



July 1st 2017 to August 1st 2018

ANNUAL STATE OF THE ITR REPORT

PREFACE

This 2017-2018 Indiana Toll Road (ITR) *Annual State of the ITR Report* has been prepared in accordance with the Amended and Restated *Concession and Lease Agreement (“CLA”) for the Indiana Toll Road*.

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

ITRCC strives to exceed expectations by delivering a safe, reliable and efficient service to its customers. Since 2015, ITRCC has invested over \$300 million in infrastructure and technology upgrades delivering a major rehabilitation project to pavement, highway bridges and travel plazas.

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

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

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

Annual State of the ITR Report
July 1, 2017- August 1, 2018

August 2018

The following individuals have developed and/or reviewed the attached report:



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LIST OF REFERENCES, ABBREVIATIONS, AND ACRONYMS

Annual Report: Annual State of the ITR and Capital Improvement Programs Report

ARA: Applied Research Associates, Inc.

Avg.: average

BIAS: Bridge Inspection Application System (INDOT's web-based system)

BMP: best management practice

BOPI: Bridge Organizational Performance Index

Bridge Coding Guide: US DOT and FHWA Recording and Coding Guide for the Structure Inventory and Appraisal of the Nation's Bridges

Def.: deficiency

CFR: Code of Federal Regulations

Cintra: Cintra Concesiones de Infraestructuras de Transporte, S.A. of Spain

CIP: capital improvement program

Concession Lease Agreement/CLA: Concession and Lease Agreement for the Indiana Toll Road

DMR: Discharge Monitoring Report

DOT: Department of Transportation

EBL: east bound lane(s)

EN: entrance

EPA: Environmental Protection Agency

EX: exit

FHWA: Federal Highway Administration

FIFRA: Federal Insecticide, Fungicide and Rodenticide Act

FNS: friction number of smooth tire (unit less)

GDF: gasoline dispensing facility

GHS: Globally Harmonized System of Classification and Labeling of Chemicals

HMA: Hot Mix Asphalt

HMIS: Hazardous Materials Identification System

ID: Identification Number

IDEM: Indiana Department of Environmental Management

IDNR: Indiana Department of Natural Resources

IFA: Indiana Finance Authority

IHB: Indiana Harbor Belt Railroad

INDOT: Indiana Department of Transportation

IRI: international roughness index (unit less)

ISP: Indiana State Police

ITR: Indiana Toll Road

ITRCC: ITR Concession Company LLC

LCRUD: LaGrange County Regional Utility District

LDR: land disposal restrictions

LEPC: Local Emergency Planning Committee

LQG: large quantity generator

LUST: Leaking Underground Storage Tank

MACOG: Michiana Area Council of Government

Max. : Maximum

MEW: mandatory expansion works

Min.: minimum

MP: mile point / milepost

MQS: maintenance quality survey

MRO: monthly report of operation

NBI: National Bridge Inventory

NBIS: National Bridge Inspection Standards

NBL: north bound lane(s)

NDT: Non-Destructive Testing

NESHAP: National Emission Standards for Hazardous Pollutants

NFA: no further action

NPDES: National Pollutant Discharge Elimination System

OPI: organizational performance index

OPI Manual: Maintenance Quality Survey Manual and OPI Measures

OSHA: Occupational Safety and Health Administration

P-H: pin & hanger

P-T: post-tension

PCR: pavement condition rating (unit less)

PI: Performance Index

PQI: pavement quality index (unit less)

PUSH: (Pavement Upgrade for a Superior Highway) The 80/90 PUSH Project involved a major rehabilitation and upgrade of a 73 mile section of the Indiana Toll Road from MM 20 to MM93. The project included the mainline, shoulders, interchanges, installation of fiber optic cable, and various bridge works.

PVC: Polyvinyl Chloride

PWS: public water supply

RCRA: Resource Conservation and Recovery Act

RUT: rutting depth (inches)

SARA: Superfund Amendments and Reauthorization Act

SBL: south bound lane(s)

SCADA: Supervisory Control and Data Acquisition

SC: low-water scour

SI&A: Structural Inventory & Appraisal

SIC: Standard Industrial Classification

SPC: steel pier cap

SPCC: spill prevention, control, and countermeasures

Suff.: Sufficiency

TRI: toxic release inventory

USS: United States Steel Corporation

UST: underground storage tank

UT: Ultrasonic

WBL: west bound lane(s)

WN: west entrance

WTP: water treatment plant

WWTP: wastewater treatment plant

WX: west exit



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 our customers and communities. ITRCC seeks to accomplish this objective by maintaining a long-term perspective in all aspects of their operation. They focus on delivering a safe, efficient and sustainable toll facility and in doing so, continue to operate as a valued and trusted partner of the State of Indiana.

In accordance with the Amended and Restated Concession Lease Agreement (“CLA” or “Concession Lease Agreement”), ITRCC has completed and submitted the following *Annual State of the ITR Report – July 1, 2017 to August 1st, 2018* to the Indiana Finance Authority (the “IFA”). Primarily, the report outlines five major areas that comprise the Indiana Toll Road (“ITR”) System and are included as required reports by the CLA (Volume II, Section J.2.3., and Page 96):

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

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

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

				Toll Plazas			Travel Plazas		
Maint. District	From (miles)	To (miles)	Total miles	Exit Number	Exit Name	Number of Ramps	Travel Plaza	Travel Plaza MP	Number of Lots
M-1	0	30	30	0	Indianapolis Boulevard	1	1N	21.7	1
				1	Westpoint Barrier	1	1S	21.7	1
				3	SR 912 / Cline Avenue	1			
				5	Calumet Avenue	2			
				10	Cline Avenue	2			
				14A	Gary West	2			
				14B	Broadway	2			
				17	Gary East	2			
				21	Lake Station	2			
				23	Willow Creek	2			
				24	Portage Barrier	1			
						18			2
M-2	30	62	32	31	Valparaiso / Chesterton	2	2N*	37.5	1
				39	Michigan City	2	2S*	37.5	1
				49	LaPorte	2	3N	55.9	1
							3S	55.9	1
						6			4
M-3	62	92	30	72	South Bend West	2	5N	90	1
				77	South Bend Norte Dame	2	5S	90	1
				83	Mishawaka	2			
				92	Elkhart	2			
						8			2
M-4	92	124	32	96	Elkhart - East	2	6N*	108	1
				101	Bristol	2	6S*	108	1
				107	Middlebury	2			
				121	Howe - LaGrange	2			
						8			2
M-5	124	156.9	32.9	144	Angola	2	7S	125.8	1
				153	Eastpoint	1	7N	125.8	1
			156.9			3			2
Total						43			12
* Truck parking Only									
1 Ramp = Exit Ramp & Entrance Ramp. Therefore, most exits will have 2 ramps.									

Table 1.1: Maintenance Districts and Corresponding Mile Points and Plazas

Bridge and Structure Condition Report Summary

Overview of Bridge OPI Measures

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

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

Summary of NBI Ratings and Asset Sufficiency Rating

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

Summary of Bridge Conditions and Ratings

The most recent inspections were performed by Indiana Department of Transportation (INDOT) Certified Bridge Inspection Team Leaders. The bridge information within this report contain information provided by the 2017 routine inspection program and the 2017 special inspection program. Lochner has compiled information for this report by reviewing the submitted reports to the ITR as well as reviewing the NBIS data and their respective executive summaries. The information provided contains exact language used in these reports.

The average sufficiency rating listed in **Table 1.2: Average Bridge Sufficiency Ratings and Percent Deficiencies of Elements for 2017**, having been updated with current sufficiency rating data available from NBIAS. This table represent all 280 bridges not currently within the PUSH project. The PUSH structures have not been added to these metrics due to the fact the all elements of these structures were under construction during the 2017 inspections. Additionally, the previously applied ratings, prior to that of 2016, for the 53 PUSH structures have not been added to this list since the previous ratings would not represent a true state of the ITR for the 2017 inspection year.

The ITRCC began the PUSH project in 2016 which would include bridge rehabilitation and maintenance for the 53 structures excluded from the following tables. The PUSH scope directly calls for the minimum sufficiency ratings and NBIS ratings per each bridge. The PUSH NBIS ratings will be completed by the design build team and directly inputted to NBIS. These metrics will be reflected in the 2018-2019 Annual State of the ITR report.

The state of the ITR structures in general has increased in its overall percentages of satisfactory and greater condition ratings, which is the result of lower deficiencies discovered during inspections. The use of protective coating paint has resulted in an overall decrease in deficiencies since the 2015 inspections. Wearing surface and deck deficiencies have also improved as well over this time frame due to rehabilitation projects outside that of the PUSH project. The rehabilitations and new construction applied to many structures have moved the Deck and Paint ratings to 90% of the toll road in satisfactory or greater condition. Superstructures and Substructures show an even higher standing at 98.57% and 99.29% in fair or greater condition. In 2017 ITRCC implemented a complete reevaluation of the 10 year capital improvement program for all bridge assets. Using the 2015/2016 bridge inspection data and the advanced asset planning system of VUEWorks, a new budget and plan was generated to help lower the amount of deficiencies and further increase the overall condition of the ITR structures.

2017 ITR Bridge Conditions (Minus PUSH 53 Structures)			
	Def. Rating	Avg. Suff. Rating	% Def.
Wearing Surface	<= 5	87.38	8.93%
Deck	<= 5		10.00%
Paint	<= 5		10.00%
Superstructure	<= 4		1.43%
Substructure	<= 4		0.71%

Table 1.2: Average Bridge Sufficiency Rating and Percent Deficiencies of Elements for 2017

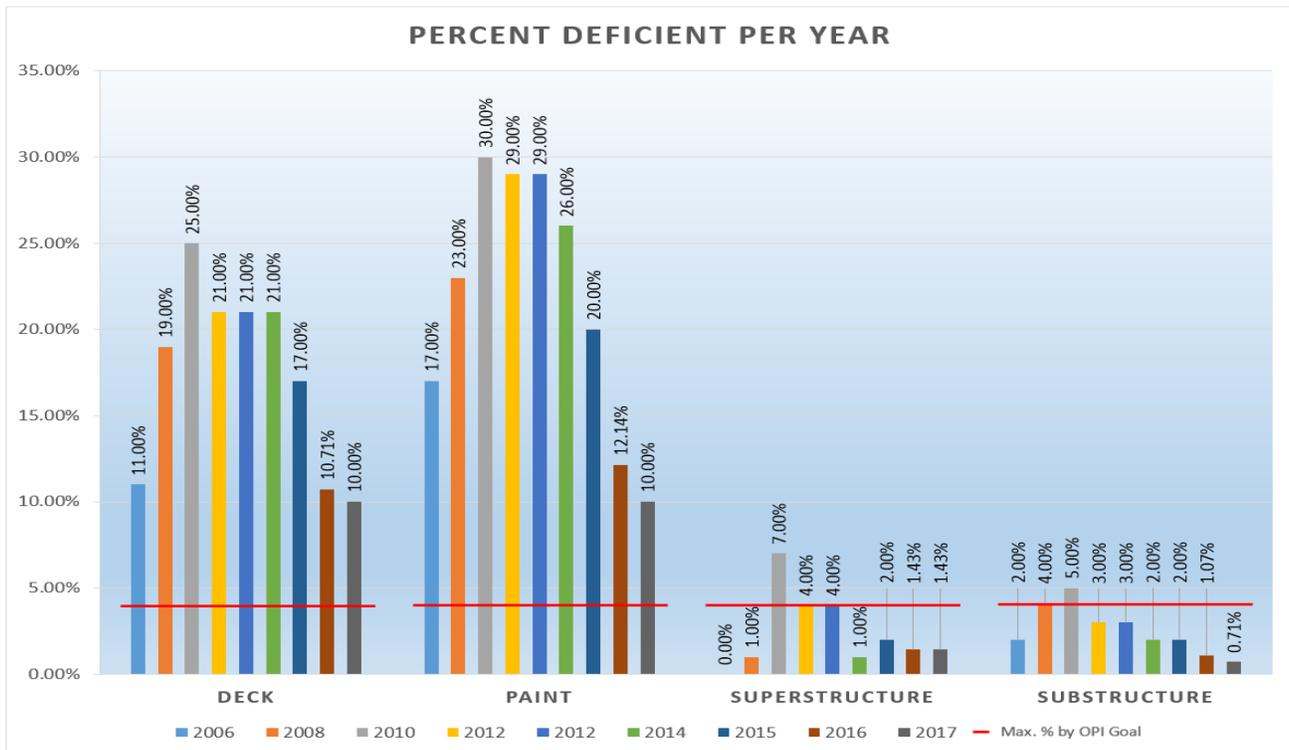


Figure 1.1: Bridge Condition Ratings

Roadway Condition Report Summary

Overview of Pavement Lease Requirements and OPI Measures

The CLA establishes three main pavement criteria that 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.

Summary of Pavement Measurements

Following a review of the electronic data provided by Applied Research Associates and a visual inspection of the mainline pavement during the maintenance OPI inspection, it is the conclusion of Lochner that the mainline pavement, in general, is meeting the goals and criteria as outlined in the CLA. Measurements for the Pavement OPI were taken during a week in the fall of 2017 by Applied Research Associates, Inc. and are further summarized in the field report named “Pavement Condition Inspection for the Indiana Toll Road” dated March 16, 2018.

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

Table 1-4: Pavement Condition Measurement Summary illustrates the measurements for IRI, RUT, and FNS assessments along the length of the ITR. The friction numbers represented below included the combination of both the mainline pavement and the mainline bridge decks.

Measurement	Interval of Data Accrue ment	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
IRI	one-tenth mile	< 150	72	N/A	N/A	< 190	146
RUT	one-tenth mile	N/A	0.025	N/A	N/A	< 0.625 inch	0
FNS	approx. one mile	N/A	44.4	> 30	58	N/A	N/A

Table 1.4: Pavement Condition Measurement Summary

Summary of Pavement Ratings

The mainline pavement ratings are determined quantitatively from the Pavement Quality Index (PQI) formula and ranges detailed in **Part B: Detailed Review, Section 3.3.3**. The pavement ratings for the toll and travel plazas are based on engineering judgment during visual inspections and are summarized in **Table 1.5: PQI Rating Percentages for Mainline**, **Table 1.6: Toll Plaza Ramp Conditions**, **Table 1.7: Travel Plaza Ramp Condition** and **Table 1.7: Truck Parking Pavement Condition**.

ITR MAINLINE PQI			
Category	2015	2016	2017
Average PQI	93.3	92.1	92.1

Table 1.5: PQI Rating Percentages for Mainline

NOTE: The OPI ratings for toll plazas are rated in the spring of 2018 whereas the mainline PQI ratings are gathered in the fall of 2017. ITRCC is currently advancing paving rehabilitations to address the noted deficiencies found in the Toll Plaza pavement between MM 0 to MM 20. **Table 1.6** reflects the improvement of the ramps from MM 20 to MM 93 which were included in the PUSH project.

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

Middlebury	107	Fair	Good	Fair	Fair
Howe-LaGrange	121	Good	Good	Fair	Fair
Angola	144	Fair	Fair	Fair	Fair
Eastpoint	153	Good	Good	Poor	Fair

Table 1.6: Toll Plaza Ramp Conditions

NOTE: The visual inspections ratings for travel plazas are also rated in the spring of 2018. Tables 1.7 & 1.8 illustrates the pavement condition of the travel plazas and trucking parking lots. Per the OPI ratings metrics these two sections are rated together however they have been separated to illustrate the improvements in travel plaza pavement resulting from a significant investment by ITRCC over the last two years. The trucking parking lot pavement is currently being evaluated for capital improvements, prior to the forecasted capex spending, to address quality and capacity of the lots.

Travel Plaza	MP	2015 General Condition	2016 General Condition	2017 General Condition	2018 General Condition
Eastbound					
TRP - 1S	21.7	Good	Fair	Excellent	Excellent
TRP - 3S	55.9	Poor	Poor	N/A - under construction	Excellent
TRP - 5S	90	Poor	Poor	Poor	N/A - under construction
TRP - 7S	125.8	Good	Good	Excellent	Excellent
Westbound					
TRP - 1N	21.7	Good	Poor	Excellent	Excellent
TRP - 3N	55.9	Fair	Poor	N/A - under construction	Excellent
TRP - 5N	90	Fair	Poor	Poor	N/A - under construction
TRP - 7N	125.8	Fair	Good	Excellent	Excellent

Table 1.7: Travel Plaza Ramp Conditions

Truck Parking Only	MP	2015 General Condition	2016 General Condition	2017 General Condition	2018 General Condition
Eastbound					
Dist. 11 ISP	76	Excellent	Excellent	Poor	Closed
TRP - 2S	37.5	Good	Poor	Poor	Poor
TRP - 6S	108	Fair	Fair	Poor	Poor
TRP - 8S	145.7	Good	Closed	Closed	Closed
Westbound					
TRP - 2N	37.5	Poor	Poor	Poor	Poor
TRP - 6N	108	Fair	Fair	Poor	Poor
TRP - 8N	145.7	Poor	Closed	Closed	Closed

Table 1.8: Truck Parking Ramp Conditions

Maintenance Items Report Summary

Overview of Maintenance OPI Measures

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

- | | |
|----------------------------|----------------------|
| 1. Guardrail Deficiency | 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; Detailed Review, Section 4.2**. The ratings range from 0 to 6 with 6 being the highest.

OPI Measures	Toll Plaza Maintenance Item Deficiencies			
	2018			
	Deficiencies	Def/Ramp	OPI Goal	OPI Rating
Guardrail Deficiency	10	0.233	>=4	6
Pavement Deficiency	32	0.744	>=4	4
Vegetation Obstruction	1	0.023	>=4	6
Litter	6	0.140	>=4	6
Drainage Obstruction	1	0.023	>=4	6
Sign deficiency	21	0.488	>=4	4
Pavement Marking Deficiency	27	0.628	>=4	4
Fence Deficiency	0	0.000	>=4	6

Table 1.9: Toll Plaza Ramp Maintenance Items for ITR

It should be noted that the pavement deficiencies set forth below at the travel plazas are relative to only the plazas containing truck parking only and not the pavement of the newly remodel plazas containing fuel and rest stop amenities. A program to access truck parking solutions is underway.

OPI Measures	Travel Plaza Maintenance Item Deficiencies (Including Truck Parking Lots)			
	2018			
	Deficiencies	Def/Plaza	OPI Goal	OPI Rating
Guardrail Deficiency	6	0.600	>=4	4
Pavement Deficiency	32	3.200	>=4	0
Vegetation Obstruction	1	0.100	>=4	6
Litter	18	1.800	>=4	6
Drainage Obstruction	5	0.500	>=4	5
Sign deficiency	14	1.400	>=4	1
Pavement Marking Deficiency	13	1.300	>=4	1
Fence Deficiency	1	0.100	>=4	6

Table 1.10: Travel Plaza Maintenance Items for ITR

OPI Measures	Mainline Maintenance Item Deficiencies			
	2018			
	Deficiencies	Def/mile	OPI Goal	OPI Rating
Guardrail Deficiency	58	0.370	>=4	5
Pavement Deficiency	159	1.015	>=4	2
Vegetation Obstruction	0	0.000	>=4	6
Litter	10	0.064	>=4	6
Drainage Obstruction	7	0.045	>=4	4
Sign deficiency	19	0.121	>=4	6
Pavement Marking Deficiency	133	0.849	>=4	0
Fence Deficiency	35	0.223	>=4	3

Table 1.11: Mainline Maintenance Items for ITR

NOTE: The visual inspections ratings for the OPI measurements are measured in accordance with the OPI maintenance manual and are not directly rated to the overall good condition of the pavement represented in the ratings found in section 4 of the roadway condition report.

Additionally, ITRCC has added in-lay pavement markings to the PUSH contract which will be completed in 2018. This addition will result in an increased OPI score for pavement markings.

Fence deficiencies are being addressed through a 2018 comprehensive fence repair program.

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 May 2018, Group D facilities were inspected. Shown in **Table 1.11: Facilities Condition State** is a breakdown of all buildings within the area of the 2018 inspection limits:

2018 Facility Assessment				
Structure Number	Building Description	Building Group	Mile Point	General Condition
44-08	Main Building	Group D	120.5	Good
44-09	North Toll Booth	Group D	120.5	Good
44-10	South Toll Booth	Group D	120.5	Good
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	Excellent
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	Good
44-29	Center Green Minibarn - Water Reclamation	Group D	125.8 WBL	Good
44-30	West Green Minibarn	Group D	125.8 WBL	Good
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	Good
44-19	Communications tower building	Group D	125.8 EBL	Good
44-20	Water management building	Group D	125.8 EBL	Good
44-21	WWTP	Group D	125.8 EBL	Fair
44-22	WWTP Clarifiers	Group D	125.8 EBL	Good
44-23	Large blue maintenance barn	Group D	125.8 EBL	Good
44-31	Green well head	Group D	125.8 EBL	Good

76-01	Maintenance building	Group D	137.5 EBL	Good
76-02	Grey Storage Barn	Group D	137.5 EBL	Good
76-03	Salt Storage Pyramid	Group D	137.5 EBL	Fair
76-04	Small Gas Kiosk	Group D	137.5 EBL	Fair
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	Good
76-08	Main Building	Group D	143.9	Good
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	Good
76-30	Toll Booth 1	Group D	153	Fair
76-31	Toll Booth 2	Group D	153	Fair
76-32	Toll Booth 3	Group D	153	Fair
76-33	Toll Booth 4	Group D	153	Fair
76-34	Toll Booth 5	Group D	153	Fair
76-35	Toll Booth 6	Group D	153	Fair
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	Fair
76-39	Toll Both Canopy	Group D	153	Fair
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	Good
76-51	Toll Booth 11	Group D	153	Good
76-52	Toll Booth 12	Group D	153	Good
76-53	Toll Booth 13	Group D	153	Good
76-42	Salt Pyramid	Group D	156 EBL	Fair
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	Good

Table 1.12: Facilities Condition State

It should be noted that ITRCC has budgeted and programmed a comprehensive facility repair and upgrade plan to address both structure, cosmetic and aesthetic repairs for 2018 and 2019. Several areas noted in this report as deficient have works planned to address such deficiencies, but such work had not occurred prior to the inspection referenced in this report.

Treatment Plants and Other Environmental Issues Report Summary

Environmental Facilities

During the 2018 inspection, the majority of major equipment at ITRCC facilities was observed to be in operable condition by audit personnel. Management of regulatory environmental records were well kept and in excellent order. Environmental inspections took place during the period of May 23^d through May 24th.

In line with the \$70M travel plaza rebuild project and in partnership with the IFA, LaPorte County, and LaGrange County, ITRCC is working toward ownership transfer of both water & wastewater treatment plants, to the local municipalities. This turnover involves ITRCC upgrading and making improvements to the facilities. This partnership will provide a significant reduction to ITRCC's environmental footprint, while providing the LaGrange and LaPorte county regions with improved service and expansion capabilities to local communities.

VUEworks Integration

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

Findings are entered as Service Requests, with supervision creating the appropriate Work Order. Lochner provided assistance to ITRCC in developing templates to be used in VUEWorks for the facility inspections. Lochner worked closely with ITRCC throughout the inspection process to ensure data is provided in the appropriate format for the ease of uploading information into VUEWorks.

ITRCC has implemented an industry leading standard in managing their multitude of assets. VUEworks not only incorporates the assets relating to the 'State of the ITR Report', but also the inclusion of signs, sign structures, high mast light structures, cobra head light structures, and small drainage structures.

The assets that are reported within this report include all 333 bridge structures, all facility buildings, and the roadway sections broken down into tenth mile segments. With this level of detail, the assets can be tracked based on inspection data and planned for maintenance and construction with a greater accuracy and level of detail. This process will also allow ITRCC to plan future projects by bundling assets into comprehensive projects allowing for greater economy of scale.

The positive implementation of VUEworks can already been seen along the ITR and the improvements that have been made and planned for the future.



2: BACKGROUND

PART B: DETAILED REVIEW

BACKGROUND

On January 23, 2006, the governor of Indiana, Mitchell E. Daniels, Jr., introduced and recommended the “Major Moves” initiative to the Indiana General Assembly. The Major Moves initiative was a sweeping legislative package that leased the operation and management of the ITR to a private joint venture between The Macquarie Infrastructure Group (Macquarie) of Australia and the Cintra Concesiones de Infraestructuras de Transporte, S. A. (Cintra) of Spain. In exchange for \$3.85 billion, Cintra and Macquarie received the right to operate the ITR for a period of 75 years.

The Amended and Restated Concession and Lease Agreement for the Indiana Toll Road (referred to as the Concession Lease Agreement hereafter) is a three-volume document written and agreed upon by the IFA and ITRCC as the basis for operation of the ITR.

On April 12, 2006, the IFA and the ITRCC, the joint venture formed by Cintra and Macquarie, executed the Concession and Lease agreement.

In preparation of the transfer of the ITR operation, Governor Daniels issued Executive Order 06-10 to establish a seven-member citizens’ board on June 6, 2006 to ensure that ITRCC complied with the Concession Lease Agreement. Upon the receipt of \$3.85 billion, the IFA transferred the operation and management of the ITR to the ITRCC on June 29, 2006.

On May 27, 2015, ownership of ITRCC transferred from Cintra/Macquarie to IFM Investors for the remaining 66 years of the 75-year agreement for \$5.725 billion. IFM Investors is a uniquely-structured global fund manager with \$79B under management. IFM was established more than 20 years ago and is owned by 30 major pension funds, with more than 70 U.S. pension fund investors. There had been a historical underinvestment in the ITR in the years leading up to the bankruptcy and final transfer, however, IFM Investors has made very strong progress to remedy these issues and set up appropriate long term plans to ensure outperformance of CLA requirements over the long term. This includes the more than \$300m that has been invested in capital improvements since 2015 delivering material improvements to pavement, bridges, travel plazas and safety through the installation of an Intelligent Transportation System.



3: BRIDGE AND STRUCTURE CONDITION REPORT

Bridge and Structure Condition Report

General

Bridge inspections, consisting of a routine, fracture critical, and special inspections were completed for the assessment of each bridge within ITRCC's jurisdiction in 2017 by Lochner. Routine NBIS inspections were performed on 280 bridges with National Bridge Inventory (NBI) Reports for each bridge prepared utilizing INDOT's web-based Bridge Inspection Application System (BIAS). The 53 remaining structures under the PUSH contract received durability reports from the projects design build team and were under construction during the 2017 inspections. Fracture critical, pin & hanger, steel pier cap, post-tensioned, and small structures inspections were also performed in 2017 as required by Federal, State, and Concession Lease Agreement regulations. State highway bridges, federal land bridges, privately owned bridges, and bridges carrying railroad traffic were not included in the report.

Routine Bridge Inspections

The 2017 NBIS Bridge Inspection Report is the result of visual observations and data obtained during field inspections performed by Lochner between July and September 2017 with conclusions based on relatively evident deficiencies. No invasive or destructive testing was performed unless specifically authorized by ITRCC and so noted. A great deal of emphasis is placed on the judgment and expertise of the Engineer performing the field inspections. As such, all field work was completed by a Bridge Inspection Team Leader qualified by INDOT. The highest level of professional judgment was used throughout this report however, it is noted that concealed deficiencies are possible and may remain unnoted in some cases. 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 Table 3-1: Special Detail Bridges, Column A. These inspections were performed by Lochner in the summer of 2017 as part of the 2017 Bridge Inspection Program cycle.

Underwater Inspections

Underwater inspections are required on a 5-year cycle for a total of 10 bridges under ITRCC jurisdiction as noted in Table 3.1: Special Detail Bridges, Column B. These inspections were performed in June 2017 by SJCA Engineers, and will not require inspection again until 2022 inspection cycle.

Special Inspections

Special Inspections are required for a total of 7 bridges under ITRCC jurisdiction as noted in Table 3.1: Special Detail Bridges, Column C. Special Detail Inspections are required on an annual frequency. Special Detail Inspections (steel pier cap “hands-on”, pin & hanger “hands-on”, or post-tensioned structures inspection) for each of these structures were completed in 2017 by Lochner

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.

Currently, all bridges on the ITR system with substructure units in the waterway are rated as not critical for scour per Structural Inventory & Appraisal (SI&A) Coding Item 113A = 8. Even with a low risk scour critical evaluation, all ITR structures with substructure units (piers and/or abutments) in the water are checked for actual scour as part of the routine NBIS inspections and underwater inspections, if required. In 2017, 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.

Structure No.	MP	Feature Intersected	(A)	(B)	(C)
1A-1	.08	US 12, 20, 41, SR 152	X		
1-3 EBL & WBL	1.56	Indiana Harbor Belt Railroad	X		
5-2 EBL & WBL	6.56	Grand Calumet River, Roxana Drive		X	P-H*
10(02) WX	10.16	Grand Calumet River		X	
10(03) EX	10.15	Grand Calumet River		X	
10(04) EN	10.06	Grand Calumet River		X	
10(05) WN	10.05	Grand Calumet River		X	
28-1 EBL & WBL	75.97	St. Joseph River	X	X	
32-6 EBL & WBL	90.98	C.R. 7			P-T
35-1.6	96.10	Ramp (C.R. 17) over ITR			P-T
36-1 EBL & WBL	100.14	C.R. 25 & St. Joseph River		X	
40/41-1 EBL & WBL	112.55	Pigeon River			SPC
Number of Inspections by Type:			5	10	7
<p>Notes: Column (A): Indicates Fracture Critical Inspection required on annual basis Column (B): Indicates Underwater Inspection required on 5-year cycle Column (C): Indicates Special Inspection as follows:</p> <ul style="list-style-type: none"> • P-H indicates pin and hanger inspection required on an annual basis <ul style="list-style-type: none"> ○ * Recommendation moving to as needed interval. • SC indicates low-water scour inspection required on biennial basis (Item 113 = 3) • P-T indicates post-tension inspection required on an annual basis • SPC indicates steel pier cap inspection required on annual basis 					

Table 3.1: Special Detail Bridges

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 **paint** condition are as outlined in the Bridge Coding Guide as follows:

N	Not Applicable - no paint
9	Excellent - recently painted, good seal
8	Very Good - may be 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, extensive chalkiness, some peeling
5	Fair - many areas of light rust, localized areas of medium to heavy rust buildup, extensive peeling
4	Poor - many areas of medium rust, localized areas of heavy rust buildup, extensive peeling
3	Very Poor - many areas of heavy rust, extensive peeling
2	Very Poor - many areas of heavy rust, extensive 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

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

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

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

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

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

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

Bridge Sufficiency Rating = S1 + S2 + S3 - S4

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

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

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

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

Bridge Condition Summary

Figure 3-1: Bridge Condition Ratings detail the conditions of the bridge elements over the period from 2006 to 2017 based on NBIS biennial inspections performed during this period. While the condition across all bridge elements improved in 2017, the protective paint coating concrete bridge deck condition are the most deficient element. With the protective coating paint seeing an overall decrease in deficiencies from the 2015 inspections. Wearing surface and deck deficiencies have also dropped as well over this time frame due to rehabilitation projects outside that of the PUSH project. The rehabilitations and new construction applied to many structures have moved the Deck and Paint ratings to 90% of the toll road in satisfactory or greater condition. The Superstructure and Substructure show an even higher standing at 98.57% and 99.29% in fair or greater condition. Once the PUSH project is complete in 2018 the overall deficiencies percentage will have a greater decrease again due to these numerous improvements and significant investment

Bridge Element Inspections were also completed on all ITR bridges in 2017, from which calculated quantities for total bridge deck area and wearing surface area for the entire system were obtained. These quantities can be used to help develop a more focused view of the condition of the bridge and areas of possible future rehabilitation and or preventative maintenance.

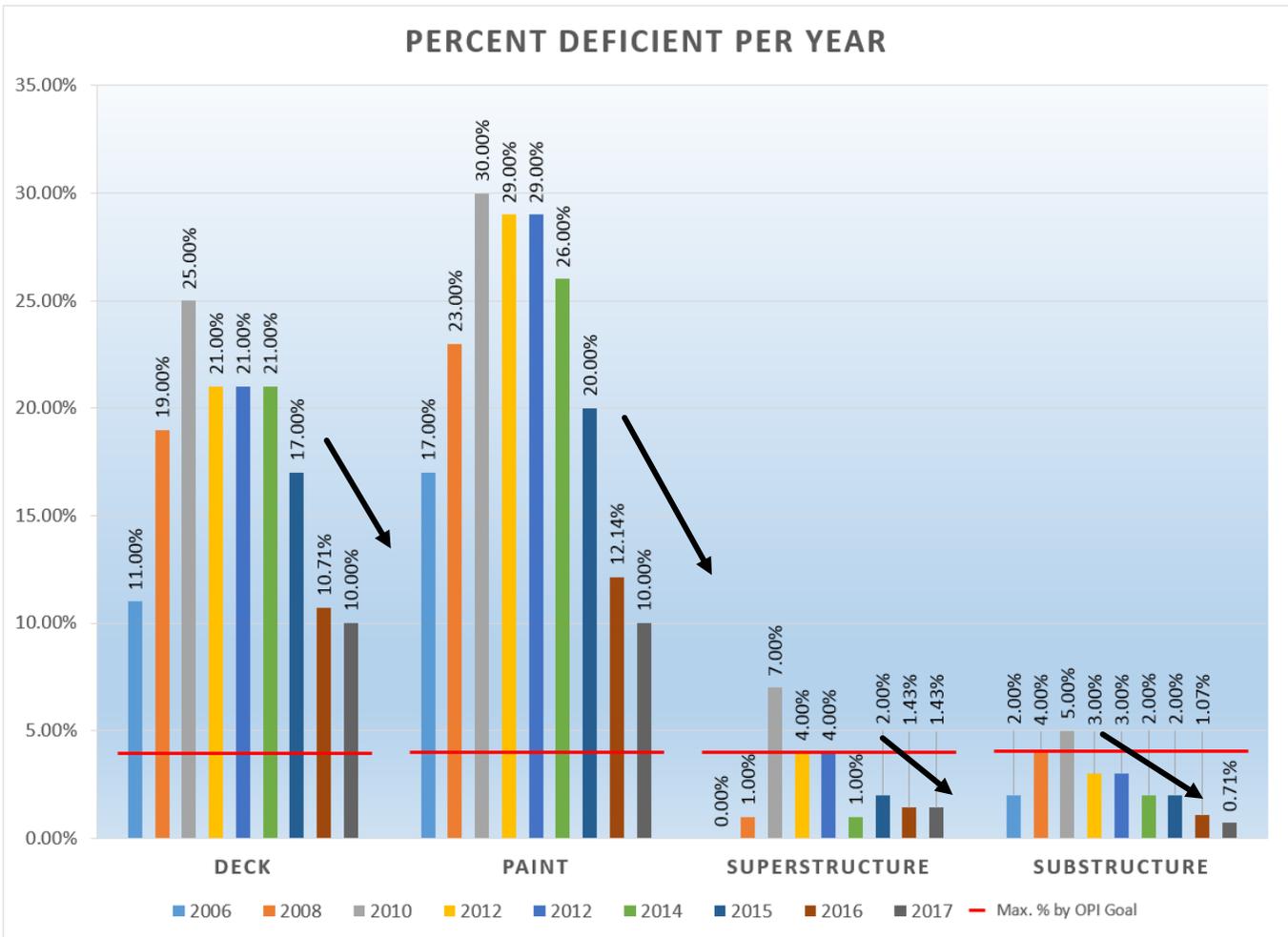


Figure 3.1: Bridge Condition Ratings

Indiana Toll Road Bridge Road Conditions – OPI Ratings										
	Def. Rating	2006	2008	2010	2012	2014	2015	2016	2017	2017 OPI
Wearing Surface	<=5	N/A	23.00%	N/A	39.00%	20.00%	13.00%	12.86%	8.93%	0
Deck	<=5	11.00%	19.00%	25.00%	21.00%	21.00%	17.00%	10.71%	10.00%	0
Paint	<=5	17.00%	23.00%	30.00%	29.00%	26.00%	20.00%	12.14%	10.00%	0
Superstructure	<=4	0.00%	1.00%	7.00%	4.00%	1.00%	2.00%	1.43%	1.43%	4
Substructure	<=4	2.00%	4.00%	5.00%	3.00%	2.00%	2.00%	1.07%	0.71%	5
Avg. Suff. Rating	N/A	N/A	86.2	85.9	83.8	84.7	85.6	87.3	87.38	NA

Table 3.2: Average Bridge Sufficiency Rating and Percent Deficiencies of Elements from 2006-2017

Bridge Number	Change in Rating: Deck		Change in Rating: Superstructure		Change in Rating: Substructure		Change in Rating: Sufficiency	
	2015	2017	2015	2017	2015	2017	2015	2017
(13)I90-20-038-2	6	6	6	6	6	6	75.50	75.50
(15)I90-20-037-1	6	6	5	5	6	6	65.00	64.00
(912)90-45-03-02 RR	7	7	7	6	7	7	92.20	92.20
(912)90-45-03-03 WN	7	7	6	6	6	6	90.20	90.20
(912)90-45-03-04 ML	7	7	7	7	6	6	89.90	89.90
(I65)I90-45-010-5.5	8	7	8	8	8	8	96.00	96.00
(I90)I69-356-04820 A	5	5	6	6	6	6	86.00	86.00
(I90)I80-15-05262 BEBL	8	8	8	8	7	7	94.60	94.60
031-71-06792	6	6	6	6	7	7	96.40	96.40
912-45-06603 EBL	6	6	6	6	4	4	71.90	71.90
912-45-06603 JWBL	6	6	5	5	5	5	86.90	85.90
I90-20-0101R	8	7	7	7	7	7	90.10	90.10
I90-20-032-1	8	7	7	7	7	7	78.60	78.60
I90-20-032-3	7	7	7	7	6	6	78.00	78.00
I90-20-032-4	7	7	8	7	8	7	78.30	78.30
I90-20-032-5	8	7	8	7	8	7	78.00	78.00
I90-20-032-6 EBL	8	8	8	8	8	8	95.70	95.70
I90-20-032-6 WBL	8	8	8	8	8	8	95.70	95.70
I90-20-034-2	7	6	7	7	6	6	90.70	90.70
I90-20-034-6	N	N	N	N	N	N	80.00	80.00
I90-20-034-8	8	8	8	7	8	7	81.40	81.40
I90-20-034-9	8	7	8	7	6	6	69.40	69.40
I90-20-035-1 EBL	8	7	6	7	8	8	92.70	92.70
I90-20-035-1 WBL	8	7	8	7	8	8	92.70	92.70
I90-20-035-1.3	8	7	7	7	6	6	96.00	96.00
I90-20-035-1.6	8	8	8	8	8	8	84.60	84.60
I90-20-035-2	8	8	7	7	8	7	81.60	81.60
I90-20-035-3	N	N	N	N	N	N	80.10	80.10
I90-20-035-4 EBL	6	6	6	7	7	7	85.60	85.60
I90-20-035-4 WBL	5	6	6	6	7	7	84.60	85.60
I90-20-035-5	8	8	7	7	7	7	81.30	81.30
I90-20-036-1 EBL	7	7	7	7	7	7	94.90	94.90
I90-20-036-1 WBL	7	7	7	7	7	7	94.90	94.90
I90-20-037-2 EBL	8	7	7	7	8	7	94.80	94.80
I90-20-037-2 WBL	8	7	8	8	8	7	94.80	94.80
I90-20-037-3 EBL	8	7	8	7	8	7	96.80	96.80
I90-20-037-3 WBL	8	7	8	7	8	7	96.80	96.80
I90-20-037-4	7	7	7	7	7	7	89.90	89.90

I90-20-037-6 EBL	6	5	6	6	5	5	72.10	71.10
I90-20-037-6 WBL	5	5	6	6	6	5	82.30	71.10
I90-20-038-1	7	7	7	7	6	6	95.40	95.40
I90-44-038-3	8	7	6	6	7	7	91.90	91.90
I90-44-039-1	8	7	6	6	7	7	87.30	87.30
I90-44-039-2	8	8	6	6	7	7	87.40	87.40
I90-44-039-3	7	7	7	7	7	7	89.90	89.90
I90-44-039-4	8	8	6	6	7	7	92.90	92.90
I90-44-040/41-1 EBL	8	7	8	7	8	7	97.00	97.00
I90-44-040/41-1 WBL	7	7	8	7	8	7	97.00	97.00
I90-44-040/41-2	7	7	6	6	7	7	93.70	93.70
I90-44-040/41-3	8	8	7	7	7	7	89.70	89.70
I90-44-040/41-4	7	7	6	6	7	7	89.90	89.90
I90-44-040/41-5	7	7	6	6	7	7	94.00	93.00
I90-44-040/41-6	7	7	6	6	7	7	92.90	92.90
I90-44-042-1 EBL	8	8	7	7	7	7	96.80	96.80
I90-44-042-1 WBL	8	7	7	7	7	7	96.80	96.80
I90-44-043-2	7	7	7	7	7	7	96.00	96.00
I90-44-043-3 EBL	7	7	7	7	7	7	94.80	94.80
I90-44-043-3 WBL	7	7	7	7	7	7	94.80	94.80
I90-44-043-5 EBL	7	7	7	7	7	7	95.80	95.80
I90-44-043-5 WBL	7	7	6	7	6	7	95.80	95.80
I90-44-043-6	7	7	6	6	7	7	92.90	91.90
I90-44-044-1 EBL	5	5	5	5	6	6	63.60	63.60
I90-44-044-1 WBL	5	6	5	5	5	5	74.60	75.70
I90-44-045-1	7	7	6	7	7	7	92.90	92.90
I90-44-045-5	7	7	7	7	7	7	89.80	89.80
I90-44-045-6	7	7	7	7	6	6	93.70	93.70
I90-44-046-1	7	7	7	7	7	7	94.00	94.00
I90-44-046-2 EBL	5	5	5	5	7	7	72.40	84.70
I90-44-046-2 WBL	5	6	5	6	6	7	72.40	84.70
I90-44-046-3	N	N	N	N	N	N	80.20	80.20
I90-44-046-4	8	8	6	6	7	7	92.90	92.90
I90-44-047-1 EBL	6	6	6	6	6	6	86.10	86.10
I90-44-047-1 WBL	6	6	6	6	6	6	86.10	86.10
I90-44-048-1	7	7	6	7	7	7	93.00	93.00
I90-44-048-1A	7	7	6	6	7	7	94.00	94.00
I90-45-001-2 EBL	5	5	6	6	6	6	90.20	90.20
I90-45-001-2 WBL	5	5	5	5	6	6	78.90	78.90
I90-45-001-3 EBL	5	5	6	6	6	6	88.10	88.10
I90-45-001-3 WBL	5	5	6	6	6	6	88.10	88.10

190-45-001-4 EBL	7	7	6	6	6	6	87.10	87.10
190-45-001-4 WBL	7	7	6	6	6	6	87.10	87.10
190-45-002-1 EBL	5	5	6	6	5	5	69.70	69.70
190-45-002-1 WBL	5	5	6	7	5	5	69.70	69.70
190-45-002-2 EBL	6	6	6	6	6	6	85.10	85.10
190-45-002-2 WBL	6	6	6	6	6	6	85.10	85.10
190-45-002-3 EBL	6	6	5	5	6	6	72.80	72.80
190-45-002-3 WBL	6	6	5	5	6	6	72.80	72.80
190-45-002-4 EBL	6	6	6	6	6	6	84.90	84.90
190-45-002-4 WBL	6	6	6	7	6	6	84.10	84.10
190-45-002-5	5	5	6	6	5	5	85.20	85.20
190-45-004-1 EBL	5	5	6	6	6	6	85.00	85.00
190-45-004-1 WBL	5	5	6	6	6	6	85.00	85.00
190-45-004-2 EBL	5	6	6	6	5	6	75.70	88.10
190-45-004-2 WBL	5	6	6	5	5	6	75.70	76.80
190-45-004-3 EBL	6	6	6	6	6	6	85.00	85.00
190-45-004-3 WBL	6	6	6	6	6	6	85.00	85.00
190-45-004-5 EBL	6	6	6	6	5	5	77.80	77.80
190-45-004-5 WBL	6	5	6	6	5	5	77.80	76.80
190-45-004-6 EBL	6	6	6	6	7	7	87.10	87.10
190-45-004-6 WBL	6	6	6	6	7	6	87.10	87.10
190-45-004-7 EBL	5	5	7	7	6	6	81.90	81.90
190-45-004-7 WBL	5	5	7	7	6	6	81.90	81.90
190-45-005-1 EBL	5	5	7	7	7	7	84.00	84.00
190-45-005-1 WBL	6	6	7	7	7	7	85.00	85.00
190-45-005-2 EBL	6	6	6	6	6	7	80.10	80.10
190-45-005-2 WBL	6	6	6	6	6	7	76.60	76.60
190-45-006-1 EBL	6	6	7	7	6	6	85.10	85.10
190-45-006-1 WBL	6	5	7	7	6	6	89.20	88.10
190-45-006-2 EBL	6	6	7	7	7	7	83.30	83.30
190-45-006-2 WBL	6	6	7	7	7	7	83.30	83.30
190-45-006-3 EBL	6	6	5	5	5	5	75.80	75.80
190-45-006-3 WBL	6	6	5	5	5	5	76.20	76.20
190-45-007-5 EBL	6	6	5	5	6	6	79.00	79.00
190-45-007-5 WBL	6	6	5	5	6	6	78.20	79.20
190-45-008-3 EBL	8	7	7	7	8	7	88.30	88.30
190-45-008-3 WBL	8	7	7	7	8	7	94.40	94.40
190-45-008-5 EBL	8	8	8	8	8	8	91.00	91.00
190-45-008-5 WBL	8	8	8	8	8	8	91.30	91.30
190-45-008-7 EBL	8	9	7	7	8	7	89.30	89.30
190-45-008-7 WBL	8	8	7	7	8	8	94.30	94.30

I90-45-009-1 EBL	8	7	6	6	8	8	91.20	91.20
I90-45-009-1 WBL	8	7	6	6	8	7	96.40	96.40
I90-45-009-3 EBL	8	8	8	8	8	8	96.00	96.00
I90-45-009-3 WBL	8	8	8	8	8	8	90.90	90.90
I90-45-009-4 EBL	8	8	7	7	7	7	87.50	87.50
I90-45-009-4 WBL	8	8	7	7	7	7	87.20	87.20
I90-45-009-6A	8	8	8	8	8	8	95.80	95.80
I90-45-009-8	6	6	5	5	6	6	23.00	21.00
I90-45-010-2 EBL	7	7	8	8	8	8	94.80	91.80
I90-45-010-2 WBL	7	7	8	8	8	8	95.00	95.00
I90-45-010-3	7	7	8	8	8	8	97.90	97.90
I90-45-010-4	7	7	8	8	7	7	97.50	97.50
I90-45-010-5 EBL	7	7	8	8	8	8	96.00	96.00
I90-45-010-5 WBL	7	7	7	7	8	8	96.00	96.00
I90-45-010-6	7	7	8	8	7	7	96.40	96.40
I90-45-010-7 EBL	8	8	6	6	7	7	88.90	88.90
I90-45-010-7 WBL	8	8	6	6	7	7	88.90	88.90
I90-45-011-1	8	8	8	7	7	7	98.00	96.00
I90-45-011-2 EBL	8	8	8	8	8	8	92.10	92.10
I90-45-011-2 WBL	8	8	8	8	8	8	92.10	92.10
I90-45-011-3	5	5	6	6	5	5	67.50	67.50
I90-45-011-4 EBL	8	8	8	8	8	8	95.70	95.70
I90-45-011-4 WBL	8	8	8	8	8	8	95.70	95.70
I90-45-011-5 EBL	7	7	7	7	6	7	90.00	90.00
I90-45-011-5 WBL	7	7	7	7	6	7	88.00	88.00
I90-45-01A-1	5	5	6	6	5	5	76.70	76.70
I90-45-07-1A	6	6	6	5	6	6	83.00	72.00
I90-45-10-01RR EBL	5	5	4	4	6	7	64.60	64.60
I90-45-10-01RR WBL	5	5	4	4	7	7	64.50	64.50
I90-45-10-02WX	7	7	6	6	6	7	92.90	92.90
I90-45-10-03EX	6	6	7	7	6	6	95.30	95.30
I90-45-10-04EN	7	7	5	5	7	7	82.70	82.70
I90-45-10-05WN	7	7	6	6	7	7	91.00	91.00
I90-45-10-06ML EBL	5	7	5	5	7	7	79.00	80.00
I90-45-10-06ML WBL	6	8	5	6	7	7	80.00	91.30
I90-45-10-07RR EBL	6	6	4	4	6	7	65.60	65.60
I90-45-10-07RR WBL	6	6	4	4	6	6	65.50	65.50
I90-45-10-1T	N	N	N	N	N	N	89.90	86.70
I90-45-10A-1	8	8	7	7	8	8	98.00	98.00
I90-45-1A3-1	6	6	6	7	6	6	87.80	87.80
I90-45-1A3-2 EBL	7	6	6	7	6	6	84.00	84.00

I90-45-1A3-2 WBL	6	6	5	5	4	5	54.90	71.70
I90-45-BHX-A	9	9	9	9	9	9	95.50	97.50
I90-45-BHX-B	9	9	9	9	9	9	96.20	95.20
I90-46-018-3	6	6	8	8	8	7	98.00	98.00
I90-46-018-4	6	6	7	7	6	6	87.60	87.60
I90-46-018-6	7	7	6	6	8	7	93.40	93.40
I90-46-018-7 EBL	7	7	8	7	7	7	90.70	90.70
I90-46-018-7 WBL	6	7	7	7	6	6	90.70	90.70
I90-46-018-8	6	6	6	7	7	7	90.20	90.20
I90-46-019-1 EBL	7	7	7	7	6	6	89.70	89.70
I90-46-019-1 WBL	7	7	7	7	6	6	89.70	89.70
I90-46-019-2	7	6	7	6	8	8	94.40	94.40
I90-46-019-3	7	7	6	6	6	6	92.90	92.90
I90-46-019-4 EBL	7	7	8	7	7	7	87.70	87.70
I90-46-019-4 WBL	7	7	7	7	6	6	87.70	87.70
I90-46-019-5	6	6	5	5	7	7	65.60	65.60
I90-46-020-1 EBL	6	6	6	6	7	7	85.60	85.60
I90-46-020-1 WBL	6	6	6	6	7	7	83.60	83.60
I90-46-020-3 EBL	6	6	6	6	7	7	87.70	85.60
I90-46-020-3 WBL	6	6	5	6	7	7	74.40	85.60
I90-46-022-1	6	6	6	6	7	7	89.90	89.90
I90-46-022-2	7	7	6	6	7	7	88.30	87.30
I90-46-022-3	6	6	6	6	7	7	83.30	83.30
I90-46-022-4 EBL	6	6	6	6	7	7	88.70	88.70
I90-46-022-4 WBL	5	5	6	6	7	7	87.60	87.60
I90-46-023-1	6	6	6	6	7	7	88.30	88.30
I90-46-023-3	6	6	6	6	7	7	88.30	88.30
I90-46-023-4	6	6	6	6	6	6	92.90	92.90
I90-46-024-A EBL	6	6	6	6	7	7	83.60	83.60
I90-46-024-A WBL	6	6	6	6	7	7	83.60	83.60
I90-64-013-4	N	N	N	N	N	N	79.10	79.10
I90-64-013-6	7	7	5	5	4	4	50.80	50.80
I90-64-014-1 EBL	6	6	7	6	6	6	92.40	92.40
I90-64-014-1 WBL	6	6	7	7	6	6	92.40	92.40
I90-64-014-4 EBL	6	6	6	6	7	7	87.30	87.30
I90-64-014-4 WBL	7	7	6	6	7	6	87.30	87.30
I90-64-014-5	7	7	6	6	7	6	85.00	85.00
I90-64-014-6 EBL	6	6	6	6	6	6	85.30	85.30
I90-64-014-6 WBL	6	6	6	6	6	6	85.30	85.30
I90-64-015-4 EBL	6	6	6	6	7	7	83.20	83.20
I90-64-015-4 WBL	6	6	6	6	7	7	83.20	83.20

I90-64-015-5	7	7	7	7	7	7	94.90	94.90
I90-64-015-8	7	7	6	6	7	7	89.90	89.90
I90-64-016-1	6	6	8	8	7	7	78.80	78.80
I90-64-016-2	6	6	6	6	6	5	95.50	84.50
I90-64-016-4	N	N	N	N	N	N	68.50	68.50
I90-64-016-5	8	8	7	7	8	8	89.80	89.80
I90-64-017-1 EBL	6	5	5	5	6	6	72.30	71.30
I90-64-017-1 WBL	5	5	6	6	6	6	82.50	82.50
I90-64-017-4	8	8	6	6	8	7	94.70	94.70
I90-64-017-7	6	6	7	7	8	7	85.10	85.10
I90-71-0083 R	7	7	7	7	6	6	89.40	89.40
I90-71-024-B	7	7	7	7	7	7	93.30	93.30
I90-71-024-C	7	7	7	7	8	7	93.30	93.30
I90-71-025-B EBL	7	6	7	7	7	7	83.60	83.60
I90-71-025-B WBL	7	6	7	7	7	7	83.60	83.60
I90-71-026-A	7	7	7	7	7	7	92.90	92.90
I90-71-026-B	7	7	7	7	8	7	81.70	81.70
I90-71-026-C	7	7	7	7	8	8	85.30	85.30
I90-71-027-A SBL	5	5	8	7	6	6	76.90	76.90
I90-71-027-B	7	7	7	7	6	7	75.50	75.50
I90-71-028-1 EBL	7	7	6	6	7	7	96.50	96.50
I90-71-028-1 WBL	7	7	6	6	7	7	96.50	96.50
I90-71-029-3	N	N	N	N	N	N	79.80	79.80
I90-71-029-4 EBL	6	6	7	7	7	7	95.70	95.70
I90-71-029-4 WBL	8	7	7	7	8	7	91.60	91.60
I90-71-029-6	N	N	N	N	N	N	79.80	79.80
I90-71-029-8	N	N	N	N	N	N	68.20	68.20
I90-71-030-2 EBL	5	5	6	6	6	6	86.50	86.50
I90-71-030-2 WBL	6	6	7	7	7	7	87.50	87.50
I90-71-030-3 NBL	7	7	8	8	7	7	97.80	97.80
I90-71-030-3 SBL	6	6	7	7	7	7	78.50	78.50
I90-71-030-3.5	8	8	7	7	7	7	86.00	86.00
I90-71-030-6.5 NB	7	7	7	7	8	8	98.40	97.40
I90-71-030-6.5 SB	8	8	8	8	8	8	99.40	97.40
I90-71-031-1 EBL	7	7	8	8	8	8	90.60	90.60
I90-71-031-1 WBL	7	7	8	8	8	8	91.60	91.60
I90-71-031-3	6	6	8	8	7	7	77.10	77.10
I90-71-031-5	7	7	7	7	6	6	82.70	82.70
I90-71-0WX-1	7	7	7	7	7	7	95.80	95.80
I90-76-048-2 EBL	6	6	6	6	7	7	86.90	86.90
I90-76-048-2 WBL	6	6	6	6	7	7	85.90	85.90

I90-76-049-3	8	8	6	7	8	8	94.00	94.00
I90-76-049-4	8	8	7	7	7	7	94.00	94.00
I90-76-049-5 EBL	7	7	7	7	6	6	93.00	93.00
I90-76-049-5 WBL	7	7	7	7	6	6	93.00	93.00
I90-76-049-6 EBL	7	7	7	7	7	7	87.90	89.90
I90-76-049-6 WBL	7	7	7	7	7	7	89.90	89.90
I90-76-050-7	7	7	6	7	7	7	94.80	94.80
I90-76-052-2	8	8	6	6	7	7	98.00	98.00
I90-76-052-3	7	7	6	6	7	7	99.00	99.00
I90-76-052-5	7	8	6	7	8	7	99.00	99.00
I90-76-052-6	7	7	7	7	7	6	88.30	88.30
I90-76-053-1	7	8	7	7	6	6	93.90	93.90
I90-76-053-2	8	8	8	7	7	7	99.00	99.00
I90-76-053-3 EBL	8	8	8	8	8	8	95.00	95.00
I90-76-053-3 WBL	8	7	8	7	8	7	95.00	95.00
I90-76-053-5 EBL	8	8	8	7	8	7	95.10	95.10
I90-76-053-5 WBL	8	8	8	7	8	7	93.00	93.00
I90-76-053-6	8	8	6	7	7	7	98.00	99.00
I90-76-053-7	N	N	N	N	N	N	80.20	80.20
I90-76-053-8 EBL	7	7	7	7	7	6	95.00	95.00
I90-76-053-8 WBL	7	7	7	7	7	7	95.00	95.00
I90-76-053-9	7	8	7	7	7	7	94.00	94.00
I90-76-50-10 EBL	7	7	7	7	7	7	97.00	97.00
I90-76-50-10 WBL	7	7	7	8	7	7	96.00	96.00
I90-76-50-7A	8	7	7	7	7	7	99.00	99.00
I90-76-50-8 EBL	7	7	7	7	7	7	89.90	89.90
I90-76-50-8 WBL	7	7	7	7	7	7	89.90	89.90
I90-76-50-9 EBL	6	6	6	6	6	6	87.90	87.90
I90-76-50-9 WBL	6	6	6	6	6	6	87.90	87.90
I90-76-51-1	7	7	7	7	7	7	88.70	88.70
I90-76-51-2 EBL	8	7	7	8	8	7	97.10	97.10
I90-76-51-2 WBL	8	8	7	7	8	8	96.10	96.10
I90-76-51-5	7	7	6	6	8	8	94.80	94.80
I90-76-51-6 EBL	8	8	8	8	8	7	96.00	96.00
I90-76-51-6 WBL	8	8	8	8	8	7	96.00	96.00
I90-76-51-7 EBL	8	7	8	7	8	7	97.00	97.00
I90-76-51-7 WBL	8	8	8	8	8	7	97.00	97.00

Table 3.3: National Bridge Inventory (NBI) and Bridge Sufficiency Ratings for all Bridges on ITR (Minus PUSH structures)

While structure I90-45-009-8 in table 3.3 above has a bridge sufficiency rating of 21.00, it should be noted that the structure is no longer in use. ITRCC will be addressing the removal of the structure of the Bridge Inventory System.

Table 3.2: Average Bridge Sufficiency Rating and Percent Deficiencies of Elements from 2006-2017 notes, the majority of bridge elements are rated as “good” (with NBIS condition ratings greater than 5). There has been a decrease in the percent deficiencies of the individual items compared to the previous year. The decrease shown for the 2017 ratings is related rehabilitation projects and the removal of the 53 bridges (this bridge total is approximately 18% of the entire ITR inventory) included in the PUSH project. At completion of the PUSH project the new ratings will decrease the overall deficiency averages as well.

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 correct minor drainage, joint, and patching needs. ITRCC employs one preventative bridge maintenance crew that was trained by the Transportation Training Institute in 2017. This crew and plan will help to lower and maintain low deficiencies throughout the bridge structures’ surface life.

Fracture Critical Member Report (Summary)

Five bridge structures were inspected in 2017 as part of the most recent fracture critical inspection program completed during the 2017 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 2017 by Lochner. Each bridge contains a full fracture critical and/or special inspections report that has been completed by Lochner and attached to the asset in NBIS.

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

Fracture critical elements in Bridge 1A-1 include the steel column/bents that make up the bridge substructure. Steel plates and angles riveted as built-up members comprise the bents. An arms-length visual and tactile inspection focusing on the tension zone areas and connections of the bents was performed in July 2017 in order to locate potential defects such as cracks, section loss, pack rust and damage.

The structure is in overall fair condition. Typically observed on the north bridge railing were rust staining and in numerous spans with exposed rebar. The median railing exhibited closely spaced vertical cracks throughout the structure. The exposed rebar along the railing is in need of repairs. The wearing surface on the deck was in satisfactory condition with areas of wearing and cracking observed. Overhang areas along both sides of the bridge typically had spalling with exposed rebar running the full length of the structure. Deficiencies noted at multiple areas of the deck underside included spalls with exposed rebar, delamination and efflorescence. The steel portion of the super

and sub structure exhibit varying states of corrosion, with moderate corrosion found at areas where the downspouts were located and along the fascias where the joints above become discontinuous or terminated allowing for moisture to effect the steel elements below.

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

Bridge 1-3 EB & WB

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

The overall condition of the steel fracture critical cross-girders is satisfactory. The Fracture Critical Inspection completed by Lochner in July 2017 did not find noticeable changes from previous conditions. Leakage through the joints were still observed, and routine bridge cleaning is needed at all bents with a focus put on the interior cross-girder surfaces to eliminate chlorides. Eliminating joints above the interior cross girders will help sustain the life of the girders and decrease the chances of further corrosion. Previous defects found consisted of measurable section loss in the cross-girder webs found in the 2012 inspection. Load rating analysis of the deterioration and cleaning and painting of the entire superstructure were completed in 2013. The load rating found no reduction in capacity of the cross-girders for supporting the main superstructure, despite the measured loss. Joint seals and nosing above the cross-girders were also repaired in 2013.

Full blast cleaning and painting in 2013 has arrested corrosion. There were no issue with the bottom flange taper plates. At piers 15 and 16 the steel pier cap exhibits moderate deterioration of the top flange between the double 72" plate girder, some deterioration due to active corrosion but most due to corrosion activities prior to the painting in 2013.

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

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

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

The steel fracture critical main longitudinal girders are in fair condition overall and the fracture critical riveted floorbeams are overall in satisfactory condition. Some active corrosion exists on both structures, especially on the fascia girders, and including pack rust between the bottom flange cover plates at several locations on the riveted girders. There is visible deformation/minor section loss on these that should be monitored. The floorbeam end connections at the main girders should also continue to be monitored. The paint system is performing satisfactorily over much of the structures, but is faded and failing at multiple locations. Bridge repainting has been planned within the next few

years to address deficiencies. The inspection catwalk requires maintenance before being used by an inspector for future inspections or maintenance.

Underwater Condition Report (Summary)

In 2017, 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.

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

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

Pin & Hanger Inspection

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

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

The previous consultant performed “hands-on” inspection of the pin & hangers and newly installed catcher beams in 2013 and 2014. All elements were found to be in very good condition. An under-bridge access truck was used in 2016 to perform a “hands-on” inspection of this detail. Lochner’s 2017 special inspection concluded the overall condition of the pin & hanger assemblies on both

structures are satisfactory. The superstructure area within 10 feet of each assembly is free of corrosion and is in good condition for both the WBL and EBL structures. The hands-on inspection did not reveal additional measurable loss of section or other issues of concern.

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

Post Tension Inspection

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

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

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

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

During Lochner's 2017 inspection, the only potentially unsound locations noted were in ducts 1A and 1B (ducts on the interior of the west fascia girder), 5 to 7 feet from the north abutment. These locations 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.

Bridges 32-6 EBL & WBL over County Road 7

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

Lochner's 2017 inspections found that overall the post tensioned deck slab appears to be in good condition. Both of the structures have tight longitudinal cracking at isolated locations with light or no efflorescence present. Several epoxy chairs and localized honeycombing from the initial construction are visible on the underside of the EB structure. These locations have been randomly patched and have not worsened over time. Both piers of both structures have tight full length vertical cracks at the 1/3 points on each side.

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

Steel Pier Cap Inspection

Two bridge structures were inspected in August 2015 as part of the most recent detailed steel pier cap inspection completed during the 2015 Bridge Inspection Program. These structures include:

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

These two structures were rehabilitated and widened in 1995 during which steel members were thru-bolted (attached with bolts that pass entirely through the existing concrete pier cap) onto the existing concrete substructure units to support new fascia beams. INDOT has identified these steel members for annual inspection to monitor their performance and condition. As a result of repairs made in 2014, the previous issue of weld cracking on the bottom of the steel pier cap has been resolved with the removal of the c-shaped cover plates. The original cracked welds have been removed and the base material has been ground smooth.

Lochner's 2017 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 recommend to continue monitoring the structures on a 12 month inspection frequency. The 18 year old paint overcoat system is overall in good condition.

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 **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 Number	Facility Carried by Structure (On)	Feature Intersected (Under)	Min. Vert. Clearance (ft)	Min. Vert. Clearance (in)
(13)I90-20-038-2	SR 13	I-90 EB/WB	15	7
(15)I90-20-037-1	SR 15	I-90 EB/WB	15	9
(421)I90-46-018-5	US 421	I-90 EB/WB	15	10
I90-20-034-2	I-90 RAMP/SR 19	I-90	15	8
I90-20-038-1	I-90 RAMP TO SR 13	I-90 EB/WB	15	6
I90-44-038-3	CR 1200W/CO LN RD	I-90 EB/WB	15	7
I90-44-039-1	CR 4/1150W	I-90	15	8
I90-44-039-2	CR 1000W	I-90 EB/WB	15	8
I90-44-039-3	CR 900W/SNYDER RD	I-90 EB/WB	15	9
I90-44-039-4	CR 800W/FERGUSON	I-90 EB/WB	15	10
I90-44-040/41-2	CR 675W	I-90 EB/WB	15	10
I90-44-040/41-3	CR 600W/OLNEY RD	I-90	15	10
I90-44-040/41-4	CR 450W/CRAMPTON	I-90	15	11
I90-44-040/41-5	CR 375W/BERGER RD	I-90	15	9
I90-44-040/41-6	CR 300W	I-90 EB/WB	15	11
I90-44-043-6	CR 100E/WEILAND	I-90 EB/WB	15	10
I90-44-045-1	CR 250E	I-90 EB/WB	15	9
I90-44-045-5	CR 375E	I-90 EB/WB	15	9
I90-44-046-1	CR 575E	I-90 EB/WB	15	9
I90-46-019-3	GOLDRING ROAD	I-90 EB/WB	15	10
I90-46-019-5	JOHNSON ROAD	I-90 EB/WB	15	11
I90-46-020-4	I-90 RAMP/SR 39	I-90 EB/WB	15	7
I90-46-021-3	FAIL ROAD	I-90 EB/WB	15	8
I90-46-022-1	ST JOHNS ROAD	I-90 EB/WB	15	9
I90-46-022-2	BOWELL RD/CR 300E	I-90 EB/WB	15	10
I90-46-022-3	CR 425E/TEETER RD	I-90 EB/WB	15	8
I90-64-015-8	ESSERMAN RD/50 W	I-90 EB/WB	15	11
I90-64-016-2	I-90 RAMP TO SR 49	I-90 EB/WB	15	8
I90-64-017-4	CR 550E	I-90 EB/WB	15	11
I90-71-027-A NBL	BENDIX DRIVE NB	I-90 EB/WB	15	9
I90-71-027-A SBL*	BENDIX DRIVE SB	I-90 EB/WB	15	10
I90-71-030-5	FIR ROAD	I-90 EB/WB	15	10
I90-71-0WX-1	I-90 TO US 31 RAMP	I-90 EB/WB	15	11
I90-76-049-3	CR 850W	I-90 EB/WB	15	11
I90-76-051-1	VAN GUILDER ROAD	I-90 EB/WB	15	10
I90-76-053-6	CR 40S	I-90 EB/WB	15	3
I90-76-050-9 WBL	I-90 WBL	I-69, IR-415	15	7

*Structure 27-A SBL - St. Joseph County maintains this structure.

Table 3.3: Bridges with Minimum Vertical Clearance less than 16'-0"

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	47847	I-90	Main Street
I90-71-030-6	47867	I-90	SR331NB, Capital Avenue
I90-71-030-6	47868	I-90	SR331SB, Capital Avenue

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

Reconstructed and Rehabilitated Bridge Structures

I90-45-BHX-A, I90-45-BHX-B, and (I90) I80-15-05262-B at the Lake Station Interchange with I-94 were recently reconstructed, with BHX-A and BHX-B receiving new bridge decks, steel superstructures, and reinforced concrete piers and rehabilitated abutments. 5262-B was rebuilt with a new bridge deck and steel superstructure. 5262-B was completed in December 2014, with final painting completed in 2015. BHX-A and BHX-B were reconstructed in the spring of 2015, reopening to traffic in June and August respectively.

I90-45-005-2 EBL and WBL were also rehabilitated in 2015, with the majority of work consisting of deck patching and repair. The majority of transverse expansion joints on this long viaduct structure were eliminated via the construction of “link-slabs”. At other locations, the joints were completely replaced. Extensive concrete patching was performed on the piers and abutments, and all vaulted abutment slabs were replaced. Painting of the steel superstructure was completed in 2016.

In 2016 ITRCC began the 80/90 PUSH project. The project contains 53 bridges that will be rehabilitated. Improvements range from bridge deck overlays to full replacement of bridge decks and

will be determined based on the condition previously received in prior inspections of each bridge. The project will also replace a majority of transverse expansion joints via the construction of “link-slabs” and integral end-bent conversions. Substructure and superstructure repairs will also be included to improve the overall condition ratings of the structures. The project was completed in the spring of 2018 with no lost time injuries throughout the duration of the project.

Transferred and Decommissioned Structures

No bridges were transferred or decommissioned between the summers of 2017 and 2018.



4: ROADWAY CONDITION REPORT

Roadway Condition Report

Pavement History

The ITR pavement is generally in a good state of repair, but as is typical for a facility of this type and age, it is essential that an ongoing resurfacing program be maintained. The roadway was completely resurfaced with bituminous asphalt during the years of 1974 through 1980. The resurfacing covered the original plain jointed concrete pavement constructed in the 1950s. A second resurfacing cycle was completed from 1984 through 1992. This second generation resurfacing project, as was typical for this time, milled throughout existing asphalt overlays and replaced the overlay with new material. Vertical bridge clearances were maintained by milling existing overlays.

For a short period of time from 1993 to 1995, ITRCC used some in-place recycling on resurfacing projects. On the more conventional resurfacing projects, existing overlays were milled and replaced with new material. Some of the milled material was used in the new asphalt pavement being constructed and some was used for erosion control and parking lot expansions at various locations and facilities of the ITR. During a major resurfacing project in 1998, existing asphalt overlays were milled full depth and underlying concrete pavement was cracked and sealed and resurfaced with new asphalt materials. A considerable amount of the milled material from this project was used as subbase material for the reconstruction of shoulders.

In 1999, ITRCC began a “Wedge and Level” program and the program has been continued in successive years through the present time (though now called a “Mill and Fill” program). This work consists of milling and removing approximately 1.5 inches of existing pavement and replacing it with new surface material. The procedure has extended the life of relatively sound pavements that begin to develop minor to moderate surface distresses. Generally, these pavements show no rutting or other base problems, with only the surface deterioration affecting the ride of the pavement. This procedure is used on an as needed basis on the traveled lane, passing lane and shoulders.

In 2016, ITRCC implemented the 80/90 PUSH 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 sealed and then resurfaced with five inches of asphalt containing intermediate and surface layers. The shoulder consisted of milling and replacing the surface layer.

Pavement Organizational Performance Index (POPI)

The pavement condition measurements that follow (with the exception of the surface friction data) were procured in November, 2017 by Applied Research Associates, Inc. (ARA) and provided to Lochner for use in developing the POPI. The friction data was provided to ITRCC in 2017 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.

Since 1998, ITRCC has used PQI as the primary method to rate pavement conditions for monitoring purposes.

Mainline Pavement

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

The PQI is a composite score of pavement ratings and measurements used to determine the overall condition of the roadway. The variables used in the determination of the PQI such as Pavement Condition Rating (PCR), IRI and RUT are detailed in this section.

The OPI Manual states:

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

The equation for determining PQI is as follows:

$$PQI = (10 * PSI) + (0.5 * PCR) - (25 * RUT)$$

$$\text{where } PSI = 9.0 * e^{(-0.008747 * IRI)} \leq 5,$$

$$RUT \leq 1 \text{ inch, and } e \approx 2.71828$$

The rating ranges are as follows:

90 – 100: Excellent

80 – 89: Good

70 – 79: Fair

< 70: Poor

The calculated PQI indicates that the ITR is in excellent condition overall. The overall average PQI for the eastbound lanes are 91.6 and 92.1 for the westbound lanes. These averages are slightly lower than the 2016 averages, but still remain in the excellent rating category. The averages provided are the averages of all points taken weighted by lane miles, not the average of each lane’s mean PQI value. Approximately 5.9% of the pavement is considered in poor condition which ITRCC will look to address during annual “mill & fill program” and/or maintenance activities. The low PQI in each section is being driven by high IRI values with the average IRI of these areas at 191 in/mi. Table 4.0 shows the locations of areas with an IRI greater than 190 in/mi. These short sections determined to be in poor condition. The reason for the greater majority of the high values are due to the transition of pavement (i.e. concrete to asphalt or asphalt to bridge approach) **Table 4.0-Summary of Low PQI Results due to High IRI Results** presents this information.

The goal for mainline pavement is an average PQI of 80 with no more than 10% of pavement in “poor” condition. With the above data the ITR District’s OPI goals for mainline PQI have been met and the ITR mainline OPI rating is 3 on a scale from 0 (worst) to 6 (best). **Table 4.1-Summary of Overall PQI Results by Category** presents this year’s information to last years.

While Project PUSH involved the rehabilitation of 292 lanes miles and 53 bridges at a cost of \$220M, expanding the project outside of the 70 mile scope in 2016-17 would have resulted in an unfavorable economic result for ITRCC and the entire I80/90 business corridor. Northern Indiana relies on the ITR as an economic engine to deliver goods and services across Indiana as well as outside its borders. Furthermore, an expansion of the project beyond its scope would have created lengthier and more frequent work zones increasing the opportunity for customer incidents.

ITRCC’s project pipeline for mainline works include an additional \$95M in pavement, ramp and bridges through 2025.

Direction	Lane	From MP	To MP	PCR	Average Rutting (in)	Average IRI (in/mi)	PQI	Exceedance Reason (Str. Transition Relation)
East	3	0.8	0.9	98.5	0.040	207.8	62.9	I90-45-001-2 EBL
East	2	0.8	0.9	91	0.070	193.3	60.3	I90-45-001-2 EBL
East	1	1.0	1.1	92	0.050	401.0	47.4	West Point Toll Plaza
East	2	1.0	1.1	91	0.050	316.6	49.9	West Point Toll Plaza
East	3	1.0	1.1	98.5	0.050	225.4	60.5	West Point Toll Plaza
East	3	1.1	1.2	98.5	0.040	242.8	59.0	West Point Toll Plaza
East	2	1.1	1.2	91	0.020	195.5	61.3	West Point Toll Plaza
East	3	3.0	3.1	85.5	0.050	350.2	45.7	I90-45-002-1 EBL
East	1	4.9	5.0	83	0.040	219.9	53.6	I90-45-004-1 EBL
East	2	10.0	10.1	95.5	0.040	208.3	61.3	I90-45-007-5 EBL
East	1	14.9	15.0	90.5	0.020	199.4	60.5	I90-45-009-1 EBL
East	3	14.9	15.0	95	0.020	193.6	63.6	I90-45-009-1 EBL
East	3	15.0	15.1	95	0.020	205.1	62.0	I90-45-009-1 EBL

East	1	16.2	16.3	98.5	0.120	238.3	57.4	I90-45-10-1T
East	2	16.2	16.3	98.5	0.060	198.7	63.6	I90-45-10-1T
East	1	16.3	16.4	98.5	0.080	218.8	60.5	I90-45-010-2 EBL
East	3	16.3	16.4	98.5	0.060	194.6	64.2	I90-45-010-2 EBL
East	2	16.5	16.6	98.5	0.020	261.1	57.9	I90-45-010-5 EBL
East	3	16.5	16.6	98.5	0.060	241.8	58.6	I90-45-010-5 EBL
East	2	21.1	21.2	100	0.040	206.0	63.8	I90-45-012-1 EBL
East	1	21.1	21.2	100	0.040	194.8	65.4	I90-45-012-1 EBL
East	1	22.5	22.6	100	0.060	232.4	60.3	I90-64-013-3 EBL
East	2	24.0	24.1	100	0.050	586.1	49.3	Portage Toll Plaza
East	1	24.0	24.1	100	0.060	344.6	52.9	Portage Toll Plaza
East	2	24.1	24.2	100	0.050	266.3	57.5	Portage Toll Plaza
East	1	24.1	24.2	100	0.060	232.9	60.2	Portage Toll Plaza
East	2	25.0	25.1	100	0.040	209.9	63.4	I90-64-014-3 EBL
East	1	26.4	26.5	100	0.020	252.5	59.4	I90-64-015-1 EBL
East	2	26.4	26.5	100	0.020	250.5	59.6	I90-64-015-1 EBL
East	1	34.0	34.1	100	0.050	207.8	63.4	I90-64-017-2 EBL
East	2	34.0	34.1	100	0.050	203.5	63.9	I90-64-017-2 EBL
East	2	40.8	40.9	100	0.030	209.1	63.7	I90-46-018-7 EBL
East	1	40.8	40.9	100	0.030	202.7	64.5	I90-46-018-7 EBL
East	2	68.0	68.1	100	0.030	198.3	65.1	I90-71-025-C EBL
East	1	76.7	76.8	100	0.040	224.8	61.6	I90-71-029-2 EBL
East	2	80.2	80.3	100	0.040	208.1	63.6	Concrete Pavement Transition
East	2	83.5	83.6	100	0.040	269.2	57.5	I90-71-031-1 EBL
East	1	83.5	83.6	100	0.030	262.6	58.3	I90-71-031-1 EBL
East	2	95.5	95.6	91	0.070	272.2	52.1	Mainline Exceedance
East	1	95.5	95.6	87.5	0.030	191.1	59.9	Mainline Exceedance
East	2	96.2	96.3	91	0.040	203.5	59.7	I90-20-035-1 EBL
East	2	101.5	101.6	92	0.070	300.4	50.8	I90-20-037-2 EBL
East	2	101.9	102.0	92	0.070	196.9	60.3	I90-20-037-3 EBL
East	2	112.5	112.6	91	0.020	254.7	54.7	I90-44-040/41-1 EBL
East	1	112.5	112.6	94	0.030	242.3	57.1	I90-44-040/41-1 EBL
East	2	125.6	125.7	95	0.070	220.0	58.9	Mainline Exceedance
East	2	127.7	127.8	91	0.030	218.9	58.0	I90-44-046-2 EBL
East	2	131.4	131.5	92	0.040	211.2	59.2	I90-44-047-1 EBL
East	2	137.5	137.6	85	0.040	195.4	57.8	I90-76-049-5 EBL
East	2	139.3	139.4	92.5	0.030	223.8	58.2	I90-76-049-6 EBL
East	2	142.4	142.5	92	0.040	285.7	52.4	I90-76-50-8 EBL
East	1	142.4	142.5	93	0.020	205.0	61.0	I90-76-50-8 EBL
East	2	144.0	144.1	91	0.020	211.2	59.2	I90-76-50-10 EBL
East	2	145.3	145.4	91	0.050	250.8	54.3	I90-76-51-2 EBL
East	1	145.3	145.4	95	0.040	212.7	60.5	I90-76-51-2 EBL
East	2	147.2	147.3	91	0.020	199.7	60.7	I90-76-51-6 EBL
East	1	147.2	147.3	84.5	0.020	197.0	57.8	I90-76-51-6 EBL
East	2	147.4	147.5	91	0.040	272.3	52.8	I90-76-51-7 EBL
East	1	147.4	147.5	84.5	0.020	207.5	56.4	I90-76-51-7 EBL
East	1	152.7	152.8	83.5	0.050	202.2	55.9	East Point Toll Plaza
East	2	152.8	152.9	99	0.100	263.4	56.0	East Point Toll Plaza

East	1	152.8	152.9	83.5	0.090	261.9	48.6	East Point Toll Plaza
East	1	152.9	153.0	83.5	0.170	261.8	46.6	East Point Toll Plaza
East	2	152.9	153.0	99	0.170	207.5	59.9	East Point Toll Plaza
East	2	153.6	153.7	93	0.060	289.7	52.1	I90-76-053-3 EBL
East	2	154.5	154.6	93	0.050	224.1	57.9	I90-76-053-5 EBL
East	2	156.1	156.2	91	0.050	300.1	50.8	I90-76-053-8 EBL
East	1	156.1	156.2	84.5	0.040	213.1	55.2	I90-76-053-8 EBL
West	2	1.1	1.0	92.5	0.060	327.2	49.9	West Point Toll Plaza
West	3	1.1	1.0	81.5	0.050	278.6	47.4	West Point Toll Plaza
West	1	1.1	1.0	96	0.060	250.2	56.6	West Point Toll Plaza
West	3	1.5	1.4	81.5	0.010	213.6	54.4	I90-45-001-3 WBL
West	2	1.5	1.4	92.5	0.030	198.7	61.3	I90-45-001-3 WBL
West	2	1.6	1.5	92.5	0.050	216.8	58.5	I90-45-001-3 WBL
West	1	1.6	1.5	96	0.060	210.7	60.8	I90-45-001-3 WBL
West	2	4.2	4.1	96.5	0.040	229.2	59.4	I90-45-002-4 WBL
West	2	5.0	4.9	100	0.070	231.9	60.1	I90-45-004-1 WBL
West	2	5.8	5.7	83.5	0.020	193.9	57.8	I90-45-004-6 WBL
West	2	6.1	6.0	84	0.030	194.4	57.7	I90-45-005-1 WBL
West	2	10.1	10.0	83	0.030	279.5	48.6	I90-45-007-5 WBL
West	1	10.1	10.0	88	0.030	225.9	55.7	I90-45-10-07RR WBL
West	2	16.2	16.1	96	0.060	211.3	60.7	I90-45-10-1T
West	3	16.3	16.2	98.5	0.100	225.0	59.3	I90-45-010-2 WBL
West	2	16.3	16.2	96	0.070	218.8	59.5	I90-45-010-2 WBL
West	1	16.3	16.2	98.5	0.050	198.8	63.8	I90-45-010-2 WBL
West	3	16.4	16.3	98.5	0.100	231.2	58.7	I90-45-010-5 EBL
West	1	16.4	16.3	98.5	0.060	221.7	60.7	I90-45-010-5 EBL
West	2	16.4	16.3	96	0.080	211.6	60.1	I90-45-010-5 EBL
West	3	16.6	16.5	93	0.050	233.5	56.9	Concrete Transition at Exit 17
West	2	16.6	16.5	93.5	0.030	228.8	58.2	Concrete Transition at Exit 17
West	1	16.6	16.5	98.5	0.090	225.8	59.5	Concrete Transition at Exit 17
West	2	21.2	21.1	100	0.020	191.6	66.3	I90-45-012-1 WBL
West	2	22.6	22.5	100	0.030	219.3	62.5	I90-64-013-3 WBL
West	1	22.6	22.5	100	0.030	205.1	64.2	I90-64-013-3 WBL
West	1	24.0	23.9	100	0.040	197.8	65.0	Portage Toll Plaza
West	1	24.1	24.0	100	0.040	322.5	54.4	Portage Toll Plaza
West	2	24.1	24.0	100	0.040	320.5	54.5	Portage Toll Plaza
West	1	24.2	24.1	100	0.040	247.0	59.4	Portage Toll Plaza
West	2	24.2	24.1	100	0.030	240.4	60.2	Portage Toll Plaza
West	2	24.3	24.2	100	0.040	206.2	63.8	Portage Toll Plaza
West	2	25.1	25.0	98.5	0.050	213.8	61.9	I90-64-014-4 WBL
West	2	26.5	26.4	98.5	0.030	304.1	54.8	I90-64-015-1 WBL
West	1	26.5	26.4	99	0.060	284.8	55.5	I90-64-015-1 WBL
West	1	29.6	29.5	99	0.010	194.6	65.7	Mainline Exceedance
West	2	30.2	30.1	100	0.010	348.3	54.0	Mainline Exceedance
West	2	30.3	30.2	100	0.020	289.3	56.7	Mainline Exceedance
West	1	30.3	30.2	100	0.010	210.3	64.1	Mainline Exceedance
West	1	30.4	30.3	100	0.000	528.9	50.9	Mainline Exceedance
West	2	30.4	30.3	100	0.020	436.0	51.5	Mainline Exceedance

West	1	30.5	30.4	100	0.010	426.2	51.9	Mainline Exceedance
West	1	45.1	45.0	100	0.020	195.7	65.7	I90-46-019-4 WBL
West	2	67.1	67.0	97	0.030	191.9	64.5	I90-71-025-B WBL
West	2	68.1	68.0	100	0.050	204.7	63.8	I90-71-025-C WBL
West	1	68.1	68.0	100	0.030	196.5	65.4	I90-71-025-C WBL
West	2	79.8	79.7	98.5	0.040	229.6	60.3	I90-71-030-2 WBL
West	1	83.6	83.5	100	0.020	234.5	61.1	I90-71-031-1 WBL
West	2	83.6	83.5	100	0.030	212.2	63.3	I90-71-031-1 WBL
West	2	91.2	91.1	98.5	0.040	210.3	62.6	I90-20-033-1 WBL
West	2	101.6	101.5	89	0.050	219.4	56.5	I90-20-037-2 WBL
West	1	101.6	101.5	85.5	0.040	218.9	55.0	I90-20-037-2 WBL
West	2	102.0	101.9	86	0.060	237.6	52.8	I90-20-037-3 WBL
West	1	102.0	101.9	90	0.030	225.3	56.8	I90-20-037-3 WBL
West	2	104.8	104.7	85	0.050	191.3	58.1	I90-20-037-6 WBL
West	2	112.6	112.5	88	0.040	236.8	54.3	I90-44-040/41-1 WBL
West	2	127.1	127.0	92	0.050	209.5	59.2	Mainline Exceedance
West	2	143.7	143.6	90	0.050	211.0	58.0	I90-76-50-9 WBL
West	1	143.7	143.6	88	0.030	192.8	59.9	I90-76-50-9 WBL
West	2	145.4	145.3	90	0.030	204.0	59.4	I90-76-51-2 WBL
West	2	147.2	147.1	92	0.030	209.8	59.6	I90-76-51-6 WBL
West	2	147.5	147.4	92	0.030	226.4	57.7	I90-76-51-7 WBL
West	1	147.5	147.4	93.5	0.030	191.5	62.9	I90-76-51-7 WBL
West	2	147.6	147.5	92	0.020	203.4	60.7	I90-76-51-7 WBL
West	2	152.9	152.8	100	0.050	257.9	58.2	East Point Toll Plaza
West	1	153.0	152.9	91.5	0.030	437.3	47.0	East Point Toll Plaza
West	2	153.0	152.9	100	0.040	399.8	51.7	East Point Toll Plaza
West	2	153.1	153.0	100	0.110	264.7	56.1	East Point Toll Plaza
West	1	153.1	153.0	91.5	0.040	220.5	57.8	East Point Toll Plaza
West	2	154.6	154.5	90	0.040	226.5	56.4	I90-76-053-5 WBL
West	2	156.2	156.1	93	0.060	252.0	54.9	I90-76-053-8 WBL

Table 4.0: Summary of Low PQI Results due to High IRI Results

Direction	Lane	PQI, 2017	PQI, 2016
EB	1	92.3	91.9
EB	2	91.4	92.3
EB	3	84.7	91.0
EB	OVERALL	91.6	92.0
WB	1	92.5	92.5
WB	2	91.7	91.7
WB	3	91.6	91.6
WB	OVERALL	92.1	92.1
NETWORK	OVERALL	92.1	92.1

Table 4.1: Summary of Overall PQI Results by Category

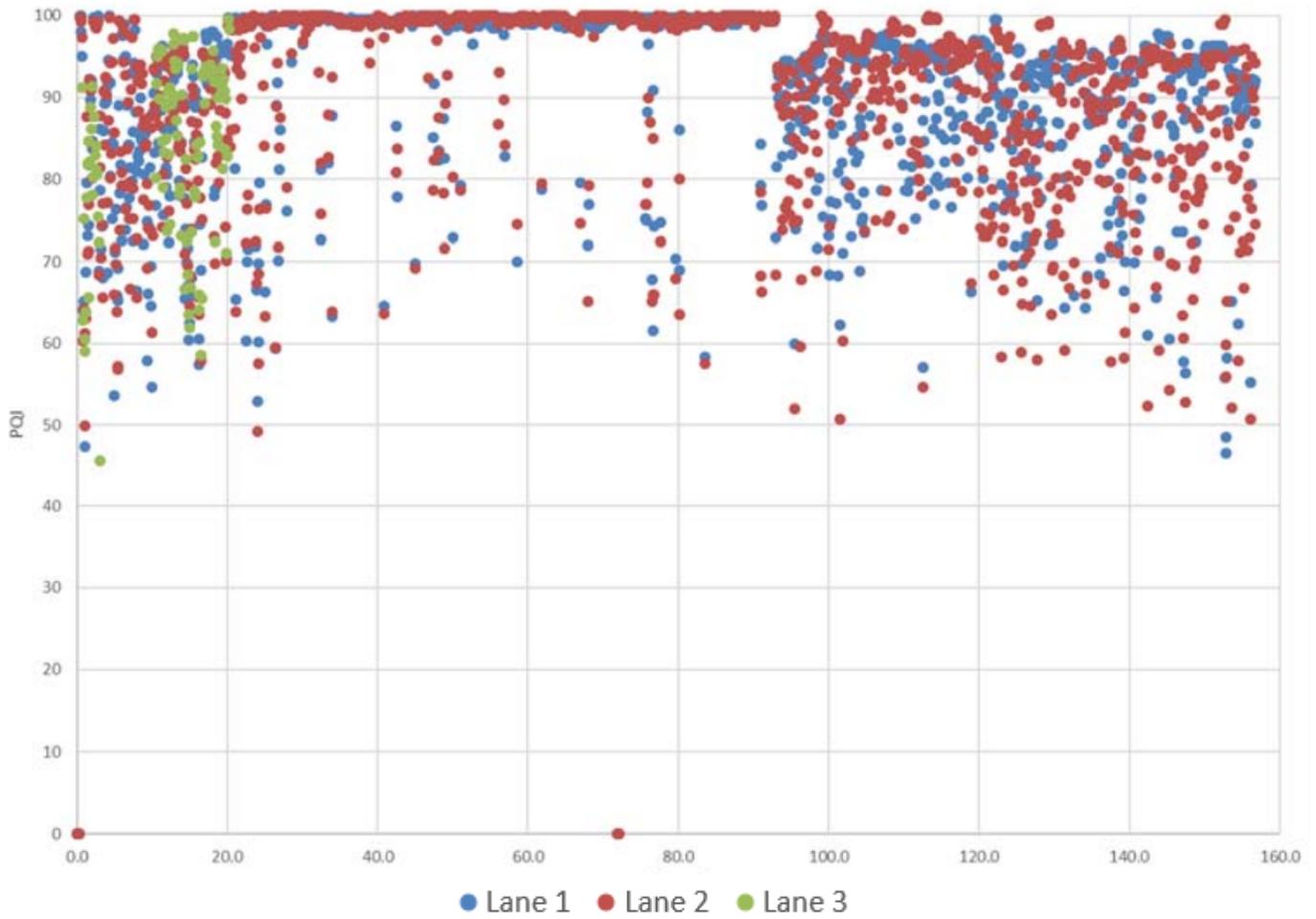


Figure 4.0: Pavement Quality Index (PQI) for east bound mainline

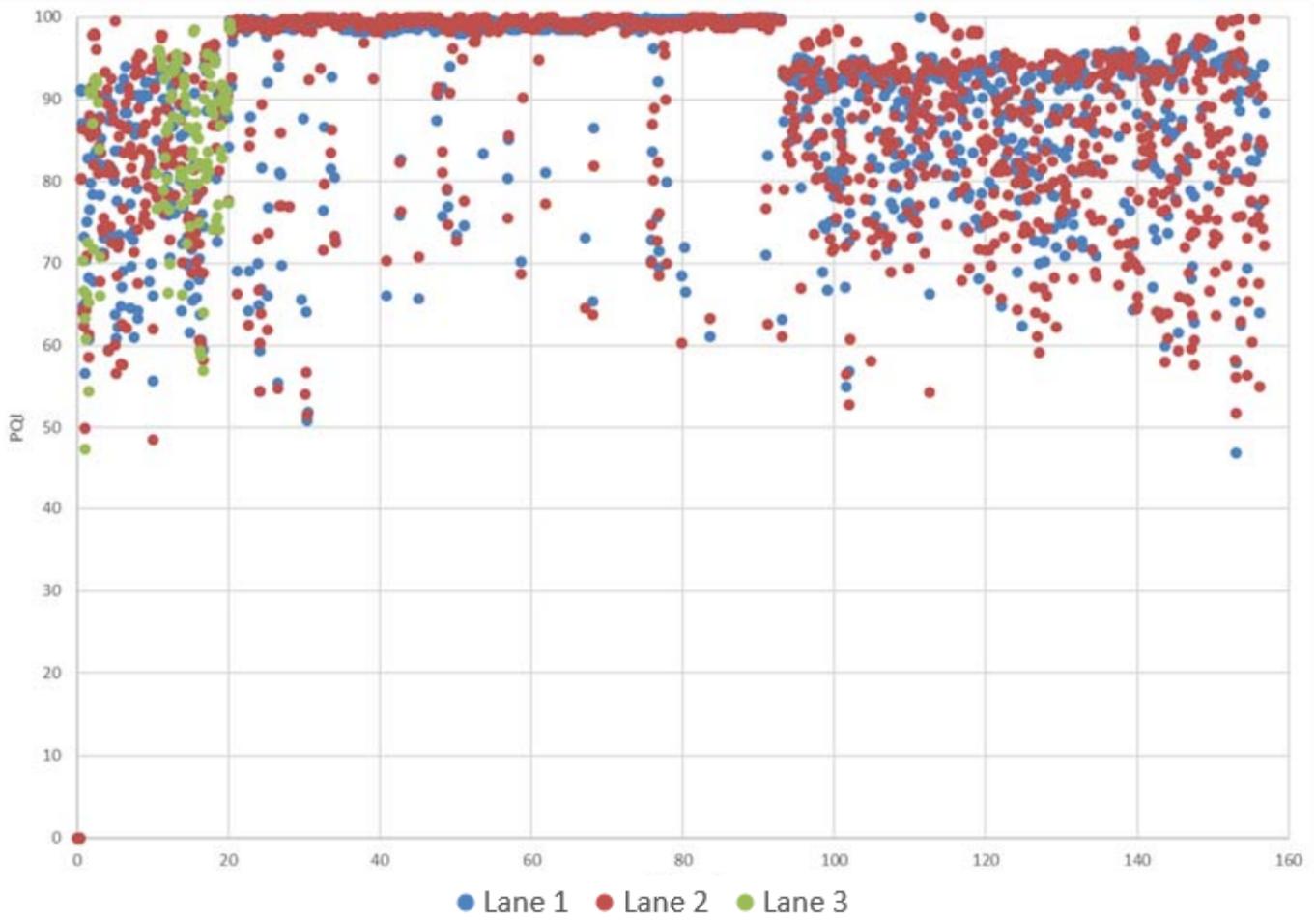


Figure 4.1: Pavement Quality Index (PQI) for west bound mainline

INDOT CONTROL							
Category	1999	2000	2001	2002	2003	2004	2005
Excellent	43	65	47	37	29	52	22
Good	56	24	34	40	48	33	44
Fair	1	8	15	15	15	11	25
Poor	0	4	4	9	9	5	10
Average PQI	89	89	86	85	84	88	82
ITRCC CONTROL							
Category	2007	2008	2009	2010	2011	2012	2013
Excellent	16.3	19.1	52.3	13.4	11.2	5.4	73.2
Good	45.9	46.9	22.9	48.8	53.2	48.1	21.9
Fair	29.6	27.7	13.8	29.7	30	36.3	4.6
Poor	8.3	6.4	11.1	8.1	5.7	10.2	0.3
Average PQI	82	83	86	82	82	80	93
ITRCC CONTROL							
Category	2014	2015	2016	2017			
Excellent	80.3	82.2	66.9	68.7			
Good	18.5	17.2	25.3	15.3			
Fair	1.3	0.6	5.7	9.8			
Poor	0	0	2	5.9			
Average PQI	93.3	93.2	92.1	92.1			

Table 4.2: Pavement Quality Index (PQI) Rating Percentages and Averages from 1999 to 2017

Mainline Pavement – International Roughness Index (IRI)

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

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

The rating ranges are as follows:

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

IRI values were recorded over 100% of the mainline network except in those areas where the DSV could not travel due to construction. In accordance with the Federal Highway Administration’s

Highway Performance Monitoring System (HPMS) Field Manual, Appendix E: Measuring Pavement Roughness, DSV operators flag major pavement discontinuities, such as bridges, when encountered. Data from these discontinuities can cause erroneous data that is not otherwise indicative of the true pavement condition. However, in accordance with the CLA, the IRI data presented herein contains reading for all points including bridges. The IRI summaries are provided in **Table 4.3 International Roughness Index (IRI) Summary**.

In 2017 ITRCC required the change in IRI intervals to match the future IRI requirements of the Indiana Department of Transportation 2018 specifications. This changed IRI data to be reported on 0.1-mile intervals rather than previous 1 mile intervals. This requirement removes the natural filtering of data, shows more scattered IRI values, and raises the average across the network. With this change 2017 data will represent a new benchmark against which future years may be compared.

The average IRI measurement is 72.0 for the mainline, which falls within the rating range “excellent”. The averages provided are the averages of all points taken weighted by lane miles, not the average of each lane’s mean IRI value. All values exceeding 190 in/mi on 1/10th mile segments are shown in Table 4.0.

Direction	Lane	IRI (in/mi), 2017	IRI (in/mi), 2016
EB	1	66.6	65.0
EB	2	74.1	65.2
EB	3	96.5	48.0
EB	OVERALL	71.3	64.1
WB	1	67.0	61.0
WB	2	76.2	66.9
WB	3	96.9	48.3
WB	OVERALL	72.6	63.0
NETWORK	OVERALL	72.0	63.6

Table 4.3: International Roughness Index (IRI) Summary

Note: The increase in IRI was naturally caused by the change of analysis to 0.1 mi data

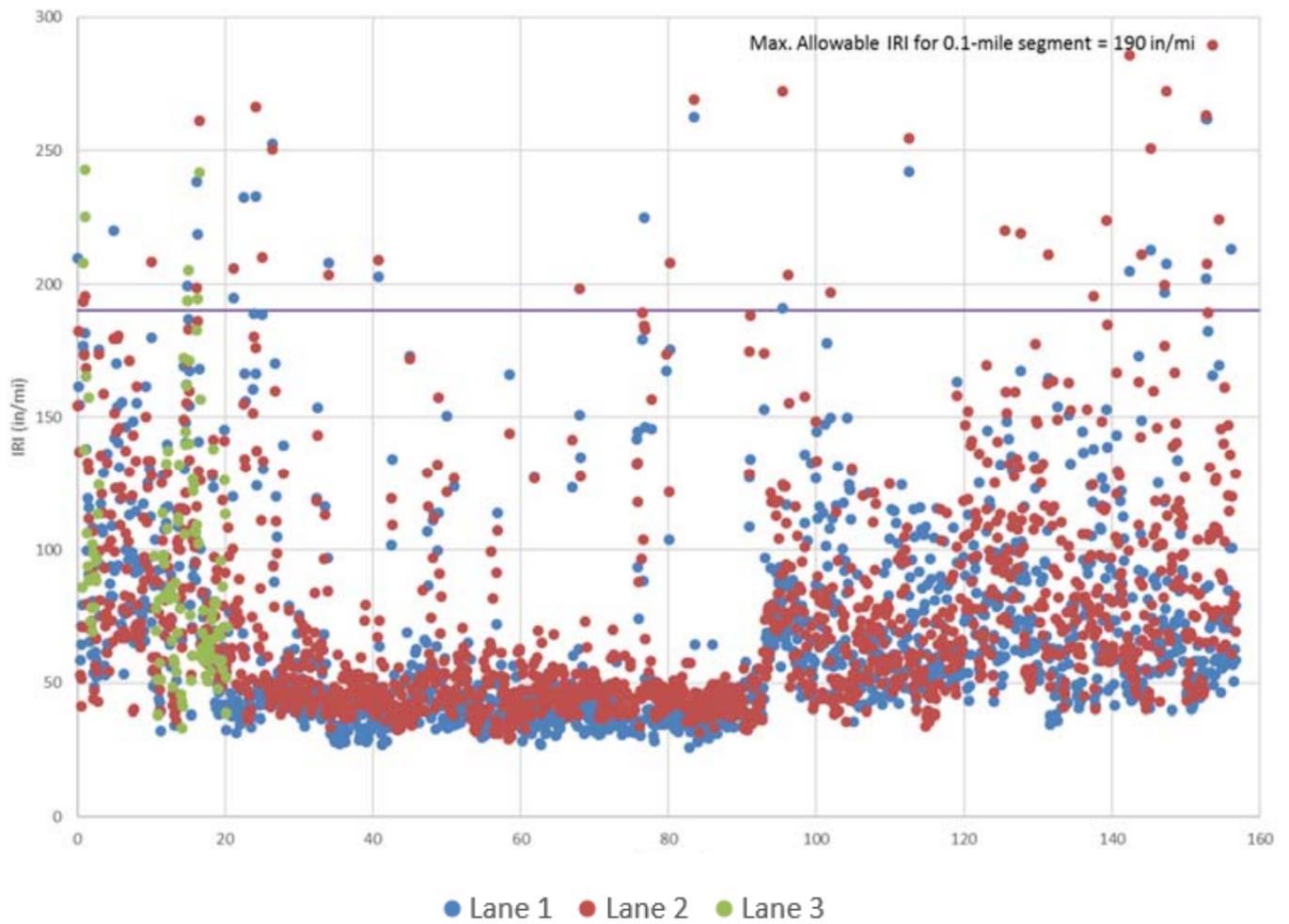


Figure 4.2: International Roughness Index (IRI) for east bound mainline

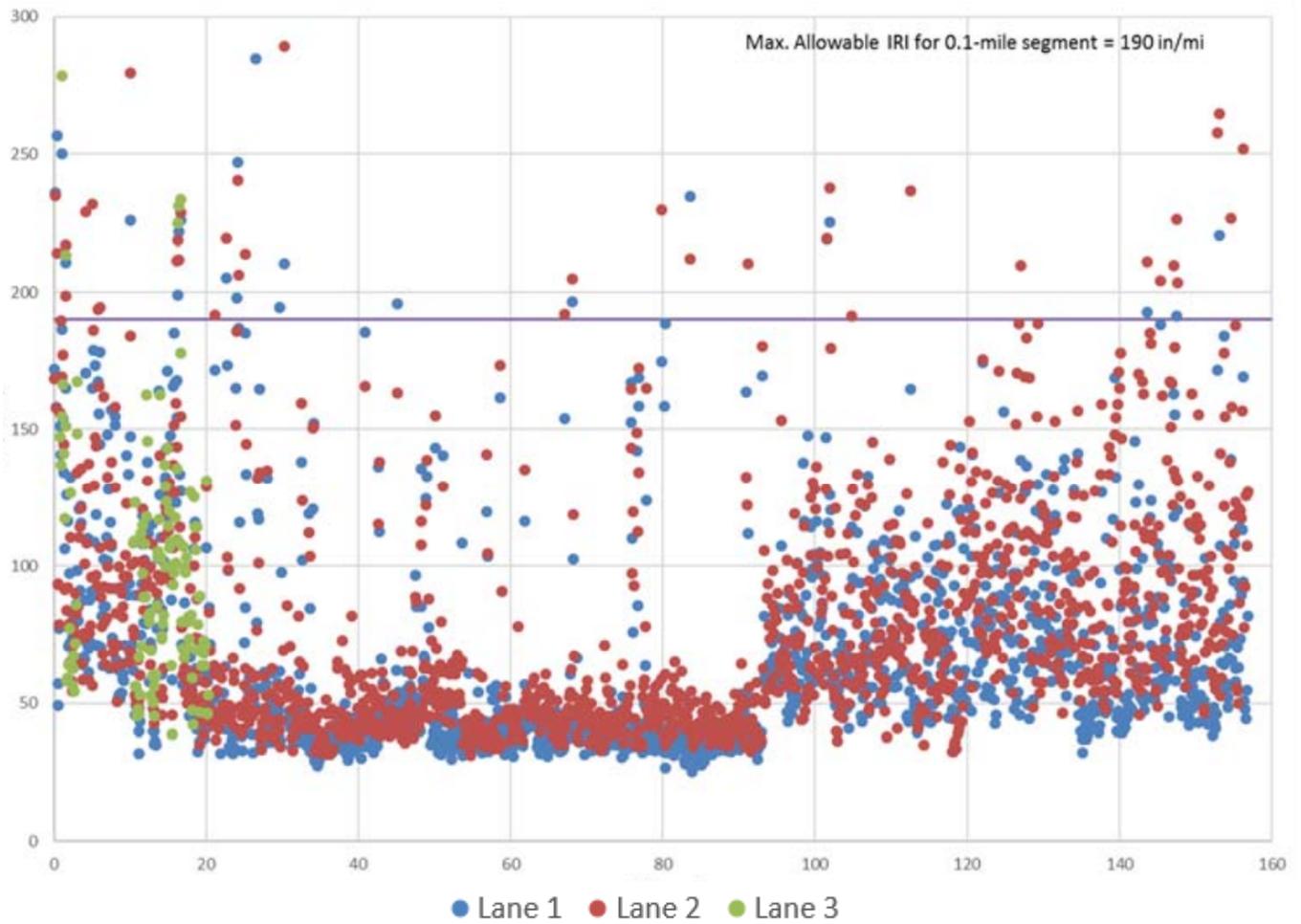


Figure 4.3: International Roughness Index (IRI) for west bound mainline

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.

Rutting throughout the entire network is negligible and currently presents little to no danger to the traveling public. The averages provided are the averages of all points taken weighted by lane miles, not the average of each lane’s mean rutting value. The highest rutting average in both lanes is found in Lane 3, as would be expected with a standard traffic distribution. Both directions also indicate that Lane 3 has a significantly higher rutting value, percentage wise, compared to Lanes 1 and 2, a result that is 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 2 in both directions as most truck use this lane once Lane 3 ceases to exist east of MP 20. In consideration of the magnitude of the rutting measurements, rutting is not considered a problem at any location.

Direction	Lane	RUT (in.), 2017	RUT (in.), 2016
EB	1	0.020	0.044
EB	2	0.025	0.059
EB	3	0.046	0.037
EB	OVERALL	0.023	0.051
WB	1	0.022	0.037
WB	2	0.029	0.062
WB	3	0.046	0.035
WB	OVERALL	0.026	0.048
NETWORK	OVERALL	0.025	0.050

Table 4.4: Rutting (RUT) Summary

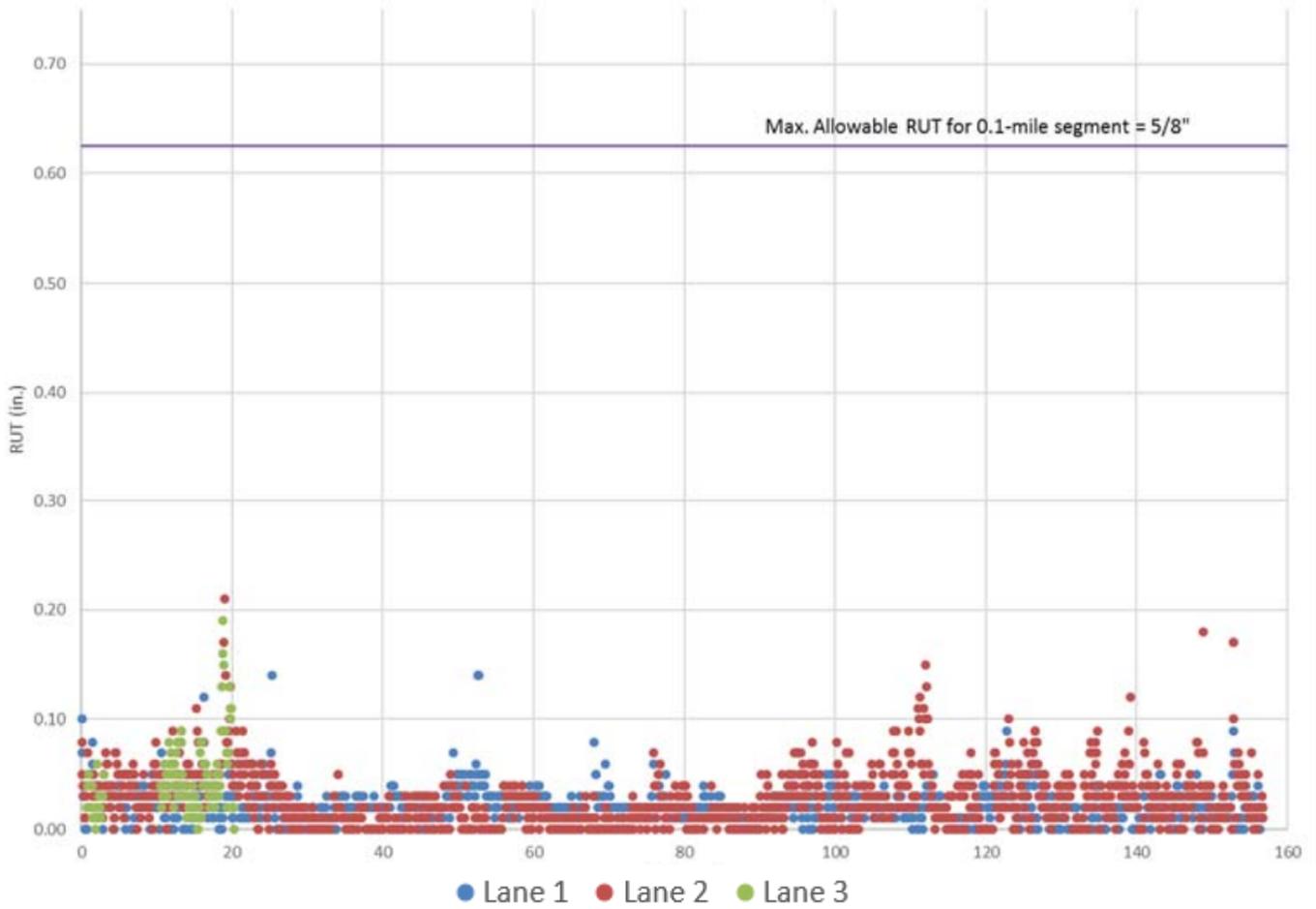


Figure 4.4: Rutting (RUT) for east bound mainline

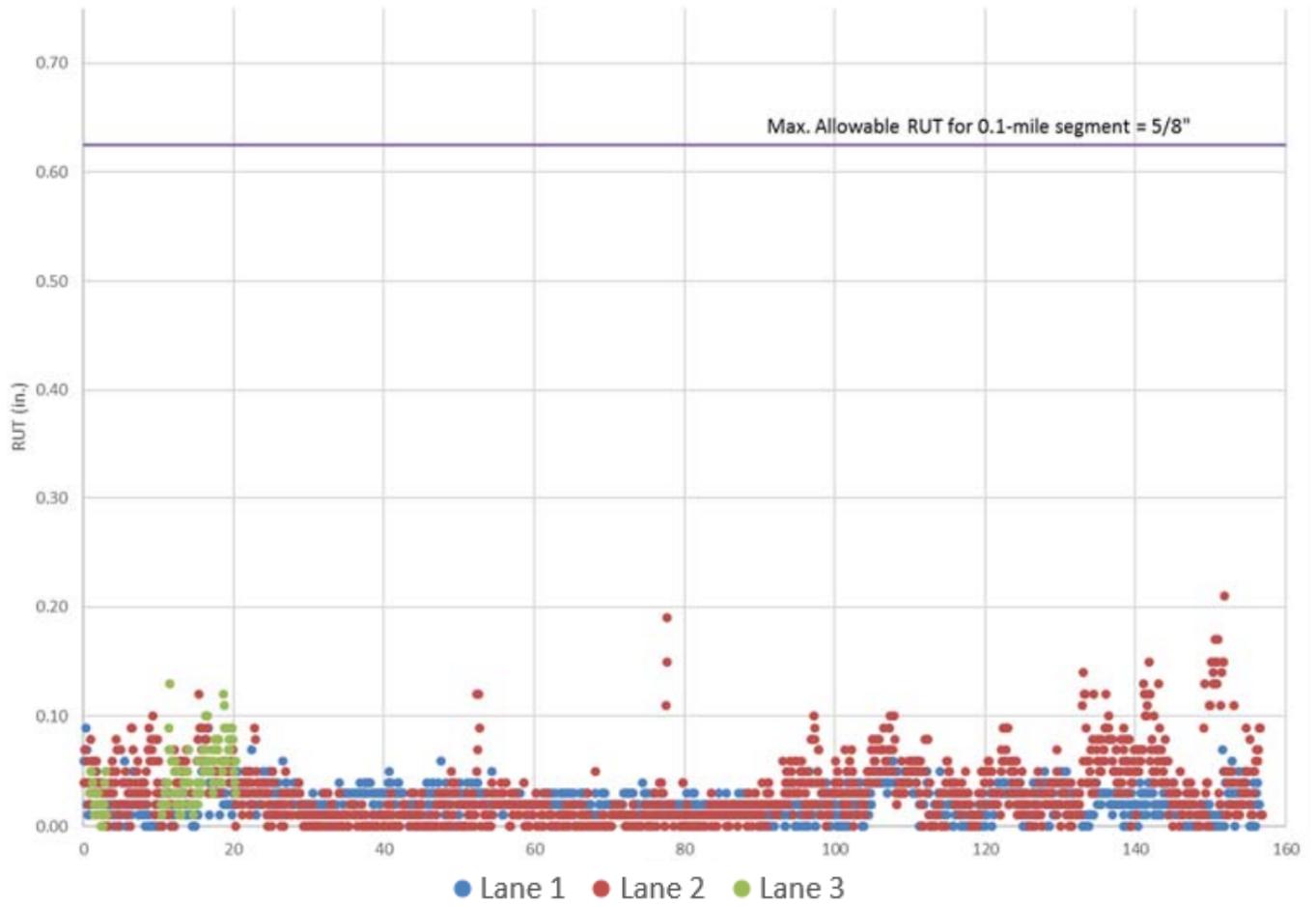


Figure 4.5: Rutting (RUT) for west bound mainline at one mile intervals

Mainline Pavement – Pavement Condition Rating (PCR)

The 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 ITR 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.

Direction	Lane	Average 2017 PCR	Average 2016 PCR
EB	1	94.5	93.1
EB	2	95.5	95.1
EB	3	92.0	90.2
EB	OVERALL	94.9	93.9
WB	1	92.9	92.7
WB	2	94.5	94.7
WB	3	91.2	92.3
WB	OVERALL	93.6	93.6
NETWORK	OVERALL	94.2	93.7

Table 4.5: Pavement Condition Rating (PCR) Summary

The results from the PCR survey indicate that the pavement is in good condition functionally throughout the network. Nearly all pavements in both the eastbound and westbound directions were rated with a PCR of 80 or above. No sections of pavement were rated below a PCR value of 73.

A major pavement rehabilitation effort between mileposts 20 and 93, 80/90 PUSH project, resulted in new surface pavement and significantly higher PCR values across a large portion of the eastbound and westbound lanes. As a result of this effort, the eastbound PCR average increased from 93.9 to 94.9. The average westbound PCR held to the previous year’s value of 93.6. The overall average increased from 93.7 to 94.2.

The results from the PCR should not be interpreted to indicate that the pavement is in overall excellent condition. Because the PCR method has relatively minor deductions for each individual type of distress, the PCR survey method tends to show pavements in better conditions than they are in reality. Pavement ratings are artificially high in a section that has only one or two types of distresses, regardless of the severity of those distresses.

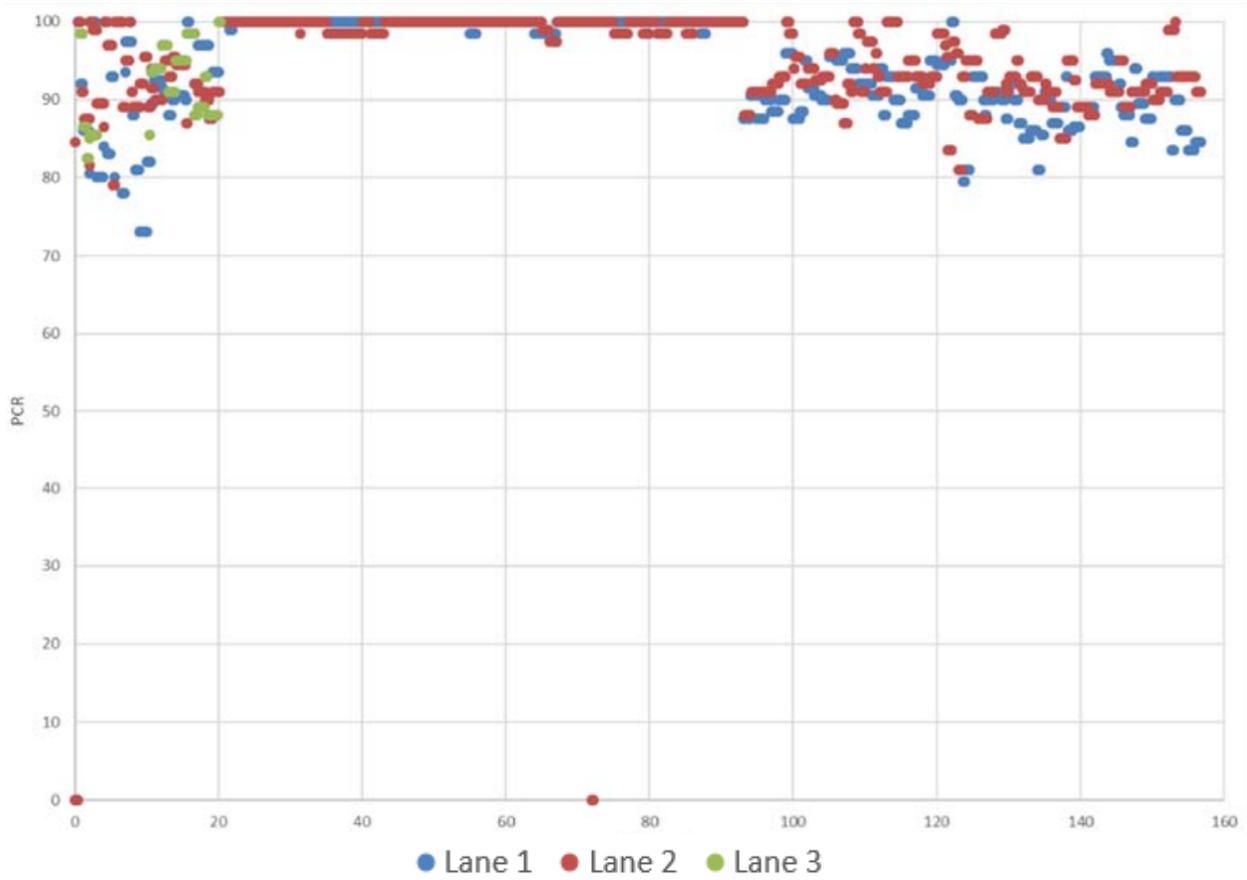


Figure 4.6: Pavement Condition Rating (PCR) for east bound mainline

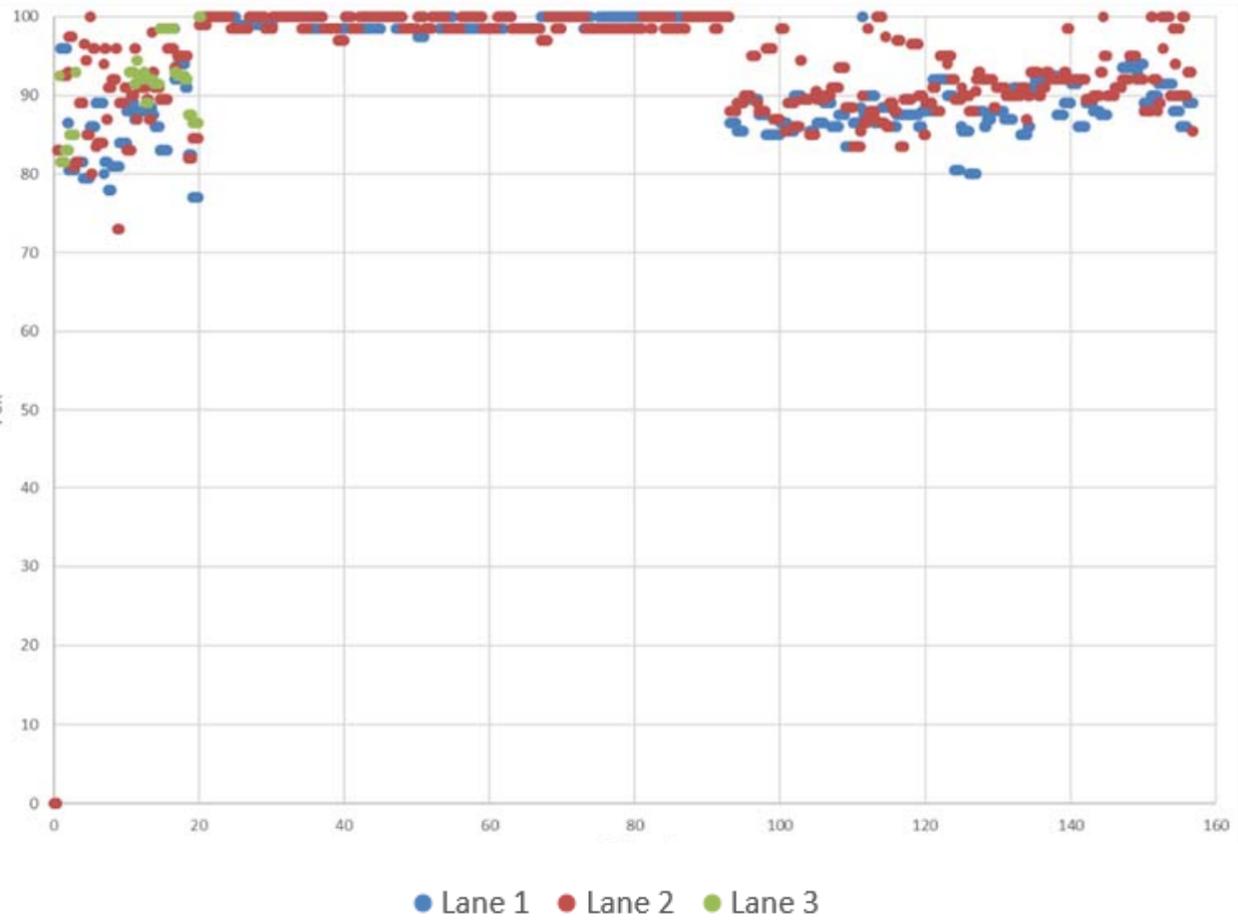


Figure 4.7: Pavement Condition Rating (PCR) for west bound mainline

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.

The average FNS for the ITR mainline is 44.4. There were 58 exceedances (FNS measurements under 30) found by INDOT on the mainline in one mile intervals. There were 32 in the eastbound lane and 26 in the westbound lane. To further breakdown the friction values they have been separated below into two mainline pavement and mainline bridge decks. This further illustrates that it is the mainline bridge decks holding most of the low values.

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

Table 4.6: Friction Number (FNS) Summary

Surface Friction (FNS) – Mainline Pavement

The average FNS for the ITR mainline pavement is 49.6. There were 3 exceedances (FNS measurements under 30) found by INDOT on the mainline pavement in one mile intervals. There were 0 in the eastbound lane pavement and 3 in the westbound lane pavement.

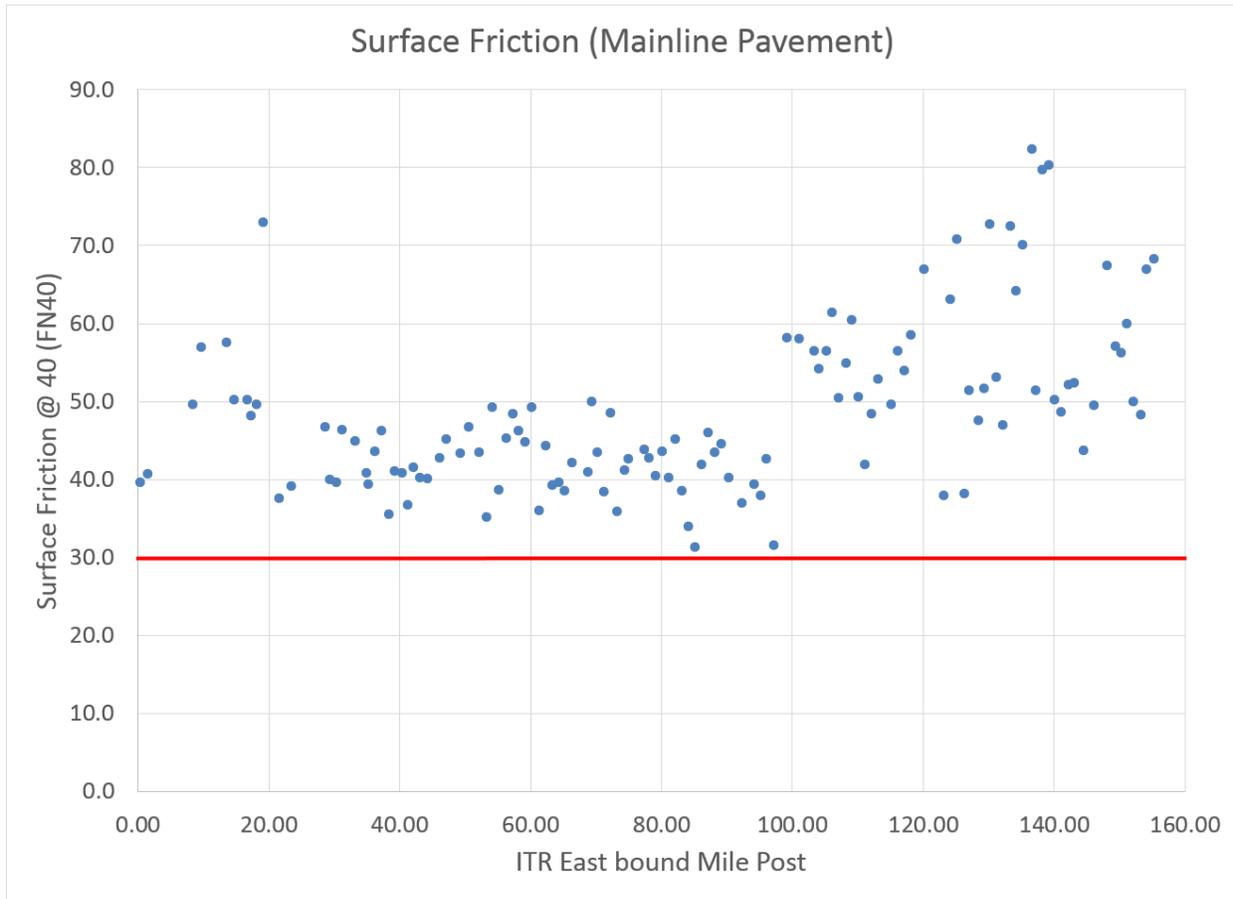


Figure 4.8: Friction Number (FNS) for east bound mainline

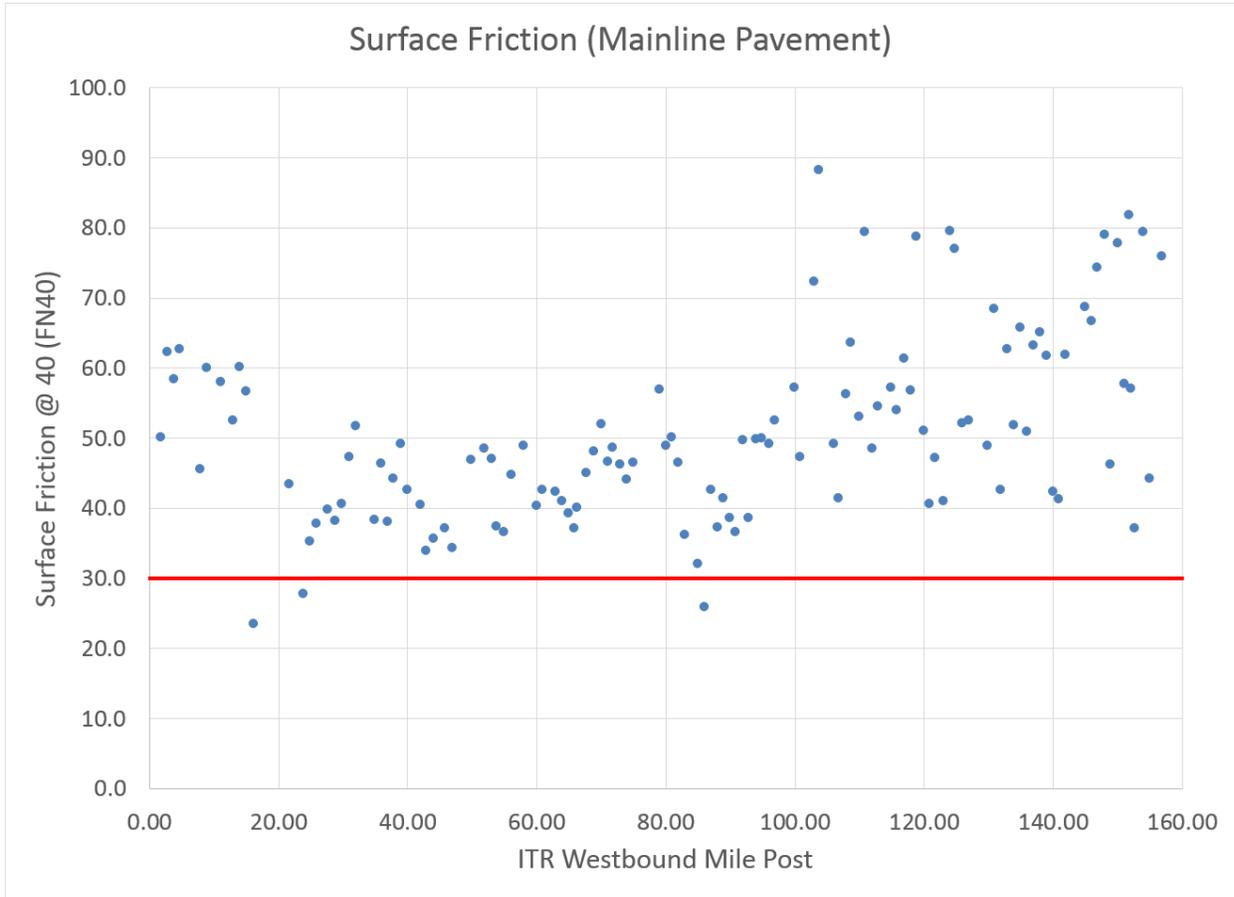


Figure 4.9: Friction Number (FNS) for west bound mainline

Surface Friction (FNS) – Bridge Decks

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

In order to improve the surface friction on the ITR bridge decks, ITRCC implemented a diamond grooving/grinding remediation plan (as recommended by INDOT). This plan involves diamond grinding of all sound bridge decks in the eastbound and westbound direction of the ITR. The grooving operation began in May of 2018 and will continue annually, if needed, to address areas of concern found in the INDOT data. In July of 2018, INDOT performed their annual pavement surface friction tests. The average reading in the eastbound direction bridges were 36.6 and the westbound average was 37.6. The number of bridge decks below the required minimum of 30 was 32 in the eastbound direction of these bridges 7 were below 20. In the westbound direction, there were 23 readings below the minimum of 30 with 9 of these below 20.

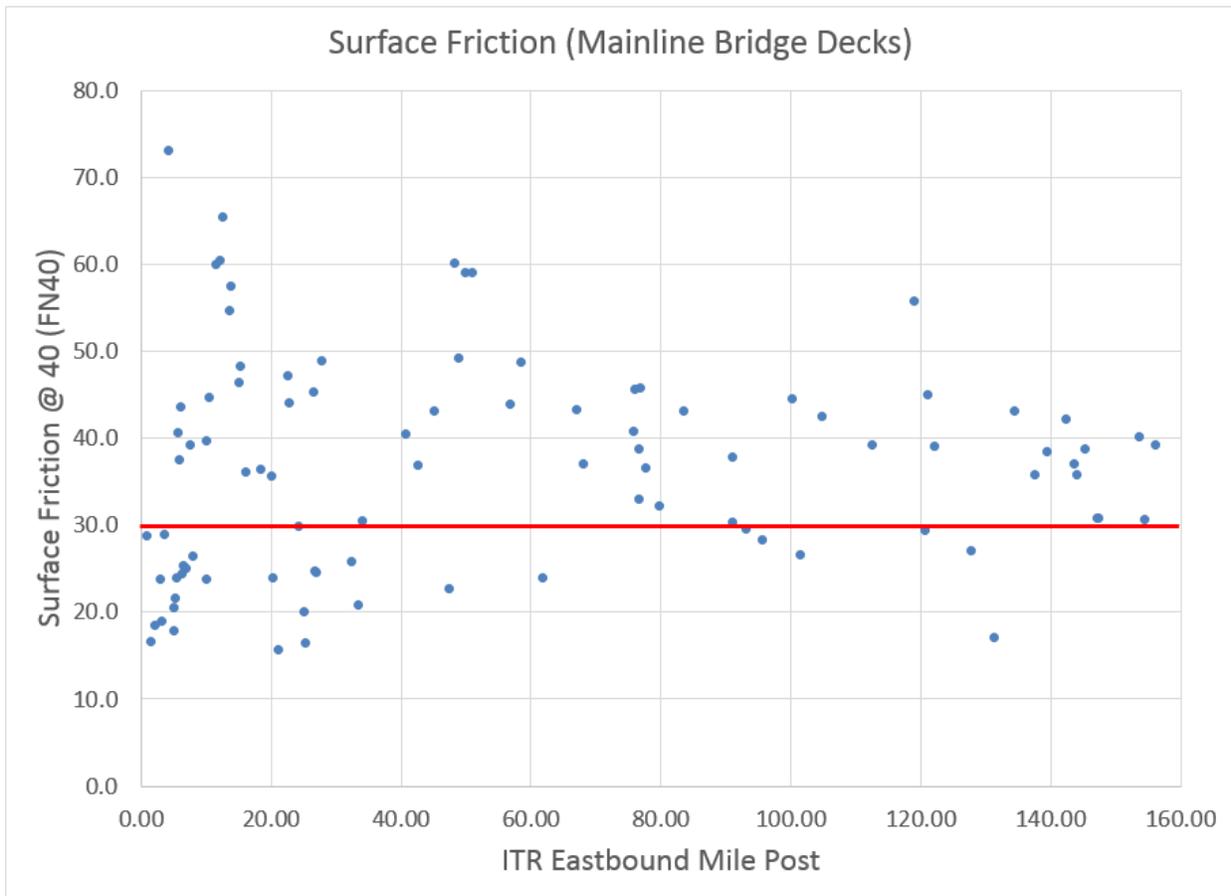


Figure 4.10: Friction Number (FNS) for East bound mainline Bridge Decks

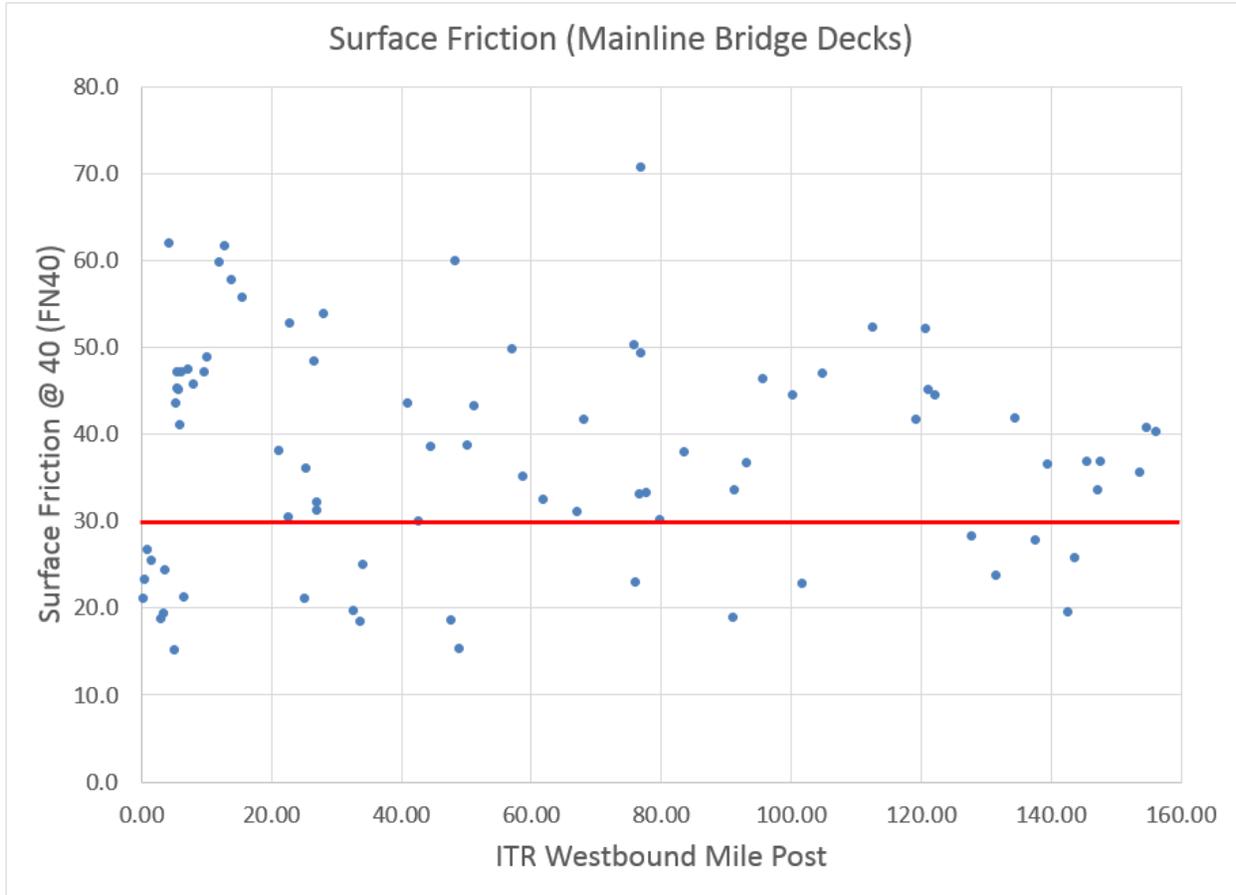


Figure 4.11: Friction Number (FNS) for West bound mainline Bridge Decks

Toll Plaza Ramp and Travel Plaza Lot Pavement

The toll and travel plazas were inspected for pavement condition on May 21, 2018. 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 4.6: 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.

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

Four 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 varied from the previous year’s ratings.

ITRCC has begun to plan and adjust previous paving schedules to address the noted deficiencies found in the spring of 2018 for Toll Plaza pavement. The focus for these improvements would be to address the Toll Plaza ramp pavement in the area of mile marker 0 to mile marker 20. **Table 4.7** also reflects the improvement to the ramps in the area of mile marker 20 to mile marker 93 which were included in the PUSH project and completed at the time of inspection.

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

Bristol	101	Good	Good	Fair	Fair
Middlebury	107	Fair	Good	Fair	Fair
Howe-LaGrange	121	Good	Good	Fair	Fair
Angola	144	Fair	Fair	Fair	Fair
Eastpoint	153	Good	Good	Poor	Fair

Table 4.7: Pavement Condition Survey of Toll Plaza Ramps

Travel Plaza Lot Pavement

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

Two travel plazas fall within the “poor” rating. The OPI rating according to the OPI Manual is 0 (with 6 being best). The toll plaza pavement ratings have varied from the previous year’s ratings. Per the OPI ratings metrics travel plazas and truck parking lots are rated together however they have been separated below to illustrate the improvement of the travel plaza pavement due to the \$70M investment in the reconstruction of the travel plazas. The trucking parking lot pavement is also being planned to receive pavement reconstruction and resurfacing at an earlier date from the original planned capital improvement projects to address the below conditions.

It should additionally be noted that ITRCC has undertaken a truck parking feasibility study to identify areas of the ITR for improvement to accommodate additional parking opportunities, while improving areas of noted deficiencies.

In addition, the deployment of technology is also being studied to provide real-time updates in available parking spaces, in advance of key decision points along the ITR.



Travel Plaza	MP	2015 General Condition	2016 General Condition	2017 General Condition	2018 General Condition
Eastbound					
TRP - 1S	21.7	Good	Fair	Excellent	Excellent
TRP - 3S	55.9	Poor	Poor	N/A - under construction	Excellent
TRP - 5S	90	Poor	Poor	Poor	N/A - under construction
TRP - 7S	125.8	Good	Good	Excellent	Excellent
Westbound					
TRP - 1N	21.7	Good	Poor	Excellent	Excellent
TRP - 3N	55.9	Fair	Poor	N/A - under construction	Excellent
TRP - 5N	90	Fair	Poor	Poor	N/A - under construction
TRP - 7N	125.8	Fair	Good	Excellent	Excellent

Table 4.8: Pavement Condition Survey of Travel Plaza Lots

Truck Parking Only	MP	2015 General Condition	2016 General Condition	2017 General Condition	2018 General Condition
Eastbound					
Dist. 11 ISP	76	Excellent	Excellent	Poor	Closed
TRP - 2S	37.5	Good	Poor	Poor	Poor
TRP - 6S	108	Fair	Fair	Poor	Poor
TRP - 8S	145.7	Good	Closed	Closed	Closed
Westbound					
TRP - 2N	37.5	Poor	Poor	Poor	Poor
TRP - 6N	108	Fair	Fair	Poor	Poor
TRP - 8N	145.7	Poor	Closed	Closed	Closed

Table 4.9: Pavement Condition Survey of Truck Parking 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 May 14th and 15th of 2018 with the assistance of ITRCC maintenance personnel. Lighting was inspected May 16th. Like the pavement conditions described in **Part B: Detailed Review, Section 3**, these maintenance items are assessed in three different areas: mainline (subdivided by maintenance district), toll plazas, and travel plazas. ITRCC has completed multiple updates to the lighting and implemented energy efficient practices. Therefore the metrics for the lighting are reported on separate from the other eight general OPI items to highlight its different conditions and circumstances.

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

Table 5.1: Summary of ITR System Quantities

Maintenance Items - Organizational Performance Index (OPI)

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

Guardrail Deficiency - Deficiencies are recorded for damaged or deteriorated guardrail, anchor assembly, bridge anchor assembly or impact attenuator, which does not properly function as a safety barrier.

Pavement Deficiency - In addition to evaluating the pavement's PQI, pavement deficiencies are recorded for potholes, rutting, shoving, blowup, sags or slips, improperly draining manholes and inlets, and drop offs.

Vegetation Obstruction - Deficiencies are recorded for any vegetation obscuring signage, and guardrail.

Litter - Deficiencies are recorded for each segment where countable litter exceeds 10 items and for each large item litter.

Drainage Obstruction - Deficiencies are recorded for any ditch or culvert where 50% of the cross section is obstructed and includes water pooling on the pavement. The presence of cattails does not necessarily indicate a drainage obstruction. In some instances, the ITRCC allows cattails to grow for environmental reasons.

Signs - Deficiencies are recorded for any ditch or culvert where 50% of the cross section is obstructed and includes water pooling on the pavement. The presence of cattails does not necessarily indicate a drainage obstruction. In some instances, the ITRCC allows cattails to grow for environmental reasons.

Pavement Marking - Deficiencies are recorded for missing, faded, or covered pavement markings, such as center lines, pavement edge lines, delineation lines, stop bars, and lane arrows.

Fences - Deficiencies are recorded for any fence damage that prevents the fence from acting as a physical deterrent to large animals or people.

Lighting - Deficiencies are recorded for any lighting damage that prevents proper function and illumination such as foundation problems, missing covers/plates, exposed wiring, burnt out bulbs, defects, damages, and any miscellaneous unsafe problems. Lighting is broken into two categories: 1) roadway and interchange lighting and 2) travel plaza parking lighting.

The OPI Manual provides 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 Toll Road's goal is to achieve an OPI rating of 4 or better for every category in every maintenance district.

Mainline Maintenance Items

The below graph illustrates the mainline maintenance OPI rating progression over the past four years in comparison to the 2018 ratings. The following six tables list the number of deficiencies, deficiency rates, and OPI ratings for the eight mainline maintenance items. Lighting is only included in toll and travel plazas and is reported on in its own section. The ratings range from 0 to 6, with 6 being the highest.

For reference, ITRCC completes an annual pavement marking refresh which begins in June or July, based on weather conditions. ITRCC has added the application of grooved pavement markings within the Project PUSH limits. This enhancement will result in an improved OPI rating prior to the next assessment period in 2019.

Pavement deficiencies noted in Maintenance Areas 1, 4 and 5 are being addressed through ITRCC’s annual Mill and Fill Program as previously noted. Major pavement restoration activities have been programmed as part of ITRCC’s Capital Improvement Planning, as well as a program to address fencing across the ITR.

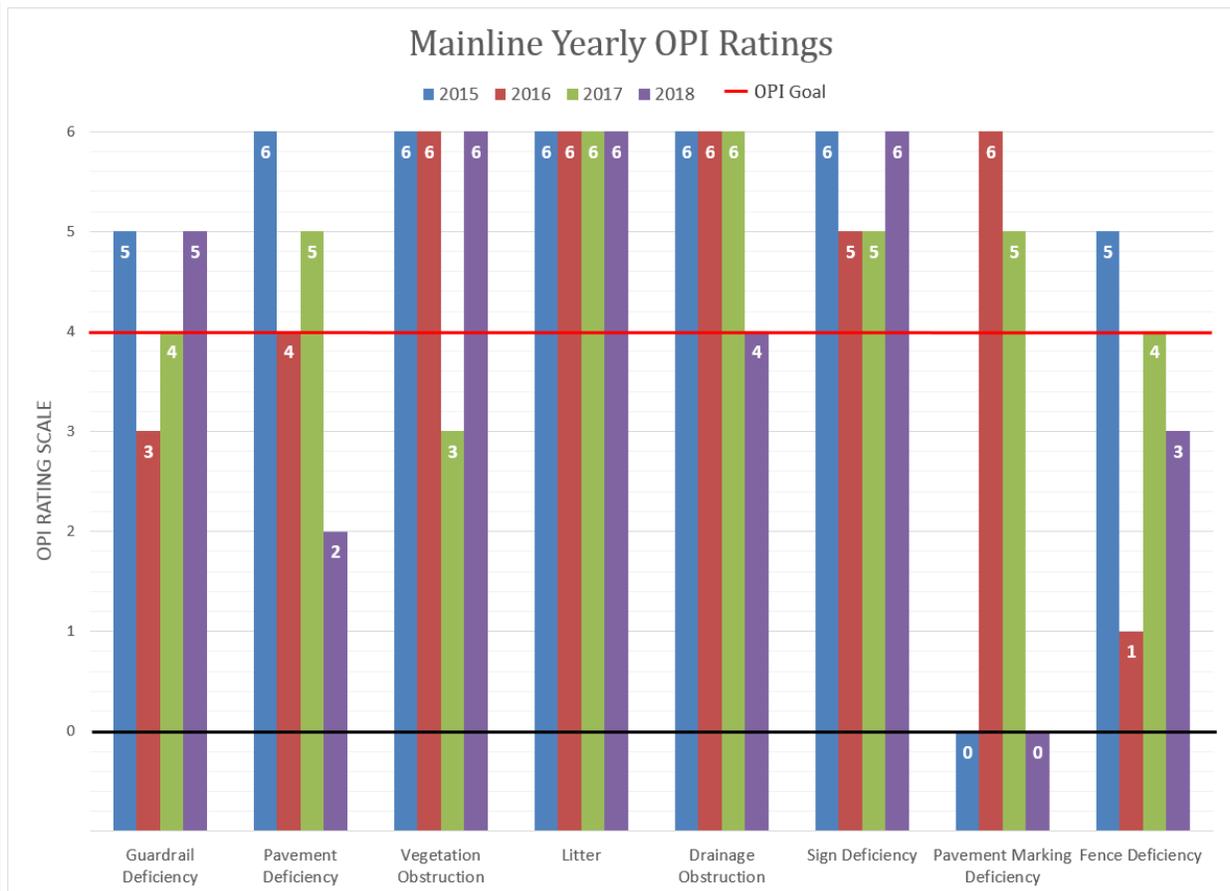


Figure 5.1 Mainline Yearly OPI Ratings

OPI Measures	Mainline Maintenance Item Deficiencies			
	2018			
	Deficiencies	Def/mile	OPI Goal	OPI Rating
Guardrail Deficiency	58	0.370	>=4	5
Pavement Deficiency	159	1.015	>=4	2
Vegetation Obstruction	0	0.000	>=4	6
Litter	10	0.064	>=4	6
Drainage Obstruction	7	0.045	>=4	4
Sign deficiency	19	0.121	>=4	6
Pavement Marking Deficiency	133	0.849	>=4	0
Fence Deficiency	35	0.223	>=4	3

Table 5.2: Mainline Maintenance Items for ITR

NOTE: These OPI ratings are gathered in the spring due to the submission time line of the report and often don't reflect the summer maintenance and construction activities that look to address these deficiencies that control the OPI ratings. For example, the rating for pavement deficiency does not take into consideration restoration efforts which will occur during the Q3/Q4 of 2018. Many of the low ratings would rate higher within the year after the annual maintenance operations have begun. Additionally ITRCC has added in-lay pavement markings to the PUSH contract which will be completed in 2018. This addition will result in an increased OPI score for pavement markings.

OPI Measures	M-1 Mainline Maintenance Item Deficiencies			
	2018			
	Deficiencies	Def/mile	OPI Goal	OPI Rating
Guardrail Deficiency	13	0.429	>=4	5
Pavement Deficiency	24	0.792	>=4	3
Vegetation Obstruction	0	0.000	>=4	6
Litter	1	0.033	>=4	6
Drainage Obstruction	4	0.132	>=4	6
Sign deficiency	6	0.198	>=4	6
Pavement Marking Deficiency	18	0.594	>=4	0
Fence Deficiency	9	0.297	>=4	2

Table 5.3: Mainline Maintenance Items for M-1

OPI Measures	M-2 Mainline Maintenance Item Deficiencies			
	2018			
	Deficiencies	Def/mile	OPI Goal	OPI Rating
Guardrail Deficiency	6	0.189	>=4	6
Pavement Deficiency	4	0.126	>=4	6
Vegetation Obstruction	0	0.000	>=4	6
Litter	1	0.032	>=4	6
Drainage Obstruction	2	0.063	>=4	3
Sign deficiency	3	0.095	>=4	6
Pavement Marking Deficiency	21	0.662	>=4	0
Fence Deficiency	2	0.063	>=4	5

Table 5.4: Mainline Maintenance Items for M-2

OPI Measures	M-3 Mainline Maintenance Item Deficiencies			
	2018			
	Deficiencies	Def/mile	OPI Goal	OPI Rating
Guardrail Deficiency	7	0.233	>=4	5
Pavement Deficiency	1	0.033	>=4	5
Vegetation Obstruction	0	0.000	>=4	6
Litter	1	0.033	>=4	6
Drainage Obstruction	0	0.000	>=4	6
Sign deficiency	4	0.133	>=4	6
Pavement Marking Deficiency	17	0.567	>=4	0
Fence Deficiency	6	0.200	>=4	4

Table 5.5: Mainline Maintenance Items for M-3

OPI Measures	M-4 Mainline Maintenance Item Deficiencies			
	2018			
	Deficiencies	Def/mile	OPI Goal	OPI Rating
Guardrail Deficiency	16	0.506	>=4	3
Pavement Deficiency	75	2.373	>=4	0
Vegetation Obstruction	0	0.000	>=4	6
Litter	2	0.095	>=4	4
Drainage Obstruction	1	0.032	>=4	5
Sign deficiency	6	0.190	>=4	6
Pavement Marking Deficiency	51	1.614	>=4	0
Fence Deficiency	11	0.348	>=4	2

Table 5.6: Mainline Maintenance Items for M-4

OPI Measures	M-5 Mainline Maintenance Item Deficiencies			
	2018			
	Deficiencies	Def/mile	OPI Goal	OPI Rating
Guardrail Deficiency	16	0.486	>=4	3
Pavement Deficiency	55	1.672	>=4	0
Vegetation Obstruction	0	0.000	>=4	6
Litter	4	0.122	>=4	6
Drainage Obstruction	0	0.000	>=4	6
Sign deficiency	0	0.000	>=4	6
Pavement Marking Deficiency	26	0.790	>=4	0
Fence Deficiency	7	0.213	>=4	2

Table 5.7: Mainline Maintenance Items for M-5

Toll Plaza Ramp Maintenance Items

The below graph illustrates the Toll Plaza Ramp Maintenance OPI rating progression over the past four years in comparison to the 2018 ratings. The six tables in this section list the number of deficiencies, deficiency rates, and OPI ratings for the nine toll plaza maintenance items. The pavement ratings in this section refer to localized deficiencies such as “isolated potholes”. The ratings range from 0 to 6, with 6 being the highest.

While signs deficiencies average a rating of 4, it should be noted that ITRCC has programmed a 3-year extensive sign rehabilitation program with large deficient panel signs replaced in 2018, followed by smaller sheet signs in 2019-20. In total, the program will replace approximately 700 signs.

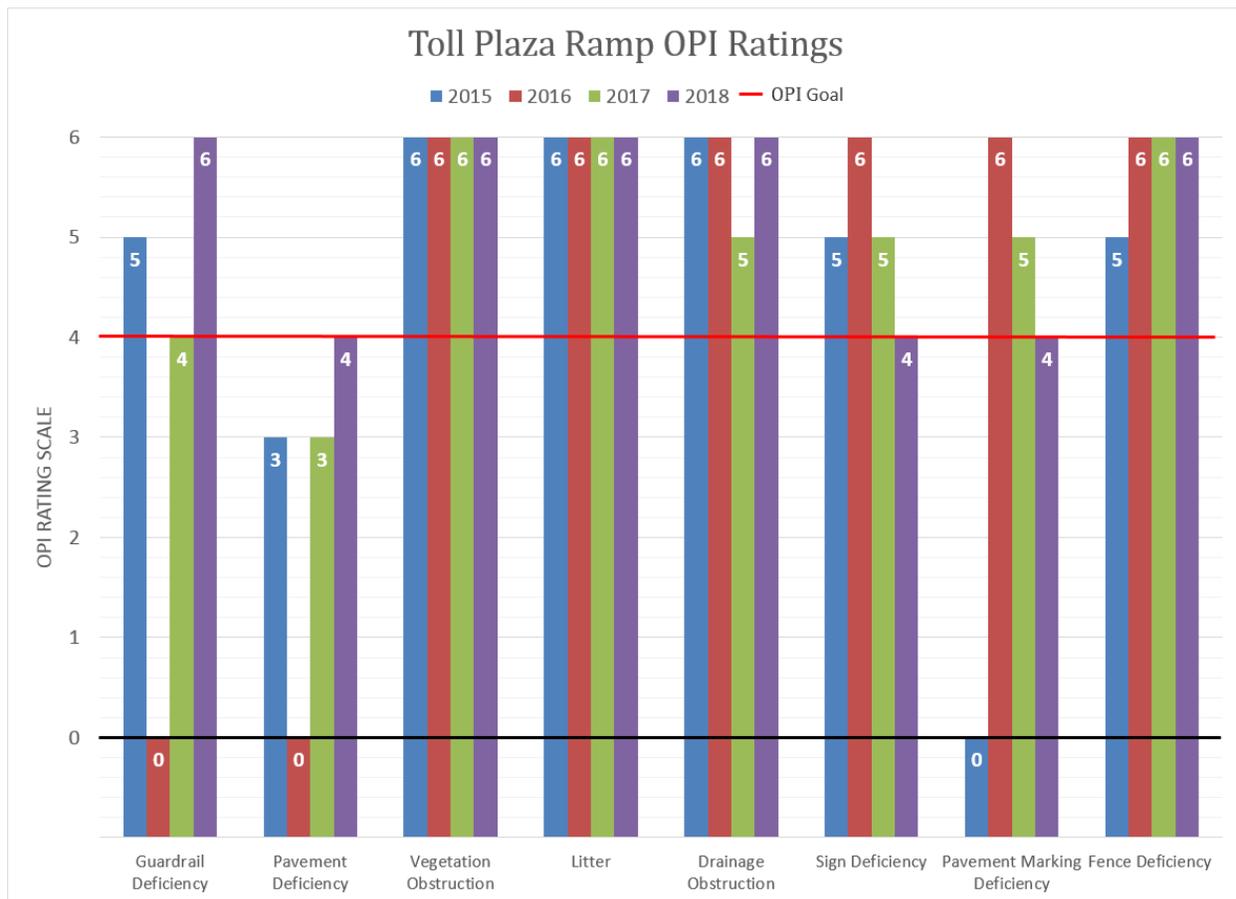


Figure 5.2 Toll Plaza Ramp OPI Ratings

OPI Measures	Toll Plaza Maintenance Item Deficiencies			
	2018			
	Deficiencies	Def/Ramp	OPI Goal	OPI Rating
Guardrail Deficiency	10	0.233	>=4	6
Pavement Deficiency	32	0.744	>=4	4
Vegetation Obstruction	1	0.023	>=4	6
Litter	6	0.140	>=4	6
Drainage Obstruction	1	0.023	>=4	6
Sign deficiency	21	0.488	>=4	4
Pavement Marking Deficiency	27	0.628	>=4	4
Fence Deficiency	0	0.000	>=4	6

Table 5.8: Toll Plaza Maintenance Items for ITR

OPI Measures	M-1 Toll Plaza Maintenance Item Deficiencies			
	2018			
	Deficiencies	Def/Ramp	OPI Goal	OPI Rating
Guardrail Deficiency	1	0.056	>=4	6
Pavement Deficiency	6	0.333	>=4	5
Vegetation Obstruction	1	0.056	>=4	6
Litter	6	0.333	>=4	6
Drainage Obstruction	0	0.000	>=4	6
Sign deficiency	2	0.111	>=4	6
Pavement Marking Deficiency	2	0.111	>=4	6
Fence Deficiency	0	0.000	>=4	6

Table 5.9: Toll Plaza Maintenance Items for M-1

OPI Measures	M-2 Toll Plaza Maintenance Item Deficiencies			
	2018			
	Deficiencies	Def/Ramp	OPI Goal	OPI Rating
Guardrail Deficiency	4	0.667	>=4	4
Pavement Deficiency	1	0.167	>=4	6
Vegetation Obstruction	0	0.000	>=4	6
Litter	0	0.000	>=4	6
Drainage Obstruction	1	0.167	>=4	6
Sign deficiency	0	0.000	>=4	6
Pavement Marking Deficiency	9	1.500	>=4	1
Fence Deficiency	0	0.000	>=4	6

Table 5.10: Toll Plaza Maintenance Items for M-2

OPI Measures	M-3 Toll Plaza Maintenance Item Deficiencies			
	2018			
	Deficiencies	Def/Ramp	OPI Goal	OPI Rating
Guardrail Deficiency	0	0.000	>=4	6
Pavement Deficiency	4	0.500	>=4	5
Vegetation Obstruction	0	0.000	>=4	6
Litter	0	0.000	>=4	6
Drainage Obstruction	0	0.000	>=4	6
Sign deficiency	0	0.000	>=4	6
Pavement Marking Deficiency	7	0.875	>=4	3
Fence Deficiency	0	0.000	>=4	6

Table 5.11: Toll Plaza Maintenance Items for M-3

OPI Measures	M-4 Toll Plaza Maintenance Item Deficiencies			
	2018			
	Deficiencies	Def/Ramp	OPI Goal	OPI Rating
Guardrail Deficiency	5	0.625	>=4	4
Pavement Deficiency	10	1.250	>=4	2
Vegetation Obstruction	0	0.000	>=4	6
Litter	0	0.000	>=4	6
Drainage Obstruction	0	0.000	>=4	6
Sign deficiency	19	2.375	>=4	0
Pavement Marking Deficiency	5	0.625	>=4	4
Fence Deficiency	0	0.000	>=4	6

Table 5.12: Toll Plaza Maintenance Items for M-4

OPI Measures	M-5 Toll Plaza Maintenance Item Deficiencies			
	2018			
	Deficiencies	Def/Ramp	OPI Goal	OPI Rating
Guardrail Deficiency	0	0.000	>=4	6
Pavement Deficiency	11	3.667	>=4	0
Vegetation Obstruction	0	0.000	>=4	6
Litter	0	0.000	>=4	6
Drainage Obstruction	0	0.000	>=4	6
Sign deficiency	0	0.000	>=4	6
Pavement Marking Deficiency	4	1.333	>=4	3
Fence Deficiency	0	0.000	>=4	6

Table 5.13: Toll Plaza Maintenance Items for M-5

Travel Plaza and Truck Parking Lot Maintenance Items

The below graph illustrates the Travel Plaza Ramp Maintenance OPI rating progression over the past four years in comparison to the 2018 ratings. The six tables in this section list the number of deficiencies, deficiency rates, and OPI ratings for the eight travel plaza maintenance items. The pavement ratings in this section refer to localized deficiencies such as “isolated potholes” whereas the pavement ratings in **Part B: Detailed Review, Section 4**, refer to the general “overall” condition of the pavement. The ratings range from 0 to 6, with 6 being the highest.

Ratings do not include MP 145.7 north and south in Maintenance District 5 and MP 90 north and south District 3 which were closed and under construction when inspections occurred. No deficiencies in these plazas were noted and the Def/Plaza numbers have been adjusted for a total of 10 plazas instead of 14.

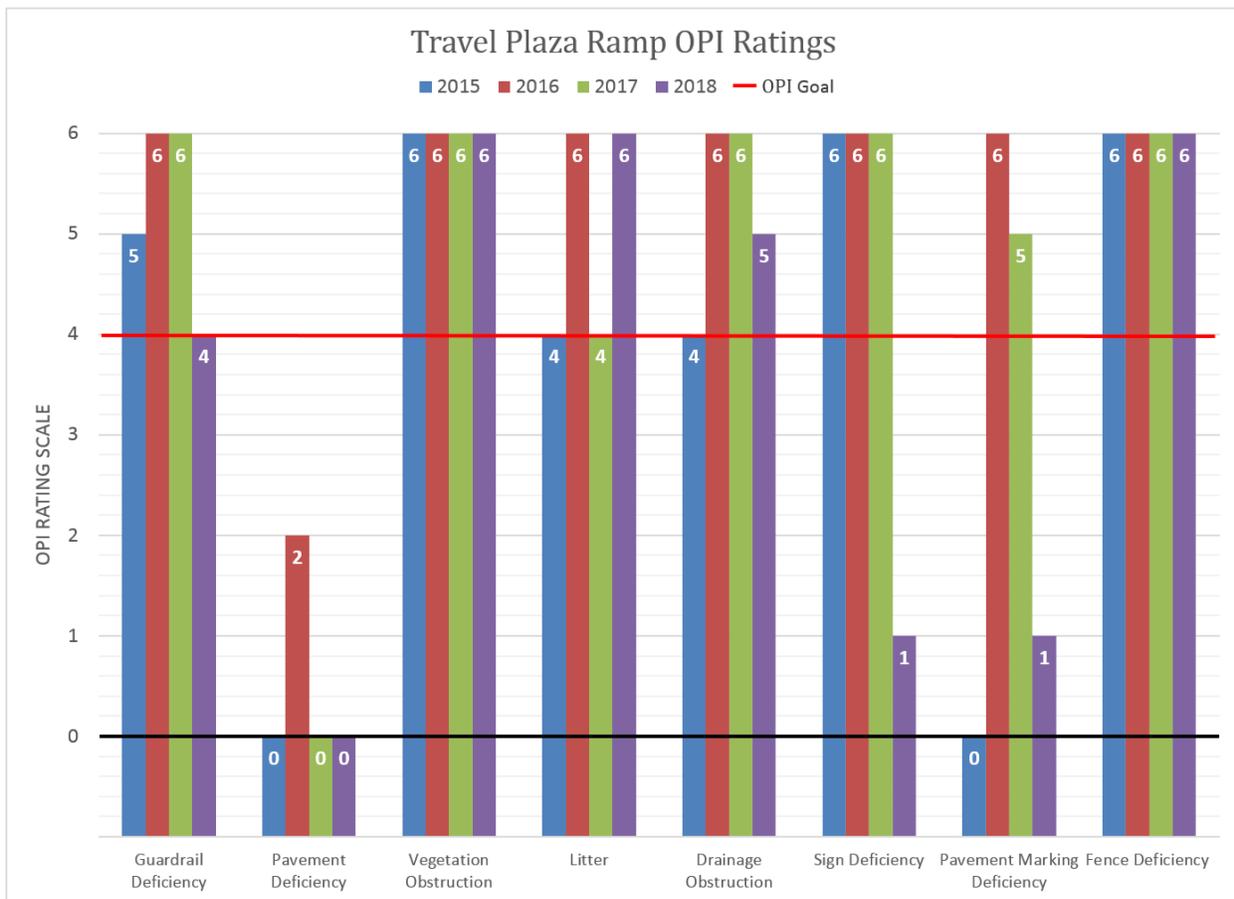


Figure 5.3 Travel Plaza Ramp OPI Ratings

OPI Measures	Travel Plaza Maintenance Item Deficiencies			
	2018			
	Deficiencies	Def/Plaza	OPI Goal	OPI Rating
Guardrail Deficiency	6	0.600	>=4	4
Pavement Deficiency	32	3.200	>=4	0
Vegetation Obstruction	1	0.100	>=4	6
Litter	18	1.800	>=4	6
Drainage Obstruction	5	0.500	>=4	5
Sign deficiency	14	1.400	>=4	1
Pavement Marking Deficiency	13	1.300	>=4	1
Fence Deficiency	1	0.100	>=4	6

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

NOTE: The deficiencies found were largely related to the truck parking areas and not the general condition of the actual renovated travel plazas. However, the OPI manuals states that these two areas should be evaluated together.

OPI Measures	M-1 Travel Plaza Maintenance Item Deficiencies			
	2018			
	Deficiencies	Def/Plaza	OPI Goal	OPI Rating
Guardrail Deficiency	0	0.000	>=4	6
Pavement Deficiency	3	1.500	>=4	4
Vegetation Obstruction	0	0.000	>=4	6
Litter	2	1.000	>=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	0	0.000	>=4	6

Table 5.15: Travel Plaza Parking Lot Maintenance Items for Portage Travel Plaza

OPI Measures	M-2 Travel Plaza Maintenance Item Deficiencies			
	2018			
	Deficiencies	Def/Plaza	OPI Goal	OPI Rating
Guardrail Deficiency	3	0.750	>=4	1
Pavement Deficiency	15	3.750	>=4	0
Vegetation Obstruction	1	0.250	>=4	6
Litter	6	1.500	>=4	6
Drainage Obstruction	4	1.000	>=4	3
Sign deficiency	6	1.500	>=4	1
Pavement Marking Deficiency	6	1.500	>=4	1
Fence Deficiency	0	0.000	>=4	6

Table 5.16: Travel Plaza Parking Lot Maintenance Items for Rolling Prairie Travel Plaza and MM37.5 Truck Parking Area

OPI Measures	M-3 Travel Plaza Maintenance Item Deficiencies			
	2018			
	Deficiencies	Def/Plaza	OPI Goal	OPI Rating
Guardrail Deficiency	0	0.000	>=4	NA
Pavement Deficiency	0	0.000	>=4	NA
Vegetation Obstruction	0	0.000	>=4	NA
Litter	0	0.000	>=4	NA
Drainage Obstruction	0	0.000	>=4	NA
Sign deficiency	0	0.000	>=4	NA
Pavement Marking Deficiency	0	0.000	>=4	NA
Fence Deficiency	0	0.000	>=4	NA

ALL TRAVEL PLAZAs 5N & 5S are under Construction

Table 5.17: Travel Plaza Parking Lot Maintenance Items for M-3

OPI Measures	M-4 Truck Parking Maintenance Item Deficiencies			
	2018			
	Deficiencies	Def/Plaza	OPI Goal	OPI Rating
Guardrail Deficiency	3	1.500	>=4	4
Pavement Deficiency	11	5.500	>=4	0
Vegetation Obstruction	0	0.000	>=4	6
Litter	5	2.500	>=4	5
Drainage Obstruction	1	0.500	>=4	6
Sign deficiency	2	1.000	>=4	5
Pavement Marking Deficiency	5	2.500	>=4	2
Fence Deficiency	0	0.000	>=4	6

Table 5.18: Travel Plaza Parking Lot Maintenance Items for Truck Parking at MM 108

OPI Measures	M-5 Travel Plaza Maintenance Item Deficiencies			
	2018			
	Deficiencies	Def/Ramp	OPI Goal	OPI Rating
Guardrail Deficiency	0	0.000	>=4	6
Pavement Deficiency	3	1.500	>=4	1
Vegetation Obstruction	0	0.000	>=4	6
Litter	5	2.500	>=4	5
Drainage Obstruction	0	0.000	>=4	6
Sign deficiency (New Signage, but recent truck damage)	6	3.000	>=4	0
Pavement Marking Deficiency	2	1.000	>=4	3
Fence Deficiency	1	0.500	>=4	5

Table 5.19: Travel Plaza Parking Lot Maintenance Items for M-5

Lighting OPI Measurements

The following three tables list the number of deficiencies, deficiency rates, and OPI ratings for the lighting maintenance items. Lighting is only included in toll and travel plazas. ITRCC has recently 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 majority of deficient lighting comes from theft and vandalism to the structures and power supply.

With the Indiana State Police arresting those responsible parties, ITRCC has awarded a contract for needed repairs, including the use of aluminum wiring in lieu of copper and signing each structure of the change.

The ratings range from 0 to 6, with 6 being the highest.

OPI Measures	Toll Plaza Lighting Deficiencies			
	2018			
	Deficiencies	Def/Plaza	OPI Goal	OPI Rating
Toll Road	30	0.698	>=4	6
M1	12	0.667	>=4	6
M2	0	0.000	>=4	6
M3	11	1.375	>=4	6
M4	2	0.250	>=4	6
M5	5	1.667	>=4	6

Table 5.20 Toll Plaza Lighting Deficiencies

OPI Measures	Travel Plaza Lighting Deficiencies			
	2018			
	Deficiencies	Def/Lot	OPI Goal	OPI Rating
Toll Road	3	0.214	>=4	6
M1	0	0.000	>=4	6
M2	0	0.000	>=4	6
M3	0	0.000	>=4	6
M4	3	1.500	>=4	5
M5	0	0.000	>=4	6

Table 5.21 Toll Plaza Lighting Deficiencies

Recommended Improvements

Guardrail Deficiencies

Maintenance crews should continue to prioritize replacing damaged guardrail and impact attenuators along the mainline and at the toll plazas. The majority of the observed deficiencies are structural.

Pavement Deficiencies

Mainline pavement has been replaced from MM 20 to MM 92 due to the PUSH project. This section of pavement will also be monitored under a pavement warranty for the next seven years. This warranty is provided through the design build team and will help to maintain this pavement in high OPI metrics throughout the warranty. Additionally, ITRCC has reported that the mainline pavement will be replaced in sections of M-4 and M-5 with replacement schedules starting in 2020. The mainline pavement and toll plaza ramps have a higher priority over the truck parking areas in ITRCC's maintenance and repair schedule. A thorough review of the pavement at the ramps and plazas can also be referenced in the roadway condition sections 4.3 and 4.4.

Litter Deficiencies

Some litter was noted during the inspections, but all areas achieved an OPI rating of 4 or higher for litter. ITRCC maintenance crews are doing a good job of keeping litter picked up along mainline, ramp, and plaza areas.

Drainage Obstruction Deficiencies

Maintenance crews should continue to prioritize removing vegetation, litter, and other debris from toll plaza ramp lot drainage structures to prevent water buildup near the road as well as exacerbated damage to shoulders and drainage structures from freeze/thaw cycles. Additionally, the use of sand during winter conditions from local municipalities on adjacent and overpass structures has resulted in another source of drainage obstructions that should be monitored.

Sign Deficiencies

Signage should continue to be inspected by maintenance staff throughout the mainline and the toll plaza ramps. Any damaged posts or damaged/deteriorated signs should be replaced. It is acknowledged that ITRCC has begun a comprehensive sign replacement program, addressing over 700 sign in the next 3 years.

Pavement Marking Deficiencies

ITRCC purchased a paint striper with the intent to perform the pavement marking work in-house. This work is ongoing, and it should be noted that pavement markings are typically performed in the summer, with maintenance inspections occurring in the spring. However there were some delineators missing and/or damaged. MM 20 to MM 93 will receive new durable pavement in-lay markings through the PUSH project. This section will also be under a warranty for seven years which includes repainting of the durable markings. This

will allow ITR maintenance relief and opportunity to focus on pavement deficiencies outside this area.

Fencing Deficiencies

Fencing should be replaced where it has been cut, knocked over, or rusted through to deter animals and people from accessing the toll road facilities. Most deficiencies are due to trees on adjacent properties falling on ITR fences.

Lighting Deficiencies

Maintenance crews should prioritize replacing rodent guards and missing cover plates in the light posts of the toll plazas. ITRCC has concluded its lighting reduction program with favorable findings to permanently eliminate roadway lighting reduced during the study. Measures were taken to prevent these reductions to be cited as areas of defect within this report.



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	2019
Group B	MP 24.1 to MP 62	2020
Group C	MP 62 to MP 115	2017
Group D	MP 115 to MP 156.9	2018

Table 6.1: Facilities Condition Report Schedule

A detailed inspection was conducted of all buildings in Group D during the period of May 7th through May 11th, 2018. 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. For the purposes of the Facilities Condition Report, both those findings and remarks assigned as “Priority Level High: Requires Immediate Attention,” and, “Priority level Low” have been included.

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 personal and be scheduled as normal maintenance schedules allow.

It should be noted that ITRCC has programmed a comprehensive facility repair and upgrade plan to address both structure, cosmetic and aesthetic repairs for 2018 and 2019. Several areas noted in this report as deficient have works planned to address, but had not occurred prior to the inspection.

Preventative Maintenance Program

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

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

Buildings Overview:

2018 Facility Assessment				
Structure Number	Building Description	Mile Point	General Condition	Description
44-08	Main Building	120.5	Good	
44-09	North Toll Booth	120.5	Good	
44-10	South Toll Booth	120.5	Good	
44-11	Canopy	120.5	Good	
44-12	Small Brown Storage Shed	120.5	Good	
44-13	Storage Shed	123.7	Poor	Building not in use. Doors and roof show heavy deterioration.
44-24	Main Building	125.8	Excellent	

		WBL		
44-25	Gas Kiosk	125.8 WBL	Excellent	
44-26	Gas Canopy	125.8 WBL	Excellent	
44-27	Diesel Canopy	125.8 WBL	Excellent	
44-28	Water Pump Building	125.8 WBL	Good	
44-29	Center Green Minibarn - Water Reclamation	125.8 WBL	Good	
44-30	West Green Minibarn	125.8 WBL	Good	
44-14	Main Building	125.8 EBL	Excellent	
44-16	Gas Canopy	125.8 EBL	Excellent	
44-17	Diesel Canopy	125.8 EBL	Excellent	
44-18	Cable Building	125.8 EBL	Good	
44-19	Communications tower building	125.8 EBL	Good	
44-20	Water management building	125.8 EBL	Good	
44-21	WWTP	125.8 EBL	Fair	Siding missing on east side of building. Second story of building under construction, window opening not covered. Pumps 15 and 13 have a slow leak.
44-22	WWTP Clarifiers	125.8 EBL	Good	
44-23	Large blue maintenance barn	125.8 EBL	Good	
44-31	Green well head	125.8 EBL	Good	
76-01	Maintenance building	137.5 EBL	Good	
76-02	Grey Storage Barn	137.5 EBL	Good	
76-03	Salt Storage Pyramid	137.5 EBL	Fair	Random areas of missing shingles throughout. Cracking in concrete foundation. Ponding water inside structure.
76-04	Small Gas Kiosk	137.5 EBL	Fair	Minor impact damage on door. Water damage on inside of wall.
76-05	Brown Garage	137.5 EBL	Fair	Man door on west side of building damaged, does not close
76-06	Large Blue Garage	137.5 EBL	Good	
76-07	Small Blue Pole Barn	137.5 EBL	Good	
76-08	Main Building	143.9	Good	

76-09	Toll Booth	143.9	Fair	Watch your step sign faded on sidewalks. Safety hazard needs to be repainted. Lane drain full of debris, not functioning properly. Drain cover does not sit flush with pavement.
76-10	Toll Booth	143.9	Fair	Watch your step sign faded on sidewalks. Safety hazard needs to be repainted. Lane drain full of debris, not functioning properly.
76-11	Toll Booth	143.9	Fair	Watch your step sign faded on sidewalks. Safety hazard needs to be repainted. Lane drain full of debris, not functioning properly.
76-12	Toll Booth	143.9	Fair	Watch your step sign faded on sidewalks. Safety hazard needs to be repainted. Lane drain full of debris, not functioning properly.
76-13	Toll Booth Canopy	143.9	Good	
76-14	Small Brown Storage Barn	143.9	Good	
76-29	Main Building	153	Good	
76-30	Toll Booth 1	153	Fair	Watch your step sign faded on sidewalks. Safety hazard needs to be repainted.
76-31	Toll Booth 2	153	Fair	Watch your step sign faded on sidewalks. Safety hazard needs to be repainted. Weather stripping around window no longer effective.
76-32	Toll Booth 3	153	Fair	Watch your step sign faded on sidewalks. Safety hazard needs to be repainted.
76-33	Toll Booth 4	153	Fair	Watch your step sign faded on sidewalks. Safety hazard needs to be repainted.
76-34	Toll Booth 5	153	Fair	Watch your step sign faded on sidewalks. Safety hazard needs to be repainted.
76-35	Toll Booth 6	153	Fair	Watch your step sign faded on sidewalks. Safety hazard needs to be repainted. Impact protection pole not secured properly, loose and in danger of falling.
76-36	Toll Booth 7	153	Fair	Watch your step sign faded on sidewalks. Safety hazard needs to be repainted. Corrosion on exterior walls.
76-37	Toll Booth 8	153	Fair	Watch your step sign faded on sidewalks. Safety hazard needs to be repainted. Impact protection pole not secured properly, loose and in danger of falling.
76-38	Toll Booth 9	153	Fair	Water damage around window.
76-39	Toll Both Canopy	153	Fair	Roof leaking on lanes 3, 4 and 8.
76-40	White Storage Barn	153	Good	
76-41	Small Brown Storage Barn	153	Good	

76-50	Toll Booth 10	153	Good	
76-51	Toll Booth 11	153	Good	
76-52	Toll Booth 12	153	Good	
76-53	Toll Booth 13	153	Good	
76-42	Salt Pyramid	156 EBL	Fair	Random areas of missing shingles throughout. Ponding water inside structure.
76-43	Medium Brown Storage Barn	156 EBL	Good	
76-44	Radio Tower Building	156 EBL	Good	
76-45	Gas Kiosk	156 EBL	Good	

Table 6.2 Condition Rating and Deficiencies Log

Note: The crosswalk painting deficiencies noted above will be addressed through ITRCC’s annual crosswalk painting program. It should be noted that a 2-year project to repair deficient concrete in and around the crosswalk areas of toll plazas will conclude in 2018. ITRCC’s annual crosswalk repainting program will follow behind the conclusion of the concrete repair program.

Travel Plaza 7S & 7N



The Travel Plaza replacement for TRP 7S & 7N consisted of the complete demolition of all existing structures on each site along with the replacement of fuel tanks, sewer lines, and upgraded flow capacity. The plazas also included the removal of water treatment facilities and completed new tie-ins to local municipalities. All parking lot pavement was rehabilitated with milling of the existing surface and replacing with new HMA. Full depth pavement replacement was also incorporated in areas of need based on new and previous building locations. The reconstruction included state-of-art technology, a

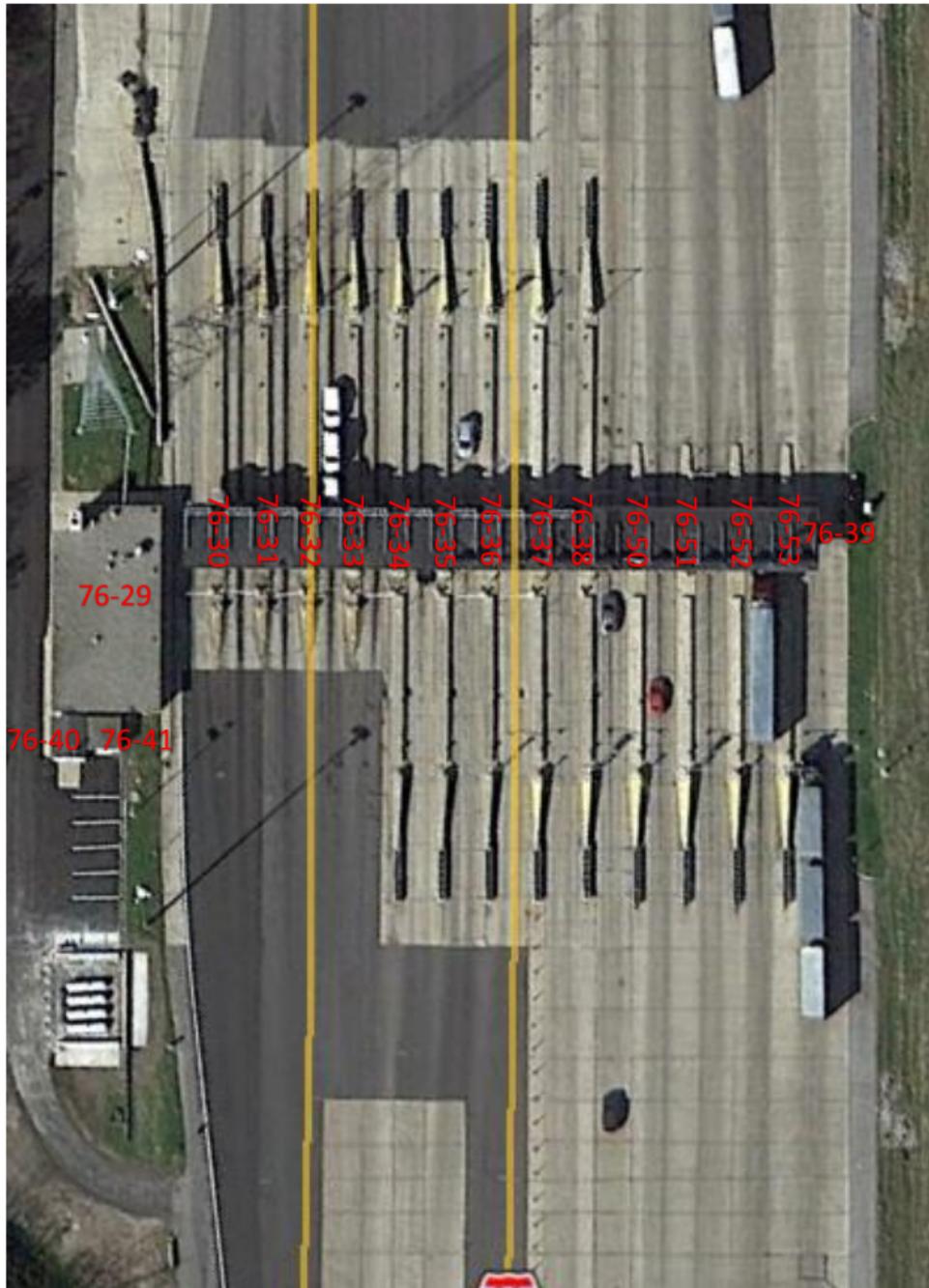
more modern aesthetic and a 92.3kW solar array.

Facility Assessment Findings Report

The following pages include aerial photography for all facilities inspected. Also included are the VUEworks reports and photographs of deficiencies taken by Lochner inspectors, which are contained within Appendix A.



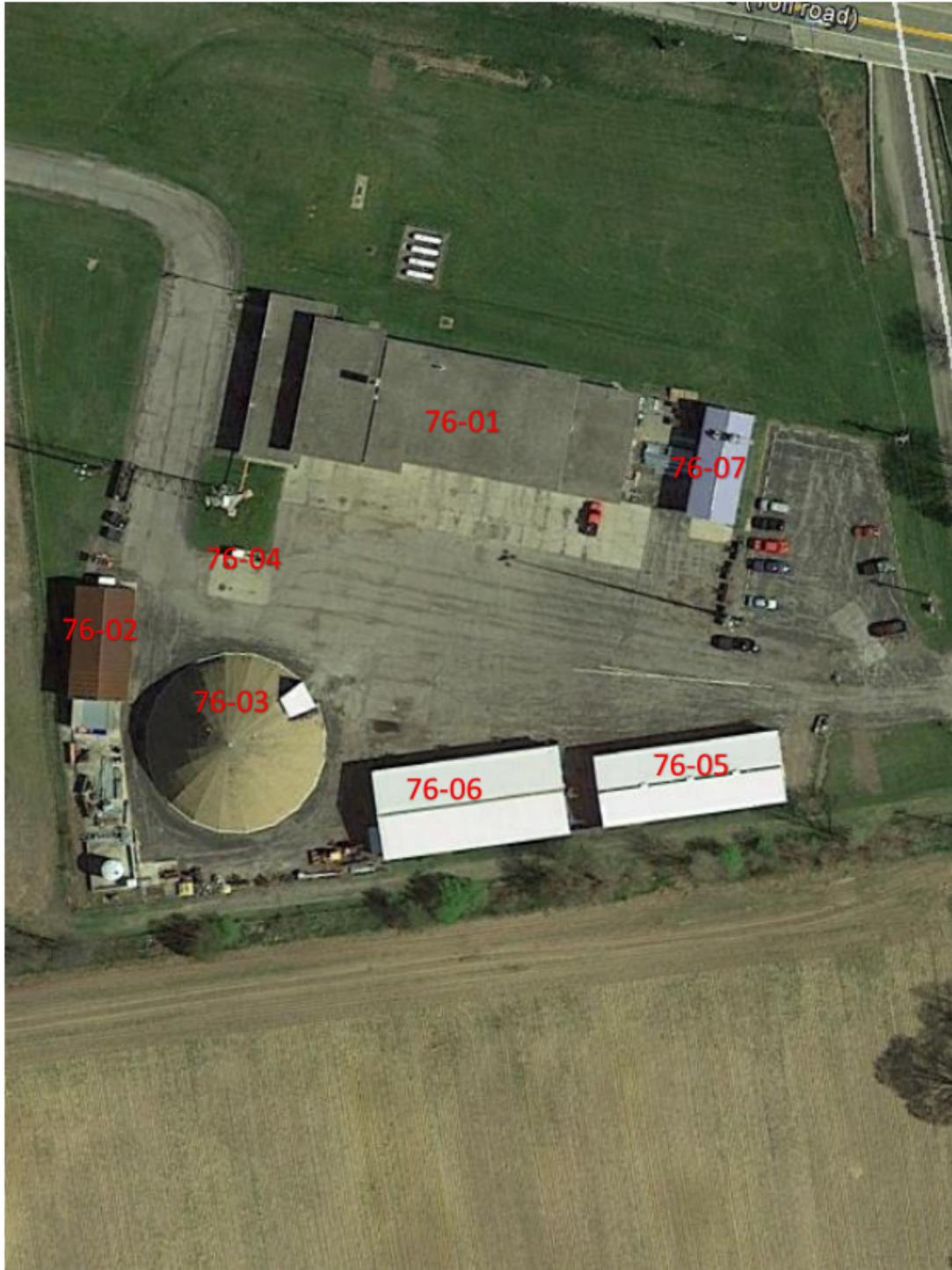
76-42 Salt Pyramid	M-5 Salt Storage
76-43 Brown Storage Barn	Mile Marker 156 EBL
76-44 Radio Tower Building	
76-45 Gas Kiosk	



76-29 Main Building	76-34 Booth 5	76-39 Canopy	76-52 Booth 12	Eastpoint Toll Plaza Mile Marker 153 
76-30 Booth 1	76-35 Booth 6	76-40 White Storage Barn	76-53 Booth 13	
76-31 Booth 2	76-36 Booth 7	76-41 Brown Storage Barn		
76-32 Booth 3	76-37 Booth 8	76-50 Booth 10		
76-33 Booth 4	76-38 Booth 9	76-51 Booth 11		



76-08 Main Building	76-12 Booth 4	Angola Exit 144
76-09 Booth 1	76-13 Canopy	Mile Marker 143.9
76-10 Booth 2	76-14 Brown Storage Shed	
76-11 Booth 3		



76-01 Main Building

76-02 Grey Storage Barn

76-03 Salt Dome

76-04 Gas Kiosk

76-05 Brown Garage

76-06 Large Blue Garage

76-07 Small Blue Pole Barn

M-5 Maintenance Yard

Mile Marker 137.5





44-14 Main Building	44-23 Large Blue Maintenance Barn	Travel Plaza 7 Mile Marker 125.8
44-16 Gas Canopy	44-24 Main Building	
44-17 Diesel Canopy	44-26 Gas Canopy	
44-18 Cable Building	44-27 Diesel Canopy	
44-19 Communications Tower Building	44-28 Water Pump Building	
44-20 Water Management Building	44-29 Mini Barn	
44-21 WWTP	44-31 Green Well Head	
44-22 WWTP Clarifiers		



- 44-08 Main Building
- 44-09 Booth 1
- 44-10 Booth 2
- 44-11 Canopy
- 44-12 Storage Shed

Howe Exit 121

Mile Marker 120.5





7: TREATMENT PLANTS AND OTHER ENVIRONMENTAL ISSUES REPORT

Treatment Plants and Other Environmental Issues Report

General

The 2017-2018 site reviews were conducted from May 21-25, 2018. Field visits to many of the ITR facilities were made on May 23-24, 2018. Record reviews and interviews also occurred during this period.

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

Plaza	Closed	Re-open	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	Continue to use WWTP/WTP for 3-6 months, then Rolling Prairie Water District (LaPorte County) will take ownership of WTP/WWTP
Travel Plaza 5	Spring 2018	July 2018	Not applicable, connected to municipal water and sewer
Travel Plaza 7	September 2016	July 2017	WTP closed, supply provided by municipal system, third party currently operating WWTP, will eventually connect wastewater to municipal system (LaGrange County)

Travel Plaza 8 (MP 145.7) has been closed and demolished. This travel plaza will not be re-opened.

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.

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

Wastewater Treatment

Treatment Plants

ITRCC operates two wastewater treatment plants (WWTP) under National Pollutant Discharge Elimination System (NPDES) discharge permits at Travel Plaza 3 and Travel Plaza 7. The Water Treatment Plant (WTP) at 8 North (previously held NPDES permit) has been decommissioned. Table 7.1: NPDES Permits below shows pertinent information regarding the permits issued by the Indiana Department of Environmental Management (IDEM).

Travel Plaza	NPDES Permit Number	Effective Date	Expiration Date
3 South	IN 0020931	April 1, 2016	March 31, 2021
7 South	IN 0050300	August 1, 2017	July 31, 2022

Table 7.1: NPDES Permits

Neither WWTP at either Travel Plaza 3 or Travel Plaza 7 are currently operating (no influent or effluent) while the Travel Plazas are being re-developed. These locations are currently being operated and managed through a licensed third party until municipal connections are complete.

Monthly Reports of Operation (MROs) are still being submitted to IDEM for both permits that indicate no discharges are taking place at this time.

ITRCC WWTP process laboratories are adequately equipped to perform analysis for routine operational and regulatory compliance reporting. ITRCC employs certified operators to perform the permit required tests. Table 7.2 lists licensed wastewater operators among ITRCC staff. However, ITRCC has transitioned operation of the WWTPs to a contracted

licensed vendor.

Name	License	Type / Number	Expires
Matthew McLaughlin	Wastewater	Class II WW019790	6/30/2020
David Smith	Wastewater	Class III WW019029	6/30/2020
	Wastewater	Class C WW019161	6/30/2020

Table 7.2: Wastewater Operators

Travel Plaza 3

The WWTP at Travel Plaza 3 South was constructed in the 2000’s and the facility and equipment appeared to be in good working condition with several recently completed equipment upgrades. ITRCC plans to transition ownership and operation of the WWTP to LaPorte County as part of its Rolling Prairie sewer expansion project.

Travel Plaza 7

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

ITRCC has reached terms with the LaGrange County Regional Utility District (LCRUD) to connect and discharge wastewater from the travel plaza to the municipal system once the LCRUD has completed the necessary infrastructure improvements. It is anticipated that this will be completed in 2019.

Land Application

In previous years, ITRCC land applied sludge from the digester at Travel Plaza 3 under permit IN LA 000380 (typically applied once a year in September).

Beginning in September 2016, due to operational changes at the Travel Plaza 3 WWTP, ITRCC no longer is actively land applying sludge and has contracted with a third party for proper off-site disposal on an annual basis. Disposal documentation including manifests for the sludge were provided to ITRCC environmental staff. ITRCC will continue disposal of the sludge using a contracted vendor instead of using land application, as the WWTPs are scheduled to be transferred to other ownership and operation and future needs for sludge disposal will decrease and will eventually be no longer be necessary. ITRCC has contacted IDEM and closed its land application permit.

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

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

Table 7.4: 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.

MP	Location	Number of Septic Systems	Quantity of Lift Stations
1.1	Westpoint Toll Plaza	N/A	1
4.7 E	Calumet Entry Toll Plaza	N/A	1
4.7 W	Calumet Exit Toll Plaza	N/A	1
13.5	Gary West - Closed Toll Plaza	1	N/A gravity fed
16.7	Gary East Toll Plaza	2	N/A gravity fed
20.6	Lake Station Toll Plaza	1	N/A gravity fed
23.5	Porter Maintenance	N/A	1
30.9	Valparaiso Toll Plaza	1	N/A gravity fed
37.5	West Facility	1	N/A gravity fed
38.9	Michigan City Toll Plaza	1	N/A gravity fed
49.2	La Porte Toll Plaza	N/A	1
51.9	La Porte Maintenance	1	1
72.4	South Bend West Toll Plaza	1	N/A gravity fed
82.9	Mishawaka Toll Plaza	1	N/A gravity fed
87.0	Administration Building	2	1
87.1	Maintenance Central Facility	1	N/A gravity fed
87.1	Toll Maintenance Shop	1	1
87.1	Sign Shop	1	N/A gravity fed
87.1	Elkhart Maintenance	1	1
91.8	Elkhart West Toll Plaza	1	N/A gravity fed
96.0	Elkhart East Toll Plaza	1	1
101.2	Bristol Toll Plaza	1	N/A gravity fed
107.1	Middlebury Toll Plaza	1	N/A gravity fed
114.4	LaGrange Maintenance	1	N/A gravity fed
120.5	Howe/LaGrange Toll Plaza	1	N/A gravity fed
137.5	Steuben Maintenance	1	N/A gravity fed
143.9	Angola Toll Plaza	1	N/A gravity fed
153.0	Eastpoint Toll Plaza	1	1

Table 7.5: ITR Septic Systems and Lift Stations Stand-Alone or Connected to a System other than an ITR Wastewater Treatment Plant

Lift Stations

Lift stations are listed in Table 7.5 ITR Septic Systems and Lift Stations Stand-Alone or Connected to a System other than an ITR Wastewater Treatment Plant. 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.

Water Treatment

Public Water Supply

ITRCC operates two public water supplies (PWS) at the following locations: Travel Plaza 3 South and the Administration Building.

The PWS at Travel Plaza 3 appeared to be in good working condition and is reported to be in compliance with its permit. It is currently operated by a third party vendor under contract to ITRCC. It is planned that ownership and operation of the PWS will be transferred to the Rolling Prairie Water District of LaPorte County during 2018.

Table 7.6: Public Water Supply Permits indicates the location, type of facility, number of wells and permit number issued by IDEM.

MP	Location	Type of Facility	Number of Wells	Permit Number PWS ID #
55.9	Travel Plaza #3	Water Treatment Plant/ Public Water Supply	3	2460162
87	Administration Building	Public Water Supply	1	2710827

Table 7.6: Public Water Supply Permits

The Administration Building is supplied by water from one ground water well which is disinfected with sodium hypochlorite.

ITRCC replaced a well pump at the Admin Building well in April 2017. The facility failed a coliform testing shortly after the pump replacement. It is believed that the contractor that replaced the pump failed to properly disinfect equipment prior to completing the work. ITRCC disinfected the well after the failed test. Twelve subsequent coliform tests (required on a more frequent basis due to the failed test) have all achieved compliance.

The water treatment plant at Travel Plaza 3 makes use of liquid sodium hypochlorite for disinfection.



Figure 7.2: Sodium Hypochlorite with Dosing Pumps at TRP 7 and TRP 3

ITRCC should continue its efforts to maintain a free chlorine residual above 0.2 mg/L and below 4 mg/L to ensure proper disinfection and satisfy PWS regulations. According to 327 IAC 8-2-8.6 (3),

“The residual disinfectant concentration in the distribution system, measured as total chlorine, combined chlorine, or chlorine dioxide, ..., may not be [below 0.2 mg/L] in more than five percent (5%) of the samples each month for any two (2) consecutive months that the system serves water to the public.”

ITRCC continues to use liquid sodium hypochlorite for disinfection eliminating the need for gaseous chlorine. Sodium hypochlorite naturally degrades in potency over time and so measures should be taken to adjust feed rates and concentrations accordingly. Per the Ten State Standards:

“5.4.4 Sodium hypochlorite

Sodium hypochlorite storage and handling procedures should be arranged to minimize the slow natural decomposition process of sodium hypochlorite either by contamination or by exposure to more extreme storage conditions. In addition, feed rates should be regularly adjusted to compensate for this progressive loss in chlorine content.

a. Storage

- 1. Sodium hypochlorite shall be stored in the original shipping containers or in sodium hypochlorite compatible bulk liquid storage tanks.*
- 2. Storage containers or tanks shall be located out of the sunlight in a cool area and shall be vented to the outside of the building.*
- 3. Wherever reasonably feasible, stored sodium hypochlorite shall be pumped undiluted to the point of addition. Where dilution is unavoidable, deionized or softened water should be used.*
- 4. Storage areas, tanks, and pipe work shall be designed to avoid the possibility of uncontrolled discharges and a sufficient amount of appropriately selected spill absorbent shall be stored on-site.*
- 5. Reusable sodium hypochlorite storage containers shall be reserved for use with sodium hypochlorite only and shall not be rinsed out or otherwise exposed to internal contamination.”*

Table 7.7: Water Operator Certifications includes the name, type, number, and expiration date of ITRCC Drinking Water Operators.

Name	Certification Type	Number	Expiration Date
David Smith	Drinking Water Operator WT3	WT150102	6/30/2019
	Drinking Water Operator DSS	DS140119	6/30/2019
Matthew McLaughlin	Drinking Water Operator DSM	DS090163	6/30/2021
	Drinking Water Operator WT3	WT100073	6/30/2019
Note: DSM – Distribution System Medium; DSS – Distribution System Small			

Table 7.7: Water Operator Certifications

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 7.8: Licensed Backflow Technicians**, below, includes a list of Certified Backflow Technicians employed by the ITRCC during the audit period.

Name	License	Type / Number
Matthew McLaughlin	Backflow Technician	BF11-4345

Table 7.8: Licensed Backflow Technicians

There are approximately 65 backflow preventers throughout facilities along the ITR.

Table 7.9: 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
1.1 E	Westpoint Toll Plaza	Above boiler	Public
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 7.9: 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 7.10: 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	Suggest connecting to city water when available
107.1 W	Middlebury Toll Plaza	
143.9 E	Angola Toll Plaza	
38.9 W	Michigan City Toll Plaza	

Table 7.10: Drinking Water Wells Recommended for Replacement

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

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

MP	Location	Year of Discovery	Remediation Status
13.5 W	Gary West Toll Plaza	2012	NFA Jun 2015
21.7 W	Travel Plaza 1 North	1991	NFA Oct 2015
21.7 E	Travel Plaza 1 South	1991	NFA Nov 2015
21.7 E	Travel Plaza 1 South	2001	NFA Nov 2015
55.9 W	Travel Plaza 3 North	2001	NFA Oct 2014
55.9 E	Travel Plaza 3 South	1999	NFA Oct 2014
72.4 W	South Bend Toll Plaza	2013	NFA June 2015
72.9 E	District 21 State Police	1999	Continues
76.6 E	South Bend Toll Plaza	2013	NFA Jun 2015
82.9 E	Mishawaka Toll Plaza	2013	NFA Jun 2015
90.0 W	Travel Plaza 5 North	2001	NFA Apr 2010
90.0 E	Travel Plaza 5 South	1994	NFA Apr 2010
21.7 W	Travel Plaza 7 North	1999	NFA Nov 2015
21.7 E	Travel Plaza 7 South	2002	NFA Sept 2014
21.7 W	Travel Plaza 8 North	2001	NFA Jun 2015
21.7 E	Travel Plaza 8 South	2001	NFA Mar 2016

Table 7.11: Status of IFA Remediation Activities

Currently, 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 in 2018.

Hazardous Material Management/Response to Hazardous Substance Emergencies

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

The majority of hazardous waste generated along the ITR is due to waste from removal of leaded paint from bridges. For the paint removal, hazardous material handling and waste management is under the responsibility of contractors performing work with tracking by the ITRCC Environmental Health & Safety Manager. ITRCC's 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.

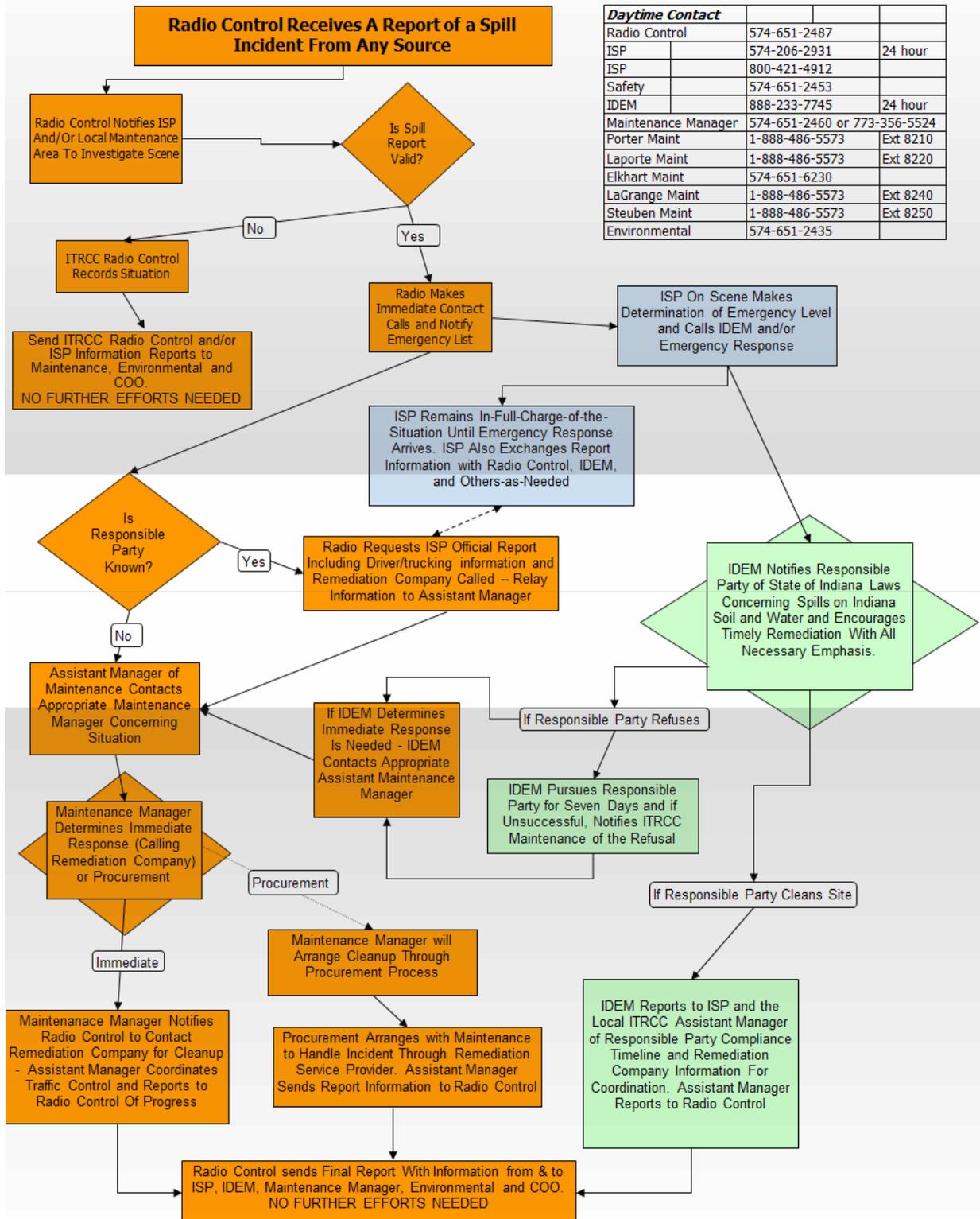
Response to Patron Related Released Substance Emergencies

ITRCC has developed an effective strategy to address all patron releases along the ITR.

Figure 7.4: Spill Response Flow Chart demonstrates the process for responding to a release.

Each reported incident is added to a spill incident tracking register, which is maintained electronically. The spill tracking register 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 ITRCC or responsible party. In general, the spill response contractor or the responsible party will forward the spill cleanup report to 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 7.4: Spill Response Flow Chart

Hazardous Waste

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

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

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

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

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

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

ITRCC uses the Hazardous Materials Identification System (HMIS) labeling system for hazardous materials which is a four-bar label with numerical values indicating the level of hazard in different hazard categories: Health, Flammability, Reactivity and Protective Equipment. Some containers, primarily at maintenance facilities, were found unlabeled.

Occupational Safety and Health Administration (OSHA) regulations require that all virgin chemicals be labeled and Resource Conservation and Recovery Act (RCRA) and Department of Transportation (DOT) regulations require that hazardous wastes be labeled. Some containers at facilities along the visit were found without any label or identification. It is recommended training should continue to raise staff awareness of proper container labeling, storage, etc.

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

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

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:

- Not more than 60 gallons of Category 1, 2 and/or 3 flammable liquids or 120 gallons of Category 4 flammable liquids shall be stored in any one storage cabinet. Not more than three such cabinets may be located in a single storage area.
- Quantities in excess of this shall be stored in an inside storage room.
- Inside storage rooms shall be constructed to meet the required fire-resistive rating for their use.
- 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

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 in Section 7.5.6 of this report. Used oil is not considered waste if it is intended to be recycled. Used oil should, therefore, not be stored with waste or in waste containment, but separately in designated areas. Containers and tanks of used oil should be stored with covers closed to reduce evaporation of used oil, reduce the possibility of spills and minimize the likelihood of contamination. Any amount of used oil, if mixed with any amount of a hazardous waste, reclassifies the used oil as hazardous waste and increases handling requirements and disposal fees. Used oil should not be mixed with windshield wiper solution, antifreeze, etc. All oil drain pans or other equipment containing spent used oil need to be labeled at maintenance facilities.

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 2013 and are due for review and updating in 2018. At the time of the site visits, the 2018 updates of the SPCCs had not yet been completed.

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, 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.



Figure 7.5: Visible Signage at Travel Plazas

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 in **Section 7.9 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 65 patron spills or releases along the ITR since the previous site visits in 2017. In general, patrons and/or responsible parties are responsible for remediation of the contamination.

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

Training and Education

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

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 operates many underground storage tanks (USTs) throughout various facilities, such as the Administration Building, maintenance areas, toll plazas, and travel plazas. The tanks are primarily used for the storage of gasoline and diesel fuel. Newly installed fuel USTs at the travel plazas are the responsibility of the fueling tenant at the plaza (Sunoco currently).



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

After evaluating the costs of achieving full compliance with the UST regulatory updates, ITRCC has elected to close and remove all remaining USTs located at its facilities.

Generators with USTs will be replaced by natural gas generators where possible. Fueling USTs will not be replaced, and fueling operations will be completed off-site by third parties.

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

Air

In 2014, ITRCC brought a previously closed paint booth at the LaGrange maintenance facility back into service and acquired an air permit from IDEM for its operation. This was the only paint booth of five previously existing paint booths that was put in service; the other paint booths have remained closed. ITRCC again decided to close the LaGrange paint booth

and it has not been operated in the last two years. ITRCC does not intend to operate the paint booths in the future and has terminated the air permit.

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

- Emergency Generators – RICE NESHEP, 40 CFR 63 ZZZZ
- Boilers
- 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.)*
- Maintenance Facility Activities: used oil storage, parts washers, etc.
- Wastewater treatment activities
- Fueling stations

The National Emission Standards for Hazardous Air Pollutants (NESHAP) for Source Category: Gasoline Dispensing Facilities, 40 CFR 63 Subpart CCCCCC was published on January 10, 2008 in the Federal Register. It applies to all existing and new gasoline dispensing facilities (GDF) that are not otherwise covered by a major source permit.

Notification for GDF with a throughput of greater than 10,000 gallons per month was completed in 2010. Compliance with the standard which includes recordkeeping and possible retrofits was achieved by January 10, 2011.

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

Refrigerants

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

Asbestos

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

Herbicides and Pesticides

The pesticides and herbicides being used on the ITR contain chemicals that are available to the general population for home use. Every attempt is made to purchase only what is

needed to avoid excess storage. ITRCC endeavors to follow the proper storage, application and use of personal protective equipment when handling all herbicides and pesticides in accordance with manufacturer's regulations and the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). The ITRCC currently has six registered technicians that are able to apply chemicals for the purpose of right-of-way management along the ITR.

Stormwater Management

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

In 2017 the salt dome located at the Elkhart maintenance facility incurred storm damage to the roof which allowed precipitation to wash out some salt onto the adjacent pavement and become exposed to stormwater. This salt dome has now been demolished and removed.

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

It is understood that ITRCC has been informed by INDOT that at least some of the toll road facilities and operations are covered by INDOT's Municipal Separate Storm Sewer System (MS4) permit. ITRCC staff have participated in initial training activities with INDOT and are currently in initial discussions with INDOT regarding best management practices to be implemented by the ITRCC. It is anticipated that compliance will require ITRCC to develop Stormwater Pollution Prevention Plans (SWPPPs), document current stormwater infrastructure and existing BMPs, and implement new BMPs. It is anticipated that this will be a long term effort.

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 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. In order to ensure that pollutants are not discharged to Indiana State Waters, appropriate measures must be taken to prevent exposure of these materials to rain, snow, snow melt, and runoff. In accordance with the Code of Federal Regulations (40 CFR 122.26), a “no exposure” exclusion may be obtained in lieu of an NPDES permit if these products are stored in a storm resistant shelter. If drums are tightly sealed without operational taps or valves and do not leak, no storm resistant shelter is required.

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

Community Right-to-Know

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

MP	Location	Forms Submitted to Local Emergency Planning Committees
156	Maintenance Salt Storage Area	Completed
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
87.1	Elkhart Maintenance	Completed
87	Administration Building	Completed
72.9	4N Maintenance Storage Building	Completed
125.8	Travel Plaza 3 WWTP	Completed
52	LaPorte Maintenance	Completed
37.5 E	2 South Salt Storage Area	Completed
23	Porter Maintenance	Completed
4.6	Lake Maintenance	Completed

Table 7.13: Community Right-to-Know Hazardous Chemical Inventory Forms

A Toxic Release Inventory (TRI or Form R) is not required because the ITRCC does not fall

under an SIC code covered by the regulation (40 CFR 372).

Materials Management

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

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

Outdoor, uncovered storage of the above-listed items could contribute pollutants to 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:

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

Regulatory Compliance

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

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

Additional Initiatives

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

- Carbon reduction/offset program, including planting of 800 trees and fleet replacement initiative
- LED lighting upgrade/replacements
- Diesel UST to natural gas conversion for generators
- Electric plug in stations at commuter lots and Sonoco stations
- Recycle roadway rubber/purchase grinder equipment for use as weed control at buildings and guardrail
- Convert overhead Cobra lights from electrical grid to powered by solar
- Develop formal recycling program
- Begin fuel storage dependency through Sunoco Fleet Card partnership
- Explore partnership with US Fish & Wildlife for native planting to reduce carbon emissions due to roadside mowing

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.