

Categorical Exclusion Level Thresholds

	PCE	Level 1	Level 2	Level 3	Level 4 ¹
Section 106	Falls within guidelines of Minor Projects PA	“No Historic Properties Affected”	“No Adverse Effect”	-	“Adverse Effect” Or Historic Bridge involvement ²
Stream Impacts³	No construction in waterways or water bodies	< 300 linear feet of stream impacts	≥ 300 linear feet of stream impacts	-	USACE Individual 404 Permit ⁴
Wetland Impacts³	No adverse impacts to wetlands	< 0.1 acre	-	< 1.0 acre	≥ 1.0 acre
Right-of-way⁵	Property acquisition for preservation only or none	< 0.5 acre	≥ 0.5 acre	-	-
Relocations⁶	None	-	-	< 5	≥ 5
Threatened/Endangered Species (Species Specific Programmatic for Indiana bat & northern long eared bat)*	“No Effect”, “Not likely to Adversely Affect” (With select AMMs ⁷)	“Not likely to Adversely Affect” (With any AMMs or commitments)	-	“Likely to Adversely Affect”	Project does not fall under Species Specific Programmatic ⁸
Threatened/Endangered Species (Any other species)*	Falls within guidelines of USFWS 2013 Interim Policy or “No Effect”	“Not likely to Adversely Affect”	-	-	“Likely to Adversely Affect”
Environmental Justice	No disproportionately high and adverse impacts	-	-	-	Potential ⁹
Sole Source Aquifer	No Detailed Groundwater Assessment	-	-	-	Detailed Groundwater Assessment
Floodplain	No Substantial Impacts	-	-	-	Substantial Impacts
Section 4(f) Impacts	None	-	-	-	Any ¹⁰
Section 6(f) Impacts	None	-	-	-	Any
Permanent Traffic Alteration	None	-	-	-	Any
Noise Analysis Required	No	-	-	-	Yes
Air Quality Analysis Required	No	-	-	-	Yes ¹¹
Approval Level	Concurrence by DE or ESD	DE or ESD	DE or ESD	DE and/or ESD	DE and/or ESD; and FHWA
<ul style="list-style-type: none"> • District Env. (DE) • Env. Serv. Div. (ESD) • FHWA 					

¹ Coordinate with INDOT Environmental Services Division. INDOT will then coordinate with the appropriate FHWA Environmental Specialist.

² Any involvement with a bridge processed under the Historic Bridge Programmatic Agreement.

³ Total permanent impacts to streams (linear feet) and wetlands (acres).

⁴ US Army Corps of Engineers Individual 404 Permit

⁵ Total permanent and temporary right-of-way. This does not include reacquisition of existing apparent right-of-way.

⁶ If any relocations are within an area with a known or suspected Environmental Justice (EJ) or disadvantaged population, or has greater than 5 relocations, a conversation with FHWA, through INDOT ESD, is needed to confirm NEPA classification and outreach plan for the project.

⁷ Avoidance and Mitigation Measures (AMMs) determined by the IPAC determination key to be required that are not tree AMMs, bridge AMMs, or structure AMMs.

⁸ Projects that do not fall under a Species Specific Programmatic and results in a “Likely to Adversely Affect”. Other findings can be processed as a lower-level CE.

⁹ Potential for causing a disproportionately high and adverse impact.

¹⁰ Section 4(f) use resulting in an Individual, Programmatic, or *de minimis* evaluation. The only exception is a *de minimis* evaluation for historic properties (Effective January 2, 2020). If a historic property *de minimis* and no other use, mark the *None* column.

¹¹ Hot Spot Analysis and/or MSAT Quantitative Emission Analysis.

* Includes the threatened/endangered species critical habitat

Note: Substantial public or agency controversy may require a higher-level NEPA document.

DESIGNATION NUMBERS

Designation	Project Description	Type
2002424*	I-70 from West of SR1 to West of Centerville Rd. and All Culverts	Road
2002422	I-70 from West of Centerville Rd. to West of US27	Road
2002423	I-70 from West of US27 to OH State Line	Road
2200762	I70 EB over Whitewater River	Bridge
2200763	I70 WB over Whitewater River	Bridge
2002426	I70 WB over Whitewater River Overflow	Bridge
2002434	I70 EB over Whitewater River Overflow	Bridge
2002427	I70 WB over Martindale Creek	Bridge
2002567	I70 EB over Martindale Creek	Bridge
2002428	I70 EB over Jacksonburg Rd.	Bridge
2002429	I70 WB over Jacksonburg Rd.	Bridge
2002430	I70 EB over Plum Creek	Bridge
2002431	I70 WB over Plum Creek	Bridge
2002432	I70 EB over Greens Fork	Bridge
2002433	I70 WB over Greens Fork	Bridge
2002575	Washington Rd. over I70	Bridge
2002436	I70 EB over Nolands Fork	Bridge
2002437	I70 WB over Nolands Fork	Bridge
2002574	CR40 over I70	Bridge
2002438	I70 EB over NSRR	Bridge
2002439	I70 WB over NSRR	Bridge
2002440	I70 EB over Round Barn Rd.	Bridge
2002441	I70 WB over Round Barn Rd.	Bridge
2002442	I70 EB over Clear Creek	Bridge
2002443	I70 WB over Clear Creek	Bridge
2002445	US35 NB over I70 EB/WB	Bridge
2002446	US35 SB over I70 EB/WB	Bridge
2002447	I70 EB over Cardinal Greenway	Bridge
2002448	I70 WB over Cardinal Greenway	Bridge
2002449	I70 EB over CR 500 E Old SR 627 (Union Pike)	Bridge
2002450	I70 WB over CR 500 E Old SR 627 (Union Pike)	Bridge
2002451	I70 EB over W FK/E Fk Whitewater River	Bridge
2002452	I70 WB over W FK/E Fk Whitewater River	Bridge
2002453	I70 EB over M FK/E Fk Whitewater River	Bridge
2002454	I70 WB over M FK/E Fk Whitewater River	Bridge
2002573	CR38 (Smyrna Rd.) over I70	Bridge
2002565	I70 EB over SR121	Bridge
2002566	I70 WB over SR121	Bridge
2002455	I70 EB over E FK/E FK Whitewater River	Bridge
2002456	I70 WB over E FK/E FK Whitewater River	Bridge
2002457	I70 EB over Access Road	Bridge
2002458	I70 WB over Access Road	Bridge
2002484	I70 WB over US40	Bridge
2002485	I70 EB over US40	Bridge
2002564	Small Structure Pipe Lining	Culvert
2002568	Small Structure Replacement	Culvert
2002569	Small Structure Replacement	Culvert
2002570	Small Structure Replacement	Culvert
2002571	Small Structure Replacement	Culvert
2200807	US 27 Concrete Pavement Restoration	Road

* - Lead Des. No.

April 25, 2023

MEMORANDUM

To: Nathan Riggs, INDOT
From: Juliet Port and Jennifer Graf, Parsons

RE: **Draft Purpose and Need**
Revive I-70
Wayne County
Des. 2002424 (Lead)

Introduction

The Indiana Department of Transportation (INDOT), with federal funding from the Federal Highway Administration (FHWA), plans to proceed with a roadway improvement project along a 21-mile section of Interstate 70 (I-70) in Wayne County, Indiana, from approximately 1.5 miles west of the I-70/State Road (SR) 1 interchange to approximately the Indiana/Ohio State Line. The project area includes six interchanges and 47 bridges. Existing and proposed conditions were summarized in the project's August 17, 2022, early coordination letter (ECL), provided in the Attachments, pages 1 to 13.

The purpose of this memorandum is to establish a draft purpose and need as part of this project's environmental analysis, planning, and design. This project requires an Interstate Access Document (IAD) for proposed modifications to the I-70 and US 40 interchange, which is currently under development. Following FHWA's "Determination of Engineering and Operational Acceptability", this preliminary draft purpose and need statement will be included in the draft National Environmental Policy Act (NEPA) document.

Preliminary Purpose and Need

NEEDS

The needs for this project stem from existing pavement conditions and geometric deficiencies within the project area, as well as safety and congestion issues along this 22-mile section of I-70.

Pavement Conditions

Pavement conditions for I-70 from 7.65 miles east of SR 1 to 0.62 mile west of US 27 are documented in the *Engineering Assessment* report, amended July 13, 2020 (Amended EA). The *Abbreviated Engineers* report, amended July 13, 2020, assessed I-70 from 0.47-mile west of SR 1 to 7.65 miles east of SR 1. Additionally, pavement conditions at select ramps at the I-70 and SR 227 interchange, and the I-70 and US 40 interchange, were evaluated in a *Geotechnical Exploration Report* dated June 26, 2019. Referenced excerpts are provided in the Attachments, pages 14 to 25.

These sections of I-70 were originally constructed with reinforced cement concrete pavement between 1962 and 1963. From circa 1981 to 2015, segments of I-70 within the project area received various maintenance treatments such as asphalt overlays and resurfacing. The existing 60-year old concrete pavement is now showing age-related distress such as joint failure, polishing, faulting, and transverse cracking, as well as poor rideability. At the interchange ramps, transverse cracking consistent with joint spacing was noted in the existing concrete pavement. There were also voids and stripping observed along I-70 throughout the project area.

The International Roughness Index (IRI) is a measure of ride quality. An IRI measurement of 95 inches per mile (in/mi) or below is considered “good” and new pavements should be below 70 in/mi. Pavement conditions for the majority of I-70, between 0.62-mile west of US 27 and 0.26-mile east of US 40, were documented in an INDOT *Pavement Scoping Application* dated September 8, 2020. The IRI for this section of I-70 was reported to be 123 in/mi (Attachments, pages 26 and 27).

Geometric Deficiencies

Geometric deficiencies were evaluated in INDOT’s *Project Intent Memo* dated January 13, 2021 (Attachments, pages 28 to 30). Within this section of I-70, most of the existing ramp acceleration and deceleration lanes and merge/diverge points do not meet current Indiana Design Manual (IDM) standards, and mainline shoulder widths are too narrow in many locations. For example, the eastbound acceleration lane at SR 1 is 350 feet long, which is below the 600-foot minimum required per the IDM (Attachments, page 30). There are also specific operational issues associated with the acceleration/deceleration lanes and loop ramps at both the I-70 and US 35/Williamsburg Pike interchange and the I-70 and US 40 interchange. A table of geometric deficiencies from the *Project Intent Memo* is provided on page 30 of the Attachments.

Safety

The four-lane sections of I-70 across Indiana, have higher than average index values for crash rates and/or crash severity, based on functional class and current traffic volumes. According to the 2022 *I-65 and I-70 Safety and Mobility Needs Summary* (Attachments, pages 31 to 41), approximately 19 percent of I-70 crash indices are in the medium or high categories, which indicates potential safety issues (Attachments, page 34).

The 2023 *Revive I-70 Traffic and Safety Analysis* assessed existing safety conditions on I-70 within the project area using five years of crash data from 2017 through 2021. A total of 735 crashes over the five-year period were analyzed. The following table shows the I-70 mainline crash data by manner of collision and crash severity. This includes crashes on the mainline at on-ramp/off-ramp merge/diverge points. There were nine crashes on the US 35 interchange ramps with three involving injuries. There were eight crashes on the US 40 interchange ramps with four involving injuries.

I-70 Mainline Crashes by Manner of Collision and Severity

Manner of Collision	Crash Severity				TOTAL
	Property Damage Only (PDO)	Injury (non-incapacitating)	Injury (incapacitating)	Fatality	
Angle	13	0	2	0	15
Head On	2	1	0	0	3
Other	60	1	12	0	73
Out of Control	228	24	31	4	287
Rear End	123	24	15	2	164
Sideswipe	179	5	9	0	193
TOTAL	605	55	69	6	735

Source: *Revive I-70 Traffic and Safety Analysis, March 2023*

The mainline crashes in the I-70 corridor during the five-year period were plotted and heat maps were created. Separate heat maps were created for the EB and WB directions of travel on I-70 (Attachments, page 42). The heat maps highlight areas of the corridor with the highest crash densities indicating hotspots where crashes have occurred most frequently over the five-year period (2017-2021). There is crash activity throughout the corridor including the Richmond area and areas to the west. In the EB direction of travel the largest hotspot is at the US 35 interchange. This

corresponds to the area containing the EB weaving section between the loop ramps. A secondary EB hot spot is located between the US 27 and the SR 227 interchanges.

In the WB direction the largest hotspots are at the US 40 and US 27 interchanges. Secondary WB hot spots are located between the US 40 and SR 227 interchanges, and between the US 27 and the US 35 interchanges.

The 2023 *Revive I-70 Traffic and Safety Analysis* documented an analysis of crash frequency and crash severity performed using INDOT’s Road Hazard Analysis Tool (RoadHAT) version 4.1. The I-70 corridor was divided into mainline segments and interchange segments. The interchange segments consider the area contained within the outside ramps and an additional 1,500-foot area of influence upstream and downstream. The segments between the interchanges are analyzed as mainline segments. The RoadHAT software considers the number and severity of crashes (in terms of injuries and fatalities), the exposure (average annual daily traffic [AADT]), and the length of the segment. These data are compared to expected crashes from similar highway segments averaged across the state. The RoadHAT software calculates two indices, which indicate the number of standard deviations that a particular segment’s safety performance is above or below the expected number of crashes for similar segments in Indiana. An index above 0.0 is considered elevated crash activity in terms of frequency or severity and an index 1.0 or above is considered substantially elevated. The index of crash frequency (ICF) indicates the frequency of all crashes within a segment and the index of crash cost (ICC) indicates the severity of all crashes within a segment. The crash data from 2017 through 2021 were used for this analysis with one exception. Because of ongoing construction activity between the US 40 interchange and the SR 227 interchange during 2017 and 2018, those two years of data were not included in the analysis for the four segments at the eastern edge of the corridor (as noted in the table below). All other segments used the full five years of crash data.

The results of the RoadHAT analysis for the Revive I-70 corridor are presented in the following table and in figures located on page 43 of the Attachments. There is elevated crash activity throughout the corridor, including west of Richmond. Ten of the segments have elevated indices for either ICF, ICC, or both. The segment between the SR 227 interchange and the US 40 interchange shows the highest crash frequency indices in the corridor in both the EB and WB directions of travel, at 2.06 and 2.97 respectively.

RoadHAT Results: Crash Frequency and Crash Severity

Direction of Travel	Segment Description	Index of Crash Frequency (ICF)	Index of Crash Cost (ICC)	Number of Crashes (2017 – 2021)		
				Fatal & Incapacitating Injury (FI)	Non-Incapacitating Injury (NI)	Property Damage Only (PDO)
EB	West Project Limit to SR 1	-0.51	-0.53	1	3	16
EB	Interchange - SR 1	-0.59	-0.34	3	2	25
EB	SR 1 to Centerville	-0.62	-0.84	6	4	85
EB	Interchange - Centerville	-0.33	0.07	4	3	28
EB	Centerville to US 35	1.63	-0.2	3	0	47
EB	Interchange - US 35	-0.86	-1.46	2	2	52
EB	US 35 to US 27	-0.01	-1.11	0	1	16
EB	Interchange - US 27	-0.74	-0.99	2	3	38
EB	US 27 to SR 227	1.59	1.4	4	1	30
EB	Interchange - SR 227	-1.24	-1.04	2	0	5
EB	SR 227 to US 40*	2.06	1.31	5	3	27

Direction of Travel	Segment Description	Index of Crash Frequency (ICF)	Index of Crash Cost (ICC)	Number of Crashes (2017 – 2021)		
				Fatal & Incapacitating Injury (FI)	Non-Incapacitating Injury (NI)	Property Damage Only (PDO)
EB	Interchange - US 40*	0.49	0.56	1	2	7
WB	Interchange - US 40*	-0.55	-0.24	2	4	24
WB	US 40 to SR 227*	2.97	0.14	1	6	38
WB	Interchange - SR 227	-1.29	-1.49	1	0	4
WB	SR 227 to US 27	-0.11	0.42	2	0	13
WB	Interchange - US 27	-0.70	-1.33	1	2	40
WB	US 27 to US 35	0.42	1.83	7	1	15
WB	Interchange - US 35	-1.09	-0.65	6	1	22
WB	Interchange - WB Weigh Station	-1.06	-1.55	1	0	18
WB	WB Weigh Station to Centerville	1.34	1.46	7	1	32
WB	Interchange - Centerville	-1.19	-1.78	1	0	15
WB	Centerville to Welcome Center	-1.07	-1.02	0	0	5
WB	Interchange - Welcome Center	-1.29	-1.69	0	1	8
WB	Welcome Center to SR 1	-0.18	0.10	8	12	83
WB	Interchange - SR1	-0.90	-1.21	1	0	19
WB	SR 1 to West Project Limit	-0.55	0.00	2	1	15

* 2017 and 2018 data excluded for these segments due to construction.
Source: Revive I-70 Traffic and Safety Analysis, March 2023

Two other studies analyzed safety conditions within the project area using RoadHat. According to INDOT’s 2022 *I-65 and I-70 Safety and Mobility Needs Summary*, the following segments of I-70 within the project area have an ICC value close to or greater than 1 between 2017 and 2019 (Attachments, page 40):

- Wilbur Wright Road to SR 1
- US 27 to SR 227 / Middleboro Pike

The Amended EA included a safety analysis on the US 35 to eastbound I-70 acceleration ramp lane at the I-70 and US 35 cloverleaf interchange. The results of the RoadHAT analysis for EB I-70 at the US 35 interchange provided an ICF of 2.18 and an ICC of 1.29 (Attachments, page 18).

INDOT studied crash data for rural interstate facilities in Indiana that were increased from two lanes in each direction to three lanes in each direction. Nine locations covering over 77 miles of interstate and over 5,600 crashes were analyzed over a 14-year period between 2005 and 2019. These locations included a total of 187.1-mile-years (8,434,000,000 vehicle miles traveled). An analysis of crash data before and after the lane expansion was conducted using an equal number of years before and after construction (a maximum of 5 years and a minimum of 1 year were used). The crashes were on interstate mainlines and included crashes that occurred near on- and off-ramps. Using the before and after data, the analysis showed the following decreases in crash rates (crashes

per 100 million vehicle miles traveled) when expanding an interstate from two lanes to three lanes in each direction:

- Reduction in Fatal Crash Rate (*Small Sample Size*) = 32%
- Reduction in All Injury Crash Rate = 15%
- Reduction in Injury + Fatal Crash Rate = 16%
- Reduction in PDO Crash Rate = 20%
- Reduction in All Crash Rate = 19%

Congestion

Annual average daily traffic on I-70 is 39,600 vehicles per day within the project area and approximately 50 percent of these vehicles are trucks. Substantial congestion along the I-70 corridor has been addressed in INDOT's transportation plans. INDOT's 2018 *Indiana Multi-Modal Freight Plan Update* identifies I-70 from the Illinois State Line to the Ohio State Line as a heavily traveled freight and passenger corridor that experiences significant congestion (Attachments, pages 44 to 46). INDOT's 2045 *Long-Range Transportation Plan* identifies the I-70 corridor as critical to the state's mobility and economic activity. The long-range plan recommends maximizing its performance to ensure the efficient movement of people and goods, increase regional connectivity and freight truck mobility, and plan for the future (Attachments, pages 47 to 50).

During normal traffic flow conditions, congestion meets levels of service (LOS) criteria on I-70 within the project area. The traffic analysis presented in the 2023 *Revive I-70 Traffic and Safety Analysis* determined that existing LOS range between A and C and future (2048) LOS will range between A and C within the project area. However, with high truck percentages and projected growth, future 2048 LOS is projected to be LOS C in multiple segments during the PM peak hour. Levels of Service is a performance measure that represents quality of service, measured on an A – F scale, with LOS A representing a free flow of traffic and LOS F representing a breakdown in flow (e.g., start-and-stop congestion). The project area is both rural and urban. The minimum criteria during peak travel hours (i.e., rush hour) is LOS C in the rural section and LOS D in the urban area. The *Highway Capacity Manual (7th Edition)* description of LOS C notes that freedom to maneuver within the traffic stream is noticeably restricted, and lane changes require more care and vigilance on the part of the driver. This condition is exacerbated by the high truck volumes in the I-70 corridor and the resultant platooning that requires more following time and then passing maneuvers in order to travel at desired speeds.

Queuing Due to Maintenance of Traffic

Excessive queuing occurs on I-70 when there are lane closures due to crashes, maintenance work, and other events. Lane closures on this four-lane section of I-70 result in traffic back-ups beyond INDOT policy limits. The Indiana Highway Congestion Policy (IHCP) defines acceptable queuing at interstate work zones, based on the length of the queue and the time it remains in place. According to INDOT's 2022 *I-65 and I-70 Safety and Mobility Needs Summary*, on about 85 percent of the I-70 four-lane sections, a lane closure will result in queues beyond INDOT policy limits more than 50 percent the time (Attachments, pages 31 to 41). Work zones requiring lane closure are common since routine maintenance is required on I-70. INDOT's queue analysis tool was used to identify expected queues from closing one lane in each direction on four-lane segments of I-70. The queue analysis determined that the traffic backups exceed INDOT's policy limits 98 to 100 percent of the time within the project area as presented in the table below. It is important to note that work zone lane closures are only allowed at night. The queue analysis is equally applicable for crashes and other incidents where lane closure is required.

Indiana Highway Congestion Policy Queue Analysis Results

I-70 Segment	Length (miles)	EB Queues		WB Queues	
		% Time Over Policy Limit	% Time Greater Than 5 miles	% Time Over Policy Limit	% Time Greater Than 5 Miles
Wilbur Wright Road to SR 1	6.3	98	85	100	87
SR 1 to Centerville Road	7.9	98	85	100	87
Centerville Road to US 35	3.8	98	85	100	87
US 35 to US 27	2.0	100	95	100	95
US 27 to SR 227	1.5	100	95	100	95

Source: I-65 and I-70 Safety and Mobility Needs Summary, July 2022

Travel time reliability for trucks is also a concern on I-70. The *Indiana Multimodal Freight Plan Update 2018* (Multimodal Freight Plan) assesses truck travel time reliability (TTTR), which is an indicator of a highway system’s ability to consistently meet demand for travel. The TTTR index (TTTRI) is a measure of how much additional time shippers must plan for in order to arrive on-time 95 percent of the time. FHWA defines TTTI as “the consistency or dependability in travel times, as measured from day-to-day and/or across different times of day”. Federal performance measures require states to report the worst TTTR Index across five times of day. The segment of I-70 through Richmond is documented as unreliable in the Multimodal Freight Plan (Attachments, page 51).

PURPOSE

The purpose of the Revive I-70 project is to:

- Restore the pavement to extend the service life of these sections of roadway to at least 30 years, and provide a ride quality with an IRI of at least 95 in/mi;
- Correct geometric deficiencies to meet current IDM standards;
- Reduce the frequency and severity of crashes;
- Fulfill state and federal long-range plans for increasing mobility; and
- Improve truck travel time reliability.



PROJECT INTENT MEMO

I-70 from SR 1 to Ohio State Line

Wayne County

13 January 2021

Corridor Development Office

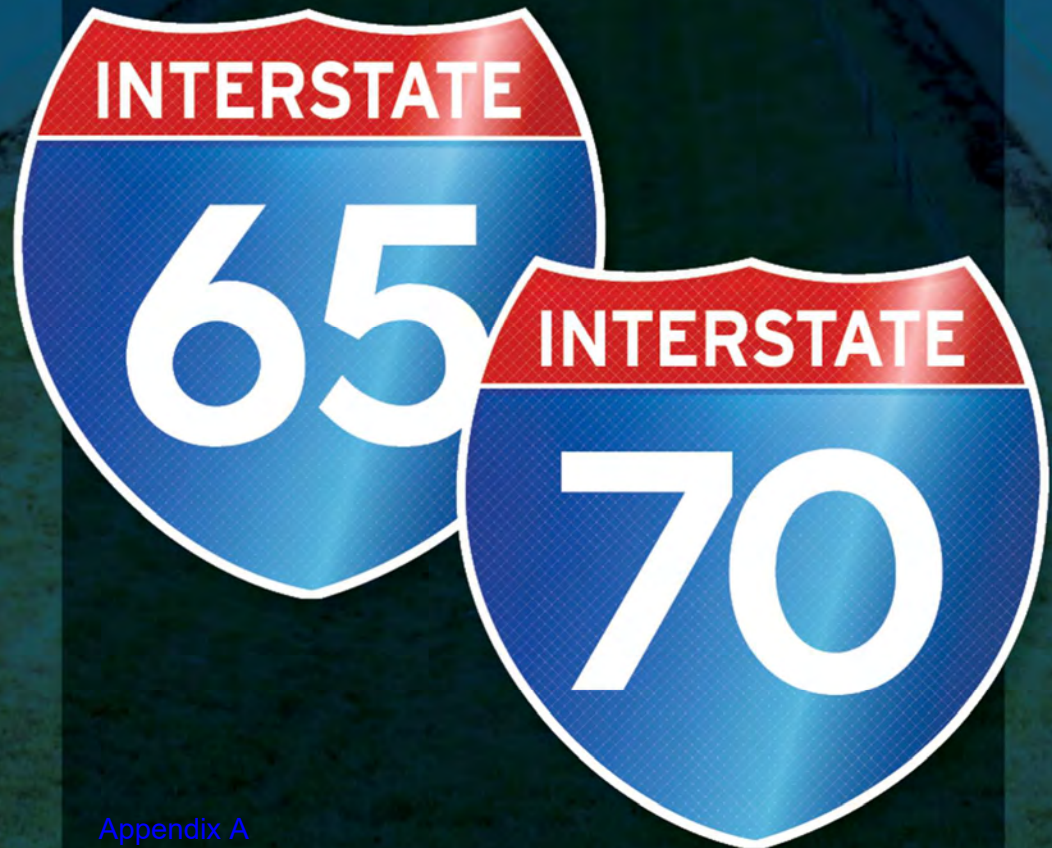
Traffic Engineering Division

Table of Geometric Deficiencies

Interchange	Direction	Element	IDM Figure	Approx. Existing Length (ft)	Min. required per IDM (ft)	Notes
SR 1	EB	Deceleration Lane Taper	48-4A	150	300	
SR 1	EB	Exit Ramp Gore	48-4A	200	400	May require ramp lane and taper modifications to address
SR 1	EB	Acceleration Lane Taper	48-4C	350	600	
SR 1	WB	Deceleration Lane Taper	48-4A	200	300	
SR 1	WB	Exit Ramp Gore	48-4A	200	400	May require ramp lane and taper modifications to address
SR 1	WB	Acceleration Lane Taper	48-4C	400	600	
Rest Area	WB	Deceleration Lane Taper	48-4A	100	300	
Rest Area	WB	Acceleration Lane Taper	48-4C	300	600	
Centerville Rd	EB	Deceleration Lane Taper	48-4A	100	300	
Centerville Rd	EB	Exit Ramp Gore	48-4A	200	400	May require ramp lane and taper modifications to address
Centerville Rd	EB	Entrance Ramp Gore	48-4C	150	200	May require ramp lane and taper modifications to address
Centerville Rd	EB	Acceleration Lane Taper	48-4C	200	600	
Centerville Rd	WB	Deceleration Lane Taper	48-4A	100	300	
Centerville Rd	WB	Exit Ramp Gore	48-4A	200	400	May require ramp lane and taper modifications to address
Centerville Rd	WB	Entrance Ramp Gore	48-4D	150	200	May require ramp lane and taper modifications to address
Centerville Rd	WB	Acceleration Lane Taper	48-4C	200	600	
Weigh Station	WB	Acceleration Lane Taper	48-4C	300	600	
US 35	EB	Deceleration Lane Taper	48-4A	100	300	
US 35	EB	Exit Ramp Gore	48-4A	200	400	May require ramp lane and taper modifications to address
US 35	EB	Loop Ramp Entrance Gore	48-4C	100	200	May require loop ramp to be realigned to join I-70 at shallower angle
US 35	EB	Loop Ramp Exit Gore	48-4A	100	400	May require loop ramp to be realigned to leave I-70 at shallower angle
US 35	EB	Acceleration Lane Taper	48-4C	300	600	
US 35	WB	Deceleration Lane Taper	48-4A	100	300	
US 35	WB	Exit Ramp Gore	48-4A	220	400	May require ramp lane and taper modifications to address
US 35	WB	Deceleration Lane Taper	48-4A	150	300	
US 35	WB	Deceleration Lane Length	48-4A	210	400	Will likely require US 35 SB bridge reconstruction to address
US 35	WB	Exit Ramp Gore	48-4A	70	400	May require loop ramp to be realigned to leave I-70 at shallower angle
US 35	WB	Entrance Ramp Gore	48-4E	160	300	
US 35	WB	Second ramp lane drop	48-4E	400	700	
US 35	WB	Second ramp lane drop taper	48-4E	340	600	
SR 27	EB	Deceleration Lane Taper	48-4A	100	300	
SR 27	EB	Acceleration Lane Taper	48-4C	350	600	
SR 27	WB	Deceleration Lane Taper	48-4A	100	300	
SR 27	WB	Acceleration Lane Taper	48-4C	200	600	
SR 227	EB	Deceleration Lane Taper	48-4A	200	300	
SR 227	EB	Exit Ramp Gore	48-4A	120	400	May require ramp lane and taper modifications to address
SR 227	EB	Entrance Ramp Gore	48-4C	75	200	May require loop ramp to be realigned to join I-70 at shallower angle
SR 227	EB	Acceleration Lane Taper	48-4C	200	600	
SR 227	WB	Deceleration Lane Taper	48-4A	200	300	
SR 227	WB	Deceleration Lane Length	48-4A	560	TBD	Potentially lengthen deceleration lane due to tight loop ramp?
SR 227	WB	Exit Ramp Gore	48-4A	100	400	May require loop ramp to be realigned to leave I-70 at shallower angle
SR 227	WB	Entrance Ramp Gore	48-4C	100	200	
SR 227	WB	Acceleration Lane Length	48-4C	250	400	
SR 227	WB	Acceleration Lane Taper	48-4C	175	300	

I-65 and I-70 Safety and Mobility Needs Summary

INDOT
July 1, 2022





6 I-70 EAST

I-70 East is a major motor carrier freight route between Indianapolis and Columbus, Ohio. Traffic operations and mobility are relatively good in this corridor, although the level of service is affected by truck volumes. Commercial vehicles comprise up to 50% of the traffic using the I-70 east corridor.

The study corridor of I-70 East is 67 miles long, from I-465 in Indianapolis to the Ohio state line near Richmond. Except for a six-lane section just east of I-465, the entire corridor is served by four lanes, as shown in **Figure 11**.

Traffic Operations and Mobility

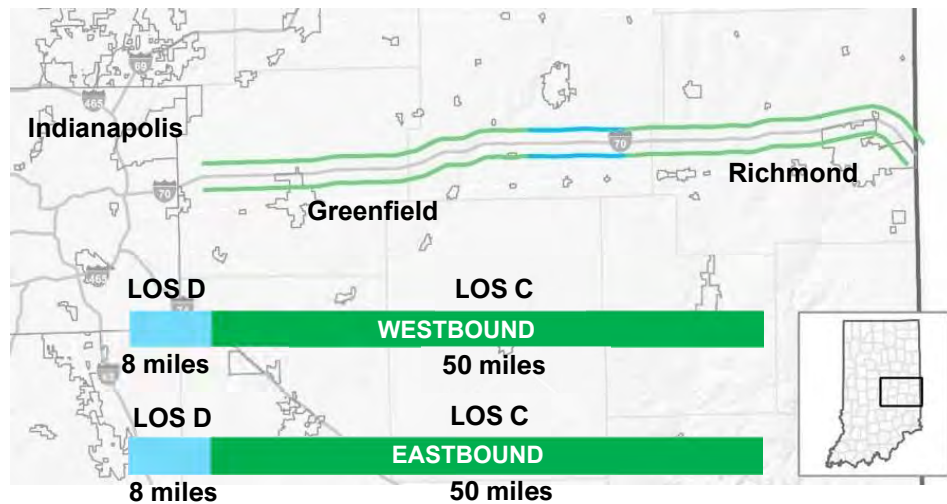
I-70 East operates at LOS C for nearly its entire length, as shown in **Figure 12**. The LOS drops to LOS D in both directions near the center of the section.

The posted speed along the I-70 East corridor is 70 mph for passenger vehicles and 65 mph for trucks east of Mount Comfort Road. The average free flow speed is during off peak periods, ranging from 60 mph to 65 mph, except near the Ohio state line, where I-70 westbound in Indiana has an average free flow speed of 50 mph.

Figure 11: I-70 East Traffic Lanes



Figure 12: I-70 East Level of Service





Traffic Safety

As shown in **Figure 12**, the LOS is relatively good on most of this segment, indicating an absence of severe congestion. Nevertheless, the review of crash history indicates that crash rates and crash severity are higher than expected for the prevailing conditions.

Most four-lane sections of the corridor do not have crash indices above average or they fall in the low range for this facility type. Crash history is in the medium category for about 30 percent of the corridor, as shown in **Figure 13**.

The medium crash areas are located between Indianapolis and Greenfield, and near the center of the segment east of Richmond.

Work Zone Congestion

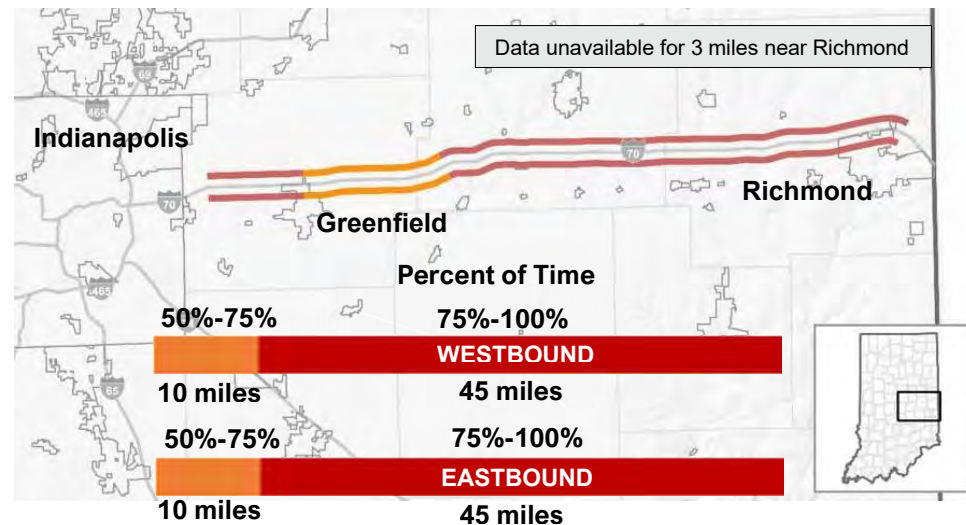
As shown in **Figure 14**, lane closures for pavement maintenance or other types of infrastructure repair as part of routine maintenance would result in queues beyond policy limits on all four-lane portions of I-70 East.

Unacceptable back-ups would be expected to occur on all sections between Indianapolis and Richmond any time routine pavement maintenance or reconstruction is performed. Crashes or incidents would increase the frequency of these excessive queues.

Figure 13: I-70 East Crash History



Figure 14: I-70 East Excessive Work Zone Queues





8 CONCLUSIONS

This study provides a system-level review of the existing four-lane sections of I-65 and I-70 in Indiana. It considers traffic operations and mobility, traffic safety, and work zone congestion on each of the four segments of I-65 and I-70 extending from Indianapolis. The purpose of this review is to provide a system context of needs to support future project-level studies.

The overall findings of this review are summarized below.

8.1 Existing Lanes on I-65 and I-70

I-65 and I-70 were originally constructed as four-lane freeways in Indiana. Over time, lanes have been added to about 30% of I-65 and I-70, mostly near urbanized areas where traffic volumes are higher and traffic flow is affected by ramp movements. About 90% of the segments with more than four lanes are on I-65.

8.2 Level of Service

Almost 95% of the four-lane sections of I-65 and I-70 operate at LOS C or better, which achieves the minimum standard for rural freeway operations in Indiana. This can be misleading, however, since ramp movements are not considered at this level of study, and trucks comprise 30% to 50% of the traffic mix. Trucks cause frequent queues of vehicles as they pass each other, which restricts driver options and increases delay. Ramp movements and truck factors should be considered in project-level need studies.

8.3 Crash History

Four-lane sections of both I-65 and I-70 have higher than average index values for crash rates and/or crash severity, based on functional class and current traffic volumes. About 69% of I-65 and 19% of I-70 crash indices are in the medium or high category, indicating potential safety issues. Causes and potential mitigation should be studied using location-specific crash data in project-level need studies.

8.4 Work Zone Congestion

On about 85% of the I-65 and I-70 four-lane sections, a lane closure will result in queues beyond INDOT policy limits more than half the time. Work zones requiring lane closure are common since routine maintenance is required. Assets have different life cycles at different locations, making lane closures frequent somewhere each year on I-65 and I-70. Additional lane closures occur due to crashes and incidents. Needs related to excess queuing should be assessed in greater detail in project-level studies.

I-65 AND I-70 SAFETY AND MOBILITY NEEDS
TECHNICAL APPENDIX

INDOT
July 1, 2022

I-65 AND I-70 SAFETY AND MOBILITY NEEDS

METHODOLOGY

This study evaluates traffic operations and mobility, traffic safety, and work zone congestion on four-lane sections of I-65 and I-70 in Indiana. Freeway segments that already have more than four lanes or have active or committed widening projects are excluded. The basis for this evaluation is discussed below.

Traffic Operations and Mobility

Using 2020 as a base year, level of service (LOS) and travel speeds are the primary measures of effectiveness used to represent traffic operations and mobility. Traffic data from 2016 to 2019, which are the most recent pre-pandemic traffic volumes available, are factored up to 2020 as necessary.

LOS is calculated using the Highway Capacity Manual methodology for basic mainline freeway segments. The influences of entrance or exit ramps, auxiliary lanes, and weaving are important at a project level, but are not considered in this study since the focus is on larger scale corridor operations. LOS C is typically the minimum criteria in rural settings and LOS D is the minimum for urban settings.

A comparison of off-peak and peak hour speeds for each segment is used to identify locations where speeds substantially drop in the peak hours. Each segment is also evaluated to identify locations where speeds dropped below 45mph, which is also an indication of congestion. These speed deficits indicate a lack of capacity and a need for added travel lanes.

Travel speed data from the National Performance Management Research Data Set (NPMRDS) was provided by INDOT for representative months during years 2017 and 2018. “Representative” months are those when traffic seasonal adjustment factors are closest to 1, which are not during inclement weather in the winter or during summer when travel is high due to vacations.

Traffic Safety

Locations of high crash rates and/or high crash severity are identified on each study segment. INDOT uses as an index of crash frequency (I_{cf}) as a screening tool to identify locations with higher-than-expected crash rates, and an index of crash cost (I_{cc}) to identify locations with high crash severity. A crash index greater than zero indicates higher than average values for the functional classification and traffic volume of the section. An index of 1 indicates that the crashes are one standard deviation higher. Indices were calculated by INDOT for crashes occurring between years 2017 and 2019.

Work Zone Congestion

Work zones are a common source of congestion on interstate highways since routine maintenance such as patching and resurfacing is required throughout the lifecycle of the pavement. This routine maintenance requires lane closures, which can result in extensive traffic back-up, especially on four-lane sections. Reducing these queues is a priority due to the potential for severe back-of-queue crashes as vehicles travelling at freeway speeds approach stopped traffic near the construction area.

I-65 AND I-70 SAFETY AND MOBILITY NEEDS

The Indiana Highway Congestion Policy (IHCP) defines an acceptable amount of queuing resulting from an interstate work zone. The policy is based on the length of the queue in miles and the time the queue remains in place. These acceptable limits are shown below:

Maximum Queue Length	Maximum Time Period
0 miles	6 continuous hours or any 12 hours per calendar day
0.5 miles	4 continuous hours
1.0 miles	2 continuous hours
1.5 miles	0 hours

Queuing that exceeds these levels must be mitigated as part of the construction process due to the potential for back-of-queue crashes. Mitigation tools commonly used to address safety and congestion concerns during construction include back-of-queue trucks or other warning devices. In some instances, shoulders are strengthened, or temporary pavement is used to avoid lane closures, which increases project costs and provides little or no benefit upon completion of a project.

INDOT's Queue Analysis Spreadsheet (Version 1.29) uses work zone characteristics and traffic volumes to estimate queue lengths on an hourly basis. This tool was used to identify expected queues from closing one lane in each direction of the four-lane segments of I-65 and I-70, as typically done for patching and resurfacing projects. Analysis was not performed for six-lane or wider freeway segments.

The queuing analysis was based on the following assumptions:

- Work zones are in place 24 hours a day, 7 days a week during the construction season
- Queues are reported for the month of July, when traffic volumes historically peak
- Work zones utilize 12-foot lane widths
- Permanent and work zone speed limits are 70 mph and 45 mph, respectively
- No diversion occurs from the interstate to alternate routes

Each segment was evaluated in terms of the following:

- Is queuing beyond the policy limits? (yes/no)
- Percent of time queuing is beyond the policy limits
- Percent of time queuing is greater than 5 miles

ANALYSIS RESULTS

Analysis results are presented for I-65 and I-70 in four segments: I-65 north and south of Indianapolis, and I-70 east and west of Indianapolis. Tables are provided in Appendix A with detailed information regarding the number of lanes, traffic volumes, crash data, and the results of queuing analysis for each segment. Since 2020 is the base year of this analysis, some segments have already been widened. These segments are not included in the summary tables.

I-65 AND I-70 SAFETY AND MOBILITY NEEDS

I-70 East

I-70 east is a major freight route between Indianapolis and Cincinnati. Commercial vehicles comprise more than 50% of the traffic on much of the I-70 east corridor. The study corridor is 67 miles long, from I-465 to the Ohio state line. Committed projects along this segment include the following:

- Mount Comfort Road to SR 9 – four to six lanes
- SR 1 to Ohio state line – four to six lanes

Traffic Operations and Mobility

The posted speed along the I-70 east corridor is 70 mph for passenger vehicles and 65 mph for trucks west of Mount Comfort Road. The average free flow speed during off peak periods ranges from 60 mph to 65 mph, except near the Ohio state line, where I-70 westbound in Indiana has an average free flow speed of 50 mph. Traffic operations analysis shows that I-70 east operates at LOS C.

Traffic Safety

The following locations have been flagged for having an Icc or Icf value between 0 and 1, which indicates that there *may* be a safety issue based on the crash history.

- SR 9 to Wilbur Wright Road west of Indianapolis
- Centerville Road to US35 / Williamsburg Pike near Richmond
- US 27 to SR 227 / Middleboro Pike near Richmond

An Icc or Icf value greater than 1 indicates that crashes are a standard deviation higher than expected and that there is *likely* a safety issue based on the crash history. The following segments have an Icc value greater than 1.

- Mount Comfort Rd to SR 9 west of Indianapolis
- Wilbur Wright Road to SR 1 near Richmond

Work Zone Congestion

Lane closures for pavement maintenance or rehabilitation will result in queues beyond policy limits on four-lane portions of I-70. It is anticipated that queues between Indianapolis and Richmond would be present at all times. Based on this analysis, mitigation measures to reduce queues or alternatives to lane closures should be pursued.

I-70 West

I-70 west is a major freight corridor connecting Kansas City to Indianapolis, via Terre Haute, Greencastle, Cloverdale, and Plainfield. Commercial vehicles comprise more than 50% of the traffic on most of the I-70 west corridor. The study corridor is 73 miles long from the Illinois state line to I-465 in Indianapolis. The following project was recently completed or committed for near-term completion on this segment:

- SR 39 to the Indianapolis International Airport – four to six lanes

Table 3: I-70 East Traffic Operations

Station	Name	Rural or Urban	Lanes	AADT 2017-2018	Truck %	Posted Speed	Eastbound					Westbound				
							FFS	AM Speed	AM LOS	PM Speed	PM LOS	FFS	AM Speed	AM LOS	PM Speed	PM LOS
973240	I 465 to Post Rd	Urban	3	109,600	81%	55										
973250	Post Rd to Mount Comfort Rd	Urban	3	64,600	73%	65										
973270	Mount Comfort Rd to SR 9	Rural	2	56,100	67%	70	64	64	B	63	C	64	64	C	64	C
973280	SR 9 to SR 109	Rural	2	42,500	57%	70	65	64	B	65	C	65	64	B	64	B
973290	SR 109 to SR 3	Rural	2	38,900	53%	70	65	64	C	65	C	65	65	C	65	C
973300	SR 3 to Wilbur Wright Road	Rural	2	35,300	47%	70	65	64	B	65	B	64	63	B	64	B
973310	Wilbur Wright Rd to SR 1	Rural	2	33,400	61%	70	65	65	B	65	C	65	64	B	65	C
973320	SR 1 to Centerville Rd	Rural	2	36,200	49%	70	65	65	C	65	C	65	65	C	65	C
973330	Centerville Rd to US 35 / Williamsburg Pike	Urban	2	36,400	49%	70	65	64	C	64	C	64	60	C	62	C
973350	US 35 / Williamsburg Pike to US 27	Urban	2	35,800	53%	70	63	63	B	63	C	63	62	B	63	C
973360	US 27 to SR 227 / Middleboro Pike	Urban	2	39,400	56%	70	64	62	C	62	C	64	64	C	63	C
973370	SR 227 / Middleboro Pike to US 40	Urban	2	36,000	57%	70	61	60	B	61	C	62	62	C	62	C
973380	US 40 to Ohio State Line	Urban	2	33,200	48%	70	64	62	B	64	B	50	50	C	49	C

Table 7: I-70 East Safety Screening

Station	Name	Icc	Icf	Incapacitating Injury or Fatal	Injury	Property Damage Only	Total Crashes
973240	I 465 to Post Rd						
973250	Post Rd to Mount Comfort Rd						
973270	Mount Comfort Rd to SR 9	1.36	0.83	10	2	125	137
973280	SR 9 to SR 109	0.78	0.38	3	2	83	88
973290	SR 109 to SR 3	0.60	0.66	11	9	126	146
973300	SR 3 to Wilbur Wright Road	0.07	0.56	8	7	97	112
973310	Wilbur Wright Road to SR 1	1.19	-0.62	4	3	19	26
973320	SR 1 to Centerville Rd	-0.04	-0.01	3	4	46	53
973330	Centerville Rd to US 35 / Williamsburg Pike	0.32	0.37	10	2	67	79
973350	US 35 / Williamsburg Pike to US 27	-0.71	-0.44	2	2	57	61
973360	US 27 to SR 227 / Middleboro Pike	0.78	-0.01	4	3	57	64
973370	SR 227 / Middleboro Pike to US 40	--	--	--	--	--	0
973380	US 40 to Ohio state line	-0.52	-0.03	3	4	51	58

Table 8: I-70 West Safety Screening

Station	Name	Icc	Icf	Incapacitating Injury or Fatal	Injury	Property Damage Only	Total Crashes
973010	Illinois state line to US 40	-0.61	-0.16	0	1	7	8
973020	US 40 to Darwin Rd	0.11	-0.22	6	2	51	59
973030	Darwin Rd to US 41 / US 150	0.12	-0.33	7	1	51	59
973040	US 41 / US 150 to SR 46	0.00	-0.95	2	1	5	8
950106	SR 46 to SR 59	0.48	0.87	10	4	78	92
973060	SR 59 to SR 243	0.48	0.87	10	4	78	92
973070	SR 243 to US 231	0.11	-0.14	4	2	29	35
973080	US 231 to Cr 1100 W (Exit 51 - Little Point Rd)	0.39	-0.18	7	3	58	68
973090	Cr 1100 W (Exit 51 - Little Point Rd) to SR 39	0.88	-0.15	6	2	47	55
973100	SR 39 to SR 267	2.08	1.96	15	7	74	96
973110	SR 267 to Ameriplex/ Ronald Reagan Pkwy						
973110	Ameriplex/Ronald Reagan Pkwy to Indpls Intl Airport						
973110	Indpls Intl Airport to I 465						

Table 11: I-70 East IHCP Lane Closures

Station	Name	Lanes Each Way	Allowable Lane Closures	Eastbound Queues			Westbound Queues		
				Over Policy Limit	% Time Over Policy	% Time Greater than 5 Miles	Over Policy Limit	% Time Over Policy	% Time Greater than 5 Miles
973240	I 465 to Post Rd	3	Nighttime Only						
973250	Post Rd to Mount Comfort Rd	3							
973270	Mount Comfort Rd to SR 9	2		YES	98%	85%	YES	100%	87%
973280	SR 9 to SR 109	2	Nighttime Only	No	0%	0%	No	0%	0%
973290	SR 109 to SR 3	2							
973300	SR 3 to Wilbur Wright Road	2							
973310	Wilbur Wright Road to SR 1	2		YES	98%	85%	YES	100%	87%
973320	SR 1 to Centerville Rd	2							
973330	Centerville Rd to US 35 / Williamsburg Pike	2							
973350	US 35 / Williamsburg Pike to US 27	2		YES	100%	95%	YES	100%	95%
973360	US 27 to SR 227 / Middleboro Pike	2							
973370	SR 227 / Middleboro Pike to US 40	2							
973380	US 40 to Ohio state line	2	No	0%	0%	No	0%	0%	

CRASH HEAT MAP – I-70 EASTBOUND DIRECTION OF TRAVEL



CRASH HEAT MAP – I-70 WESTBOUND DIRECTION OF TRAVEL



Source: Revive I-70 Traffic and Safety Analysis, March 2023

RoadHAT INDEX OF CRASH FREQUENCY



RoadHAT INDEX OF CRASH SEVERITY

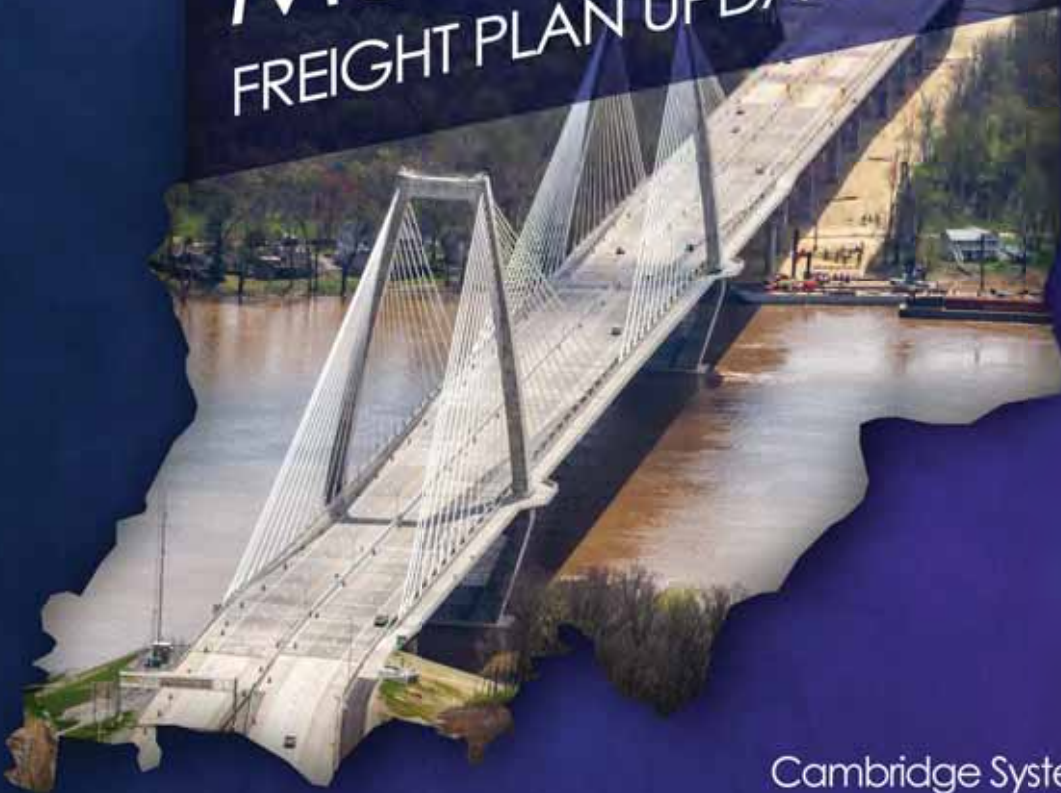


Source: Revive I-70 Traffic and Safety Analysis, March 2023



INDIANA

MULTIMODAL FREIGHT PLAN UPDATE 2018



prepared for
INDOT

prepared by
Cambridge Systematics, Inc.

with
Global Logistics Development Partners
Hanson Professional Services Inc.

from daily urban congestion. Cline Avenue, the main arterial adjacent to the two harbors, operates between LOS A and LOS D, depending on the segment. In 2035 some segments are expected to degrade to LOS B through E.

INDIANA AIR CARGO SYSTEM ISSUES

Indiana has more than 450 private-use airports and 115 public-use airports. Of the public-use airports, 69 are considered of statewide importance and are therefore included in the Indiana ISASP. The Indiana aviation system has been continuously developed over the years using Federal, state and local funds, and it provides statewide access for business, tourism and recreation.

At present, five primary (includes hub and non-hub) airports provide commercial passenger service. These include; Indianapolis International Airport, Fort Wayne-Allen County Airport, South Bend Airport, and Evansville Regional Airport.

Another seven airports serve as reliever airports to those larger commercial airports. The balance of the 69 airports covered by the ISASP is 57 general aviation airports.

Air Cargo Accessibility

Highway access roads to Indianapolis International Airport were designated as NHS intermodal freight connectors of national significance. The old Airport Expressway served as the main access point to the Indianapolis International Airport prior to the opening of the new passenger terminal in late 2008 and is still an active gateway to the FedEx freight operation at the airport. At that time, this roadway was operating at LOS A, and it is expected to continue to operate at an acceptable level of service into the future. The new primary passenger access point to the Indianapolis International Airport is located off of I-70 on the west side of the airport. U.S. 40 also connects Indianapolis International Airport with I-465. Several segments of U.S. 40 between I-465 and the Ronald Reagan Parkway have peak period congestion at LOS F. More segments of U.S. 40 near the airport are expected to become congested by 2035.

Fort Wayne International Airport is another cargo airport of national significance. It can be accessed from I-69 and I-469 via a variety of roads, including Indianapolis Road, Airport Expressway, and Bluffton Road. These roads, as well as the neighboring interstates, are expected to continue to operate at LOS A or B through 2035.

INDOT CUSTOMER FEEDBACK

As part of the planning process, an interactive map was distributed to MPOs throughout the state to gather comments regarding how the system is performing. A full list is included in Appendix B, while highlights are as follows:

- Development of industrial and logistics parks throughout the state is increasing the truck traffic on most interstates (and routes to/from) and several US highways. This is expected to increase, especially along I-65, I-70, US 30 and US 31.
- US 30 and US 31 experience high truck traffic volume and would benefit from treatments for free flow conversion.
- I-65 and I-70 experience frequent congestion statewide.
- I-465, I-65, and I-70 in and around Indianapolis experience significant recurring congestion during peak hours.
- Vertical bridge clearances remain an issue throughout the state, mostly on non-interstates.
- A number of frequently-used state and US highways run through cities and towns, causing traffic safety issues and physical clearance issues.



Projects in-progress or in the five-year program:

- North Vernon Bypass, between US 50 and State Road 3. This project is currently underway, and will relieve freight and passenger vehicle congestion through the City of North Vernon. Estimated cost for the entire project \$33.8 million.
- Construction of the Boonville Bypass is currently underway. This new roadway connecting State Road 61 north of Boonville to State Road 62 west of Boonville will move freight traffic out of town and relieve congestion. Estimated cost for the entire project is \$17.3 million.
- Interchange modification at I-65 and State Road 267, to accommodate increased freight traffic at the logistics facilities located near the interchange (including Amazon). This project is in the current 5-year program with an estimated \$46.6 million total cost.
- Interchange improvement at I-70 and State Road 39, to accommodate increased traffic and relieve congestion due to business and residential development in the area. This project is in the current 5-year program and is associated with an added travel lanes project on I-70.

Projects needed, not yet programmed (no funding identified):

- I-69, Section 6 between Martinsville and Indianapolis is the final link in the new interstate between Indianapolis and Evansville. While INDOT has committed to completing this project, total cost and funding sources have not been identified. Environmental study of this project is underway. A Record of Decision from the Federal Highway Administration is expected in 2018, allowing the project to proceed.
- Ohio River Crossing bridge on I-69, between Evansville and Henderson, Kentucky. This project supports the completion of the I-69 corridor and provides needed mobility across the Ohio River. Indiana and Kentucky are currently cooperating on a study that has identified three alternative routes, with the preferred alternative expected to be identified in Fall 2018. This project will serve two major freight corridors in Indiana – I-69 and US 41 – improving traffic flow and connectivity between the States. While INDOT has committed to completing this project, total costs and funding sources have not been identified.
- Widen I-65 to minimum of six lanes from I-90 to the Kentucky State Line. I-65 is a heavily-traveled freight and passenger corridor, and experiences significant congestion. Estimated cost \$2 billion.
- Widen I-69 to a minimum of six lanes from Indianapolis north to State Road 332. I-69 is a heavily-traveled freight and passenger corridor, and experiences significant congestion. Estimated cost \$310 million.
- Widen I-70 to a minimum of six lanes from the Illinois State Line to the Ohio State Line. I-70 is a heavily traveled freight and passenger corridor and experiences significant congestion. Estimated cost \$1.43 billion.



INDIANA DEPARTMENT OF TRANSPORTATION

LONG-RANGE TRANSPORTATION PLAN

Excerpts

2018-2045 Transportation
Needs Report





5 multimodal needs & plan integration

Indiana's multimodal transportation network facilitates the efficient, reliable, and safe movement of persons and goods. It is the foundation of the State's economic success—supporting jobs and businesses. However, the demands on and cost to maintain and improve the system will continue to increase. This chapter provides an overview of transportation issues and needs for each mode.

The corridors, listed below, are critical to mobility and economic activity throughout all regions of Indiana. The following table lists major corridor improvement projects, but do not resemble a priority or ranking of importance.

Major Corridors

NO.	NAME	DESCRIPTION
HIGHWAY EXPANSIONS & MODERNIZATIONS		
1	I-69, Section 6	New 26-mile north-south interstate from south side of Martinsville to I-465 south junction in Indianapolis
2	I-69 Ohio River Crossing	New bridge crossing in Evansville
3	I-70	From 4-lane sections to 6 lanes across the state
4	I-65	From 4-lane sections to 6 lanes across the state
5	I-465	From West 86th Street to US 31 north junction northwest Indianapolis
6	I-465	From White River bridge north junction to Fall Creek northeast Indianapolis
7	I-465	From I-70 east junction to I-70 west junction Indianapolis south
8	I-94	Transportation Systems Management (TSM) treatments from Illinois state line to I-65
9	I-69 expansion	From SR 9/SR 109 Anderson north 15 miles to SR 332 Muncie
10	Items 10-14: I-65 and I-70	I-70 segment from 3 miles west of I-65 south junction to I-65 south junction
11	reconstruction inside the I-465	Eliminate weaving areas on the west leg of I-65/I-70 inner belt from South Split interchange to North Split interchange
12	beltway in Indianapolis	I-70 segment from the I-65 north junction east 7 miles to I-465 east junction
13	(north/south split as well as adjacent	I-65 segment from I-70 north junction north 6 miles to West 38th Street
14	spokes)	I-65 segment from I-465 south junction north 4 miles to I-70 south junction
15	US 31	From SR 38 in Hamilton County to south of Kokomo, the goal is freeway improvements; from Kokomo north to US 30, improvements to improve traffic flow and safety
16	US 30	Upgrade 100-mile stretch (from Fort Wayne to Valparaiso) to improve traffic flow and safety
17	US 36	From SR 267 east 7 miles to I-465 west junction, Indianapolis and Avon
18	US 20	Northern Indiana bridge and pavement preservation
19	I-64 and I-265	From Sherman-Minton bridge to SR 64, and from I-64 to I-65

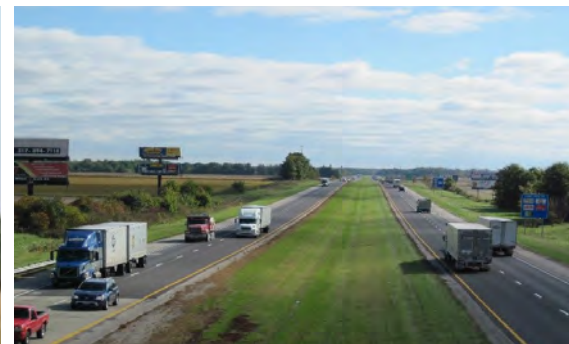
Major Corridors continued

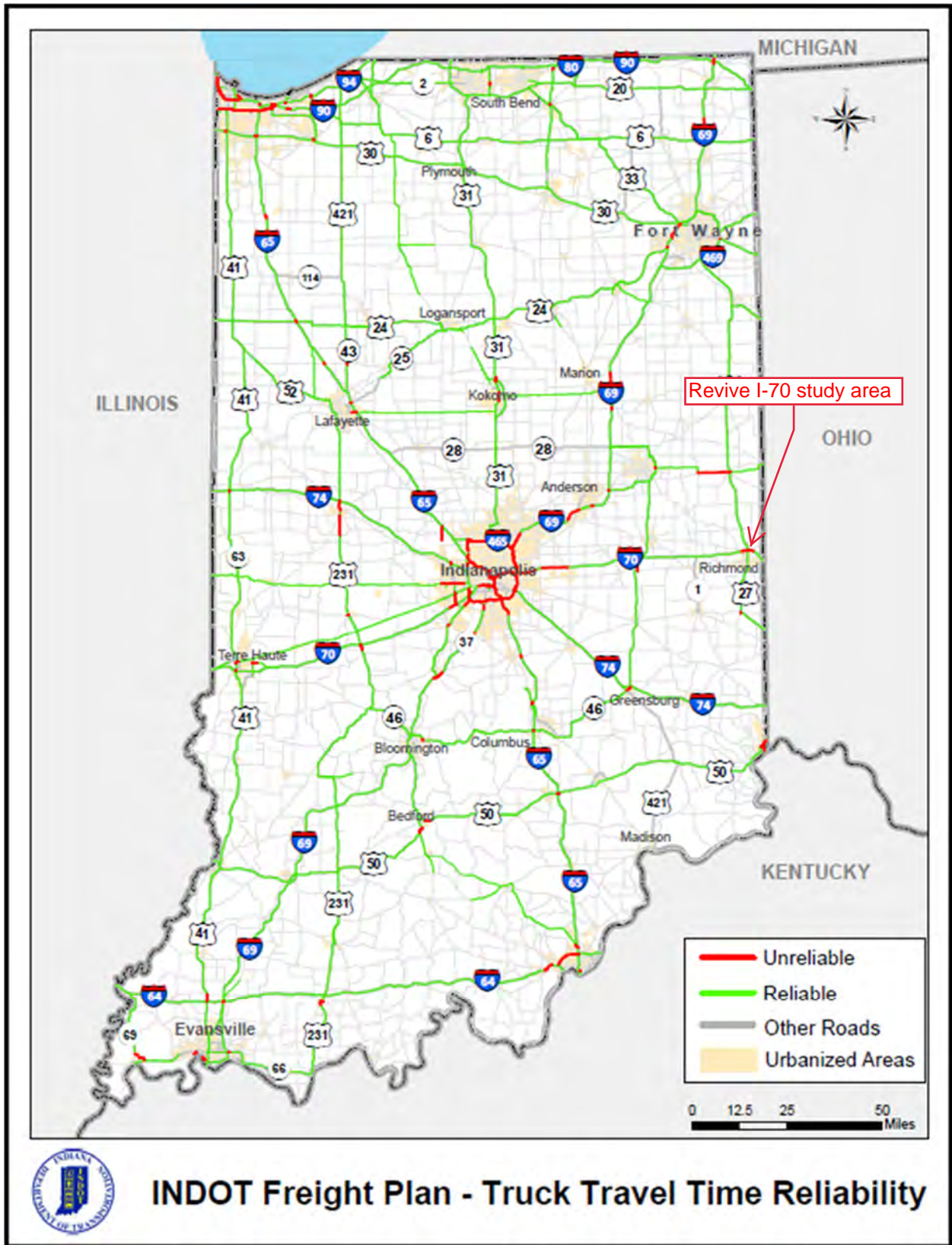
NO.	NAME	DESCRIPTION
FREIGHT/LOGISTICS		
20	Heavy-Haul Corridor, Mount Vernon Port	New road Improvements to SR-69 from to I-64 in Posey County to provide truck access to Mount Vernon Port
21	Heavy-Haul Corridor, Segment A	New road to connect the Ports of Indiana-Jeffersonville with SR 265

There are ongoing statewide efforts to consider long-term improvement needs, including investments along corridor systems and interchange areas. The Statewide Corridor Planning Study aims to develop corridor visions for state jurisdictional roadway facilities. The Statewide Interchange Planning Study aims to identify interchange enhancements and evaluate potential new interchange locations. These studies will serve as an input into the statewide and MPO planning process and help to support mobility asset management activities.

States are encouraged to take action to deploy alternative fuels and vehicles. To improve the mobility of alternative fuel vehicles, FHWA has helped build momentum

towards greater alternative fuel corridor planning and coordination among states. In Indiana, no corridors have been designated for alternative fuel vehicles. However, the Greater Indiana Clean Cities Coalition has recommended several corridors for nomination where there is demonstrated eligibility for designation. The I-465 loop and portions of I-70 could be designated corridor-ready for electric vehicle charging. The I-465 loop as well as portions of I-65, I-94, and I-70 could be designated as corridor-ready or corridor-pending for compressed natural gas. The I-465 loop as well as portions of I-65, I-69, and I-70 could be designated as corridor-ready or corridor-pending for liquefied petroleum gas.





Source: Indiana Multimodal Freight Plan Update 2023 (Draft)

Culverts within the Project Area: Existing Conditions and Proposed Work

NO.	CULVERT NUMBER	APPENDIX PAGE	LOCATION	WATERBODY	SCOPE OF WORK	CULVERT TYPE		STRUCTURE LENGTH (FEET)		LENGTH OF CHANNEL WORK (FEET)
						EXISTING	PROPOSED	EXISTING	PROPOSED	
1	CV I70-089-135.86	B-16	2.6 mi East of Wayne/Henry Line	Unnamed Tributary 1 to Whitewater River	Existing structure to be replaced and ditch grading on the upstream and downstream sides	108"x83" CMP	120" Pipe	199	199	80
2	CLV-75503	B-19	0.64 mi West of SR 1	N/A	Existing structure to be replaced and ditch grading on the upstream and downstream sides	42" CMP	72" Pipe	196	196	48
3	CLV-75509	B-26	1.27 mi East of SR 1	N/A	Existing structure to be replaced and ditch grading on the upstream and downstream sides	18" RCP	42" Pipe	162	162	28
4	CLV-75510	B-27	1.56 mi East of SR 1	N/A	Existing structure to be replaced and ditch grading on the upstream and downstream sides	24" RCP	54" Pipe	163	184	36
5	CLV-75511	B-28	1.85 mi East of SR 1	N/A	Existing structure to be replaced and ditch grading on the upstream and downstream sides	36" CMP	108" Pipe	174	174	72
6	CLV-75506	B-39 and B-22	Westbound I-70 Exit Ramp to SR 1	N/A	Existing structure to be replaced and ditch grading on the upstream and downstream sides	24" CMP	38"x24" Elliptical	55	67	25
7	CLV-75507	B-39 and B-37 and B-22	SR 1 to Eastbound I-70 Entrance Ramp	N/A	Existing structure to be replaced and ditch grading on the upstream and downstream sides	24" CMP	N/A	61	N/A	24
8	CLV-75514	B-35	Washington Road North of I-70	N/A	Existing structure to be replaced and ditch grading on the upstream and downstream sides	24" CMP	54" Pipe	162	162	36
9	CLV-75513	B-35	Washington Road South of I-70	N/A	Existing structure to be replaced and ditch grading on the upstream and downstream sides	42" CMP	54" Pipe	157	157	36
10	CV I70-089-137.13	B-20 B-38	3.9 mi East Wayne/Henry Line	Beard Run	Existing Culvert to be Lined under DES. No. 1900219 (To be completed prior to this project)	128" x 83" CMP	Existing Culvert to be Lined under DES. No. 1900219 (To be completed prior to this project)	265	N/A	N/A
11	CLV-75505	B-21 and B-38	SR 1 to Westbound I-70 Entrance Ramp	N/A	Existing structure to be replaced and ditch grading on the upstream and downstream sides	24" CMP	60" Pipe	168	167	40
12	CLV-75512	B-33	0.70 mi West of Washington Road	N/A	Existing structure to be replaced and ditch grading on the upstream and downstream sides	18" CMP	36" Pipe	192	188	24
13	Unknown	Not shown on plans due to location beyond construction area	Eastbound I-70 Exit Ramp to SR 1	N/A	Existing structure to be replaced and ditch grading on the upstream and downstream sides	24" CMP	36" Pipe	153	153	24
14	CLV-75504	B-19	0.50 mi West of SR 1	N/A	Removal (Not to be replaced)	18" CMP	36" Pipe	161	N/A	24
15	CLV-75508	B-24	0.95 mi East of SR 1	N/A	Removal (Not to be replaced)	18" RCP	36" Pipe	155	N/A	24
16	CLV 75515	B-41	0.57 mi East of Washington Street	Unnamed Tributary 2 to Greens Fork	Existing structure to be replaced, grading around upstream and downstream of culvert.	36" CMP	48" RCP	197	197	50
17	CV I70-089-142.19	B-42	0.93 mi East of Washington Street	College Corner Branch	Existing structure to be replaced, grading around upstream and downstream of culvert.	60" CMP	72" RCP	232	232	50
18	CV I70-089-143.12	B-46	0.32 mi East of Mineral Springs Road	Black Water Branch	Existing structure to be replaced, grading around upstream and downstream of culvert.	66" CMP	72" RCP	198	198	50
19	CV I70-089-144.08	B-49	1.30 mi East of Mineral Springs Road	Far Run	Existing structure to be replaced, the downstream end will be regraded	54" CMP	64" RCP with 6" sump	390	286	100

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						EXISTING	PROPOSED	EXISTING	PROPOSED	
20	CLV 75519	B-53	0.11 mi West of Centerville Road	Unnamed Tributary to Nolands Fork Creek	Existing structure to be replaced and ditch grading on the downstream side	36" CMP	42" RCP	90.5	197	60
21	CLV 75520	B-53	0.0 mi South of Centerville Road	N/A	Existing structure to be replaced and ditch grading on the upstream and downstream side	15" CMP	36" RCP with 6" sump	131	131	400
22	CLV 75521	B-53	0.0 mi North of Centerville Road	N/A	Existing structure to be replaced and ditch grading on the upstream and downstream side	15" CMP	36" RCP with 6" sump	143	143	400
23	CLV 75522	B-53	0.07 mi West of Centerville Road	N/A	Existing structure to be replaced, grading around upstream and downstream of culvert.	24" CMP	36" RCP	180	180	200
24	CV I70-089-145.60	B-54	0.31 mi East of Centerville Road	UNT 1 to Nolands Fork	Existing structure to remain	10.5'x4.5' Arch	N/A	165		
25	CLV 75523	B-57	1.0 mi West of Round Barn Road	N/A	Existing structure to be replaced and ditch grading on the upstream and downstream sides	24" CMP	36" RMP	178	178	100
26	CLV 75524	B-58	0.62 mi West of Round Barn Road	N/A	Existing structure to be replaced and ditch grading on the upstream and downstream sides	36" CMP	36" RCP	164	164	100
27	CV I70-089-147.71	B-61	0.13 mi East of Round Barn Road	Lick Creek	Existing structure to be replaced and ditch grading on the upstream and downstream sides	10'x10' RCB	13'x11' RCB	156	156	100
28	CLV 94736	B-63	0.18 mi West of Salisbury Road	N/A	Existing structure to be replaced and ditch grading on the upstream and downstream side	36"x22" CMP	36" RCP	218	218	50
29	CLV 75529	B-64	0.09 mi West of Salisbury Road4	N/A	Existing structure to be replaced and ditch grading on the upstream and downstream side	24" CMP	36" RCP	188	193	50
30	CLV 75530	B-66	0.28 mi West of US 35	Unnamed Tributary 1 to Clear Creek	Existing structure to be replaced and ditch grading on the upstream and downstream side	36" CMP	54" RCP	166	166	750 (upstream)
31	CLV 75531	B-66	0.15 mi West of US 35	N/A	Existing Structure will be replaced	36" CMP	42" RCP	60.5	208	50 (downstream) 600 upstream
32	CLV 75532	B-66	0.04 mi West of US 35	N/A	Existing Structure will be moved based on new interchange layout	36" CMP	42" RCP	64.5	92	100
33	CLV 75533	B-66	0.13 mi West of US 35	N/A	Existing Structure will be moved based on new interchange layout	36" CMP	48" RCP	85	100	100
34	CLV 75534	B-66	0.00 mi East of US 35	N/A	Existing Structure will be replaced	24" CMP	36" RCP	128	171	100
35	CLV 75536	Not shown on plans due to location beyond construction area	0.06 mi East of US 35	N/A	No work is proposed	18" CMP	N/A	152	N/A	N/A
36	CLV 75538	B-67	0.00 mi East of US 35	N/A	Existing Structure will be replaced	30" CMP	42" RCP	142	168	N/A
37	CLV 75539	B-67	0.00 mi East of US 35	N/A	Existing Structure will be replaced	18" CMP	36" RCP	153	205	N/A
38	CLV 75540	B-67	0.06 mi East of US 35	N/A	Existing structure will be eliminated based on new interchange layout	18" CMP	N/A	95	N/A	20
39	CLV 75541	B-68	0.34 mi East of US 35	N/A	Existing structure to be replaced and ditch grading on the upstream and downstream sides	42" CMP	7' x 4' RCB	165	180	N/A
40	CLV I70-089-149.61	B-69	0.65 mi East of US 35	Unnamed Tributary 1 to West Fork East Fork Whitewater River	Existing structure to be replaced and ditch grading on the upstream and downstream sides	72" CMP	72" RCP	192	192	50 (upstream) 450 downstream

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41	CLV 75542	B-69	0.73 mi East of US 35	Unnamed Tributary 2 to West Fork East Fork Whitewater River	Existing structure will be removed and replaced with a single structure that will carry flow from CLV 75543 as well	42" CMP	N/A	243	N/A	N/A
42	CLV 75543	B-69	0.74 mi East of US 35	Unnamed Tributary 2 to West Fork East Fork Whitewater River	Existing structure will be replaced with a single crossing	42" CMP	66" RCP	203	210	50 upstream and downstream
43	CLV 75544	B-69	0.26 mi West of Union Pike Road	N/A	Existing structure to be replaced and ditch grading on the upstream and downstream sides	42" CMP	48" RCP	240	240	50 upstream and downstream
44	CLV 75545	B-70	0.16 mi West of Union Pike Road, RP 790+70	N/A	Culvert will be removed as the ditch drains to CLV 75544 and does not go to this culvert.	24" CMP	N/A	277	N/A	20
45	CLV 75546	B-70	0.14 mi West of Union Pike Road	N/A	Existing structure to be replaced and ditch grading on the upstream and downstream sides	42" CMP	48" RCP	291	295	50 upstream and downstream
46	CLV 75548	B-70	0.10 mi West of Union Pike Road	N/A	Culvert will be removed as the ditch drains to CLV 75546 and does not go to this culvert	36" CMP	N/A	260	N/A	20
47	CLV 75549	B-70	0.02 mi West of Union Pike Road	N/A	Culvert is listed as abandoned and will not be replaced	12" CMP	N/A	N/A	N/A	20
48	CLV 75551	B-70	0.07 mi East of Union Pike Road	N/A	Existing structure to be replaced and ditch grading on the upstream and downstream sides	30" CMP	36" RCP	181	185	50 upstream and downstream
49	CLV 75553	B-75	0.04 mi East of US-27	N/A	Existing structure will be abandoned as the upstream ditch continues east and the skew is very bad	15" CMP	N/A	325	N/A	20
50	CV I70-089-151.67	B-76	0.57 mi East of US-27	Unnamed Tributary 1 to Middle Fork East Fork Whitewater River	No work is proposed	54" CMP	N/A	N/A	N/A	N/A
51	CLV 75554	B-76	0.67 mi East of US-27	Unnamed Tributary 2 to Middle Fork East Fork Whitewater River	Existing structure to be replaced and ditch grading on the upstream and downstream sides	36" x 22" CMP	36" RCP	184	184	20
52	CV I70-089-151.90	B-77	0.81 mi East of US-27	Unnamed Tributary 3 to Middle Fork East Fork Whitewater River	Existing structure to be replaced and ditch grading on the upstream and downstream sides	60" CMP	72" RCP	314	314	20
53	CLV 94999	B-77	0.86 mi East of US-27	N/A	Existing structure to be replaced and ditch grading on the upstream and downstream sides	36" CMP	36" RCP	260	260	20
54	CLV 94732	B-78	0.47 mi West of SR 227	Unnamed Tributary 4 to Middle Fork East Fork Whitewater River	Existing structure to be replaced and ditch grading on the upstream and downstream sides	24" HDPE	36"	293	242	20
55	CLV 75555	B-78	0.28 mi West of SR 227	N/A	Existing structure to be abandoned	36" HDPE	N/A	189	N/A	N/A
56	CLV 75556	B-79	0.12 mi West of SR 227	N/A	Existing structure to be replaced and ditch grading on the downstream side	18" CMP	42" RCP	65	70	400 downstream
57	CLV 65955	B-79	0.09 mi West of SR 227	N/A	Existing structure to be replaced and ditch grading on downstream side	18" CMP	24" RCP	68	70	400 downstream
58	CLV 75557	B-75	0.03 mi West of SR 227	N/A	Existing structure to be replaced and ditch grading on downstream side	36" CMP	42" RCP	179	180	400 downstream
59	CLV 65929	B-79	0.05 mi West of SR 227	N/A	Existing structure to be replaced and ditch grading on downstream side	42" CMP	60" RCP	130	180	50 downstream
60	CLV 75559	B-81	0.0 mi East of Smyrna Road	N/A	Existing structure to be replaced and ditch grading on the upstream and downstream side	24" CMP	30" RCP	86	90	20

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61	CLV 75560	B-81	0.0 mi East of Smyrna Road	N/A	Existing structure to be replaced and ditch grading on the upstream and downstream side	18" CMP	30" RCP	96	100	20
62	CV I70-089-153.15	B-81	0.11 mi East of Smyrna Road	Unnamed Tributary 5 to Middle Fork of East Fork of Whitewater River	Existing structure to be replaced and ditch grading on the upstream and downstream sides	36"x22" CMP	45" x 29" Elliptical	244	244	50
63	CLV 75561	B-82	0.27 mi East of Smyrna Road	Unnamed Tributary 6 to Middle Fork of East Fork of Whitewater River	Existing structure to be replaced and ditch grading on the upstream and downstream sides	36"x22" CMP	36" RCP	177	177	20
64	CLV 75563	B-82	0.38 mi West of Reservoir Road	N/A	Existing structure to be replaced and ditch grading on the upstream and downstream sides	42" CMP	42" RCP	270	270	50
65	CLV 75562	B-83	0.30 mi West of Reservoir Road	Unnamed Tributary 2 to East Fork of East Fork of Whitewater River	Existing structure to be replaced and ditch grading on the upstream and downstream sides	30" RCP	36" RCP	240	240	50
66	CLV 94738	B-83	0.22 mi West of Reservoir Road	Unnamed Tributary 3 to East Fork of East Fork of Whitewater River	Existing structure to be replaced and ditch grading on the upstream and downstream sides	36" RCP	42" RCP	184	185	20
67	CLV 75564	B-83	0.13 mi West of Reservoir Road	Unnamed Tributary 4 to East Fork of East Fork of Whitewater River	Existing structure to be replaced and ditch grading on the upstream and downstream sides	43"x27" CMP	45"x29" RCP	201	201	20
68	CLV 94740	B-85	0.19 mi West of SR 121		Existing culvert to be removed	24" CMP	N/A	215	N/A	20
69	CV I70-089-154.44	B-85	0.13 mi West of SR 121	Unnamed Tributary 5 to East Fork of East Fork of Whitewater River	Existing structure to be replaced and ditch grading on the upstream and downstream side	42" RCP	48" RCP	255	255	50
70	CV 170-089-154.81	B-87	0.27 mi East of SR 121	N/A	The existing culvert to be removed and replaced with a ditch	60" RCP	N/A	72	N/A	100
71	CV 170-089-154.82	B-87	0.27 mi East of SR 121	N/A	Existing structure to be replaced and ditch grading on the upstream and downstream side	48" CMP	48" RCP	248	248	50
72	CV I70-089-155.63	B-89	0.67 mi West of US 40	N/A	No work is proposed	48" CMP	48" RCP	230	230	20
73	CLV 75565	B-90	0.14 mi West of US 40	N/A	Existing structure to be replaced and ditch grading on the upstream and downstream side	30" CMP	36" RCP	155	155	100
74	CLV 75567	B-91	0.08 mi West of US 40	N/A	Culvert to be removed with new interchange layout	24" CMP	N/A	145	N/A	20
75	CLV 75568	Not shown on plans due to location beyond construction area	0.02 mi West of US 40	N/A	Existing structure to be replaced and ditch grading on the upstream and downstream side	18" CMP	36" RCP	58	100	100
76	CLV 75569	Not shown on plans due to location beyond construction area	0.02 mi East of US 40	N/A	Existing structure to be replaced and ditch grading on the upstream and downstream side	30" CMP	36" RCP	88	100	100
77	CLV 75570	Not shown on plans due to location beyond construction area	0.02 mi West of US 40	N/A	Culvert to be removed with new interchange layout	18" CMP	36" RCP	62	100	100
78	CLV 75571	B-91	0.02 mi East of US 40	N/A	Existing structure to be replaced and ditch grading on the upstream and downstream side	24" CMP	36" RCP	270	270	100

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79	CLV 75572	B-91	0.10 mi East of US 40	N/A	Culvert to be removed with new interchange layout	18" CMP	N/A	134	N/A	20
80	CLV 75573	Not shown on plans due to location beyond construction area	0.02 mi East of US 40	N/A	Existing structure to be replaced and ditch grading on the upstream and downstream side	30" CMP	36" RCP	55	100	100
81	CLV 77500	B-91	0.02 mi West of US 40	N/A	Culvert to be removed with new interchange layout	18" CMP	N/A	78	N/A	20