INDIANA DEPARTMENT OF TRANSPORTATION

100 North Senate Avenue
Room N758-ES
Indianapolis, Indiana 46204

Eric Holcomb, Governor
Michael Smith, Commissioner

February 23, 2024

Kari Carmany-George
Environmental Program Manager
Federal Highway Administration
Federal Office Building, Room 254
575 North Pennsylvania Street
Indianapolis, Indiana 46204

Re: Independent Utility of Roadway Improvement Projects in Boone, Hamilton, and Marion Counties, Indiana

Dear Ms. Carmany-George

The purpose of this letter is to summarize two (2) planned transportation projects in Boone, Hamilton, and Marion Counties. Each project is generally located along the northern portion of the I-465 loop, north of the City of Indianapolis. Please see the attached Regional Projects Map for the location of the projects.

Recently, the Federal Highway Administration (FHWA) requested additional information regarding the evaluation of these two projects, the I-465 Northwest (Des. No. 1600854) and US 31 and I-465 Interchange Modification (Des. No. 2002530) projects, under the National Environmental Policy Act (NEPA), specifically with respect to the independent utility of the two projects.

According to 23 CFR § 771.111(f):

> *Any action evaluated under NEPA as a categorical exclusion (CE), environmental assessment (EA), or environmental impact statement (EIS) must:*
>
> *(1) Connect logical termini and be of sufficient length to address environmental matters on a broad scope;*
> *(2) Have independent utility or independent significance, i.e., be usable and be a reasonable expenditure even if no additional transportation improvements in the area are made; and*
> *(3) Not restrict consideration of alternatives for other reasonably foreseeable transportation improvements.*

The FHWA request is addressed for each of the projects below:

1.0 I-465 / US 31 Interchange Modification, Des. No. 2002530

The I-465/US 31 Interchange Modification project (IMP) is an approximate $60 million infrastructure project currently in design. The purpose of this project is to provide additional capacity on northbound (NB) US 31, the (EB) eastbound I-465 to NB US 31 flyover system ramp, and the westbound (WB) I-465 to NB US 31 system ramp so traffic from I-465 can exit without queuing. Two primary needs have been identified for the I-465/US 31 IMP, each of which is detailed below:

- Poor traffic operations and congestion; and
- Recurring safety concerns

1.1 Poor Traffic Operations and Congestion

According to the *I-465 NW Interstate Access Document* (IAD) (Draft, June 2023), a traffic operations analysis was performed for the 2020 base year (existing conditions) and the 2045 design year. Traffic operations were then analyzed for two peak hours: 7:00 AM to 8:00 AM and 4:00 PM to 5:00 PM. Traffic operations were reported as LOS with a range of "A" to "F", represented by the characteristics shown in Table 1-1 below.

Table 1-1. LOS Operations Characteristics

LOS	Operations Description
A	Free flow operation
B	Ability to maneuver easily, minor incidents easily absorbed
C	Speeds still near free flow speeds, freedom to maneuver becoming restricted, queues form behind only significant interruptions
D	Speeds decline with increasing volume, freedom to maneuver restricted, queues form behind even minor incidents
E	Near or at capacity, no useable gaps in traffic stream, operations very volatile
F	Demand exceeds capacity, breakdown in flow, queuing

According to the 2013 *Indiana Design Manual* (https://www.in.gov/dot/div/contracts/design/IDM.htm), the minimum acceptable standard for peak -hour operations on interstate highways in urban areas is typically LOS D, with desired LOS C where practical.

1.1.1 Existing Traffic Conditions

According to the 2023 *I-465 NW IAD*, a traffic operations analysis of NB US 31 shows that most segments operate at LOS C or better in the 2020 base year. Only NB US 31 at the exit to 106th Street operates at LOS D during the AM peak hour. In addition, the traffic operations analysis of SB US 31 shows all segments operate at LOS C or better in the 2020 base year. Density in passenger cars per mile per lane (pc/mi/ln) and LOS results for NB and SB US 31 are shown below in Tables 1-2 and 1-3, respectively.

Table 1-2. US 31 Northbound, 2020 Existing LOS

Roadway Segment	HCS Segment Type	AM		PM	
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS
106th Street Off-Ramp to US 31 NB CD	Basic	8.2	A	21.7	C
US 31 NB CD to 106th Street On-Ramp	Basic	19.7	C	25.3	C
106th Street to 116th Street	Weave	19.6	B	28.0	C
Inside 116th Street Interchange	Basic	15.5	B	25.2	C
US 31 NB CD: Exit to 106th Street Off-Ramp	Basic	31.8	D	26.3	C
US 31 NB CD: 106th Street to US 31 Mainline	Basic	24.4	C	22.8	C

Table 1-3. US 31 Southbound, 2020 Existing LOS

Roadway Segment	HCS Segment Type	AM		PM	
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS
Inside 116th Street Interchange	Basic	21.4	C	12.6	B
116th Street to 106th Street	Weave	25.0	C	17.8	B
106th Street Off-Ramp to US 31 SB CD	Basic	23.6	C	17.1	B
Off-Ramp to US 31 SB CD	Diverge	20.0	C	14.6	C
Off-Ramp to US 31 SB CD to 106th Street On-Ramp	Basic	14.0	B	8.8	A
106th Street On-Ramp to I-465	Basic	13.5	B	9.7	A
US 31 SB CD: US 31 Mainline to Ramp from 106th St	Basic	26.0	C	20.6	C
US 31 SB CD: from 106th Street to I-465	Weave	25.7	C	22.1	C

Highway-Capacity Software (HCS) does not calculate a mainline LOS for a single-lane freeway; therefore, LOS results for the single-lane ramps associated with the No-Build Alternative and Build Alternatives are not provided. Per the Highway Capacity Manual, for planning purposes, the maximum capacity of a single freeway lane can be assumed to be 2,200 vehicles per hour for a condition like the subject project. The EB I-465 to NB US 31, WB I-465 to NB US 31, and SB US 31 to WB I-465 ramps operate in the severe LOS D to LOS E range in

2020. The two-lane ramps operate at LOS C or better with the exception of the WB I-465 to NB US 31/Meridian Street ramp, which operates at LOS D in the AM peak period. The operations analyses for single-lane ramps within the US 31 interchange and multi-lane ramps are summarized in Tables 1-4 and 1-5, respectively.

Table 1-4. I-465/US 31 Interchange Single-Lane Ramps, 2020 Existing Peak-Hour Volumes

Roadway Segment	Posted Advisory Speed (mph)	Assumed Free-Flow Speed (mph)	Approximate Vehicles per Hour (vph)	
			AM	PM
EB I-465 to NB US 31	40	45	1,670**	1,850**
EB I-465 to SB Meridian Street	30	35	470	280
WB I-465 to NB US 31	40	45	1,790*	1,170
WB I-465 to SB Meridian Street	35	40	1,270	830
SB US 31 to WB I-465	45	50	1,710*	1,450*
SB US 31 to EB I-465	45	50	1,210	1,150
NB Meridian Street to EB I-465	30	35	720	860
NB Meridian Street to WB I-465	25	30	210	620

**LOS D; **LOS E*

Table 1-5. I-465/US 31 Interchange Two-Lane Ramps, 2020 Existing Peak-Hour Volumes

Roadway Segment	HCS Segment Type	AM		PM	
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS
EB I-465 (Exit) to NB US 31/SB Meridian Street	Basic	22.4	C	21.2	C
WB I-465 (Exit) to NB US 31/SB Meridian Street	Basic	32.2	D	20.3	C
SB US 31/NB Meridian Street (Entrance) to EB I-465	Basic	19.2	C	19.4	C

The signalized intersection of the EB I-465 exit ramp to Meridian Street operates at LOS B and LOS A during the AM and PM peak hours, respectively. The signalized intersection of the WB I-465 ramp to Meridian Street operates at LOS C and LOS B during the AM and PM peak hours, respectively. The results of the intersection capacity analyses are shown below in Table 1-6.

Table 1-6. Exit Ramps to Meridian Street, Intersection Operations, 2020 Existing LOS

Location	Peak Hour	Approach Delay (S) / LOS				Overall Intersection Delay (S) / LOS
		NB	SB	EB	WB	
EB I-465 exit at Meridian Street	AM	0.1 A	12.6 B	59.8 E	N/A	14.5 B
	PM	1.0 A	2.3 A	60.5 E	N/A	4.8 A
WB I-465 exit at Meridian Street	AM	16.8 B	19.6 B	N/A	45.7 D	27.3 C
	PM	7.8 A	8.6 A	N/A	54.9 D	17.1 B

1.1.2 Design Year Traffic Conditions

Under the **No-Build Alternative** for the design year (2045), the NB US 31 mainline is anticipated to operate at acceptable levels during the AM peak hour except for the weave between 106th Street and 116th Street. During the PM peak hour, there are significant challenges including LOS at the weave between 106th Street and 116th Street and at the segment within the 116th Street interchange.

For the NB US 31 Collector-Distributor (CD) system, NB movements to and from 106th Street from US 31/Meridian Street and I-465 are handled via a parallel ramp separated by a barrier from mainline US 31. The NB US 31 parallel system/service ramp is anticipated to operate with significant challenges in the AM peak hour and with a significant challenge at one location during the PM peak hour. The diverge at the exit to NB 106th Street from NB US 31 is expected to operate at LOS F in both the AM and PM peak hours. The operations on the segment upstream of the off-ramp to 106th Street also suffer due to weaving movements from the I-465 ramps to the US 31 mainline and the 106th Street exit ramp. The northbound US 31 CD road is expected to operate at LOS E during the AM peak hour between 106th Street and its merge onto the northbound US 31

mainline. The results of the traffic analysis for the No-Build Alternative along NB US 31 are summarized in Table 1-7 below.

Table 1-7. US 31 Northbound, 2045 No-Build LOS

Roadway Segment	HCS Segment Type	AM		PM	
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS
106th Street Off-Ramp to US 31 NB CD	Basic	17.4	B	33.9	D
US 31 NB CD to 106th Street On-Ramp	Basic	30.9	D	43.2	E
106th Street to 116th Street	Weave	37.0	E	47.7	F
Inside 116th Street Interchange	Basic	23.9	C	v/c = 1.01	F
US 31 NB CD: Exit to 106th Street Off-Ramp	Basic	v/c = 1.21	F	v/c = 1.03	F
US 31 NB CD: 106th Street to US 31 Mainline	Basic	35.1	E	32.3	D

Under the **Recommended Alternative**, the NB US 31 mainline is anticipated to operate at acceptable levels in the AM peak hour and PM peak hours except within the 116th Street interchange. The weave between 106th Street and 116th Street improves one level of service in both the AM and PM peak hours with the additional mainline lane. Because this is not an added capacity project for US 31, but rather a project to improve the efficiency of the interchange by improving LOS and decreasing queuing on the interchange ramps by adding auxiliary lanes, the 116th Street interchange is a logical terminus for I-465/US 31 IMP improvements. Therefore, the 116th interchange will not be improved as part of this project.

One of the major benefits of the Low-Cost Build Alternative is that it removes the WB and EB I-465 to 106th Street movements from the US 31 parallel system/service ramp, which eliminates a weaving movement and improves overall traffic operations on the NB CD system. The NB CD connection to NB US 31 forms the left three lanes of the US 31 mainline and is anticipated to operate at LOS C in both the AM and PM peak hours. The results of the traffic analysis for the Recommended Alternative along US 31 are summarized in Table 1-8 below.

Table 1-8. US 31 Northbound, 2045 Build LOS

Roadway Segment	HCS Segment Type	AM		PM	
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS
I-465 Off-Ramp Signal to 106th Street Off-Ramp	Basic	20.1	C	26.8	D
Exit to 106th Street	Basic	14.1	B	21.9	C
106th Street Off-Ramp to US 31 NB CD	Basic	22.5	C	27.8	D
106th Street to 116th Street	Weave	25.0	C	38.2	E
US 31 NB CD: Exit to 106th Street Off-Ramp	Basic	v/c = 1.21	F	v/c = 1.03	F
US 31 NB CD: 106th Street to US 31 Mainline	Basic	35.1	E	32.3	D

Under the **No-Build Alternative**, the SB US 31 mainline is anticipated to operate with significant challenges in the AM peak hour and at acceptable levels, apart from the SB US 31 weave between 116th Street and 106th Street, in the PM peak hour. The weaving segment is projected to operate at LOS F in both the AM and PM peak hours in 2045. The adjacent segments are also projected to operate at LOS E during the AM peak hour.

The SB movements to and from 106th Street from US 31/Meridian Street and I-465 are handled via a parallel ramp separated by barrier from mainline US 31. This allows much of the necessary lane changes to occur on this CD system without affecting traffic flow on mainline US 31. The SB US 31 CD is anticipated to operate with some challenges in the AM peak hour and at adequate levels during the PM peak hour. The SB US 31 CD/ramp from the US 31 mainline to the 106th Street entrance ramp and the weave from the 106th Street entrance ramp to the I-465 ramps are projected to operate at LOS E during the 2045 AM peak hour in the No-Build Alternative. A summary of the traffic analyses for the No-Build Alternative along SB US 31 are summarized in Table 1-9 below.

Table 1-9. US 31 Southbound, 2045 No-Build LOS

Roadway Segment	HCS Segment Type	AM		PM	
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS
Inside 116th Street Interchange	Basic	39.3	E	21.7	C
116th St to 106th Street	Weave	v/c = 1.22	F	v/c = 1.12	F
106th Street Off-Ramp to US 31 SB CD	Basic	38.5	E	25.4	C
Off-Ramp to US 31 SB CD	Diverge	28.6	D	21.4	C
Off-Ramp to US 31 SB CD to 106th Street On-Ramp	Basic	21.0	C	14.7	B
106th Street On-Ramp to I-465	Basic	20.9	C	15.9	B
US 31 SB CD: US 31 Mainline to Ramp from 106th Street	Basic	35.8	E	28.1	D
US 31 SB CD: from 106th Street to I-465	Weave	39.3	E	32.9	D

With the additional mainline lane as part of the **Recommended Alternative**, the SB US 31 mainline is anticipated to operate at acceptable levels of service in the AM and PM peak hours except for the basic section within the 116th Street interchange. As previously mentioned, the 116th Street interchange is a logical terminus for the US 31 improvements. The Recommended Alternative does not negatively affect US 31 mainline operations at this location. One of the greatest improvements seen in the Recommended Alternative is the SB US 31 weaving segment between 116th Street and 106th Street. The Recommended Alternative would widen the entrance ramp from 116th Street from one lane to two, five mainline lanes between the interchange, and a two-lane exit ramp at 106th Street that includes an option lane. This improves the AM and PM LOS from F to D and C, respectively. A summary of the traffic analysis for the Recommended Alternative along SB US 31 is summarized in Table 1-10 below.

The SB US 31 parallel system/service ramp CD is the same configuration in both the No-Build and Recommended Alternative. Therefore, traffic operations in the Recommended Alternative are the same as the No-Build Alternative.

Table 1-10. US 31 Southbound, 2045 Build LOS

Roadway Segment	HCS Segment Type	AM		PM	
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS
Inside 116th Street Interchange	Basic	39.2	E	21.6	C
116th St to 106th Street	Weave	33.4	D	22.5	C
106th Street Off-Ramp to US 31 SB CD	Basic	25.3	C	18.8	C
Off-Ramp to US 31 SB CD	Diverge	28.5	D	21.4	C
Off-Ramp to US 31 SB CD to 106th Street On-Ramp	Basic	28.4	D	20.0	C
106th St On-Ramp to Meridian	Basic	20.8	C	16.0	B
US 31 SB CD: US 31 Mainline to Ramp from 106th Street	Basic	35.8	E	28.1	D
US 31 SB CD: from 106th St to I-465	Weave	39.3	E	32.9	D

Assessments of the single-lane and two-lane ramps under 2045 No-Build conditions are shown in Tables 1-11 and 1-12, respectively.

Table 1-11. I-465/US 31 Interchange Single-Lane Ramps, 2045 No-Build LOS

Roadway Segment	Number of Lanes	Posted Advisory Speed (mph)	Assumed Free-Flow Speed (mph)	Approximate Vehicles per Hour (vph)	
				AM	PM
EB I-465 to NB US 31	1	40	45	2,240†	2,330†
EB I-465 to SB Meridian Street	1	30	35	700	430
WB I-465 to NB US 31	1	40	45	2,130**	1,540*
WB I-465 to SB Meridian Street	1	35	40	1,630*	1,270
SB US 31 to WB I-465	1	45	50	2,180**	1,880
SB US 31 to EB I-465	1	45	50	1,660*	1,570*
NB Meridian Street to EB I-465	1	30	35	1,330	1,150
NB Meridian Street to WB I-465	1	25	30	410	860

*LOS D; **LOS E; †LOS F

Table 1-12. I-465/US 31 Interchange Two-Lane Ramps, 2045 No-Build LOS

Roadway Segment	HCS Segment Type	AM		PM	
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS
EB I-465 (Exit) to NB US 31/SB Meridian Street	Basic	31.6	D	28.2	D
WB I-465 (Exit) to NB US 31/SB Meridian Street	Basic	40.3	E	29.6	D
SB US 31/NB Meridian Street (Entrance) to EB I-465	Basic	30.7	D	26.8	D

In its current single-lane configuration, the EB I-465 to NB US 31 flyover system ramp is expected to have a operate at a failing LOS F in 2045 during the AM and PM peak hours. The forecasted hourly volumes of 2,240 (AM) and 2,330 (PM) are too high for a single-lane ramp. Under the **Recommended Alternative**, this ramp is increased to two lanes. The HCS analysis shows that traffic operates at LOS C in both the AM and PM peak hours in 2045 (Table 1-13).

The existing dual-lane exit ramp from WB I-465 to NB US 31/SB Meridian Street is expected to fail as part of the WB weaving section between Keystone and US 31. The approximate forecasted hourly volume of 3,760 (AM) is too high for a dual-lane lane ramp at the existing design speed. This two-lane ramp then splits immediately downstream with one lane going to SB Meridian Street and one lane going to NB US 31. The single-lane WB I-465 to NB US 31 movement is expected to be approaching capacity during the 2045 AM peak hour. Directly downstream, the single-lane ramp from EB I-465 to NB US 31 ramp joins to form a two-lane weaving section mentioned previously. The 2045 forecasted hourly volumes of 4,370 (AM) and 3,870 (PM) are too high for a dual-lane weaving section and this movement is anticipated to fail (Table 1-13). Under the **Recommended Alternative**, the exit ramps from WB I-465 to NB US 31 and Meridian Street/106th Street are separated and improved to two lanes each. With the reconfiguration of the NB US 31 CD system and its connections to 106th Street, the demand on these two ramps will be split more evenly. The two-lane ramps will be able to handle the peak-hour demands on the two ramps from westbound I-465. Also, the downstream weave on the NB US 31 CD is removed in the Recommended Alternative (Table 1-13).

In its current single-lane configuration, the SB US 31 to WB I-465 system ramp is expected to be very near capacity in 2045 during the AM and PM peak hours. The forecasted AM peak-hour volume of 2,130 is very high for a single-lane ramp. Under the **Recommended Alternative**, this ramp is increased to two lanes. The HCS analysis shows that traffic operates at LOS C in both the AM and PM peak hours in 2045 (Table 1-13).

Table 1-13. Exit Ramps to Meridian Street, Intersection Operations, 2045 Build LOS

Roadway Segment	HCS Segment Type	AM		PM	
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS
EB I-465 to NB US 31	Basic	20.0	C	21.7	C
EB I-465 to Meridian St./106th Street	Basic	11.3	B	6.3	A
WB I-465 to NB US 31	Basic	19.2	C	15.1	B
WB I-465 to SB Meridian Street	Basic	21.0	C	15.1	B
SB US 31 to WB I-465	Basic	22.8	C	19.1	C

The existing EB and WB I-465 exit ramps terminate at Meridian Street with signalized intersections. Currently, traffic exiting from I-465 is only permitted to access SB Meridian Street with a right-turn-only for EB I-465 exiting traffic and a left-turn-only for WB I-465 exiting traffic. The existing signalized intersections, with their existing signal phasing plans, are anticipated to experience operational challenges with some failing approaches. See Table 1-14 for a summary of LOS for the **No-Build Alternative**.

Table 1-14. Exit Ramps to Meridian Street, Intersection Operations, 2045 No Build LOS

Location	Peak Hour	Approach Delay (S) / LOS				Overall Intersection delay (S) / LOS
		NB	SB	EB	WB	
Eastbound I-465 exit at Meridian Street	AM	0.2 A	43.0 D	84.1 F	N/A	34.5 C
	PM	3.3 A	6.8 A	66.0 E	N/A	8.3 A
Westbound I-465 exit at Meridian Street	AM	15.9 B	58.4 E	N/A	70.5 E	49.9 D
	PM	24.9 C	17.8 B	N/A	67.1 E	30.8 C

The **Recommended Alternative** keeps much of the internal I-465/US 31 interchange infrastructure intact, requiring only minor modifications to these ramps and ramp terminals to add movements for the exiting I-465 motorists that wish to access 106th street. Adding these movements does slightly reduce the capacity of the existing signalized intersections of the I-465 exiting ramp terminals with Meridian Street, and it does add a small amount of additional traffic to the Meridian Street corridor; however, this is outweighed by the previously discussed benefit of removing the weave on the NB US 31 parallel system/service ramp caused by vehicles exiting to 106th Street. Furthermore, the Recommended Alternative makes some additional minor improvements, such as extending the fourth SB Meridian Street lane north through the signalized intersection of the WB I-465 exit ramp terminus with Meridian Street, such that even with the additional traffic, operations are anticipated to be better than the No-Build Alternative. The signalized intersections in the Recommended Alternative are anticipated to operate adequately and in a similar fashion as the No-Build Alternative. See 1-15 for a summary of LOS for the Recommended Alternative.

Table 1-15. Exit Ramps to Meridian Street, Intersection Operations, 2045 No Build LOS

Location	Peak Hour	Approach Delay (s) / LOS				Overall Intersection Delay (S) / LOS
		NB	SB	EB	WB	
Eastbound I-465 exit at Meridian Street	AM	7.4 A	42.2 D	68.1 E	N/A	36.4 D
	PM	11.9 B	6.6 A	56.2 E	N/A	13.1 B
Westbound I-465 exit at Meridian Street	AM	22.0 C	26.6 C	N/A	35.1 D	27.7 C
	PM	37.9 D	13.1 B	N/A	72.3 E	37.2 D

1.2 Recurring Safety Concerns

Crash data provided by INDOT for the *2023 IAD* safety analysis includes all identified incidents for the years 2017 through 2019. The historical crash analysis for the I-465/US 31 IMP is summarized in Table 1-16 below. For the I-465/US 31 IMP area, there were 650 total crashes over the three-year period (223 crashes per year). Of the 650 crashes, 555 were Property-Damage-Only (PDO) crashes, 94 were Injury crashes, and there was 1 Fatality crash reported. Historical crash data was also analyzed by time of day. Crash distribution at the I-465/US 31 IMP area during peak-hours indicates a direct correlation between congestion and vehicular incidents, with approximately 15% and 13% of daily crashes occurring at AM and PM peak-hours, respectively; these percentages are higher than any other time of day.

Table 1-16. I-465/US 31 IMP Historical Crash Summary (2017-2019)

Manner of Collision	Count	%
Angle	25	3.9%
Backing Crash	12	1.8%
Collision with deer	3	0.5%
Collision with object in road	12	1.8%
Non-Collision	3	0.5%
Other	35	5.4%
Ran off Road	70	10.8%
Read End	396	60.9%
Sideswipe	94	14.5%
TOTAL	**650**	**100%**

Predictive crash analyses comparing the **No-Build** and **Recommended Alternatives** were run estimating crash totals over 20 years, from 2025 to 2045. The No-Build Alternative predicted 1,198 total crashes (Table 1-17), while the Recommended Alternative predicted 1,263 total crashes (1-18) during the 20-year time period.

Table 1-17. Predictive Crash Summary (2025-2045), No Build

Ramp #	Section	Crashes Total	FI Crashes Total	PDO Crashes Total
-	US 31	662	206	456
2	106th St Exit from US 31 NB	23	10	12
3	106th from I-465	6	3	4
4	106th St to US-31 SB	1	1	1
5	US-31 SB Entrance to I-465 WB	168	78	90
6	106th St from US-31 SB	15	7	9
7	106th St to US-31 NB	5	2	3
8	116th St from US-31 NB	17	7	9
9	116th St to US-31 SB	26	10	16
10	106th St to I-465 WB	3	1	2
11	EB I-465 to NB US 31	107	46	61
12	WB I-465 to NB US31	165	69	96
TOTAL		**1,198**	**440**	**759**

Table 1-18. Predictive Crash Summary (2025-2045), Build

Ramp #	Section	Crashes Total	FI Crashes Total	PDO Crashes Total
-	US 31	790	245	545
2	106th St Exit from US 31 NB	46	21	25
3	106th from I-465	31	11	20
4	106th St to US-31 SB	1	1	1
5	US-31 SB Entrance to I-465 WB	94	37	57
6	106th St from US-31 SB	18	7	10
7	106th St to US-31 NB	8	3	5
8	116th St from US-31 NB	101	35	66
9	116th St to US-31 SB	20	6	14
10	106th St to I-465 WB	3	1	2
11	EB I-465 to NB US 31	60	19	41
12	WB I-465 to NB US31	91	31	60
TOTAL		**1,263**	**417**	**846**

The total predicted crashes from 2025 to 2045 for the No-Build and Recommended Alternatives categorized by fatality/injury (FI) or property damage only (PDO) is shown in Table 1-19 below. While the Recommended Alternative results in an increase in total number of crashes, the increase is only in non-injury crashes, most of which occur on the US 31 mainline. The Recommended Alternative shows a decrease in predicted injuries compared to the No-Build Alternative (approximately one injury per year). Considering the decrease in injury crashes, the Recommended Alternative shows safety improvements over the No-Build Alternative.

Table 1-19. Predictive Crash Summary (2025-2045), Comparison

I-465/US 31 IMP Alternative	Total Crashes	Fatal/Injury (FI) Crash Total	Property Damage Only (PDO) Crash Total	FI Percentage	PDO Percentage
No-Build	1,198	440	759	37%	63%
Recommended	1,263	417	846	33%	67%

1.3 Logical Termini

This project has rational end points to address any environmental impacts related to its design and construction. The termini are of sufficient length to address the project purpose and needs.

The southern terminus of the I-465/US 31 IMP is at the north intersection of Meridian Street and 96th Street, and extends approximately 4,200 feet along EB and WB I-465; this is the minimum amount of distance required to tie the I-465/US 31 interchange ramp work into the existing US 31/Meridian Street mainline, and the EB/WB I-465 to NB/SB US 31/Meridian Street on-ramps and off-ramps. The northern terminus of the I-465/US 31 IMP is located at the 116th Street Bridge over NB/SB US 31. Traffic analyses show that adding capacity through an additional NB lane to 116th Street is sufficient to address poor traffic operations and congestion at the I-465/US 31 interchange. Because this is not an added capacity project for US 31, but rather a project to tie the proposed added capacity at the I-465/US 31 interchange into the existing US 31 corridor making feasible operational improvements along the way, the 116th Street interchange is a logical terminus for US 31 corridor improvements.

1.4 Project Funding and Schedule

The I-465/US31 IMP project is an approximate $60 million infrastructure project. The project is being funded with a combination of state and federal funds. Construction is anticipated to begin in the 2025 construction season. Improvements are anticipated to be open to traffic in 2026, prior to the start of the I465 NW construction.

1.5 Independent Utility

The preferred alternative for the I-465/US 31 IMP would meet the project purpose and need by improving traffic operations, congestion, and safety within the I-465/US 31 interchange and along the US 31 mainline from the interchange to 116th Street by improving LOS to INDOT-approved levels during peak hours and decreasing queuing on the interchange ramps.

Traffic analyses show that improved LOS and reduced FI crashes can be achieved through the modification of the I-465/US 31 interchange and correcting the weaving along US 31, north of the interchange without additional work along the I-465 mainline, or along US 31/Meridian Street south of 96th Street or north of 116th Street. In addition, the proposed I-465/US 31 IMP does not restrict the consideration of alternatives for other reasonably foreseeable transportation improvements, as all improvements are contained within the ramp area of the interchange. The Recommended Alternative for the I-465/US 31 IMP will be usable and will be a reasonable expenditure even if no additional transportation improvements in the area, including the I-465 NW project, are made. Therefore, the I-465/US 31 IMP project has independent utility.

2.0 I-465 Northwest Improvements Project, Des. No. 1600854

The I-465 NW Project is an approximate $287 million infrastructure project currently in design. The purpose of the I-465 NW Project is to improve traffic operations and safety along I-465 between West 86th Street and College Avenue and achieving an acceptable LOS by increasing capacity throughout the corridor and improving geometrics at the I-465/I-865 interchange. Four primary needs have been identified for the I-465 NW Project, each of which is detailed below:

- Poor traffic operations and congestion;
- Recurring safety concerns;
- Deteriorating bridge conditions; and
- Undesirable geometric design at the I-865 system interchange

2.1 Poor Traffic Operations and Congestion

2.1.1 I-465 Mainline

According to the 2023 *I-465 NW IAD*, under the **No-Build Alternative**, the EB and WB I-465 mainline is anticipated to have operational challenges in the 2045 AM and PM peak hours with numerous locations anticipated to fail, including I-465 between I-865 and US 421, and the US 421 merging and diverging ramps to and from I-465. While the US 31/Meridian Street entrances to EB and WB I-465 are configured as lane adds and the WB exit from I-465 to US 31/Meridian Street is configured as a lane drop, microsimulation reveals that 2045 peak hour operations will experience queuing. Microsimulation predicts the EB I-465 two-lane parallel exit to US 31/Meridian Street will likely not operate as well as predicted by HCS in the 2045 AM and PM peak hours.

The I-465 NW **Recommended Alternative** is anticipated to perform adequately, and in many locations well, during the 2045 AM and PM peak hours. Microsimulation supports the HCS analysis and confirms that the Recommended Alternative will eliminate the potentially severe queuing throughout the corridor associated with the No-Build Alternative.

2.1.2 I-465/I-865 Interchange

According to the 2023 *I-465 NW IAD*, under the **No-Build Alternative**, the existing two-lane I-465 mainline, in both directions, through the I-865 interchange is expected to fail during the 2045 AM and PM peak hours. In addition, the EB I-865 to EB I-465 and WB I-465 to WB I-865 ramps are both one-lane ramps under the No-Build configuration and are projected to be over capacity in 2045. The **Recommended Alternative** adds two additional mainline lanes on I-465 through the I-865 interchange. Under this alternative, both the EB I-865 to EB I-465 and WB I-465 to WB I-865 ramps would be improved to two lanes, resulting in favorable operations during the 2045 peak hours.

2.2 Recurring Safety Concerns

According to the 2023 *I-465 NW IAD*, there were 662 total crashes over the three-year period (2017-2019). Of these, 588 were PDO, 73 were injury-related, and 1 was a fatal crash. Crash distribution along the I-465 mainline during peak hours indicates a direct correlation between congestion and crashes. For the I-465/I-865 interchange area, there were 619 total crashes over the three-year period (2017 to 2019). Of the 619 crashes, 546 were PDO crashes, and 73 were injury crashes. There were no identified fatalities within the analysis period. Crash distribution at the I-465/I-865 interchange during peak hours indicates a direct correlation between congestion and crashes.

The I-465 mainline **No-Build Alternative** is predicted to have 5,760 total crashes over the 20 years from 2025 to 2045, while the **Recommended Alternative** is predicted to have 3,234 total crashes. The recommended alternative is predicted to result in a reduction in total, PDO, and PI crashes.

The **No-Build Alternative** for the I-465/I-865 interchange is predicted to have 3,006 total crashes over the 20 years from 2025 to 2045, while the **Recommended Alternative** is predicted to have 1,681 total crashes. The recommended alternative is predicted to result in a reduction in total, PDO, and PI crashes.

2.3 Deteriorating Bridge Conditions & Geometric Deficiency

A potential area of geometric deficiency has been identified in the reverse horizontal curve portion of the corridor between Ditch Road and Spring Mill Road. This location currently consists of 18-foot inside shoulders, three 12-foot travel lanes, and 10-foot outside shoulders and was designed using a 70-mph design speed. The proposed configuration adds two to three auxiliary lanes in each direction to accommodate traffic from/to the nearby US 31 interchange. While the proposed design is also designed to meet 70-mph design criteria, this section of the corridor is limited by various constraints including: the Ditch Road overpass (constructed in 2019), the 96th Street overpass (constructed in 2006), the Spring Mill Run and Williams Creek waterways, and minimization and mitigation of impacts to adjacent properties along the corridor.

When the Ditch Road and 96th Street bridges were reconstructed, they were designed to accommodate future expansion of the I-465 mainline and do not require any additional modifications as part of this project. However, the additional travel lanes in each direction require a longer transition than what is provided along the existing alignment. Because of the constraints of the Ditch Road and 96th Street overpasses, alternatives that flatten the second horizontal curve over Spring Mill Run and Williams Creek were evaluated. By increasing the second horizontal curve by 400 feet, the required superelevation rate was reduced from 7.6 percent to 7.0 percent (based on the 8 percent maximum superelevation table per IDM Figure 43-3A(3)), allowing for a shorter transition length between the two curves without impacting the existing overpasses. Additional consideration was given to extending the tangent between the two curves or flatting the second curve further to reduce the superelevation rate but was eliminated to mitigate impacts to Spring Mill Run and Williams Creek, along with minimizing disturbance limits as much as possible. While the **Recommended Alternative** will have adjacent property impacts, they are smaller in area than the impacts caused by any option considered that flattened the second horizontal curve.

Ultimately, the proposed alternative provides a reasonable balance of meeting the 70-mph design features present in other updated sections of the I-465 corridor while mitigating impacts and disturbances to adjacent properties and environmental features. This Recommended Alternative meets the existing travel speed of the corridor, while providing INDOT with additional flexibility for future improvements.

2.4 Logical Termini

This project has rational end points to address any environmental impacts related to its design and construction. The termini are of sufficient length to address the project purpose and needs.

The I-465 NW project begins on I-465 at the I-465/86th Street interchange on the northwest side of Indianapolis. The project continues along I-465 through the I-465/I-865 interchange and then heads east through the I-465/US 421 interchange and the I-465/US 31 interchange before ending approximately 1,500 feet east of College Avenue. The I-465 NW project also includes the west leg of the I-465/I-865 interchange along I-865 to the Ford Road overpass bridge.

2.4 Project Funding and Schedule

The I-465 NW project is an approximate $287 million infrastructure project. The project is being funded with a combination of state and federal funds. Construction is anticipated to begin no earlier than the 2028 construction season.

2.5 Independent Utility

Projects Combined:

Initially, INDOT and the design team determined that the I-465/US 31 IMP and I-465 NW project were to be covered under one NEPA document. This decision was made because none of the potential alternatives to improve traffic operations and congestion for the I-465 NW project would successfully meet INDOT standards throughout the entire I-465 NW corridor unless LOS and congestion within the I-465/US 31 interchange were addressed.

The preferred alternative for the I-465 NW project would meet the project purpose and need by improving traffic operations, congestion, and safety within the I-465/I-865 and I-465/US 421 interchanges, and along the I-465 mainline corridor from 86th Street to College Avenue by improving LOS to INDOT-approved levels during peak hours, as well as correcting undesirable geometrics and reconstructing bridges. While acceptable

LOS during peak hours would be achieved throughout much of the corridor, acceptable LOS ratings would not be achievable on the EB and WB sections of I-465 entering and exiting the US 31 interchange due to delays and queues caused by the interchange ramps.

Project Separation:
Once the two projects were combined, additional assessments of the I-465/US 31 interchange were conducted, and it was determined that the deficiencies and current issues noted in this interchange (see Section 1 of this document) are current problems that will continue to worsen over time if not addressed immediately. Regardless of if the additional travel lanes along I-465 are constructed or the I-465/I-865 and I-465/US 421 interchanges are modified, the I-465/US 31 interchange must be addressed now to prevent increased queuing along the interchange ramps and along US 31, and decreased LOS within the interchange. The purpose and need of the I-465/US 31 IMP would be met by the recommended alternative with or without the construction of the proposed I-465 NW project. In addition, the proposed I-465/US 31 IMP does not restrict the consideration of alternatives for the I-465 NW project. Therefore, the I-465/US 31 IMP has independent utility from the I-465 NW project.

As with the I-465/US 31 IMP, current traffic analyses for I-465 NW utilize 2020 traffic counts for existing data. Those analyses show that, with or without the improvements at the I-465/US 31 interchange, the added travel lanes along EB and WB I-465, as well as the proposed improvements at the I-465/I-865 and I-465/US 421 interchanges, will improve traffic operations and peak hour LOS throughout the I-465 NW corridor. Therefore, it is a reasonable expenditure even if no additional transportation improvements in the area are made, and it should not restrict consideration of alternatives for other reasonably foreseeable transportation improvements. However, because the I-465 NW project has been delayed, with construction scheduled to occur no earlier than 2028, and the projected growth estimated for the Carmel/Indianapolis area, the existing traffic analyses conducted for the I-465 NW segments will need to be re-evaluated using more recent data and projecting further into the future.

Please let me know if you require any further information regarding any of the projects discussed above.

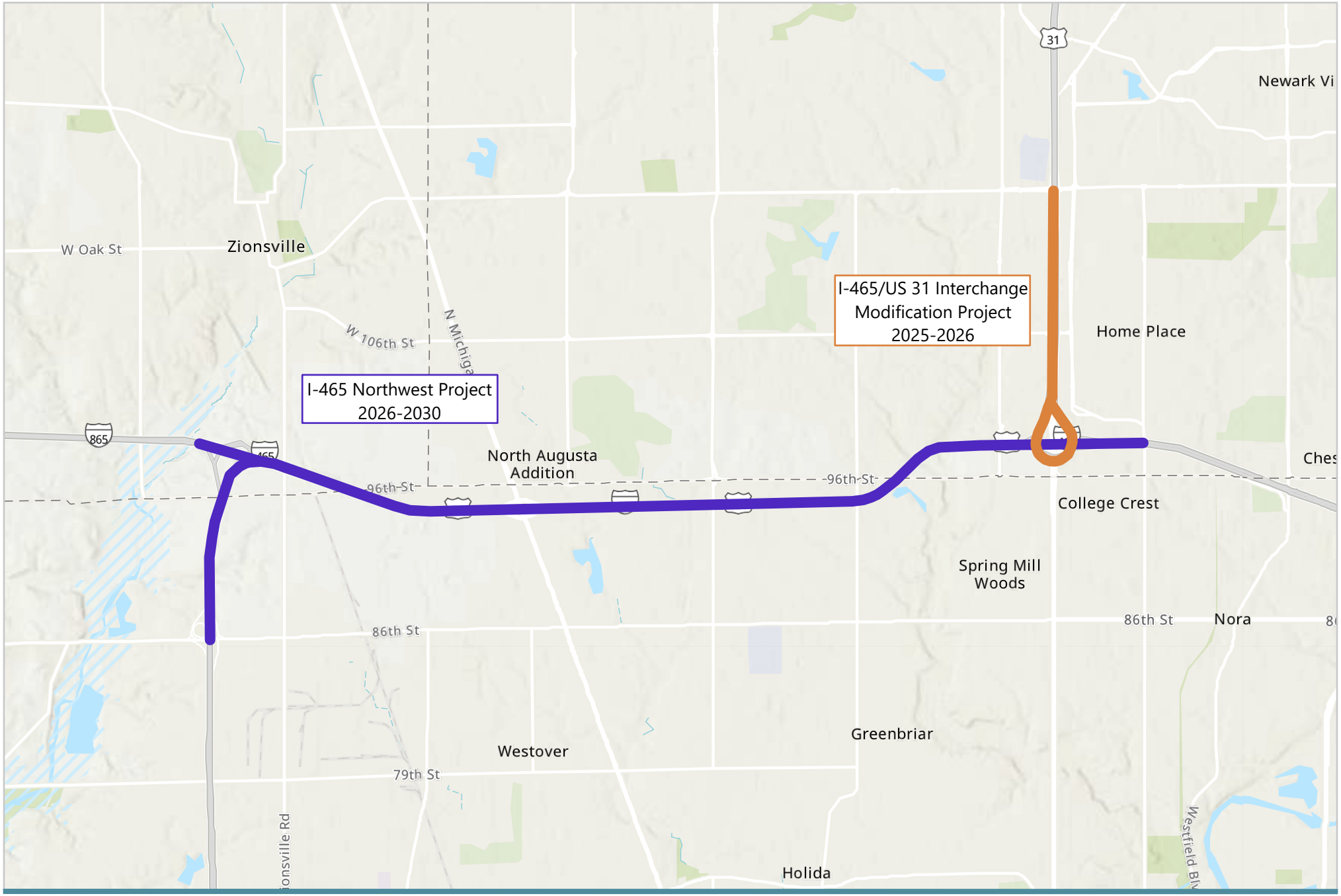
Sincerely,

Drew Passmore

INDOT NEPA Review Team Lead

Cc:

Attachment (1)



Regional Projects Map

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