48	157	148	7	30.4	6.9
ITR West	ML Pavement	2.26	157	149	10	26.5	5.4
ITR East	ML Bridge	0.8	156	86	23	27.8	10.6
ITR West	ML Bridge	1.64	156	86	31	25.2	11.1

Table 4.10: Friction Number (FNS) Summary

Measurement	Interval of Data Accrue ment	Average of Entire Mainline	Required Average of One Mile Interval	Number of Exceedances in One Mile Intervals
2019 FNS	approx. one mile	44.62	> 30	75
2020 FNS	approx. one mile	45.94	> 30	30
2021 FNS	approx. one mile	40.00	> 30	63
2022 FNS EB Pavement	approx. one mile	30.40	> 30	38
2022 FNS WB Pavement	approx. one mile	26.50	> 30	60
2022 FNS EB Bridge	approx. one mile	27.80	> 30	35
2022 FNS WB Bridges	approx. one mile	25.20	> 30	40

Table 4.11: Friction Number (FNS) Yearly Summary

Surface Friction (FNS) – Action Plan

The randomness of the values taken from the INDOT testing were the result of the number of tests on the mainline pavement and bridges noted above. These tests represent a fraction of the entire mainline pavement and bridges. In addition to addressing the areas that are of concern from the INDOT data, the ITR will look to incorporate the roadway inspection consultant to perform a more comprehensive friction study.

Toll Plaza and Travel Plaza Lot Pavement

The toll and travel plazas were inspected for pavement condition in October 2022. 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 4.12: 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 4.13: Pavement Condition Survey of Toll Plaza** shows one 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 as any deficiencies that may occur.

Toll Plaza	MP	2017 Condition	2018 Condition	2019 Condition	2020 Condition	2021 Condition	2022 Condition
Indianapolis Boulevard	0	Fair	Fair	Excellent	Excellent	Excellent	Good
Westpoint	1	Good	Fair	Excellent	Excellent	Excellent	Good
S.R. 912	3	Fair	Fair	Excellent	Excellent	Excellent	Good
Calumet Ave. (EB Entr.)	5	Poor	Poor	Excellent	Excellent	Excellent	Good
Calumet Ave. (WB Exit)	5	Poor	Poor	Excellent	Excellent	Excellent	Good
Cline Avenue	10	Poor	Poor	Excellent	Excellent	Excellent	Good
Gary West	14A	Poor	Poor	Poor	Poor	Poor	Poor*
Broadway	14B	Fair	Fair	Fair	Fair	Fair	Fair
Gary East	17	Fair	Fair	Fair	Poor	Poor	Poor*
Lake Station	21	Excellent	Excellent	Good	Good	Good	Good
Portage	23	Excellent	Excellent	Good	Good	Good	Good
Mainline Barrier	24	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Valparaiso-Chesterton	31	Excellent	Good	Good	Good	Good	Good
Michigan City	39	Excellent	Good	Good	Good	Good	Good
LaPorte	49	Excellent	Good	Good	Good	Good	Good
South Bend West	72	Excellent	Excellent	Good	Good	Good	Good
South Bend-Notre Dame	77	Good	Excellent	Good	Good	Good	Good
Mishawaka	83	Excellent	Good	Good	Good	Good	Good
Elkhart	92	Good	Good	Good	Good	Good	Good
Elkhart East	96	Fair	Fair	Fair	Fair	Good	Good
Bristol	101	Fair	Fair	Fair	Fair	Excellent	Excellent
Middlebury	107	Fair	Fair	Fair	Fair	Excellent	Excellent
Howe-LaGrange	121	Fair	Fair	Fair	Fair	Excellent	Excellent
Angola	144	Fair	Fair	Fair	Fair	Good	Fair
Eastpoint	153	Poor	Fair	Poor	Poor	Good	Fair

Table 4.13: Pavement Condition Survey of Toll Plaza Ramps

*NOTE: The ITRCC has budgeted for the necessary improvements at the Gary West and Gary East ramps to improve the “poor” rating. In 2024 all ramps from MP 10-20 will be repaved.

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). The 2022 Toll Plaza pavement ratings have maintained the same as the previous year’s ratings as well. Per the OPI ratings metrics, travel plazas and truck parking lots are rated together. Through 2020-2021 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	2017 General Condition	2018 General Condition	2019 General Condition	2020 General Condition	2021 General Condition	2022 General Condition
Eastbound							
TRP - 1S	21.7	Excellent	Excellent	Good	Good	Excellent	Excellent
TRP - 2S (Trucks only)	37.5	Poor	Poor	Excellent	Good	Good	Good
TRP - 3S	55.9	Under Const.	Excellent	Good	Good	Good	Good
TRP - 5S	90	Poor	Under Const.	Excellent	Good	Excellent	Excellent
TRP - 6S (Trucks only)	108	Poor	Poor	Under Const.	N/A - Under Const.	N/A - Under Const.	Fair
TRP - 7S	125.8	Excellent	Excellent	Good	Good	Good	Good
TRP - 8S	145.7	Closed	Closed	Closed	Closed	Closed	Closed
Westbound							
TRP - 1N	21.7	Excellent	Excellent	Good	Good	Excellent	Excellent
TRP - 2N (Trucks only)	37.5	Poor	Poor	Excellent	Good	Good	Good
TRP - 3N	55.9	Under Const.	Excellent	Good	Good	Good	Good
TRP - 5N	90	Poor	Under Const.	Excellent	Good	Excellent	Excellent
TRP - 6N (Trucks only)	108	Poor	Poor	Under Const.	N/A - Under Const.	N/A - Under Const.	Fair
TRP - 7N	125.8	Excellent	Excellent	Good	Good	Good	Good
TRP - 8N	145.7	Closed	Closed	Closed	Closed	Closed	Closed

Table 4.14: 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 | 6. Sign |
| 2. Pavement Deficiency | 7. Pavement Marking |
| 3. Vegetation Obstruction | 8. Fencing Deficiency |
| 4. Litter | 9. Lighting Conditions |
| 5. Drainage Obstruction | |

The ITR roadway maintenance items were inspected in September 2022. These maintenance items are assessed in three different areas: mainline (subdivided by maintenance district), toll plazas, and travel plazas. The 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 | 6. Signs |
| 2. Pavement Deficiency | 7. Pavement Marking |
| 3. Vegetation Obstruction | 8. Fences |
| 4. Litter | 9. Lighting |
| 5. Drainage Obstruction | |

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.

The 2022 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 addressed quickly.

Items Excluded from OPI Deficiency Count

The ITRCC has implemented an engineering study to address the 10-mile section of cable guardrail system in the M2 maintenance district utilizing an INDOT standard approach. Weather pending, this project is expected to begin and conclude prior to Memorial Day 2023. 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 1, 2, & 3 have a seven-year warranty provided by the contractor. 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 warranted 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** illustrates the mainline maintenance OPI rating progression over the past four years in comparison to the 2022 ratings.

For reference, ITRCC completes an annual pavement marking refresh in non-PUSH areas which begins in June or July, based on weather conditions. ITRCC has added the application of warranted grooved pavement markings within the Project PUSH 1, 2, & 3 limits. These enhancements will result in an improved OPI rating prior throughout the warranty period.

OPI Measures	Mainline Maintenance Item Deficiencies			
	2022			
	Deficiencies	Def/mile	OPI Goal	OPI Rating
Guardrail Deficiency	19	0.121	>=4	6
Pavement Deficiency	32	0.204	>=4	5
Vegetation Obstruction	7	0.045	>=4	4
Litter	2	0.013	>=4	6
Drainage Obstruction	1	0.006	>=4	6
Sign deficiency	18	0.115	>=4	6
Pavement Marking Deficiency	4	0.026	>=4	6
Fence Deficiency	1	0.006	>=4	6

Table 5.2: Mainline Maintenance Items for ITR

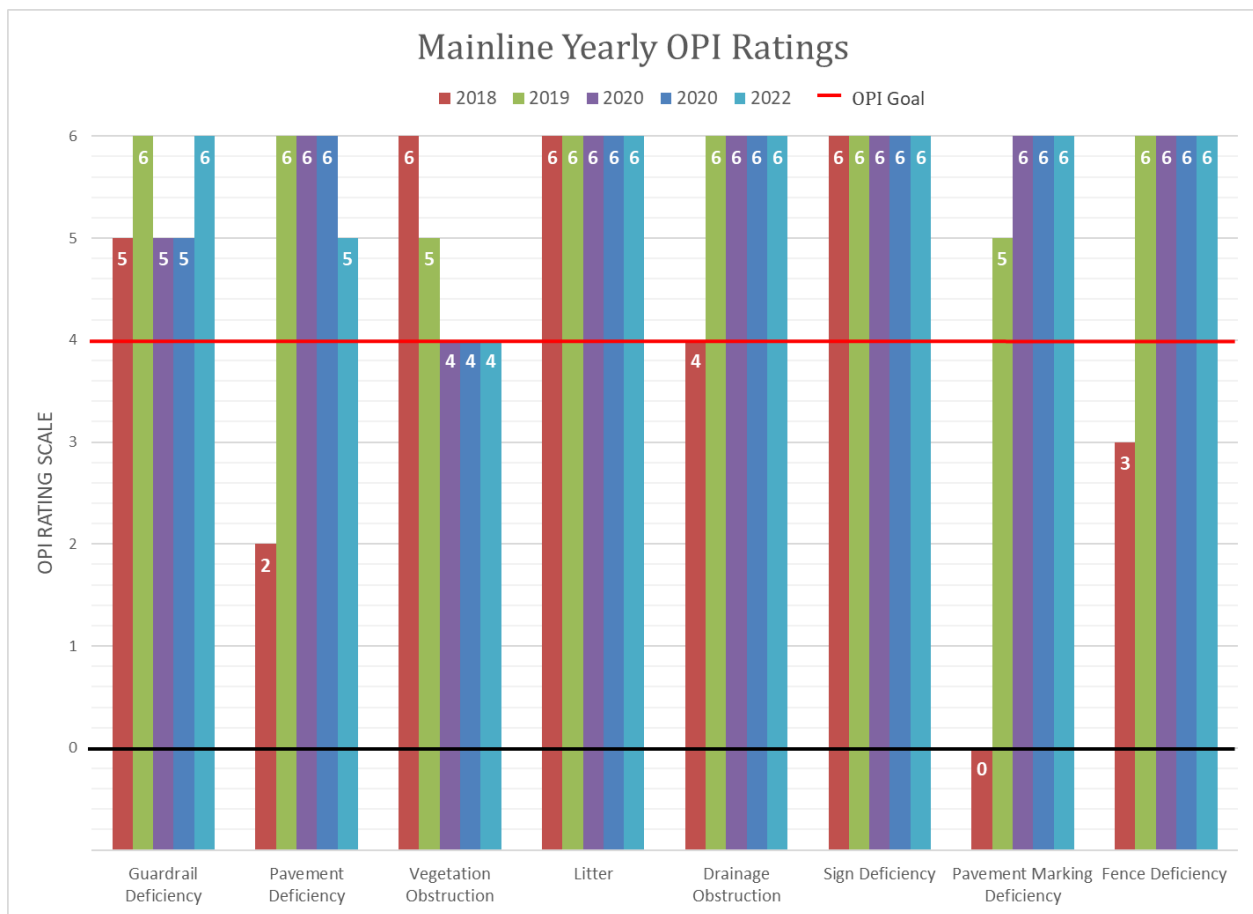


Figure 5.1: Mainline Yearly OPI Ratings

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** illustrates the Toll Plaza Ramp Maintenance OPI rating progression over the past four years in comparison to the 2022 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 were replaced in 2020. In total, the program replaced approximately 700 signs. Sign replacements are evaluated annually and addressed accordingly, including retro-reflectivity.

OPI Measures	Toll Plaza Maintenance Item Deficiencies			
	2022			
	Deficiencies	Def/Ramp	OPI Goal	OPI Rating
Guardrail Deficiency	3	0.070	>=4	6
Pavement Deficiency	7	0.163	>=4	6
Vegetation Obstruction	0	0.000	>=4	6
Litter	1	0.023	>=4	6
Drainage Obstruction	0	0.000	>=4	6
Sign deficiency	6	0.140	>=4	6
Pavement Marking Deficiency	0	0.000	>=4	6
Fence Deficiency	1	0.023	>=4	6

Table 5.8: Toll Plaza Maintenance Items for ITR

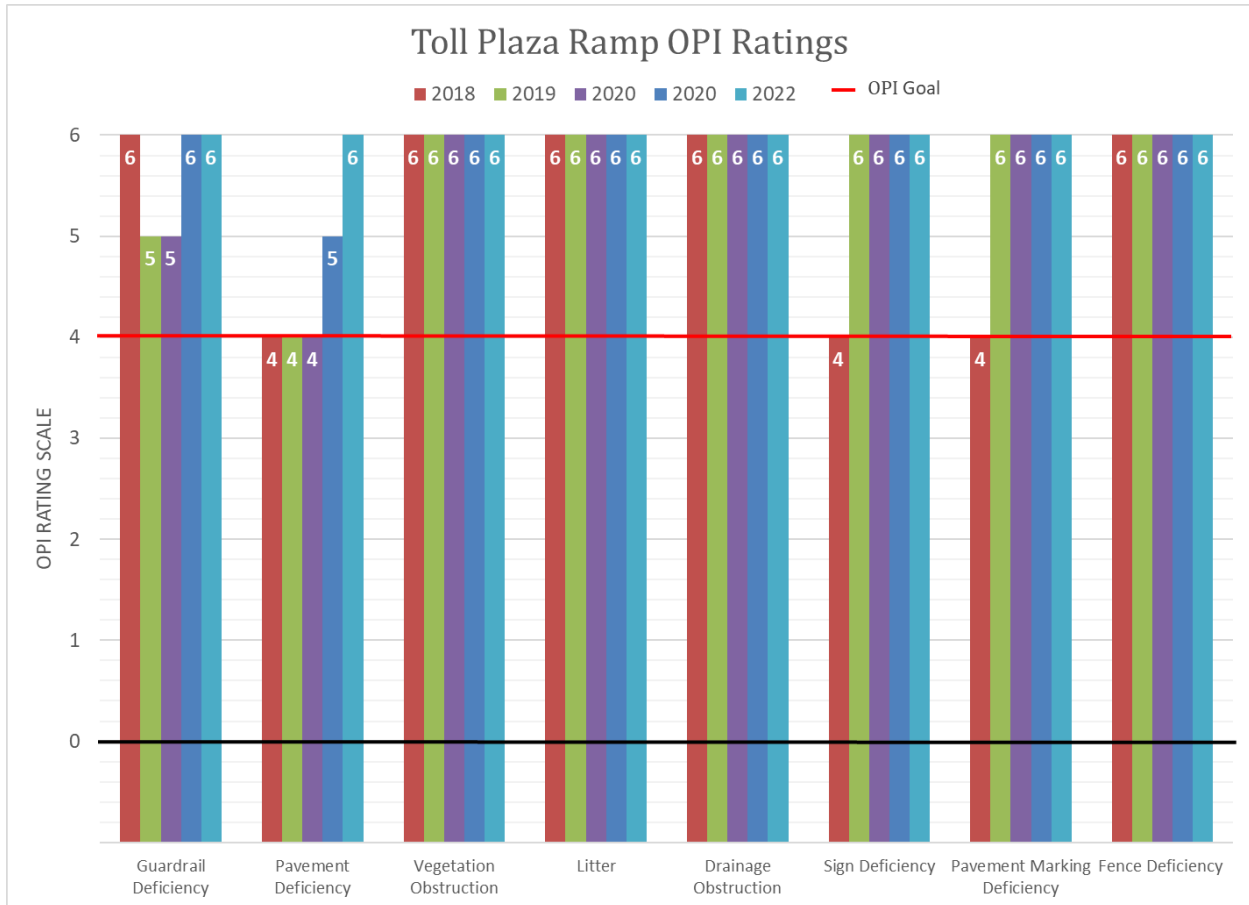


Figure 5.2: Toll Plaza Ramp OPI Ratings

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** illustrates the Toll Plaza Ramp Maintenance OPI rating progression over the past four years in comparison to the 2022 ratings.

OPI Measures	Travel Plaza Maintenance Item Deficiencies			
	2022			
	Deficiencies	Def/Plaza	OPI Goal	OPI Rating
Guardrail Deficiency	0	0.000	>=4	6
Pavement Deficiency	5	0.500	>=4	4
Vegetation Obstruction	0	0.000	>=4	6
Litter	21	2.100	>=4	6
Drainage Obstruction	0	0.000	>=4	6
Sign deficiency	0	0.000	>=4	6
Pavement Marking Deficiency	0	0.000	>=4	6
Fence Deficiency	3	0.300	>=4	5

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

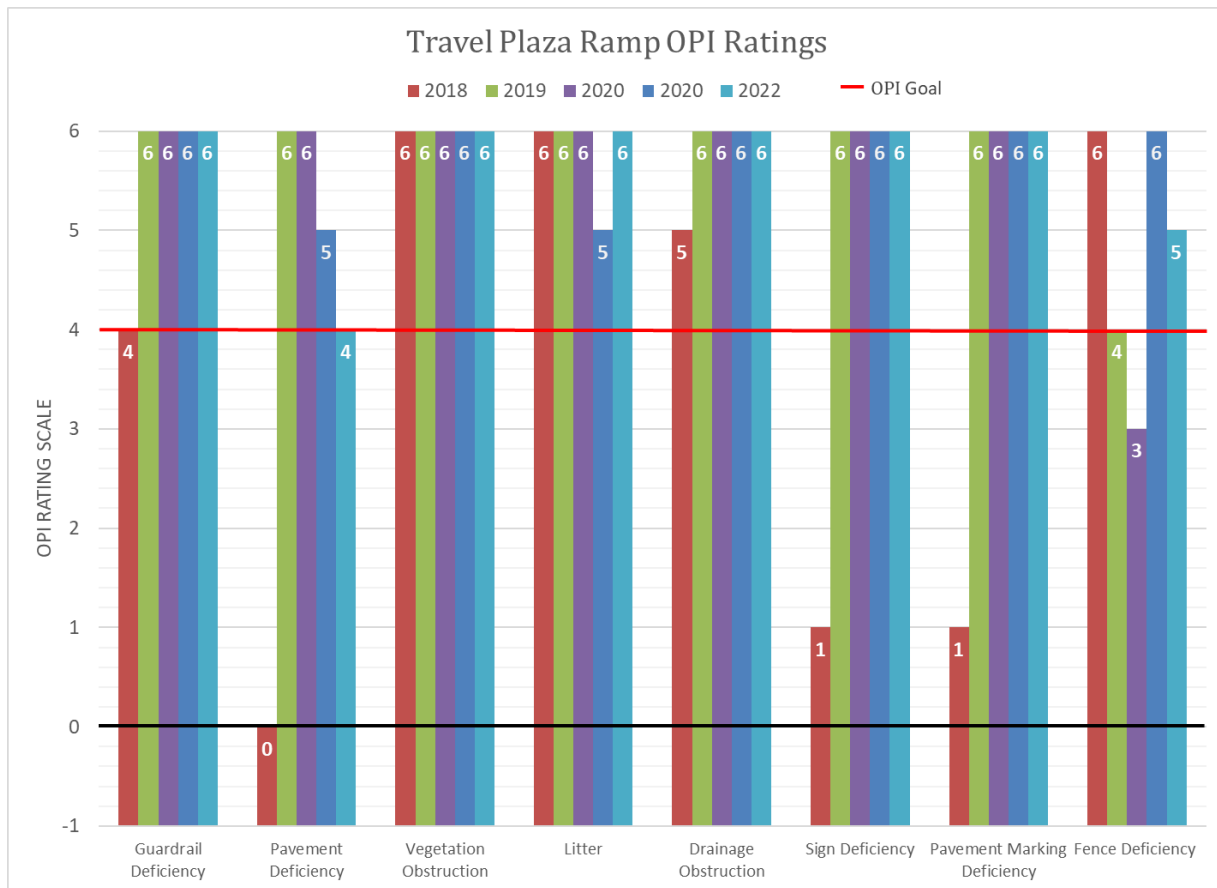


Figure 5.3: Travel Plaza Ramp OPI Ratings

Lighting OPI Measurements

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 lighting inspections of all 642 cobra head lights were completed during the October 2021 OPI inspections as well as the biennial High-Mast Light inspections. During these inspections no lighting deficiencies were noted or found due to illumination. The ratings range from 0 to 6, with 6 being the highest. The OPI illumination rating was a 6.

In addition to inspecting the illumination of the cobra head lights a hands-on inspection was completed on all 642 cobra lights. The inspections focused on the foundation, anchor rod components, wiring safety, plumbness, LED bulbs, and mast and tower defects. All inspections were inputted into VUEworks with corresponding condition ratings and pictures.

In 2022, the ITR will be completing a Right of Way Illumination and Delineation study for the mainline and ramps of the ITR. This study will possibly provide updated criteria to the annual lighting inspections.

Maintenance Initiatives

In 2022, the ITRCC made investments into maintenance initiatives to increase safety, cleanliness, and effectiveness.

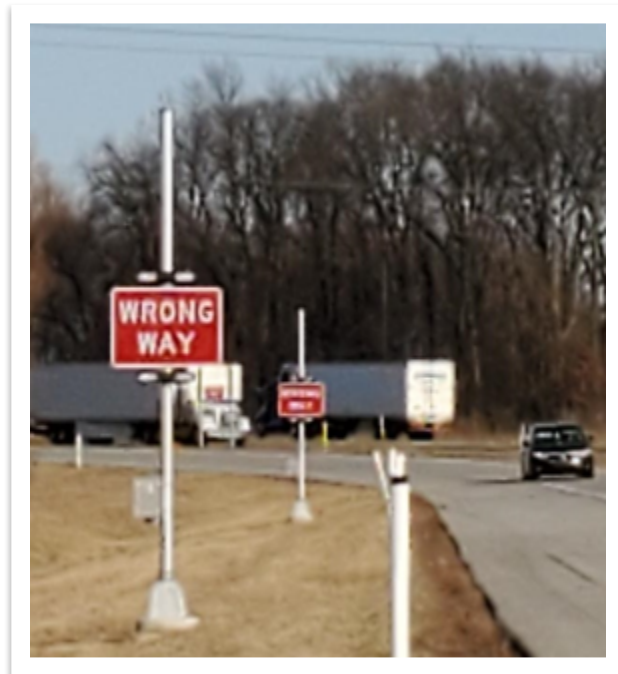


Image 5.1: Wrong Way Detection System

To increase both customer and worker safety, the ITRCC developed a plan to detect and prevent wrong-way drivers, as shown in **Image 5.1: Wrong Way Detection System**. The

ITRCC met with employees, stakeholders, and first responders to identify the repeated locations of wrong-way drivers. Since the 2020 installation, the Wrong Way Detection System (“**WWDS**”) identified:

- 24 incidents of drivers entering the wrong way
- 29 incidents of drivers reversing down a ramp

100% of these incidents resulted in zero accidents, with all drivers self-correcting. Between 2015 and 2018, more than 2,000 people were killed nationwide by wrong-way drivers. In Indiana, the ITR Concession Company (ITRCC) finds that unacceptable. In 2019, ITR reached out to trusted partners and began designing a wrong-way detection system that focused on the two overwhelming root causes of a driver entering the road in the wrong direction – intoxication and confusion. The system has safely identified 53 separate incidents of a patron traveling the wrong way on a mainline ramp through active and concentrated alerts to wrong-way drivers, advanced warning to patrons on the road, immediate alarming into ITR’s Traffic Management Center and Indiana State Police, and alerts to all management staff. All 53 wrong-way drivers safely corrected their travel and continued in the proper direction without a single accident.

In 2022 the ITRCC won the annual safety award through the IBTTA (International Bridge, Tunnel and Turnpike Association) for creating a wrong-way driver detection and alert system.



Image 5.2: Barber Road Rake

As part of the maintenance initiative, the ITRCC purchased two Model 200 Barber Road Rakes, as depicted in **Image 5.2: Barber Road Rake**. These two units, in conjunction with new policy and procedures, help keep the road clear of debris, keep employees and customers safe from debris and live traffic, and reduces the amount of time it takes to clean the mainline as well as travel/truck parking lots.

The ITRCC has also purchased two P5 Pothole Patchers to allow teams a quicker response time, less time spent with “boots on the ground”, and more effective pothole patching. Lastly, the ITRCC purchased five Guardrail Mowers with new tractors to allow for fast weed trimming around guardrail without exposing teams to traffic and flying debris.

Utilizing these devices has allowed the ITRCC to save hundreds of hours of labor, reduced exposure of Toll Road patrons to work zones, and completed the associated tasks faster and more effectively.



6: FACILITIES CONDITION REPORT

FACILITIES CONDITION REPORT – GROUP D

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	2023
Group B	MP 24.1 to MP 62	2024
Group C	MP 62 to MP 115	2021
Group D	MP 115 to MP 156.9	2022

Table 6.1: Facilities Condition Report Schedule

A detailed inspection was conducted of all buildings in Group D during September 2022. 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 D 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 personnel and be scheduled as normal maintenance schedules allow. The building inspections were noted to have 46.94% of the facilities receiving “Good” or “Excellent” ratings, and 40.82% of the facilities receiving “Fair” ratings. 12.24% of structures received a “Poor” rating. Buildings that were scheduled to be removed were not inspected.

It should be noted that since these structures were inspected in 2018 many of the repairs and recommendations were completed. The inspections noted that the ITRCC made substantial upgrades to the cosmetic and structural concerns. Furthermore, the ITRCC has budgeted and programmed a comprehensive facility repair and upgraded plan to address both structure, cosmetic, and aesthetic repairs to many additional structures that were not inspected in 2022. These repairs are reflected in the capital improvement section.

Preventative Maintenance Program

A program for preventative maintenance has been established 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 their components, equipment, and systems at the original design standards throughout their intended life span. The checklist includes 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.

In 2021, ITRCC kicked off a project to replace all of the electrical components in the toll plaza tunnels, while also taking the time to address any spalling concrete. This project is expected to conclude in Q3 2022 with a total investment of \$7.5 million.

In addition, and concluding in Q4 2021, all facilities received lighting, restroom, flooring, and general employee amenities upgrades.

Buildings Overview:

2022 Facility Assessment				
Structure Number	Building Description	Building Group	Mile Point	General Condition
44-08	Main Building	Group D	120.5	Fair
44-09	North Toll Booth	Group D	120.5	Fair
44-10	South Toll Booth	Group D	120.5	Fair
44-11	Canopy	Group D	120.5	Good
44-12	Small Brown Storage Shed	Group D	120.5	Good
44-13	Storage Shed	Group D	123.7	Poor
44-24	Main Building	Group D	125.8 WBL	Excellent
44-25	Gas Kiosk	Group D	125.8 WBL	Removed
44-26	Gas Canopy	Group D	125.8 WBL	Excellent
44-27	Diesel Canopy	Group D	125.8 WBL	Excellent
44-28	Water Pump Building	Group D	125.8 WBL	Removed
44-29	Center Green minibarn -	Group D	125.8 WBL	Excellent
44-30	West Green minibarn	Group D	125.8 WBL	Removed
44-14	Main Building	Group D	125.8 EBL	Excellent
44-16	Gas Canopy	Group D	125.8 EBL	Excellent
44-17	Diesel Canopy	Group D	125.8 EBL	Excellent
44-18	Cable Building	Group D	125.8 EBL	Not owned by ITR
44-19	Communications tower building	Group D	125.8 EBL	Good
44-20	Water management building	Group D	125.8 EBL	Removed
44-21	WWTP	Group D	125.8 EBL	Removed
44-22	WWTP Clarifiers	Group D	125.8 EBL	Removed
44-23	Large blue maintenance barn	Group D	125.8 EBL	Good
44-31	Green well head	Group D	125.8 EBL	Excellent
76-01	Maintenance building	Group D	137.5 EBL	Good
76-02	Grey Storage Barn	Group D	137.5 EBL	Fair
76-03	Salt Storage Pyramid	Group D	137.5 EBL	Excellent
76-04	Small Gas Kiosk	Group D	137.5 EBL	Removed
76-05	Brown Garage	Group D	137.5 EBL	Fair
76-06	Large Blue Garage	Group D	137.5 EBL	Good

76-07	Small Blue Pole Barn	Group D	137.5 EBL	Fair
76-08	Main Building	Group D	143.9	Fair
76-09	Toll Booth	Group D	143.9	Fair
76-10	Toll Booth	Group D	143.9	Fair
76-11	Toll Booth	Group D	143.9	Fair
76-12	Toll Booth	Group D	143.9	Fair
76-13	Toll Booth Canopy	Group D	143.9	Good
76-14	Small Brown Storage Barn	Group D	143.9	Good
76-29	Main Building	Group D	153	Fair
76-30	Toll Booth 1	Group D	153	Fair
76-31	Toll Booth 2	Group D	153	Poor
76-32	Toll Booth 3	Group D	153	Fair
76-33	Toll Booth 4	Group D	153	Poor
76-34	Toll Booth 5	Group D	153	Poor
76-35	Toll Booth 6	Group D	153	Poor
76-36	Toll Booth 7	Group D	153	Fair
76-37	Toll Booth 8	Group D	153	Fair
76-38	Toll Booth 9	Group D	153	Poor
76-39	Toll Both Canopy	Group D	153	Excellent
76-40	White Storage Barn	Group D	153	Good
76-41	Small Brown Storage Barn	Group D	153	Good
76-50	Toll Booth 10	Group D	153	Fair
76-51	Toll Booth 11	Group D	153	Good
76-52	Toll Booth 12	Group D	153	Fair
76-53	Toll Booth 13	Group D	153	Fair
76-42	Salt Pyramid	Group D	156 EBL	Removed
76-43	Medium Brown Storage Barn	Group D	156 EBL	Good
76-44	Radio Tower Building	Group D	156 EBL	Good
76-45	Gas Kiosk	Group D	156 EBL	Fair

6.2: Condition Rating and Deficiencies Log



7: TREATMENT PLANTS AND OTHER ENVIRONMENTAL ISSUES REPORT

TREATMENT PLANTS AND OTHER ENVIRONMENTAL ISSUES REPORT

General

Field visits to many of the Indiana Toll Road (ITR) facilities were made on September 1 and 2, 2022. 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 over the last several years. The following table summarizes the 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	Not applicable, connected to municipal water and sewer

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. Recycled materials including batteries and paper/cardboard tracking and associated reports are handled by the Indiana Toll Road Concession Co. (ITRCC) procurement group at the ITRCC Stockroom. 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 previously operated one wastewater treatment plant (WWTP) under National Pollutant Discharge Elimination System (NPDES) discharge permit at Travel Plaza 7. This plant was decommissioned in 2020 and demolished in 2021 and is no longer in operation. After LaGrange County Regional Utility District (LCRUD) made necessary infrastructure improvements, the travel plaza was able to connect and discharge wastewater from the travel plaza to the municipal system. ITRCC has vacated their NPDES Permit for Travel Plaza 7 during 2021 and no longer maintains any other NPDES Permits.

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 7.2: Pumping Frequency for Certain Wastewater Treatment Units**.

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

Table 7.2: Pumping Frequency for Certain Wastewater Treatment Units

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. All septic tanks were pumped out during 2021 and 2022.

Lift Stations

Lift stations are listed in **Table 7.3 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 7.4: Licensed Backflow Technicians**, below, includes a list of Certified Backflow Technicians employed by the ITRCC during the audit period.

Name	License	Type / Number
Toby Danneffel	Backflow Technician	BF21-7155
Matthew McLaughlin	Backflow Technician	BF11-4345

Table 7.4: Licensed Backflow Technicians

There are approximately 65 backflow preventers throughout facilities along the ITR. **Table 7.5: 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 7.5: 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 7.6: 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	Will connect to public utility by end of 2024
107.1 W	Middlebury Toll Plaza	
143.9 E	Angola Toll Plaza	
38.9 W	Michigan City Toll Plaza	

Table 7.6: 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 former 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. 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. During 2021, the ITRCC received No Further Action status on remediation taking place at the LaGrange Maintenance facility.

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 7.7: Status of IFA Remediation Activities** (located in Appendix F).

Hazardous Material Management/Response to Hazardous Substance Emergencies

The ITRCC is currently designated as 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.

Most of the hazardous waste generated along the ITR is due to waste from removal of lead 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. The facility level inspections and organization of labeling and storage of materials and waste are coordinated by various ITRCC departments.

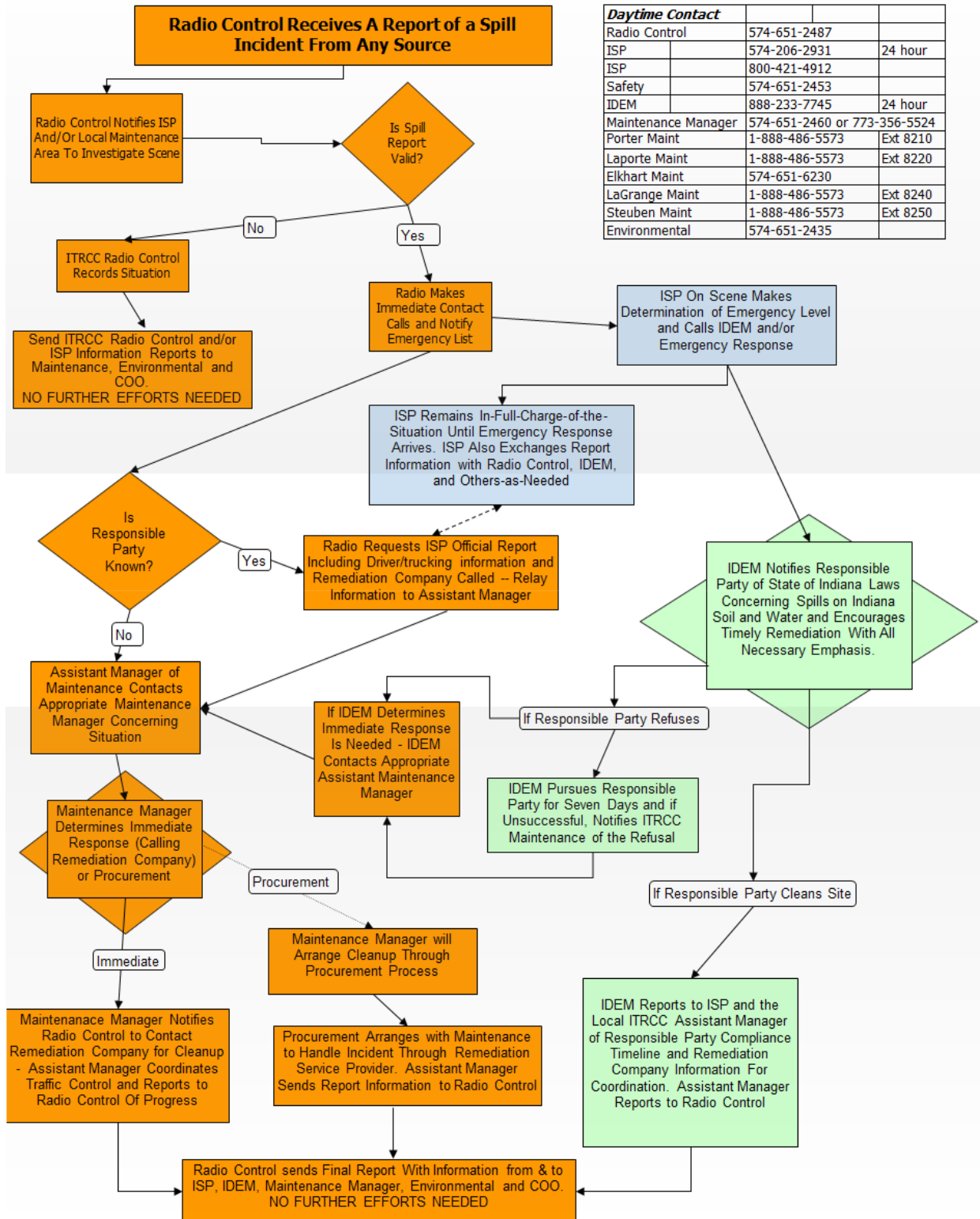
Response to Patron Related Released Substance Emergencies

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.

Spill Response Flow Chart



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 an LQG. The ITRCC has notified IDEM regarding their status as an 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 prepares it for shipment as the "offerer," 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 during 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 vendors 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. No more than three such cabinets may be located in a single storage area.
2. Quantities more than 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 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. During 2021, the ITRCC

replaced the five existing oil/water separators at the maintenance facilities.

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 the training is completed periodically by required staff.

There were multiple patron spills on the toll road since the last review. In general, patrons and/or responsible parties are responsible for remediation of the contamination. Most spills are fuel related and are less than 100 gallons. Each of the spills during 2021 and 2022 have been addressed by third party remediation contractors.

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 for 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

ITRCC no longer operates underground storage tanks (USTs). All USTs at ITRCC operated facilities have now been removed and achieved closure through IDEM.

The following table summarizes the recent UST removal/closures.

UST Location	MP Reference	Status	Tank Size (Gal)	Fuel Type
Lake Maintenance Unleaded	4.5	Removed Closure Complete	10,000	Unleaded
Lake Maintenance Diesel	4.5	Removed Closure Complete	10,000	Diesel
M1 Unleaded	23	Removed Closure Complete	10,000	Unleaded
M1 Diesel	23	Removed Closure Complete	10,000	Diesel
MP 37.5 Diesel	37.5	Removed Closure Complete	10,000	Diesel
M2 Unleaded	52	Removed Closure Complete	10,000	Unleaded
M2 Diesel	52	Removed Closure Complete	10,000	Diesel
MP 72 Diesel	72	Removed Closure Complete	10,000	Diesel
Administration Building	87	Removed Closure Complete	10,000	Unleaded
M3 Unleaded	87	Removed Closure Complete	10,000	Unleaded
M3 Diesel	87	Removed Closure Complete	10,000	Diesel

UST Location	MP Reference	Status	Tank Size (Gal)	Fuel Type
MP 99 Diesel	99	Removed Closure Complete	4,000	Diesel
M4 Unleaded	114	Removed Closure Complete	10,000	Unleaded
M4 Diesel	114	Removed Closure Complete	10,000	Diesel
M5 Unleaded	137.5	Removed Closure Complete	10,000	Unleaded
M5 Unleaded	137.5	Removed Closure Complete	10,000	Diesel
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

With the closure of the remaining USTs an operator training program will no longer need to be maintained by ITRCC.

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 two registered technicians that can 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.

As of 2022, 9 of the 10 salt barn locations have been replaced to meet environmental best practices, with the last remaining facility to be replaced in 2023. It is recommended that the 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 stormwater or surrounding property.

Up until 2019, the ITR's facilities and operations were covered by INDOT's Municipal Separate Storm Sewer System (MS4) permit. During 2019, after discussions with INDOT and IDEM, the ITRCC elected to apply to IDEM for their own MS4 permit.

During the 2020 calendar year, ITRCC initiated the process of becoming established as an MS4 entity and providing a general characterization of water quality within the MS4 Area. In April 2020, ITRCC submitted the Notice of Intent (NOI) and Stormwater Quality Management Plan (SWQMP) Part A: Initial Application documents to Indiana Department of Environmental Management (IDEM).

ITRCC finalized the initial Stormwater Quality Management Plan (SWQMP) which included submittal of Part B Baseline Characterization and Part C Program Plan Implementation.

SWQMP Part B, submitted in October 2020, provided a baseline characterization of receiving waters within the ITRCC MS4 Area. Part B consists of the following components:

- Characterize chemical, biological, and physical conditions of receiving water by utilizing existing water data from local, state, and federal resources.
- Investigate land use near receiving waters
- Identify sensitive waters
- Review existing and available monitoring data
- Identify potential problem areas
- Assess current structural/nonstructural BMPs contributing to receiving waters
- Summary report to summarize baseline characterization, make observations/conclusions, and offer solutions to potential stormwater issues

identified.

The SWQMP-Part C, submitted in April 2021, provided a program implementation plan outlining the priorities, goals, and implementation strategies that the ITRCC utilizes to improve water quality. General tasks ITRCC have implemented since last progress reporting include:

- Developed a Standard Operating Procedure (SOP) for mapping of outfalls and storm water conveyances and to also provided procedures for entering as-built information for storm water conveyances and outfalls into the GIS web-enabled mapping system.
- Mapped approximately 25% of all open ditches with a 2-foot or larger bottom width and pipe outfalls with a diameter 24 inches or larger within the MS4 Area.
- Developed a SOP for dry weather outfall screening as part of the IDDE plan. This dry weather outfall screening SOP will outline procedures for locating and screening of outfalls, sampling of flowing outfalls, and follow-up for suspect outfalls.
- Developed and adopted an erosion and sediment control policy to include all applicable sections of the IDEM Construction Stormwater General Permit.
- Adopted a storm water quality manual and required contractors to reference this manual for plan development and selection of construction BMPs.
- Implemented a public storm water education program to increase awareness of storm water issues and provided educational resources for constituents to implement storm water BMPs.
- Developed an Illicit Discharge Detection and Elimination (IDDE) plan to outline procedures and protocols to detect, report, and eliminate illicit discharges to the MS4 conveyance system.

Other Point Source Discharges

The ITRCC currently does not maintain NPDES permits for their five (5) vehicle maintenance facilities because there are no stormwater 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 an 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 the exception of the Porter Maintenance (MP 23.5), discharges water used within the covered maintenance areas either through a floor drain system to an oil- water separator and then to an on-site leach field. Stormwater that falls on outdoor areas used for storage and parking is conveyed by overland flow to open stormwater 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. 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 7.8: 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 signtrusses, road signage, etc.)
3. Cement
4. Cold patch
5. Recycle material (groundup asphalt pavement)
6. Brush, wood, untreated lumber, wooden pallets
7. Plastic, corrugated metal, concrete reinforced piping
8. Concrete culvert boxes, 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 stormwater 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:

- Selling, 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:

- Continue to incorporate hybrid electric sedan vehicles into ITRCC fleet
- On-going program for installation of charging stations at travel plazas (anticipated for 2021-2022)
- Carbon reduction/offset program, including planting of 300 additional trees
- LED lighting upgrade/replacements
- Diesel UST to natural gas conversion for generators
- Electric plug-in stations at commuter lots and Sonoco stations
- 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
- 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 2022 to 2032, 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: Roadway Pavement Upgrades

Mile marker 10 through mile marker 20 will receive a great majority of the early monies budgeted for the roadway pavements CIP. These planned upgrades will help extend the life and quality of the pavement until it is completely replaced in this section during PUSH 5. This section will be designed and procured in 2023, with construction scheduled for completion in 2024.

Major Project Highlight: PUSH 3.0

PUSH 3.0 continued the success of the prior PUSH projects with a 30-mile-long project from Elkhart to Howe. The project included six bridge deck replacements with bridge widenings, two bridge deck overlays, nine structures with substructure patching and joint replacement, and bridge paintings on multiple other structures. The project also included the removal of all asphalt pavement, cracking and seating the original concrete pavement, and placing 5 inches of new HMA pavement for over 120 lane miles. All the bridge improvements have been reflected within this report’s OPI ratings. The roadway improvements were captured fully within the 2022 roadway ratings.

Major Project Highlight: PUSH Phase 4 and 5 Projects

The PUSH 4.0 and 5.0 projects will look to continue the success of the first three PUSH projects with a major rehabilitation of pavement and bridges from ITR MM 123 to MM 156 and MM 10 to MM 20. 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 4.0 is scheduled for 2025, with pre-project work beginning in 2023 and 2024. The estimated budget for PUSH 4.0 and PUSH 5.0 is a combined \$150,000,000, which will be subject to their respective scoping exercises.

Major Project Highlight: State Line and Exit 10

In 2022, the ITR issued a request for proposals for the “State Line & Exit 10” CIP line item. This project is scheduled to begin construction in 2023 and will contain bridge deck replacements, deck overlays, deck patching, substructure patching, superstructure repairs and painting. The project contains 18 structures with a CAPEX value of \$75,033,526.00. The final project costs are still under bid proposal and review.

The following 18 structures are scheduled to be involved the projects:

I90-45-01A-1	0.08	I90-45-10-07RR WBL	10.02
I90-45-1A3-1	0.1	I90-45-10-04EN	10.06
I90-45-1A3-2 EBL	0.34	I90-45-10-05WN	10.05
I90-45-1A3-2 WBL	0.34	I90-45-10-02WX	10.16
I90-45-001-3 EBL	1.56	I90-45-10-03EX	10.15
I90-45-001-3 WBL	1.56	I90-45-007-5 EBL	10.01
I90-45-10-01RR EBL	9.86	I90-45-007-5 WBL	10.01
I90-45-10-01RR WBL	9.86	I90-45-10-06ML EBL	10.2
I90-45-10-07RR EBL	10.02	I90-45-10-06ML WBL	10.2

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 G for detailed breakdown) and the Bridge and Structure CIP (See Appendix G for detailed breakdown) for the period 2022 through 2032. In total, and based upon the work detailed by this report, ITRCC has scheduled an estimated total value of \$709,027,518 for the CIP works for the next 10-year period.

Projects	Total Costs
80/90 PUSH 4.0 & 5.0 Projects	\$150,000,000
Roadway Pavement CIP	\$72,144,615
Building/Roadway/Lighting CIP	\$166,900,000
State Line & Exit 10 Bridge Projects	\$75,033,526
Bridges CIP	\$244,949,377
2022-2032 Total CIP	\$709,027,518

Total Capital Improvement Program (CIP) Schedule of Values 2022 to 2032