

APPENDIX H: FINAL LEVEL 3 SCREENING REPORT



US 31 SOUTH

LEVEL 3 SCREENING REPORT

FINAL

Revision 1 – October 2025

Prepared By

HNTB



NextLevel
ROADS

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- Appendix A: Improvement Package Maps
- Appendix B: Planning-Level Cost Estimates
- Appendix C: Draft Level 3 Screening Report Comment/Response Matrices

NOTE: Minor edits made to the report in October 2025. The edits included the following:

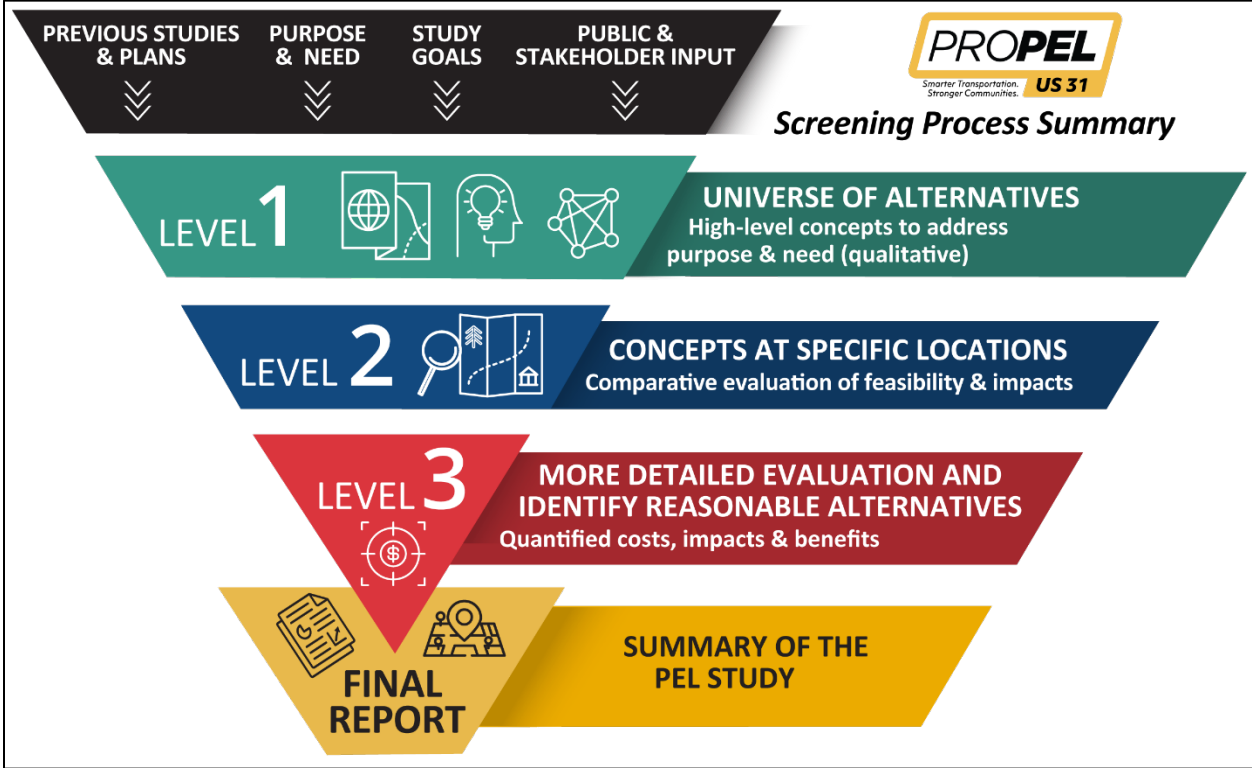
- Updated planning-level cost estimates for Grissom Planning Segment in Table 4-6, including supporting documentation in Appendix B. The changes did not alter any conclusions in the Level 3 Screening Report.

EXECUTIVE SUMMARY

ProPEL is an Indiana Department of Transportation (INDOT) initiative that uses collaborative Planning and Environment Linkages (PEL) studies to consider environmental, community, and economic goals early in the transportation planning process. Through the PEL studies, INDOT aspires to create smarter transportation systems that build stronger communities.

The ProPEL US 30/31 studies use a three-level screening process, depicted in **Figure ES-1**, to identify reasonable alternatives that address the identified transportation needs and goals of the study area. The Level 3 screening evaluates alternatives advancing from the Level 2 screening at the primary intersections within the study area. The Level 3 screening also considers secondary intersections and the roadway sections between them.

Figure ES-1: ProPEL US 31 South Alternatives Development and Screening Process



This *ProPEL US 31 South Level 3 Screening Report*, which details the Level 3 screening methodology and results, has been prepared for the ProPEL US 31 South study and is based on existing conditions, projected future conditions, current plans and past studies, public comments, and stakeholder input as well as social, economic, and environmental constraints. The ProPEL US 31 South study area includes US 31 from 276th Street in Hamilton County north to the State Road (SR) 931 south junction in Tipton County, and from the SR 931 north junction in Howard County north to County Road (CR) West 300 North in Miami County. The US 31 Kokomo bypass is excluded from the ProPEL US 31 South study.

This Level 3 screening report provides a comparative evaluation of reasonability and impacts for potential transportation improvements and identifies alternatives to be carried forward from this PEL study.

LEVEL 3 SCREENING

OVERVIEW

The Level 3 screening process divided the study area into multiple planning segments in which traffic characteristics and context are similar, and where improvements at one intersection could influence those at adjacent intersections. Seven planning segments, depicted in **Figure ES-2**, were created from the US 31 South study area. The alternatives advanced from the Level 2 screening process were then arranged to form multiple Improvement Packages for each of the seven planning segments. These Improvement Packages vary with respect to facility type, the type of traffic flow provided along US 31, and the level of access to adjacent land. These Improvement Packages were then comparatively evaluated against each other and against the No-Build scenario to determine which should be further considered beyond the Level 3 screening process. **Table ES-1** outlines the characteristics of each Improvement Package considered in the screening process.

Table ES-1: Level 3 Screening

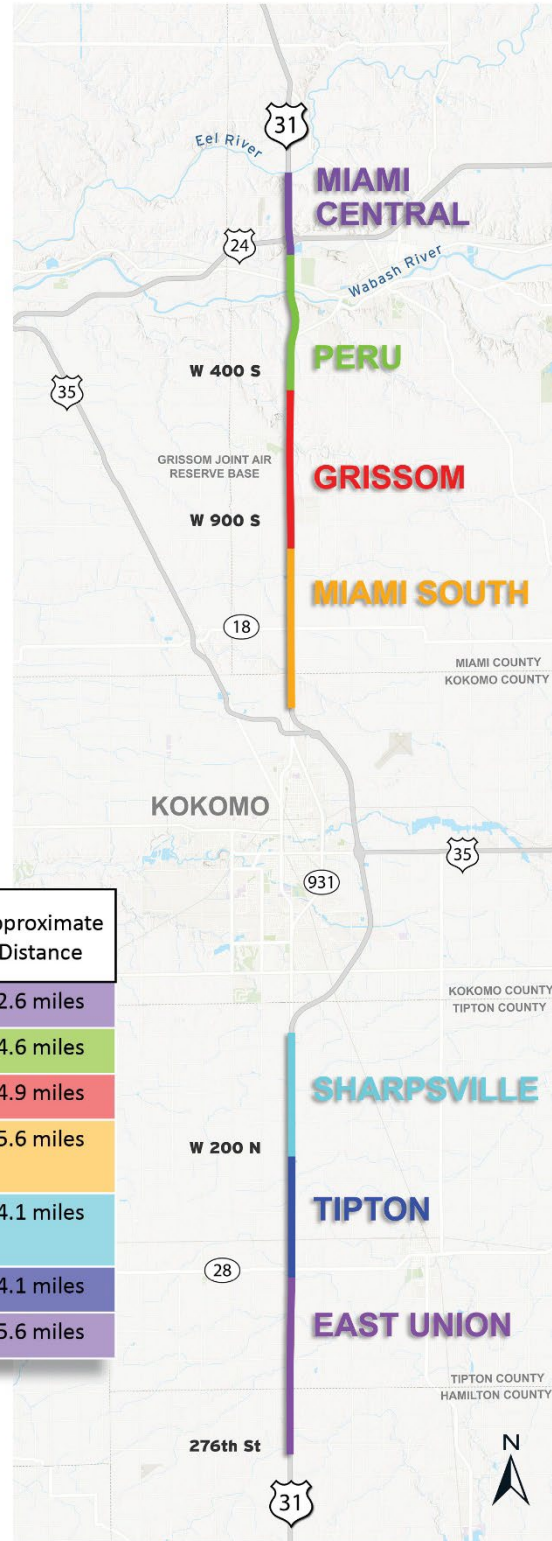
Characteristics	Criteria
Safety	Ability to reduce severe crashes, including the cost-effectiveness of each Improvement Package.
Mobility	Travel time along US 31, delay crossing US 31, and level of access to/from US 31.
Environmental Resource Impacts	<ul style="list-style-type: none"> ○ Natural, cultural, and community/socioeconomic impacts ○ Alignment with public input received to date.
Costs	Estimated construction costs, right-of-way costs, and total Improvement Package costs.
Goals	Is the Improvement Package aligned with study goals?

After completing the Level 3 analysis using the factors described above, each Improvement Package was rated using the following terminology and definitions:

- **Eliminated** = Meets the purpose and need established with this study; however, the Improvement Package is considered unreasonable due to limited benefits compared to its impacts and/or costs. It does not warrant consideration as part of any subsequent NEPA and project development studies in this planning segment unless conditions in the study area significantly change in the future (e.g., changes in land use, baseline environmental and/or traffic conditions, etc.).
- **Carried Forward** = Meets the purpose and need established with this study and is considered reasonable at this stage of planning. The Improvement Package warrants consideration as part of any subsequent NEPA and project development studies in this planning segment.

Figure ES-2: US 31 South Planning Segments

US 31 South Planning Segments



Planning Segment	Northern Limit	Southern Limit	Approximate Distance
Miami Central	Eel River	S of US 24	2.6 miles
Peru	S of US 24	S of CR 400 S	4.6 miles
Grissom	S of CR 400 S	S of CR 900 S	4.9 miles
Miami South	S of CR 900 S	US 31 & SR 931 N Jct	5.6 miles
Sharpsville	US 31 & SR 931 S Jct	S of CR 200 N	4.1 miles
Tipton	S of CR 200 N	S of SR 28	4.1 miles
East Union	S of SR 28	276th St	5.6 miles

LEVEL 3 SCREENING RESULTS

The Level 3 screening identified a wide range of Improvement Packages that were either eliminated or carried forward for further evaluation. The results of the Level 3 screening are summarized in **Table ES-2**.

Table ES-2: US 31 South Level 3 Screening Results

Facility Type	Arterial	Arterial	Arterial	Arterial	Expressway Lite	Expressway	Freeway
Traffic Flow	Non-Free Flow	Non-Free Flow	Free Flow	Free Flow	Free Flow	Free Flow	Free Flow
Access Control	Minimal	Partial	Partial	Partial	Partial	Partial	Full
Signalized Intersections	Yes	Yes	No	No	No	No	No
Unsignalized Intersections	Yes	Yes	Yes	Yes	Yes	Yes	No
Median Openings* (Between intersections)	Allowed	Allowed (Reduced Quantity)	Allowed (Reduced Quantity)	Directional (Reduced Quantity)	Allowed** (Limited Circumstances)	Not Allowed	Not Allowed
Average Median Opening Spacing* (Intersections & Mid-Block)	-	~0.25 mile	~0.25 mile	~0.50 mile	Varies***	Varies***	None
Commercial Driveway Access	Full	RIRO	RIRO	RIRO	RIRO	None	None
Residential Driveway Access	Full	RIRO	RIRO	RIRO	RIRO	None	None
Miami Central							
Package #	No-Build	N/A	1	2	N/A	3	4
Level 3 Screening Result	CARRIED FORWARD	N/A	ELIMINATED	CARRIED FORWARD	N/A	CARRIED FORWARD	CARRIED FORWARD
Peru							
Package #	No-Build	1	2	N/A	3	4	5
Level 3 Screening Result	CARRIED FORWARD	ELIMINATED	CARRIED FORWARD	N/A	CARRIED FORWARD	CARRIED FORWARD	CARRIED FORWARD
Grissom							
Package #	No-Build	1	2	3	4	5	6
Level 3 Screening Result	CARRIED FORWARD	ELIMINATED	ELIMINATED	CARRIED FORWARD	CARRIED FORWARD	CARRIED FORWARD	CARRIED FORWARD
Miami South							
Package #	No-Build	N/A	1	2	3	4	5
Level 3 Screening Result	CARRIED FORWARD	N/A	ELIMINATED	CARRIED FORWARD	CARRIED FORWARD	CARRIED FORWARD	CARRIED FORWARD
Sharpville							
Package #	No-Build	1	N/A	2	3	4	5
Level 3 Screening Result	CARRIED FORWARD	ELIMINATED	N/A	CARRIED FORWARD	CARRIED FORWARD	ELIMINATED	CARRIED FORWARD
Tipton							
Package #	No-Build	1	2	3	4	5	6
Level 3 Screening Result	CARRIED FORWARD	CARRIED FORWARD	ELIMINATED	CARRIED FORWARD	CARRIED FORWARD	ELIMINATED	CARRIED FORWARD
East Union							
Package #	No-Build	1	N/A	2	3	4	5
Level 3 Screening Result	CARRIED FORWARD	ELIMINATED	N/A	CARRIED FORWARD	CARRIED FORWARD	ELIMINATED	CARRIED FORWARD

Notes: RIRO = Right-in/Right-out intersection

*Refers to public median openings between intersections. For all improvement packages, including those with higher access control, median openings for emergency vehicles may be provided.

**Limited Circumstances – Median opening(s) between intersections will be limited to select locations and evaluated on a case-by-case basis in a planning segment to reduce the travel distance associated with limiting turning movements to right-in/right-out only and/or directional median openings. The median openings would include a properly designed U-turn opening to facilitate safe and efficient access for movements that are restricted by the median.

***Varies based on location and configuration of major intersections.

FUTURE VISION

Based on the work completed as part of the ProPEL US 31 South study, INDOT's long-term vision is to upgrade US 31 in the study area to a free-flow facility, which is a road without traffic signals, stop signs, or yield signs for the mainline traffic. There are varying types of free-flow facilities, ranging from freeways – which have full control of access – to free-flow facilities that have no or partial control of access. The ProPEL US 31 South study found achieving this long-term vision was feasible; however, there are tradeoffs to consider and uncertainties that would impact the implementation timeline.

Tradeoffs to consider include:

- Higher costs;
- Higher community and environmental impacts; and
- Potentially severe impacts to local communities and businesses due to the loss of access to/from US 31, as well as reduced mobility across it.

Uncertainties impacting the implementation timeline include:

- Policy decisions of elected officials and agency leaders;
- Statewide transportation priorities; and
- Transportation funding.

Given these tradeoffs and uncertainties, the ProPEL US 31 South study considered a range of improvements that provide INDOT with the flexibility needed to incrementally move toward a long-term vision of a free-flow facility through a series of improvements over time to address the identified transportation needs. The improvements include more immediate, lower-cost improvements, as well as higher-cost improvements that require funding beyond what is currently available.

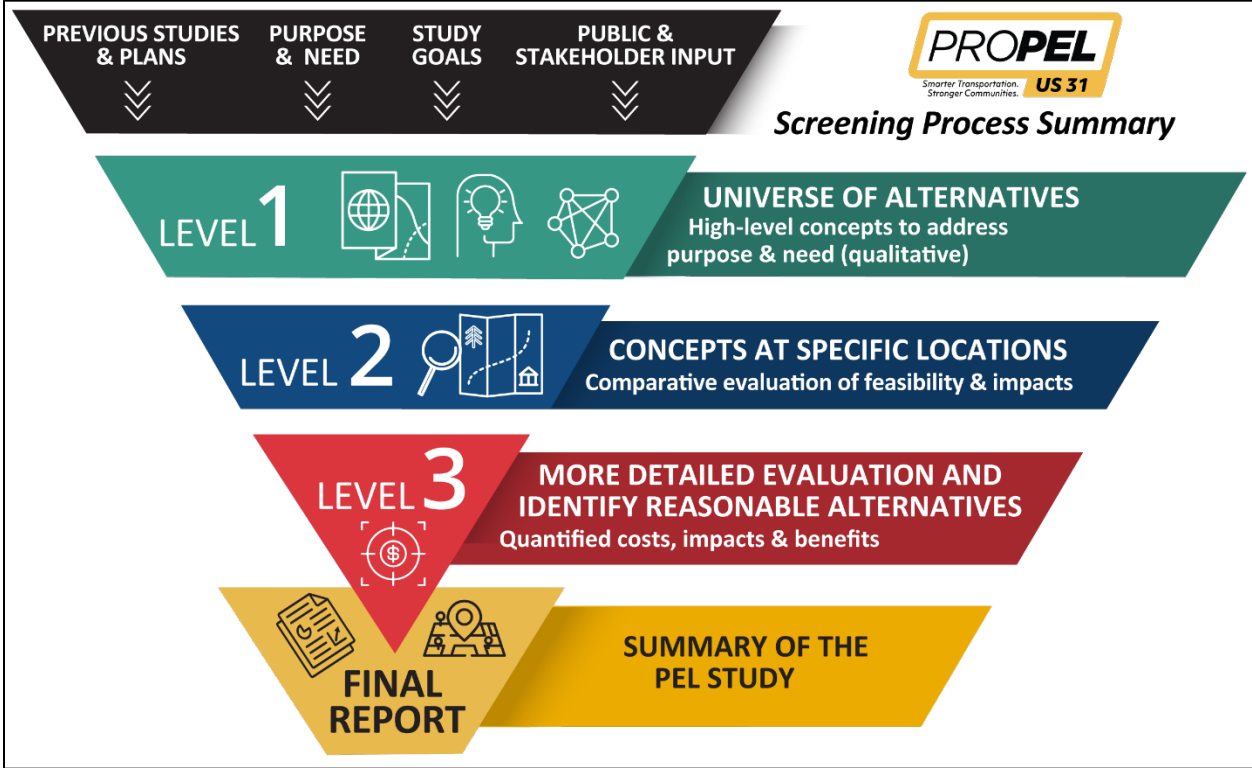
Due to the identified uncertainties, the study concludes that implementation of an entirely free-flow facility on US 31 in the study area will likely extend beyond the study's planning horizon of 2045. In the interim, the study provides INDOT with a flexible guide to incrementally upgrade US 31 in the study area to a free-flow facility.

1 INTRODUCTION

1.1 PURPOSE AND INTENT OF THIS REPORT

This report documents the process and results of the Level 3 screening of alternatives that advanced from the Level 2 screening for the ProPEL US 31 South study. The Level 3 screening represents the third step in a three-level alternatives development and screening process, as shown in **Figure 1-1**.

Figure 1-1: ProPEL US 31 South Alternatives Development and Screening Process



The purpose of the Level 3 screening – which is the final screening step for this PEL study – is to develop and analyze Improvement Packages for sections of the study area. These sections, called planning segments, consider improvements at all study area intersections as well as the roadway sections between them (see **Section 3.1** for full details on methodology). The improvements considered in the Level 3 screening were identified from the Level 2 screening, previous studies, current plans, and public and stakeholder input as well as industry guidelines and solutions for safety and operations for highways like US 31.

The Level 3 screening includes both qualitative and quantitative factors to enable a relative assessment of costs, benefits, and impacts to eliminate unreasonable alternatives. It is INDOT’s intent for the Level 3 screening to develop and evaluate varied access management approaches for planning segments in the study area to better understand relative costs, benefits, and impacts associated with them. Since it is not the intent to have a single recommended alternative at the conclusion of this PEL study, the Level 3 screening presents a range of Improvement Packages for each planning segment, including some with more access control similar to freeway conditions and some with less access control on US 31 that would provide public access points more in line with existing conditions.

Inputs to this report include the following, all of which are available on the study website (<https://propelus31.com/31doclibrary>):

- *ProPEL US 31 South Existing Transportation Conditions Report*
- *ProPEL US 31 South Final Environmental Constraints Report*
- *ProPEL US 31 South Final Purpose and Need Report*
- *ProPEL US 31 South Resource Agency, Stakeholder & Public Involvement (RASPI) Summary Reports*
 - *RASPI Summary #1*
 - *RASPI Summary #2*
 - *RASPI Summary #3*
- *ProPEL US 31 South Final Universe of Alternatives (Level 1) Screening Report*
- *ProPEL US 31 South Final Level 2 Screening Report*

Similar to the first two levels of screening, meeting the purpose, needs, and study goals are confirmed in Level 3, and public and stakeholder input is considered and will be sought as part of this screening. A goal of this PEL study is the identification of a range of reasonable alternatives for the study area. Given the transportation needs identified within the study area, a reasonable alternative could consist of improvements at a single intersection; it could also consist of improvements at multiple intersections and/or the roadway sections in between them (i.e., access management). Depending on multiple factors, including statewide priorities and funding availability, improvements carried forward from this PEL study could be combined in different ways to address the identified transportation needs and support the goals of the study area.

The following information is provided in this report:

- A summary of the study area purpose and need statement along with study goals.
- A summary of the Level 1 screening and the concepts advanced.
- A summary of the Level 2 screening and the alternatives advanced.
- A summary of the public involvement and agency coordination activities associated with the publication of the *Draft Level 3 Screening Report*, a summary of the comments received and individual responses to them, as well as a summary of changes made to this report after considering them.
- The methodology developed and applied in the Level 3 screening process.
- Details of how alternatives were identified, developed, and evaluated during the Level 3 screening.
- An overview of the next steps in this PEL study.

1.2 STUDY LIMITS & STUDY INTERSECTIONS

The ProPEL US 31 South study area is approximately 31 miles long, extending from 276th Street in Hamilton County to CR 300 North, which is just south of the Eel River in Miami County. The portion of US 31 that bypasses the city of Kokomo is excluded from the study area. US 31 in the study area is designated as a four-lane Major Arterial roadway with two lanes in each direction separated by an approximately 50-foot grass median¹. The study corridor includes 54 intersections with crossroads. Of those intersections, five are signalized and three are interchanges. The posted speed limit is 60 mph.

¹ INDOT's official designation for US 31 in the study area is "Principal Arterial – Other", which is also known as a Major Arterial. This report will refer to US 31 in the study area as a Major Arterial.

The study area's 54 intersections were designated as "primary" or "secondary" based on the functional classification of the crossroad². These intersections are listed in **Figure 1-2**.

Below is further description of these designations:

- **Primary Intersections** – Intersections where the crossroad has a classification of *Principal Arterial*, *Minor Arterial*, or *Major Collector*, which are the highest non-interstate classifications of roadways³. These intersections may be stop-controlled, signalized, or have existing interchanges. The primary intersections largely control the operations of US 31 within the study area. Improvements at these intersections were developed and evaluated as part of the Level 2 screening. The US 31 and CR 400 S intersection does not meet these criteria but was added as a primary intersection due to its proximity to Pipe Creek Elementary School. There are 18 primary intersections within the study area.
- **Secondary Intersections** – Intersections where the crossroad has a classification of *Minor Collector* or *Local Road*, which are the lowest classifications of roadways⁴. These intersections are typically two-way stop-controlled and have crossroads that carry low volumes of traffic. These intersections have minor influence on the operations of US 31 within the study area. Improvements at secondary intersections were identified and evaluated in the Level 3 screening process using criteria such as compatibility with potential improvements at adjacent primary intersections, current INDOT access management guidelines, facility type, and public input. There are 36 secondary intersections within the study area.

This Level 3 screening considers a range of alternatives at the primary intersections, the secondary intersections, and the roadway sections between them.

² Functional classification is the process by which streets and highways are grouped into classes, or systems, according to the character of service they are intended to provide.

³ <https://www.fhwa.dot.gov/planning/processes/statewide/related/hwy-functional-classification-2023.pdf>

⁴ <https://www.fhwa.dot.gov/planning/processes/statewide/related/hwy-functional-classification-2023.pdf>

1.3 SUMMARY OF PURPOSE & NEED

The needs, purpose, and goals identified in the *ProPEL US 31 South Purpose and Need Report* are summarized below.

1.3.1 TRANSPORTATION NEEDS

The following transportation needs have been identified for the ProPEL US 31 South study area:

- Safety concerns due to high crash frequencies and/or high crash severities within the study area.
- Operational issues at unsignalized intersections across the study area.
- Lack of consistency with INDOT’s Access Management Guidelines.
- Mobility requirements across the US 31 corridor (east-west).
- Safe, high-quality mobility for long-distance passenger and freight trips through the study area.

1.3.2 PURPOSE

To address the needs identified above, the purpose of the ProPEL US 31 South study is to:

- Improve safety along US 31 by reducing the frequency and severity of crashes within the study area.
- Improve traffic operations by reducing delay at unsignalized intersections.
- Improve access control through implementation of INDOT’s Access Management Guidelines.
- Support east-west mobility for schools, emergency services, and agricultural services.
- Enhance the efficiency and reliability of US 31 as a regional and statewide corridor.

1.3.3 GOALS

The following goals have been identified for the ProPEL US 31 South study area:

- **Economic Development** – Provide transportation infrastructure to support local economies and economic development goals.
- **Transportation for All** – Provide fair solutions that consider the needs of all communities, including sensitive communities.⁵
- **Multimodal Access & Connections** – Accommodate non-motorized, transit, and active modes of travel in and across the study area.
- **Emerging Technologies** – Support emerging technologies and related infrastructure, including alternative fuel, and autonomous or connected vehicles.
- **Fiscal & Environmental Practicality** – Identify fiscally responsible improvements and avoid/minimize impacts to the human and natural environment.

⁵ This goal was refined based on the issuance of several federal and state Executive Orders (EOs), as well as one USDOT order. See Section 2.4 for additional information.

1.4 SUMMARY OF LEVEL 1 AND LEVEL 2 SCREENINGS

1.4.1 SUMMARY OF LEVEL 1 SCREENING

The Level 1 screening considered a set of 55 transportation improvement concepts, including the No-Build alternative, for the ProPEL US 31 South study area. Each concept was qualitatively evaluated against the purpose and need for the study area and for practicality within the corridor. Public and stakeholder input was considered as part of the Level 1 screening.

The Level 1 screening resulted in the following:

- Five Primary Concepts that met a majority of transportation needs and were carried forward to the Level 2 screening for evaluation as stand-alone alternatives.
- Nine Complementary Concepts that met some transportation needs but could not function as a stand-alone alternative. These concepts were carried forward to the Level 2 screening for location-specific application as part of a Primary Concept.
- 13 Design Elements that did not meet any transportation needs but were considered practical as they provided some benefit to the study area. These concepts were carried forward to the Level 2 screening for incorporation where applicable.
- The No-Build alternative met one transportation need, but it would not address the substantive safety issues identified throughout the study area. The No-Build alternative was advanced to the Level 2 screening to serve as a baseline for comparison to build alternatives.

The *Draft Universe of Alternatives (Level 1) Screening Report* was published for public review and comment on November 13, 2023, and the public comment period extended through December 22, 2023. Additionally, the report was distributed to federal, state, and local resource agencies as well as the tribal nations for review and comment. After the public involvement, agency, and tribal coordination, the report was finalized on June 6, 2024.

For further information on the Level 1 screening, including details on methodology, screening results, as well as comments and responses received during the public comment period, please see the *Final Universe of Alternatives (Level 1) Screening Report*, which is available on the study website (<https://propelus31.com/31doclibrary>).

1.4.2 SUMMARY OF LEVEL 2 SCREENING

The purpose of the Level 2 screening was to qualitatively evaluate location-specific improvements carried forward from the Universe of Alternatives (Level 1) screening for reasonability and potential impacts. In Level 2, the 14 Primary and Complementary Concepts were qualitatively evaluated at the primary intersections in the study area. These intersections largely control roadway operations in the study area. Therefore, the intersection alternatives considered at them influence what can be constructed upstream or downstream and set the foundation for improvements between them. Thus, the Level 2 screening identified the building blocks for the Level 3 screening.

The Level 2 screening resulted in the following:

- Six intersection improvement alternatives being carried forward to the Level 3 screening for further study: Access Modifications (i.e., convert to a right-in/right-out intersection, intersection closure, and directional median openings), Reduced Conflict Intersections (RCIs), Overpasses, Interchanges, Green-T Intersections, and Quadrant Roadway Intersections. Early in the Level 3 analysis, some alternatives were pre-screened out when the study team began combining intersection alternatives to create Improvement Packages. See **Section 3.2** for more detail.
- A freeway concept was also carried forward as a Primary Concept. A freeway is one example of a free-flow facility, which is a road that requires no stops along the major roadway. There are varying types of free-

flow facilities, ranging from freeways – which have full control of access⁶ – to free-flow facilities that have no or partial control of access⁷ (e.g., unsignalized arterial, expressway). The Level 2 screening report indicated the potential options for facility types in the US 31 South study area would be evaluated in the Level 3 screening.

- Note: A freeway may be designated an interstate if certain conditions are met; however, not all freeways are interstates. INDOT is not including or considering applying interstate design standards along the US 31 South study corridor.
- Five Complementary Concepts were carried forward to the Level 3 screening for location-specific application: Add/Lengthen Turn Lanes, Acceleration/Deceleration Lanes, Ramp Terminal Improvements (SR 28 interchange only), Roadway Lighting, and Freight Priority Systems.
- Warning systems were recommended as a potential short-term improvement to address the identified safety issues in the study area.
- The No-Build alternative was advanced to the Level 3 screening to serve as a baseline for comparison to build alternatives.

The *Draft Level 2 Screening Report* was published for public review and comment on March 27, 2024, and the public comment period extended through April 30, 2024. Additionally, the report was distributed to federal, state, and local resource agencies as well as tribal nations for review and comment.

For further information on the Level 2 screening, including details on methodology, screening results as well as comments and responses received during the public comment period, please see the *Final Level 2 Screening Report*, which is available on the study website (<https://propelus31.com/31doctrinary>).

1.5 COMPLEMENTARY CONCEPTS

The Complementary Concepts evaluated in the Level 3 screening are listed in **Table 1-1**, along with an explanation of how each was considered in this study and/or should be considered going forward.

Table 1-1: Consideration of Complementary Concepts

Complementary Concepts	Explanation
Add or Lengthen Turn Lanes (Left or Right)	The Improvement Packages in this Level 3 screening include lengthening of mainline turn lanes or addition of mainline turn lanes in the cases where one is not currently present at all intersections.
Add or Lengthen Acceleration/Deceleration Lanes	Adding or lengthening acceleration or deceleration lanes on US 31 was considered at the primary intersections.
Signalized Intersection Improvements	Signalized intersection improvements were considered at appropriate locations in this Level 3 screening. As discussed in Section 3.2 , the conversion of signalized intersections to quadrant roadway intersections or Green-T intersections was pre-screened out early in the Level 3 analysis.

⁶ Full control of access = Connections are provided only with select public roads through interchanges. Driveway connections (residential and commercial) are not permitted.

⁷ Partial control of access = Connections are provided with public roads via interchanges and/or at-grade intersections. The number of roadway connections and/or driveway connections (residential and commercial) may be reduced in number and/or limited to right-in/right-out movements. The number of median openings may also be reduced.

Table 1-1: Consideration of Complementary Concepts (cont.)

Complementary Concepts	Explanation
Ramp Terminal Intersection Improvements	The Level 3 screening considered ramp terminal intersection improvements at the intersections of the US 31 ramps at the existing SR 28 interchange. The FCA Transmissions facility located in the northeast quadrant of this intersection closed during the Level 3 screening process. The reduction in traffic resulting from this facility closing is not yet known, but it is expected to have a positive impact on the safety performance of this intersection.
Roadway Lighting	Roadway lighting was too detailed for this level of planning study but should be considered during future design phases of projects at all interchanges, RCIs, and other innovative intersections per INDOT lighting guidelines.
Warning Systems	Warning systems should be considered for future implementation at two-way stop-controlled (TWSC) intersections with elevated crash indices. Several potential locations for implementation were identified in the Level 2 screening report.
Freight Priority System	Freight priority systems reduce stops for trucks at signalized intersections. These systems are too detailed for this level of planning study but should be considered during future design phases of projects at all intersections that will remain signalized.

1.6 DESIGN ELEMENTS

The design elements evaluated in the Level 3 screening are listed in **Table 1-2**, along with an explanation of how each was considered in this study and/or should be considered going forward.⁸

Table 1-2: Consideration of Design Elements

Design Element	Explanation
Realign Skewed Intersections	Realignment of roadways at intersections where substantial skew is present was considered in the Level 3 screening. One such location was the US 31 and Business 31 intersection, where several alternatives include realignment of Business 31 to reduce intersection skew.
Intersection Sight Distance Improvements	Intersection sight distance was considered in development of alternatives evaluated in this Level 3 screening. Sight distance improvements are most prevalent at locations where intersection skew was substantial.

⁸ The design elements were refined based on the issuance of several federal and state Executive Orders (EOs), as well as one USDOT order. See Section 2.4 for additional information.

Table 1-2: Consideration of Design Elements (cont.)

Design Element	Explanation
Traffic Control Visibility Upgrades	Most alternatives evaluated in the Level 3 screening remove the existing traffic signals within the study area. Those alternatives that retain traffic signals should be supplemented with warning signs and/or flashing beacons to draw attention to the traffic signal. Supplemental devices such as this should be evaluated in future projects that may result from recommendations of this PEL study.
Geometric Improvements	The need for geometric improvements other than realignment of skewed intersections was not identified within the study area.
Gateway & Aesthetic Treatment	No potential locations for gateways and aesthetic treatments were identified through Stakeholder Advisory Committee meetings or public information meetings. The Level 3 screening considered the potential of a gateway feature at the US 31/Business 31 intersection, which is consistent with the Miami County Comprehensive Plan. Details of the specific treatments at this location would be addressed in the preliminary design phase of any future project in that area.
Speed Management	Changes to intersection type and/or roadway geometry were not identified as potential means to manage speeds along US 31. The alternatives considered in this Level 3 screening report seek to remove or reduce conflicts to maintain free-flow or near-free-flow conditions along US 31.
Bicycle/Pedestrian Facilities	The need for improved or additional bicycle and pedestrian facilities within the study area has not been identified in this study. Reference documents, such as the Miami County Comprehensive Plan, identify future locations for bicycle and pedestrian facilities. The alternatives evaluated in the Level 3 screening do not include such facilities, but the ability of the improvements considered in the Level 3 screening to accommodate these facilities is discussed in this report. Additionally, bicycle and pedestrian facilities can be incorporated into future projects that may result from the recommendations of this PEL study.

2 PUBLIC INVOLVEMENT AND AGENCY COORDINATION

2.1 PUBLIC INVOLVEMENT

The development and screening for the Level 3 analysis takes into consideration the input from the study’s ongoing public involvement and stakeholder coordination efforts. A full summary of involvement and outreach efforts completed (including comments received) can be found in the *Resource Agency, Stakeholder & Public Involvement Summary (RASPI) #1, RASPI #2, and RASPI #3*. All three documents are available on the study website (<https://propelus31.com/31doclibrary/>).

The Level 3 analysis also considered the public involvement and agency coordination associated with the publication of the *Draft Universe of Alternatives (Level 1) Screening Report* and *Draft Level Screening 2 Report*. Final copies of these reports, including responses to all public, agency, and tribal nation comments received during the formal comment periods are on the study website.

The *Draft Level 3 Screening Report* was published on the study website on November 12, 2024. Hard copies of the report were also made available at five publicly accessible locations in the study area (see **Table 2-1** for details). Public notices were also published in three local newspapers on the same day announcing the availability of the draft report and the start of the public comment period. Over 18,000 postcards were mailed to study area residents and businesses in the study area to announce the availability of the draft report for public review and comment. The public notices and the postcard mailings indicated the public comment period would extend through December 13, 2024. Comments could be provided on the study website or in-person at various outreach events, including community office hours events held during the public comment period.

During the public comment period on the *Draft Level 3 Screening Report*, several additional outreach activities were completed by the study team. These activities are listed in **Table 2-1**.

Table 2-1: ProPEL US 31 South Level 3 Screening Outreach Efforts

Level 3 Screening Outreach Efforts		Date(s)
Direct Mail	Level 3 postcards mailed to residents and businesses; Approx. 18,000 postcards mailed	10/31/2024
Indiana Legislators Briefing	Virtual meeting	11/8/2024
Media Alert	ProPEL US 31 South media outlets	11/8/2024
Website Information	ProPELUS31.com	11/12/2024
Media Briefing	Virtual meeting	11/12/2024
Press Release	ProPEL US 31 South media outlets	11/12/2024
US 30 & 31 Coalitions	Virtual meetings	11/12/2024
Stakeholder Advisory Committees	Virtual meetings	11/13/2024
Hard Copy of Reports, Comment Forms	Tipton County Public Library	11/12/2024 – 12/13/2024
	Peru Public Library	11/12/2024 – 12/13/2024
	Kokomo Howard County Public Library, Main Branch	11/12/2024 – 12/13/2024

Level 3 Screening Outreach Efforts		Date(s)
	Kokomo Howard County Public Library, South Branch	11/12/2024 – 12/13/2024
	Sharpsville Town Hall	11/12/2024 – 12/13/2024
Stakeholder Email Blasts	60% open rate and 447 recipients	11/12/2024
	64% open rate and 512 recipients	11/20/2024
Public Notices	Tipton County Tribune	10/31/2024; 11/7/2024
	Peru Tribune	10/31/2024; 11/7/2024
	Kokomo Tribune	10/31/2024; 11/7/2024
Local Economic Development Organizations	Virtual meeting	11/22/2024
JJ's Travel Plaza + adjacent businesses	Virtual meeting	11/27/2024
Farm Bureau	In-person meeting	12/2/2024
Miami Correctional Facility	Virtual meeting	12/3/2024
Best Western/Knights Inn	Virtual meeting	12/3/2024
Grissom Air Reserve Base	Virtual meeting	12/5/2024
Local Elected Officials	Hamilton County Commissioners	11/25/2024
	Tipton City Council	11/25/2024
	Howard County Council	11/26/2024
	Peru City Council	12/2/2024
	Tipton County Commissioners	12/2/2024
	Miami County Commissioners	12/2/2024
	Howard County Commissioners	12/2/2024
	Miami County Council (virtual)	12/4/2024
Resource Agency Coordination	Email	11/13/2024
	Virtual meeting	12/5/2024
Tribal Nations Coordination	Email	12/5/2024
Social Media Posts	Next milestone: Level 3	11/6/2024
	PIMs promotion	11/7/2024
	Draft Level 3 Screening Report released	11/12/2024
	Tipton PIM promotion	11/13/2024
	Peru PIM promotion	11/16/2024
	Virtual PIM available	11/16/2024
	Community Office Hours promotion	11/19/2024
	Level 3 comment period reminder	11/22/2024
	Community Office Hours promotion	11/25/2024
	Happy Thanksgiving	11/28/2024
	PIM recap video	12/3/2024

Level 3 Screening Outreach Efforts		Date(s)
	Community Office Hours promotion	12/4/2024
	Community Office Hours promotion	12/8/2024
	Level 3 comment reminder	12/12/2024
Community Office Hours	Dutch Cafe	11/26/2024
	Kokomo-Howard County Public Library	11/26/2024
	Pipe Creek Mercantile	12/10/2024
	Tipton County Public Library	12/10/2024
Public Information Meetings	Tipton County Fairgrounds	11/14/2024
	Peru High School	11/19/2024
	Virtual	11/15/2024 through 12/13/2024

2.2 SUMMARY OF PUBLIC COMMENTS

During the *Draft Level 3 Screening Report* comment period, the US 31 South study team received over 160 comments. **Figure 2-1** and **Figure 2-2** below provide a summary of those comments. A list of all comments received and their responses are included in **Appendix C**.

2.3 AGENCY COORDINATION

As indicated in Table 2-1, the *Draft Level 3 Screening Report* was also distributed via email on November 13, 2024, to federal, state, and local resource agencies. It was also distributed via email to tribal nations on December 5, 2024, for review and comment. A virtual Resource Agency and Cultural Resources Stakeholder Meeting was held on December 5, 2024. The meeting provided information regarding the *Draft Level 3 Screening Report* and how to best review the report, an overview of environmental and cultural resources, and next steps for the study. A summary of the meeting is provided in the *Resource Agency, Stakeholder & Public Involvement Summary #3* on the study website.

Responses were received from the Indiana Department of Natural Resources – Division of Historic Preservation & Archaeology (IDNR-DHPA) and the U.S. Fish and Wildlife Service (USFWS). Their responses are included in **Appendix C**. No responses were received from the tribal nations.

Figure 2-1: Level 3 Screening Comment Summary by Category

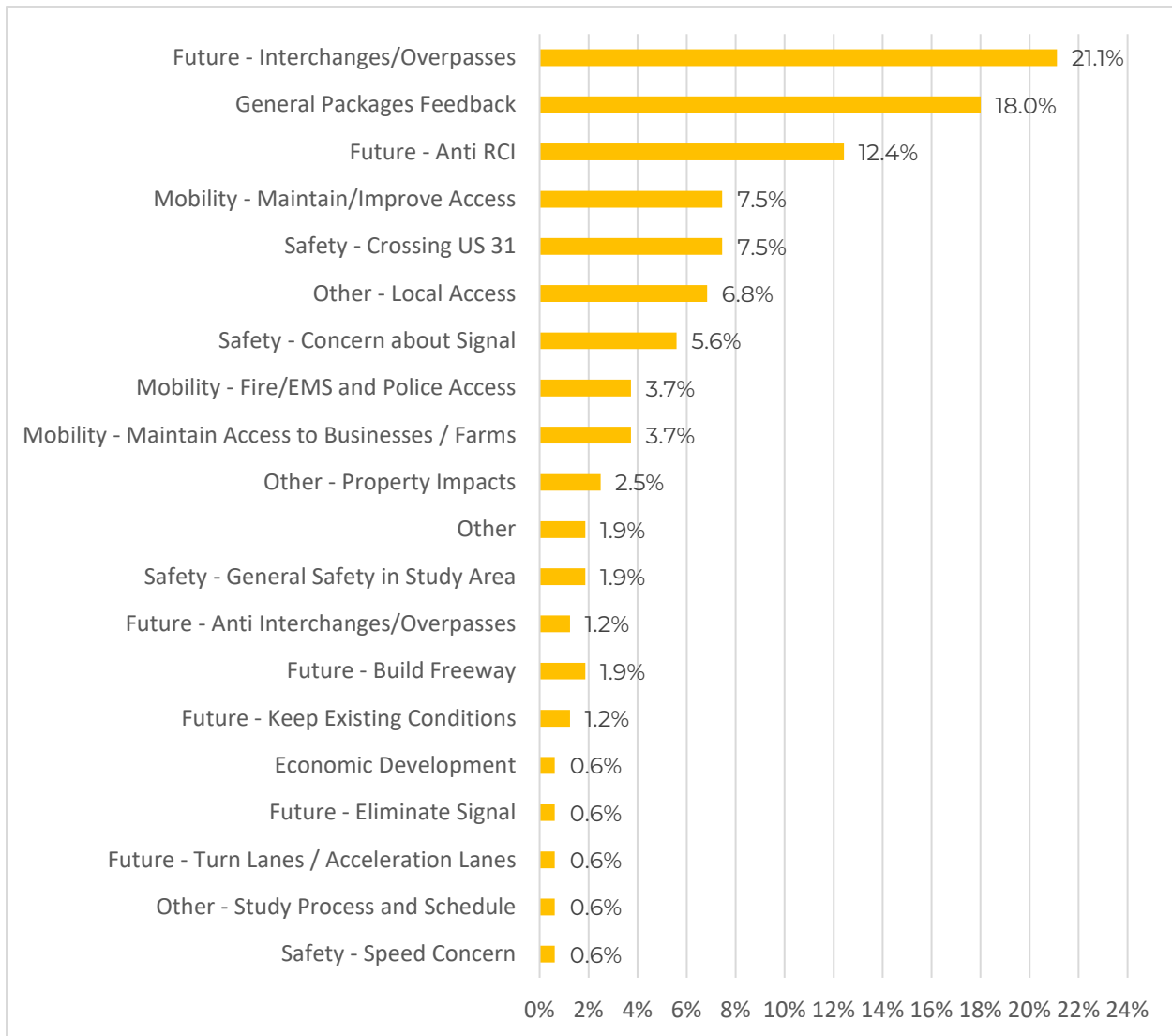
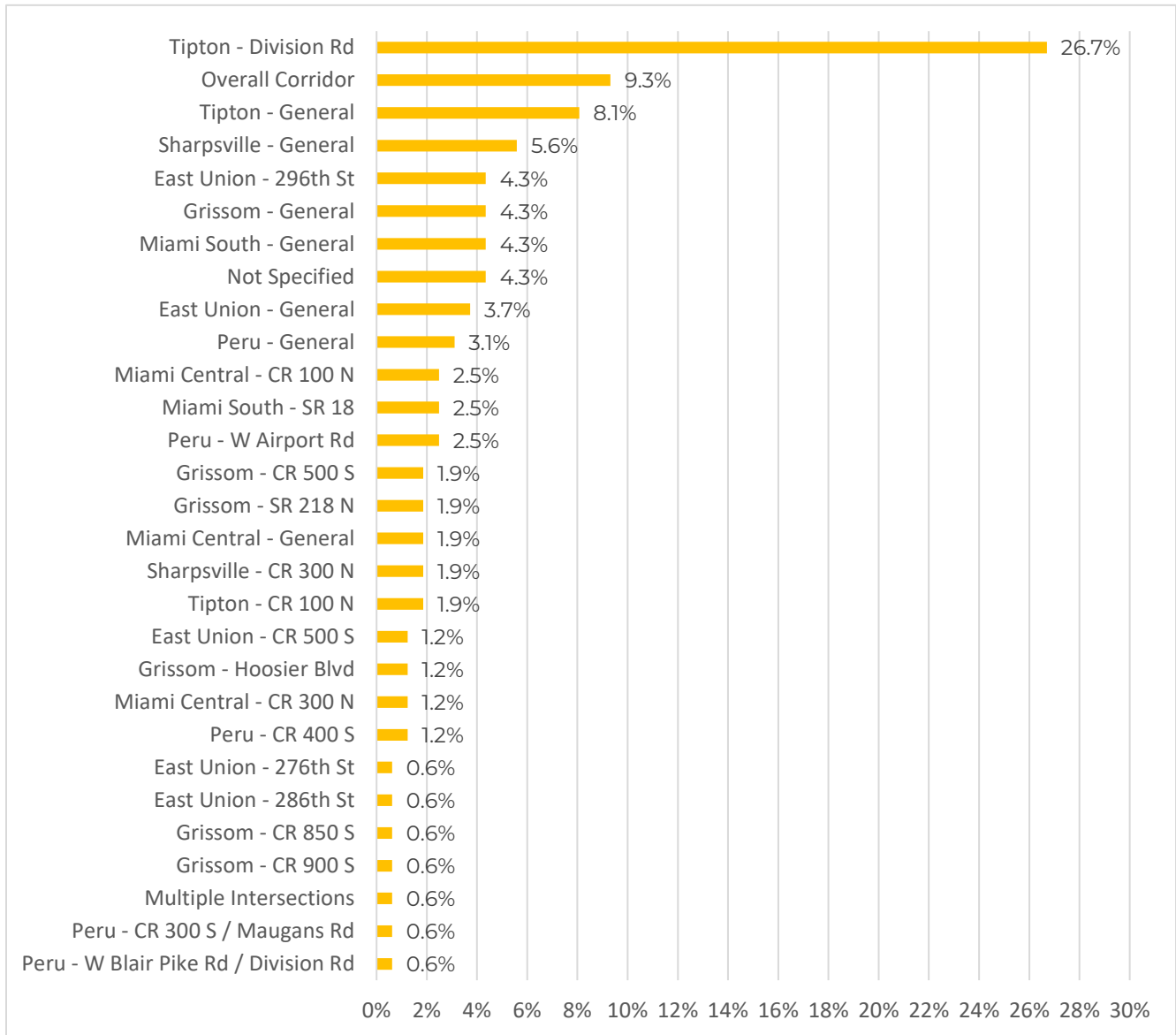


Figure 2-2: Level 3 Screening Comment Summary by Location



2.4 LEVEL 3 SCREENING REPORT UPDATES

Based on the public comments and agency feedback received, the following changes were made to the Draft Level 3 Screening Report:

- Minor editorial changes were made throughout the report to improve clarity.
- One study area goal (see Section 1.3.3) was refined and one design element (Alternative Fuel/Electric Vehicle Considerations) was eliminated from further consideration based on the issuance of several Executive Orders (EOs) and one United States Department of Transportation (USDOT) order, including:
 - Federal EOs: EO 14154, EO 14148, EO 14173 and EO 14281;
 - State EOs: EO 25-49, EO 25-37, and EO 25-14; and
 - USDOT Order 2100.7.

- Section 2 was added to the report to summarize public involvement and agency coordination activities, comments received, and changes made to the report.
- A summary of the public comments received on the *Draft Level 3 Screening Report* was added to each planning segment. See **Section 4.1.5.4**, **Section 4.2.5.4**, **Section 4.3.5.4**, **Section 4.4.5.4**, **Section 4.5.5.4**, **Section 4.6.5.4**, and **Section 4.7.5.4**.
- Changes were made to several Improvement Packages within multiple planning segments. These changes were made after consideration of public and agency comments on the *Draft Level 3 Screening Report*. The following is a summary of the changes made in each planning segment:
 - Miami Central Planning Segment
 - Improvement Package 2: CR 200 N was revised from an overpass to a directional median opening due to concerns associated with access to/from US 31 at this location.
 - Grissom Planning Segment
 - Improvement Package 4: CR 500 S was revised from a right-in/right-out intersection to a directional median opening due to concerns associated with access to/from US 31 at this location.
 - Improvement Packages 4 and 6: CR 800 S was revised from a closure to an interchange. CR 850 S was revised from an interchange to a closure. These changes were made because of an updated urban area boundary from the U.S. Census, which allows for the placement of an interchange at CR 800 S that meets interchange spacing guidelines. This change is also consistent with the Miami County Comprehensive Plan.
 - Sharpsville Planning Segment
 - Improvement Packages 2, 3, and 4: CR 300 N was revised from a directional median opening (Package 2) or right-in/right-out intersection (Packages 3 and 4) to an overpass due to concerns regarding mobility across US 31. The public comments requested an overpass at CR 450 N; however, the overpass was incorporated at CR 300 N due to the greater east-west network connectivity offered at this location.
 - Improvement Package 3: CR 550 N was revised from a right-in/right-out intersection to a directional median opening due to concerns associated with access to/from US 31 at this location.
 - East Union Planning Segment
 - Improvement Packages 2, 3, and 5: CR 500 S was revised from a directional median opening (Package 2), right-in/right-out intersection (Package 3), and closure (Package 5) to an overpass due to concerns associated with east-west mobility across US 31 at this location.
 - Improvement Package 3: 296th Street was revised from a right-in/right-out intersection to a directional median opening due to concerns associated with access to/from US 31 at this location.
- The following information was updated to consider the changes made to Improvement Package(s):
 - Comparison matrices were updated to provide revised comparisons of safety & mobility benefits, environmental resource impacts, and planning-level costs for the affected planning segment.
 - Appendix A was updated to provide revised conceptual design footprints.
 - Appendix B was updated to provide revised planning-level cost estimates.
- The evaluation of environmental resources (see Section 3.6) and ability to meet study area goals (see Section 3.7) were updated to reflect the issuance of several Executive Orders (EOs) and one USDOT order, including:
 - Federal EOs: EO 14154, EO 14148, EO 14173, and EO 14281;
 - State EOs: EO 25-49, EO 25-37, and EO 25-14; and
 - USDOT Order 2100.7.

- INDOT received several questions and comments seeking clarification on the Improvement Package ratings. More specifically, there was confusion between the Recommended and Carried Forward ratings since both would require further consideration after the PEL study. To provide greater clarity, all Improvement Packages evaluated in the *Final Level 3 Screening Report* were rated as Eliminated or Carried Forward. Minor updates to the rating definitions were also made.
- A new section (**Section 5.1**) was added to discuss INDOT's long-term vision for US 31 in the study area. This information was added to clarify INDOT's long-term vision as well as the approach to studying a wide range of improvements and facility types as part of the ProPEL US 31 South study.
- **Appendix C** was added to include Level 3 Screening Report Comment/Response Matrices.

3 LEVEL 3 EVALUATION METHODOLOGY

3.1 STEP 1: DEFINE PLANNING SEGMENTS

While the Level 2 screening focused on primary intersections, the Level 3 evaluation expands to look at sections of the study corridor. The study corridor was divided into sections called planning segments. Planning segments are sections of the study area that function as a “system” to provide access and mobility within a geographic area. Intersections and roadway segments within these sections will be evaluated as a unit to maintain or improve mobility and safety within the planning segment. Planning segments provide a broader context for evaluating improvements in the Level 3 screening. This approach also helps to avoid potential negative impacts from focusing only on a single intersection without analyzing the impacts improvements or changes could have upstream and/or downstream within the segment.

Planning segments for the ProPEL US 31 South study area were identified using the following criteria:

- Which intersections function together to provide access to adjacent land?
- Which intersections would influence adjacent intersections if improved?
- Which intersections should be reviewed together to ensure continuity along US 31?
- Where do traffic volumes substantially change along US 31?
- Where does the land use context change along US 31?

Planning segments were named based on their geographic area. The planning segments for the US 31 South corridor are listed and depicted in **Figure 3-1**. Explanations of how these planning segments were defined is provided below. It is important to note that planning segments are not intended to be segments of independent utility with logical termini as required by the National Environmental Policy Act (NEPA) process.

3.1.1 MIAMI CENTRAL

The segment of US 31 between CR 300 N and US 24, referred to herein as the Miami Central Planning Segment, provides access to the portion of Miami County north of the city of Peru. Several commercial and industrial developments exist in the southern portion of this approximately 2.6-mile segment, while the northern portion of the segment is largely bordered by agricultural land uses. Traffic volumes along US 31 north of US 24 are substantially lower than those south of US 24. This planning segment contains three primary study intersections – US 31 & US 24, US 31 & CR 100 N, and US 31 & CR 200 N – along with two secondary intersections. There are no driveway connections to US 31 within this segment.

Improvements to the US 31 & CR 100 N intersection are expected to have impacts on the US 31/US 24 interchange and may have impacts on the US 31 & Eel River Cemetery Road intersection. Changes in access to any roadway in this segment will impact access to both the Miami County Fairgrounds and the proposed concert venue located in the southeast corner of the US 31 & CR 200 N intersection.

3.1.2 PERU

The Peru Planning Segment is approximately 4.6 miles in length. This segment of US 31 stretches from south of Business 31 to south of US 24, and it includes five primary study intersections that provide access to the city of Peru – US 31 & CR 400 S, US 31 & Business 31, US 31 & Airport Road, US 31 & Logansport Road, and US 31 & Blair Pike Road – along with three secondary intersections and 16 driveway connections to US 31. Changes in traffic control or access to any of these intersections are expected to impact traffic volumes to/from Peru at adjacent intersections; thus, the intersections have been evaluated as a planning segment. Land use in this planning segment includes a mix of residential and commercial development (at the US 31 intersections with CR 400 S, CR 300 S and Business 31), and with agricultural lands bordering the remainder of the planning segment. The intersection of US 31 & CR 400 S

is included in this planning segment because it is believed to be more closely associated with Peru than with the Grissom Planning Segment discussed below.

3.1.3 GRISSOM

The Grissom Planning Segment spans 4.9 miles of US 31 from south of CR 900 S to north of CR 500 S. Intersections in this planning segment collectively provide access to Maconaquah schools, Grissom Air Reserve Base, the Grissom Aeroplex, the Miami County Correctional Facility, and other commercial properties. Improvements or changes to any intersection within this area are expected to have upstream and downstream impacts on the adjacent intersections within this planning segment that should be considered in the planning process. This area also represents a context change along US 31, as spacing of crossroads and the presence of adjacent development are both greater in this planning segment than in the areas immediately adjacent to it. Four of the 18 primary study intersections are included in this planning segment – US 31 & CR 800 S, US 31 & SR 218 S Jct, US 31 & SR 218 N Jct, and US 31 & CR 500 S – along with six secondary intersections and 20 driveway connections to US 31.

3.1.4 MIAMI SOUTH

The Miami South Planning Segment spans US 31 from the Kokomo Bypass to south of CR 900 S. This planning segment consists of two distinct areas: the southern 1.5 miles of this segment are largely residential and provide access to the unincorporated community of Cassville; the northern 4.1 miles are largely rural in nature with adjacent land uses being primarily agricultural. These two areas are combined into one planning segment as the planning segment has only one primary intersection, US 31 & SR 18, 11 secondary intersections, and 14 driveway connections to US 31. No major traffic generators or destinations exist within this planning segment.

3.1.5 SHARPSVILLE

The portion of US 31 that spans from south of CR 200 S in Tipton County to the southern limit of the Kokomo Bypass provides access to the town of Sharpsville and is referred to as the Sharpsville Planning Segment. Land uses along this approximately 4.1-mile segment of US 31 are primarily agricultural. The southern limit of this planning segment was established as CR 200 S, as this is considered a dividing line between trips associated with Sharpsville and trips associated with Tipton. This planning segment contains one primary study intersection – US 31 & CR 550 N, five secondary intersections, and 17 driveway connections to US 31.

3.1.6 TIPTON

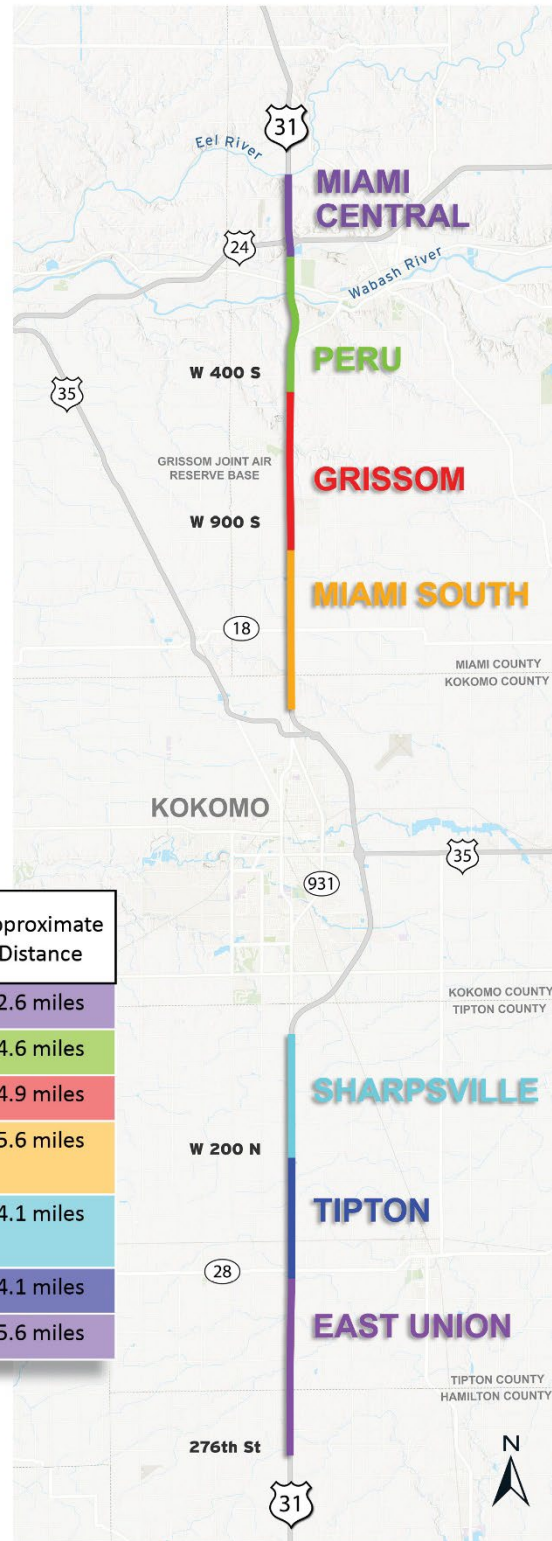
The Tipton Planning Segment spans approximately 4.1 miles in Tipton County from south of SR 28 to south of CR 200 S. This planning segment contains two primary study intersections – US 31 & SR 28 and US 31 & Division Road, three secondary study intersections, and 28 driveway connections. The intersections in this planning segment function as a system to provide access to the city of Tipton. Several industrial developments exist at the US 31 & SR 28 interchange, generating substantial traffic volumes. The remainder of this planning segment is largely bordered by agricultural land uses with a scattering of residential parcels.

3.1.7 EAST UNION

The East Union Planning Segment spans approximately 5.6 miles from 276th Street in Hamilton County to south of SR 28 in Tipton County. A large majority of the East Union Planning Segment is abutted by agricultural land uses. There are no major traffic generators in this segment. The primary study intersections of US 31 & 276th Street and US 31 & 296th Street are within this planning segment, along with six secondary study intersections and 30 driveways to US 31.

Figure 3-1: US 31 South Planning Segments

US 31 South Planning Segments



Planning Segment	Northern Limit	Southern Limit	Approximate Distance
Miami Central	Eel River	S of US 24	2.6 miles
Peru	S of US 24	S of CR 400 S	4.6 miles
Grissom	S of CR 400 S	S of CR 900 S	4.9 miles
Miami South	S of CR 900 S	US 31 & SR 931 N Jct	5.6 miles
Sharpsville	US 31 & SR 931 S Jct	S of CR 200 N	4.1 miles
Tipton	S of CR 200 N	S of SR 28	4.1 miles
East Union	S of SR 28	276th St	5.6 miles

3.2 STEP 2: ALTERNATIVES PRE-SCREENING

Through development and analysis of improvement alternatives at the primary intersections, the Level 2 screening was intended to identify the building blocks for the Level 3 screening. However, it did not consider combinations of different intersection improvements together within a planning segment. As the Level 3 analysis progressed, some alternatives carried forward from Level 2 were dismissed from further consideration at specific locations when included as part of a package of improvements. The following bullet points provide the general considerations for the dismissal of certain alternatives during the Level 3 screening. More detailed discussions of Level 2 alternatives not appearing in Level 3 Improvement Packages can be found in each planning segment discussion.

- **Quadrant Roadway Intersections:** The Level 2 screening recommended further consideration of quadrant roadway intersections at the CR 100 N, SR 18, and Division Road intersections. During the Level 3 screening, this intersection alternative was eliminated from further consideration in this study based on the following factors:
 - Potential right-of-way impacts.
 - Safety concerns related to retaining traffic signals on this high-speed rural corridor.
 - Stakeholder feedback regarding the desire to reduce and/or eliminate the number of traffic signals in the study area.
 - The Level 2 screening recommended multiple reasonable unsignalized intersection improvements at these locations.
- **Green-T Intersections:** More detailed traffic analysis was completed as part of the Level 3 screening. This analysis indicated that Green-T intersections would not operate acceptably without signalization. As a result, signalized Green-T intersections were eliminated from further consideration in this study. Unsignalized Green-T intersections were still considered when developing Improvement Packages.
- **Interchange spacing guidelines:** While defining Improvement Packages, several interchange alternatives were eliminated from further consideration in this study due to the interchange spacing guidelines (see **Section 3.3**). This affected the following intersections:
 - CR 200 N in the Miami Central Planning Segment.
 - CR 550 N in the Sharpsville Planning Segment.
 - 296th Street in the East Union Planning Segment.

3.3 STEP 3: DEFINE IMPROVEMENT PACKAGES

For each planning segment, comprehensive sets of intersection improvements were combined as Improvement Packages. Multiple Improvement Packages were developed for each planning segment. The following criteria were considered when forming the Improvement Packages:

- **Influence on adjacent intersections:** The influence of a potential intersection improvement on the adjacent intersections was considered. For example, if an interchange alternative was considered at a primary intersection, consolidation of access to/from US 31 through closure of adjacent secondary intersections was recommended along with it.
- **Interchange spacing guidelines:** A minimum interchange spacing of 3 miles in rural areas was used for this study. A minimum interchange spacing of 1 mile was used in urban areas.
- **Access management principles:** Driveway improvements and recommendations on the spacing of median openings were considered.
- **Improvements at secondary intersections:** There are numerous secondary intersections within the study limits where no detailed evaluation was performed in the Level 2 screening. Access management principles were considered in the Level 3 screening to align the improvements at intersections along the corridor with the appropriate access management strategies. The improvements to secondary intersections typically consist of restricting turning movements or closure of the intersection. Certain secondary intersections

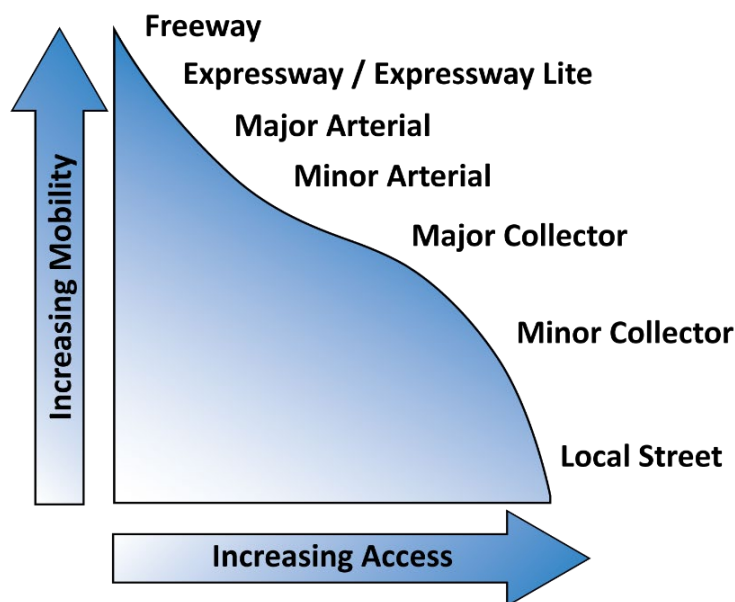
were considered for other intersection improvements when the location called for an access point or crossing location.

County transportation plans were also used to inform the intersection improvements in some of the Improvement Packages, especially regarding overpasses or interchanges in the packages with more access control.

A major consideration in the creation of Improvement Packages was the level of access management. According to FHWA, access management provides an important means of maintaining mobility. It calls for effective ingress and egress to a facility, efficient spacing and design to preserve the functional integrity, and overall operational viability of street and road systems. **Figure 3-2**, which has been adapted for use in this study, was created to conceptually illustrate the balance of mobility and access for different facility types. This figure depicts the balance between movement and access for roadways of various functional classifications. Higher order roadways, such as freeways and expressways, have a higher degree of access control to preserve their movement or mobility function.

A range of access control was also considered for the Level 3 Improvement Packages. INDOT classifies US 31 as a Major Arterial and designates it as a Tier 1 Mobility Corridor. Based on this classification and designation, the US 31 South study corridor should have a lower level of access to adjacent lands and should provide a high degree of mobility along the US 31 corridor, as indicated by **Figure 3-2**. This figure also indicates that local mobility and connectivity decreases as access control increases.

Figure 3-2: Mobility and Access Based on Functional Classification⁹



Source: https://ops.fhwa.dot.gov/access_mgmt/what_is_accsmgmt.htm

Currently, per INDOT’s access management guidelines, the level of access provided along US 31 within the study area is high due to the 54 intersections and 125 driveways within the US 31 South study area. Mobility along US 31

⁹ https://ops.fhwa.dot.gov/access_mgmt/what_is_accsmgmt.htm

is also considered to be high as mobility is interrupted only by the five signalized intersections within the study area. Mobility to/from and across US 31 benefits from these signalized intersections.

To better align corridor mobility and the level of access within the US 31 corridor, it is necessary to apply some level of access management improvements in conjunction with intersection treatments. The degree to which access is limited to achieve this balance must consider public opinion received to date, which generally lists a reduction in access to/from and across the US 31 corridor as a major concern.

This Level 3 screening process identified a range of facility types that can be applied to the US 31 South study corridor, as depicted in **Table 3-1**. These facility types, and their associated characteristics, are based on guidance found in the *INDOT Access Management Guide*¹⁰ and the *INDOT Driveway Permit Manual*¹¹. The table is arranged left to right from least access control (existing conditions) to most (full) access control.

Each intersection alternative advancing from the Level 2 screening is associated with one or more of the facility types listed in **Table 3-1**. These alternatives were then paired in various combinations, along with secondary intersections and roadway sections, to create Improvement Packages for each planning segment that represent each of the potential facility types. Improvements at secondary intersections and roadway sections were selected based on the guiding principles for access management provided in **Table 3-1**, as well as consideration of the improvements at the adjacent primary intersection(s). Due to the high number of combinations possible (i.e., several thousand Improvement Packages), it is not feasible to evaluate every permutation as part of this study. Professional judgment was used to create representative Improvement Packages for each planning segment of the study area that constitute a reasonable range of alternatives, including different facility types.

One of the facility types shown in **Table 3-1** is an expressway lite, which includes the following elements:

- No traffic signals.
- Partial control of access.
- Limited median openings for U-turn movements between intersections.
- Right-in/right-out only access for residential and commercial driveways.

The expressway lite facility type was developed in direct response to the public comments received throughout the study. Residents and other local stakeholders requested improved mobility through reduction or elimination of traffic signals without sacrificing accessibility to/from US 31. After considering these comments, the expressway lite facility type was developed to combine the driveway access aspects of arterial without signals (free flow) with the increased access management of expressway (free flow). Expressway lite, however, would have properly designed median U-turn opening(s) at select locations to reduce how far drivers must travel when turning movements are limited to right-in/right-out and/or directional medians. The inclusion of the median U-turn openings would be limited and evaluated on a case-by-case basis in each planning segment based on access and safety considerations. This evaluation would occur during the project development process.

¹⁰ https://www.in.gov/indot/files/guide_total.pdf

¹¹ <https://www.in.gov/indot/files/Driveway-Permit-Manual.pdf>

Table 3-1 Guiding Principles for Access Management in ProPEL US 31 South Improvement Packages

Characteristics	Higher Access to/from US 31 ←————→ Lower Access to/from US 31 Lower Mobility along US 31 ←————→ Higher Mobility along US 31 Lower Cost ————— Higher cost					
	Arterial w/ Signals	Arterial w/ Signals	Arterial w/o Signals	Expressway Lite	Expressway	Freeway
	No Build	Non-Free Flow	Free Flow	Free Flow	Non-Free Flow or Free Flow	Free Flow
Access Control	Minimal	Partial	Partial	Partial	Partial	Full
Signalized Intersections	Yes	Yes	No	No	Yes or No	No
Unsignalized Intersections	Yes	Yes	Yes	Yes	Yes	No
Median Openings* (Between intersections)	Allowed	Allowed (Reduced Quantity)	Allowed (Reduced Quantity)	Allowed (Limited Circumstances**)	Not Allowed	Not Allowed
Average Median Opening Spacing* (Intersections & Mid-Block Openings)	Varies	~0.25mile ¹²	~0.50 mile ¹³	Varies***	Varies***	None
Commercial Driveway Access	Full	Full	Full or RIRO	RIRO	None	None
Residential Driveway Access	Full	RIRO	RIRO	RIRO	None	None

Notes: RIRO = Right-in/Right-out intersection

*Refers to public median openings between intersections. For all improvement packages, including those with higher access control, median openings for emergency vehicles may be provided.

**Limited Circumstances – Median opening(s) between intersections will be limited to select locations and evaluated on a case-by-case basis in a planning segment to reduce the travel distance associated with limiting turning movements to right-in/right-out only and/or directional median openings. The median openings would include a properly designed U-turn opening to facilitate safe and efficient access for movements that are restricted by the median.

***Varies based on location and configuration of major intersections.

¹² Suggested average access spacing per [2023 FDOT Multimodal Access Management Guidebook](#).

¹³ Ibid.

3.4 STEP 4: EVALUATE SAFETY AND MOBILITY

3.4.1 SAFETY ANALYSIS

The safety performance of each Improvement Package was determined through a multistep process that started with identification of conflict points. Conflict points represent locations where vehicle paths intersect at driveways, intersections, or interchanges. Reductions in conflict points are associated with improvements in safety, as fewer conflict points result in fewer locations where crashes can occur. Conflict points are generally grouped into three categories:

- **Merging:** One vehicle path merges with another. *Example: Right-turn movement from a side street merges with traffic on the major road.*
- **Diverging:** Two vehicle paths separate from each other. *Example: Right-turn movement and through movements from US 31 diverge at an intersection.*
- **Crossing:** Opposing vehicle paths cross. *Example: Left-turn movement crosses the opposing through movement at a four-legged intersection.*

In general, the likelihood of crashes occurring at an intersection can be decreased as conflict points are eliminated; however, the total number of conflict points is a much less significant safety metric than the type/severity of crashes at a conflict point. Crossing conflict points pose the highest risk for severe right-angle crashes, while merging and diverging conflict points commonly result in non-severe crashes. Therefore, the focus of the Level 3 crash analysis was to understand to what extent different Improvement Packages would reduce or eliminate crossing conflict points.

The total number of crossing conflict points at the primary and secondary intersections was summed for each Improvement Package. This allowed the number of crossing conflict points in each Improvement Package to be compared to that of the No-Build scenario. The percent reduction in total crossing conflict points compared to the No-Build scenario was then applied to the number of crashes that previously occurred over a five-year period at the existing crossing conflict points in each planning segment. This provided an estimate of the potential reduction of right-angle crashes due to the implementation of each Improvement Package over a period of 20 years. It should be noted that even if all mainline crossing conflict points are eliminated with a certain Improvement Package (e.g., a freeway package), there could still be severe crashes from other crash types.

A Cost-Effectiveness Index (CEI) also was then used to compare the safety performance of each Improvement Package. The CEI, which here represents the average cost to reduce one crossing crash, is calculated by dividing the total estimated cost of the Improvement Package (using the average of the high and low estimate) by the number of potential crossing crashes reduced by the implementation of the Improvement Package. This index provides a means to compare the safety benefits of each Improvement Package, with the lowest CEI value representing those Improvement Packages that are most cost-effective from a safety standpoint. A lower CEI value is more cost-effective than a higher CEI value.

3.4.2 MOBILITY ANALYSIS

3.4.2.1 *Travel Time Along US 31*

Travel time along US 31 was calculated by adding travel time at the posted speed limit and the average AM and PM peak hour delay values associated with northbound and southbound approaches at primary intersections, as determined from the capacity analysis. Delay is incurred on the northbound or southbound approaches only when the approach must stop or yield to cross street traffic at a traffic signal or roundabout. No delay is incurred on the northbound or southbound approaches at intersection types that do not require US 31 motorists to stop or yield to cross street traffic, such as two-way stop-controlled intersections, RCIs, or interchanges. Secondary intersections in the US 31 South study area are excluded from this estimation of travel time along US 31, as these intersections do

not require US 31 traffic to stop or yield to cross street traffic. This method allows for comparison of travel times for each Improvement Package.

3.4.2.2 Access Points and Crossing Points

Public input placed high importance on the ability to access US 31 and the ability to cross US 31. These two aspects were compared for each Improvement Package to determine how access is impacted. The approximate spacing of median openings (see **Section 3.3**) was used to determine the average number of access points per mile and the average number of crossing points per mile for each Improvement Package. Access points and crossing points are defined as follows:

- Access point – Crossroad providing access to/from US 31 but no ability to cross US 31 (i.e., right-in/right-out).
- Crossing Point – Crossroad providing the ability to cross US 31 where access to/from US 31 may also be provided (e.g., Reduced Conflict Intersection).

3.4.2.3 Driveway Impacts

The US 31 South study area includes 125 driveways providing access to adjacent land. The level of access provided at these driveways greatly exceeds current access management guidelines. Each Improvement Package includes changes to driveway access to better align the level of access control with INDOT’s current access management guidelines, which is reflected in the guiding principles for access management established in **Section 3.3**. The number of each type of driveway (e.g., full access, right-in/right-out) is compared for each Improvement Package to understand the impact of each Improvement Package on adjacent developments.

3.4.2.4 Changes in East-West Mobility

Multiple Improvement Packages reduce or eliminate driveway access, median openings, and east-west movements at intersections, or eliminate entire intersections to align with the guiding access management principles established in **Section 3.3**. The reduction or elimination of these access or crossing points results in adverse travel for users seeking to access or cross US 31 from the east or west. Using the potential driveway access, median spacings, and intersection types, east-west mobility for each Improvement Package was ranked as follows:

- Similar – Mobility for east-west trips is similar to that of the No-Build alternative. Under this ranking, direct access to driveways and crossroads may be reduced, but regularly spaced intersections and median openings will provide mobility similar to the No-Build condition.
- Decreased – Mobility for east-west trips is decreased with most median openings and all driveway connections removed. A significant number of intersections are changed to right-in/right-out with access across US 31 limited to primary intersections.
- Greatly Decreased – Mobility for east-west trips is greatly decreased with all median openings and driveway connections removed. The majority of intersections are closed with access to/from/across US 31 limited to interchange or overpass locations.

3.4.3 SAFETY AND MOBILITY MEASURES OF EFFECTIVENESS

Table 3-2 summarizes the safety and mobility measures of effectiveness evaluated for each Improvement Package within each planning segment.

Table 3-2 Safety and Mobility Measures of Effectiveness

	Measure of Effectiveness	Unit	Description
Safety	Total Conflict Points	#	Reducing the number of conflict points will improve safety by reducing the exposure to crashes. See Section 3.4.1 .
	Crossing Conflict Points	#	Crashes involving vehicles crossing the mainline tend to be more severe than right turning crashes. A reduction in the number of crossing conflict points will improve safety by decreasing the potential of severe crashes. See Section 3.4.1 .
	% Reduction in Crossing Conflict Points	%	Similar to the above, this calculation provides the amount of reduction (and therefore reduction in potential future crashes) for crossing conflict points.
	Estimate of Crossing Crashes Prevented (20 yrs)	#	Historic crash data for the planning segments was used to estimate the number of crossing crashes that may be prevented by each Improvement Package over the 20-year life of the improvement.
	Cost-Effectiveness Index (CEI)	#	CEI provides a means to compare the safety benefits of each Improvement Package, with the lowest CEI value representing those Improvement Packages that are most cost-effective from a safety standpoint.
Mobility	Average Travel Time along US 31	Min	A combination of the travel time for motorists through the planning segment traveling at the posted speed limit, as well as any delay associated with the primary intersections within the segment during the AM/PM peak hours. See Section 3.4.2 .
	Average Distance between US 31 Access Points	Mi	The average distance in miles along US 31 between primary and secondary access points in a given planning segment. This value serves as a general gauge of the level of access provided to US 31 and is one measurement of local mobility.
	Average Distance between US 31 Crossing Points	Mi	The average distance along US 31 between available east-west crossing points within each planning segment. This value serves as a general gauge of the amount of access provided across US 31 and is one measurement of local mobility.
	Residential Driveways (RIRO vs Full)	#/#	Each package provides a specific treatment for driveways within the planning segment. This value shows the quantity of each type of residential driveway (RIRO or full) in each Improvement Package.
	Commercial Driveways (RIRO vs Full)	#/#	Each package provides a specific treatment for driveways within the planning segment. This value shows the quantity of each type of commercial driveway (RIRO or full) in each Improvement Package.
	Field Access (RIRO vs Full)	#/#	Each package provides a specific treatment for driveways within the planning segment. This value shows the quantity of each type of field entrance (RIRO or full) in each Improvement Package.
	E-W Mobility Compared to No Build	Ranking	The reduction or elimination of driveways, medians, and access or crossing points results in reduced mobility for users seeking to access or cross US 31 from the east or west. This value qualitatively ranks the relative east-west mobility for each package in comparison to the No-Build condition.

3.5 STEP 5: REFINE CONCEPTUAL DESIGN & ESTIMATE COSTS

3.5.1 CONCEPTUAL DESIGN PROCESS

The Level 2 screening report provided a high-level estimation of improvement limits (i.e., a footprint) for each primary intersection. These conceptual designs were advanced during the Level 3 screening process to:

- Revise the conceptual design and associated footprint at the primary intersections, as needed, to consider results of the safety and mobility analysis described in **Section 3.4**, as well as the overall context of each Improvement Package;
- Detail improvements at secondary intersections;
- Avoid and minimize adverse impacts to the human and natural environment; and
- Minimize costs.

Efforts were made to avoid and minimize adverse impacts to the human and natural environment to the extent feasible for a planning study. When avoidance was infeasible, minimization measures (e.g., retaining walls) were incorporated, where possible, to avoid impacts to notable environmentally sensitive areas (e.g., historic properties, cemeteries, and sensitive communities).

For each intersection improvement within each Improvement Package, a conceptual design was developed. The conceptual design included a construction footprint that was used to estimate potential right-of-way limits so that potential impacts were not understated. The resulting footprints and associated potential right-of-way limits of the conceptual designs are provided in **Appendix A**. The construction footprint was developed by providing a buffer beyond the estimated construction limits. This wider area was developed to account for the preliminary nature of the conceptual design and to account for inevitable changes that occur as future projects advance through more detailed design. The construction footprint was used to estimate potential right-of-way needs with the exception of relocations, which were estimated based on the construction limits and loss of access.

Right-of-way requirements for each of these conceptual designs were estimated from the anticipated construction limits. Parcel boundaries were obtained from the Indiana Geographic Information Office¹⁴ for the entire study area. Engineering judgment was applied to this information to determine the impacts to each parcel. Several Improvement Packages do not allow driveway access to/from US 31. Non-agricultural parcels that currently have driveways to US 31 are assumed to be total acquisitions in these Improvement Packages. Agricultural parcels with driveway access to/from US 31 were assumed to have feasible alternative access to avoid the need for total acquisition. Future studies may evaluate means to provide alternative access to impacted parcels that eliminates the need for total acquisition. Additionally, there are several areas where the cross-street right-of-way is unclear or unknown. When more detailed design is prepared for the specific intersection treatments in future studies, the potential right-of-way impacts may be reduced.

3.5.2 COST ESTIMATING

Planning-level construction and right-of-way acquisition costs were estimated for each of the Improvement Packages. Quantities for major construction items (e.g., pavement, earthwork, retaining walls, bridges) were estimated using the conceptual designs. Current unit prices were applied to these quantities to estimate construction costs. The costs associated with unquantified items (e.g., drainage, traffic items, ancillary construction activities) were estimated based on INDOT historical bid data and applied as a percentage of the construction subtotal. Soft costs (e.g., preliminary engineering, construction engineering, mobilization/demobilization, etc.) were computed as percentages of the construction subtotals based on experience for similar types of projects in Indiana as well as guidance in the *INDOT Design Manual*. A range of estimated construction costs was developed based on

¹⁴ <https://www.indianamap.org/datasets/INMap::parcel-boundaries-of-indiana-current/about>

the application of an appropriate contingency for the level of design detail developed as part of a transportation planning study. The contingency was verified through an independent assessment of risk.

Right-of-way acquisition costs were estimated for all non-agricultural use parcels based on assessed values obtained from the property assessor's website of each county. These assessed values were inflated by 20% to better represent market values. Agricultural use parcels were valued on a per-acre basis using current sales data for each county. Relocation costs and real estate consultant fees were estimated based on a working knowledge of INDOT right-of-way acquisition processes. It is expected INDOT will have residuals available for sale after completion of any project that requires substantial right-of-way acquisition (i.e., freeway and expressway Improvement Packages). The value of these residuals has not been accounted for in the cost estimating of this study. The cost to acquire all necessary acreage to construct the Improvement Packages has been accounted for in this study; however, only the acreage needed for permanent right-of-way is included in the comparison matrices of this report. Business damages may result from access changes considered in this Level 3 screening. These costs are considered too detailed for this planning study and should be evaluated in future NEPA and/or design phases of any project.

All estimated costs listed in this report are provided in 2024 dollars. Inflation of costs to a year of expenditure was not possible as the timeline for any projects resulting from this PEL study is not yet known. The planning-level cost estimates should be revisited as additional detail is developed and as statewide priorities and funding availability become clearer. Planning-level cost estimates are provided in **Appendix B**.

All cost estimates shown in this report do not include pavement replacement or resurfacing outside the intersection improvement areas. It can be assumed that replacement of pavement between intersections may cost approximately \$14 million per mile of existing cross section if needed for any of the Improvement Packages that move forward from the PEL study. Asset condition at that time is assumed to dictate what is needed between intersections.

3.6 STEP 6: EVALUATE ENVIRONMENTAL RESOURCE IMPACTS

Environmental resources within the study area were identified in the *ProPEL US 31 South Environmental Constraints Report* (<https://propelus31.com/31doclibrary>) and supplemented through public and stakeholder engagement and coordination with resource agencies. Environmental resources within the study area include natural resources, cultural resources, and community/socioeconomic resources, as outlined in **Table 3-3**.

During the Level 2 screening, potential alternatives at the primary intersections were modified to avoid or minimize substantial impacts to known environmental resources. These modifications ranged from minor shifts in the alignment to shifting entire intersections north, south, or east.

As part of the Level 3 screening, each package was analyzed against known environmental constraints within each planning segment to determine the potential impacts¹⁵. When possible, impacts were calculated via spatial analysis using ArcGIS software and quantified by acreage, linear feet, or count. Otherwise, potential impacts were qualitatively assessed utilizing the refined conceptual designs. Impacts to environmental resources are identified in graphics provided in **Appendix A**. Note, any project that is carried forward from this study that would span two or more segments would require additional analysis during the project development process.

The potential impacts presented in this Level 3 screening are preliminary and reflect the level of design available at this time. Throughout the screening process, a conservative approach was taken, and it is anticipated that impacts may be further minimized and/or avoided at a more detailed level of design after this PEL study. Impacts estimated for this screening are direct/permanent impacts; there may be additional construction-related impacts that involve

¹⁵ The analysis was updated to consider the issuance of several federal and state Executive Orders (EOs), as well as one USDOT order. See Section 2.4 for additional information.

temporary or short-term changes that are beyond the scope of this planning-level study. Potential issues related to environmental resources are noted below and will be documented in the final *PEL Study Report* at the end of this study. Additional details and evaluation would typically be developed during the NEPA process, which occurs during INDOT’s traditional project development process for projects using federal funds or requiring federal approvals.

As noted in **Section 1.4.2**, the *Draft Level 2 Screening Report* was published for public review and comment. Specific comments received within each planning segment have been summarized to further aid in the analysis of the Improvement Packages.

Table 3-3: Environmental Resources and Measurement of Impacts

Environmental Resources		Evaluation Parameters Per Package
Natural Resources	NWI Wetlands ¹	Acres impacted
	Rivers and Streams	Linear feet impacted
	Floodplain	Acres impacted
	Forested Areas	Acres impacted
Cultural Resources ²	Aboveground Resources	Potential for adverse impacts to aboveground cultural resources? (Yes/No) Are these direct or proximity impacts? (Direct/Visual)
	Known Archaeological Sites	Are there any known archaeological sites that may be impacted? (Yes/No)
	Cemeteries	Number of cemeteries that may be impacted
Community/ Socio-economic	Residential Relocations	Number of residential relocations
	Business Relocations	Number of business relocations
	Total New Right-of-Way Acquisition (Acres)	Number of acres of new right-of-way acquisition required for construction, operation, and maintenance. Excludes acreage of additional new right-of-way from relocations that could be considered excess property and sold off at project completion.
	Title VI / Community Impact Analysis	
	Acres Impacted ³	Acres of new right-of-way impacted within sensitive communities compared to overall acres impacted
	Relocations	Number of relocations within sensitive communities compared to overall relocations
	Risk of Greater Impacts to Sensitive Communities	Potential risk of greater impacts to sensitive communities? (Yes/No)
Community/ Socio-economic	Farmland	
	Acres ⁴ impacted	Acres of farmland impacted
	Access Impacts	Potential for access impacts including direct impacts to farm field entrances along the corridor and access impacts to and/or across US 31 (Yes/No)
	Other Section 4(f) Resources ⁵	Are there any other Section 4(f) resources that may be impacted? (Yes/No)
	Potential Hazardous Materials Sites	Number of sites impacted

1. Impacts to National Wetlands Inventory (NWI) mapped resources. Formal water resources identification and wetlands delineations must occur during the NEPA process for any project(s) that move forward from the study.
2. Eligible historic sites as determined in the ProPEL US 31 South's Above-Ground Cultural Resources Identification Memorandum and Archaeological Cultural Resources Identification Memorandum.
3. Only the acreage needed for permanent right-of-way is included in the analysis. Impacts may be higher than reported due to total acquisition due to loss of access.
4. Farmland impacts were analyzed through parcel data supplemented by GIS aerial reviews of active farmland.
5. Historic sites listed or eligible for listing on the National Register of Historic Places have been identified separately (see Cultural Resources section above). Additional Section 4(f) resources include public parks, recreation areas, and wildlife/waterfowl refuges.

3.7 STEP 7: EVALUATE STUDY GOALS

Table 3-4 illustrates how study area goals were considered as part of the Level 3 screening. In most cases, the measures of effectiveness used to comparatively evaluate Improvement Packages were also used to consider study area goals¹⁶.

Using the criteria identified in **Table 3-4**, qualitative ratings for each study area goal were assigned to each Improvement Package. The following defines the ratings used for each goal:

- **Greatly Diminishes** – High negative performance in majority of performance measures.
- **Diminishes** – Negative performance in multiple measures of effectiveness; may include no change or minor positive performance in some measures.
- **Neutral** – Performance varies; some positive performance and some negative performance OR factor/condition not present OR further information needed to assess.
- **Enhances** – Positive performance in multiple measures of effectiveness; may include no change or minor negative performance in some measures.
- **Greatly Enhances** – High positive performance in majority of performance measures; no negative performance measures.

The goal of fiscal and environmental practicality was evaluated using the following ratings:

- **Low** – Low cost-effectiveness combined with relatively high impacts to community and environmental resources.
- **Moderate** – Moderate cost-effectiveness combined with relatively moderate impacts to community and environmental resources.
- **High** – High cost-effectiveness combined with relatively low impacts to community and environmental resources.

This methodology was consistently applied to each planning segment considered in the Level 3 analysis.

¹⁶ The analysis was updated to consider the issuance of several federal and state Executive Orders (EOs), as well as one USDOT order. See Section 2.4 for additional information.

Table 3-4: Level 3 Screening Evaluation of Study Area Goals

Study Area Goal	How Measured?	How Considered as Part of the Level 3 Screening?
Economic Development	Support the existing economy and/or planned economic development through improved safety, mobility and/or access.	<ul style="list-style-type: none"> • % Reduction in Crossing Conflict Points • Estimate of Crossing Crashes Prevented (20 years) • Avg. Travel Time Along US 31 During AM/PM Peak Hour (minutes) • Average Distance Between US 31 Access Points (miles) • Average Distance Between US 31 Crossing Points (miles) • Change in E-W Mobility Relative to No Build
Transportation for All	Improve safety, mobility, or access for all communities, including sensitive communities.	<ul style="list-style-type: none"> • Criteria listed above under Economic Development. • Sensitive communities present? • Potential risk of greater impacts to sensitive communities?
Multi-Modal Access and Connections	Include sidewalk, trails, or other non-motorized methods of travel and transit.	<ul style="list-style-type: none"> • Bicycle and pedestrian facilities were designated as a Design Element during the Universe of Alternatives (Level 1) screening. As a result, no specific performance measures were identified and evaluated as part of the Level 2 or Level 3 screenings. • To assess an Improvement Package’s performance related to this goal, three factors were considered. <ul style="list-style-type: none"> ○ Are there existing bicycle/pedestrian facilities? ○ Do local plans identify any planned bicycle/pedestrian facilities? ○ How are the existing/planned facilities considered as part of the Improvement Package?
Emerging Technologies	Has the potential to interact with connected vehicles and/or support alternative fuel initiatives.	<ul style="list-style-type: none"> • In general, none of the Improvement Packages would impact the ability to implement autonomous and connected vehicles. Additionally, none would preclude alternative fuel initiatives.
Fiscal & Environmental Practicality	Expected to not have substantial environmental impacts and to have good returns on the investments.	<ul style="list-style-type: none"> • Cost-Effectiveness Index • Impacts to natural resources • Impacts to cultural resources • Residential and business relocations • Total new right-of-way acquisition • Potential risk of greater impacts to sensitive communities • Impacts to farmland and/or farmland access

3.8 STEP 8: EVALUATE IMPROVEMENT PACKAGES

All the different measures for safety and mobility, impacts to environmental resources, and costs are summarized in a table for each Improvement Package within each planning segment. This allows for relative comparisons between the Improvement Packages within a planning segment. Using this information, each Improvement Package was rated using the following terminology and definitions:

- **Eliminated** = Meets the purpose and need established with this study; however, the Improvement Package is considered unreasonable due to limited benefits compared to its impacts and/or costs. It does not warrant consideration as part of any subsequent NEPA studies in this planning segment unless conditions in the study area significantly change in the future (e.g., changes in land use, changes in baseline environmental and/or traffic conditions, etc.).

- Carried Forward = Meets the purpose and need established with this study and is considered reasonable at this stage of planning. The Improvement Package warrants consideration as part of any subsequent NEPA and project development studies in this planning segment.

While it would not fully meet the identified needs, the No-Build alternative would be required to be considered in any subsequent environmental reviews conducted in accordance with the NEPA process and will, therefore, be carried forward in all planning segments.

4 LEVEL 3 SCREENING

4.1 MIAMI CENTRAL PLANNING SEGMENT

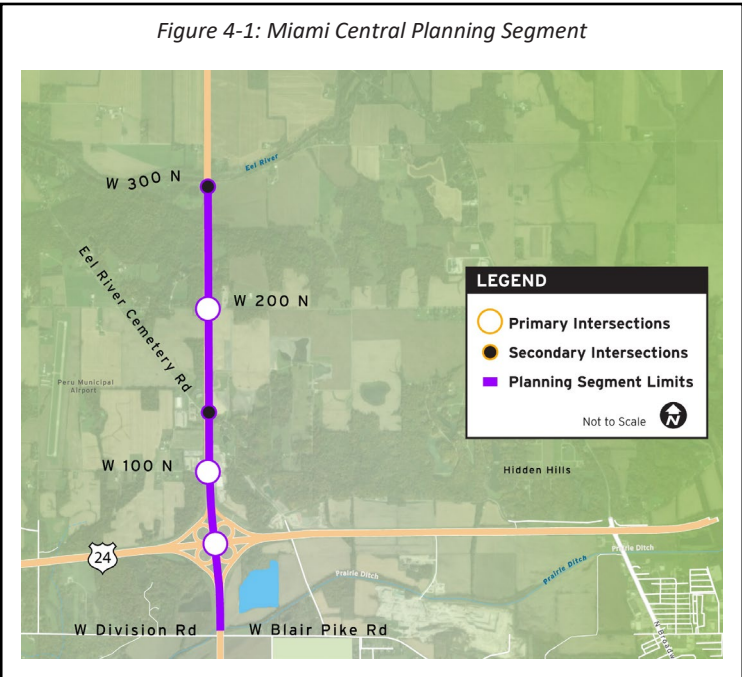
4.1.1 IMPROVEMENT PACKAGES

The alternatives advancing from the Level 2 screening were organized into five Improvement Packages for the Miami Central Planning Segment depicted in **Figure 4-1**. These packages, listed in **Table 4-1** and depicted in **Figure 4-2**, follow the methodology discussed in **Section 3.3**. Alternatives for minor intersections in each Improvement Package were selected based on a review of the adjacent land uses, consideration of improvements at adjacent intersections, and the guiding principles for access management listed in **Section 3.3**. The footprints of each of these alternatives are depicted in **Appendix A**.

Although an interchange alternative for the CR 200 N intersection passed the Level 2 screening, it was eliminated from further consideration in Level 3 due to interchange spacing guidelines. As part of the ProPEL US 31 North study, an interchange is included at CR 400 N as it is the primary access point for the town of Mexico. Due to the proximity of the planned interchange at CR 400 N (approximately 2 miles away) and the existing US 24 interchange (approximately 1.5 miles away), an interchange alternative at CR 200 N was not included as part of the Improvement Packages for the Miami Central Planning Segment.

This planning segment is unique within the study area as it contains no existing driveways or median openings between intersections. Additionally, none of the Improvement Packages include modifications to the US 24 interchange since no existing or projected issues were identified at that location.

Where applicable, all packages include lengthened left-turn lanes to satisfy current design criteria and provide acceleration lanes along US 31 when departing from primary intersections. Providing these lanes results in widening of the US 31 southbound bridge over Eel River and both US 31 bridges over the Wabash River in multiple packages. These costs are included in the cost estimates.



4.1.1.1 Package 1

Package 1 replaces the existing traffic signal at CR 100 N with an RCI, which is expected to address crash history and create free-flow conditions along US 31. The southbound U-turn lane of the RCI at CR 100 N requires realignment of the westbound US 24 to northbound US 31 ramp. The northbound lane at CR 425 W / Eel River Cemetery Road is extended to meet design criteria and a southbound left-turn lane is added. Left-turn lanes are provided at CR 300 N, which requires widening of the US 31 southbound bridge over the Eel River.

4.1.1.2 Package 2

Package 2 converts all median openings, including the signalized intersection at CR 100 N, to directional median openings. These improvements are intended to improve safety by reducing the number of crossing conflict points.

East-west movement in this package is limited to US 24. This package also includes realignment of the westbound US 24 to northbound US 31 ramp.

4.1.1.3 Package 3

Package 3 represents an expressway type of facility. In this package, the CR 200 N intersection is converted into a directional median opening allowing for left turn movements from US 31 and all other existing at-grade intersections are converted to right-in/right-out access only. This results in the US 24 interchange being the only location in this planning segment that provides for east-west movement. This package is intended to improve traffic flow and safety by eliminating the lone existing traffic signal in this planning segment and by substantially reducing the potential for crossing crashes. An interchange at CR 200 N, which is called for in the Miami County Comprehensive Plan, cannot be provided due to spacing between the US 24 interchange and a potential interchange at CR 400 S, which is being considered by the US 31 North PEL study.

An expressway lite facility was not considered as no driveways exist in this planning segment.

4.1.1.4 Package 4

Package 4 represents a freeway alternative in which access to US 31 is limited to the existing interchange at US 24. An overpass is provided at CR 200 N, and all other intersections are closed. This improvement is intended to maximize traffic flow and safety in the planning segment. East-west mobility in this package is provided at US 24 and at CR 200 N. No driveway access or median openings are provided in this package.

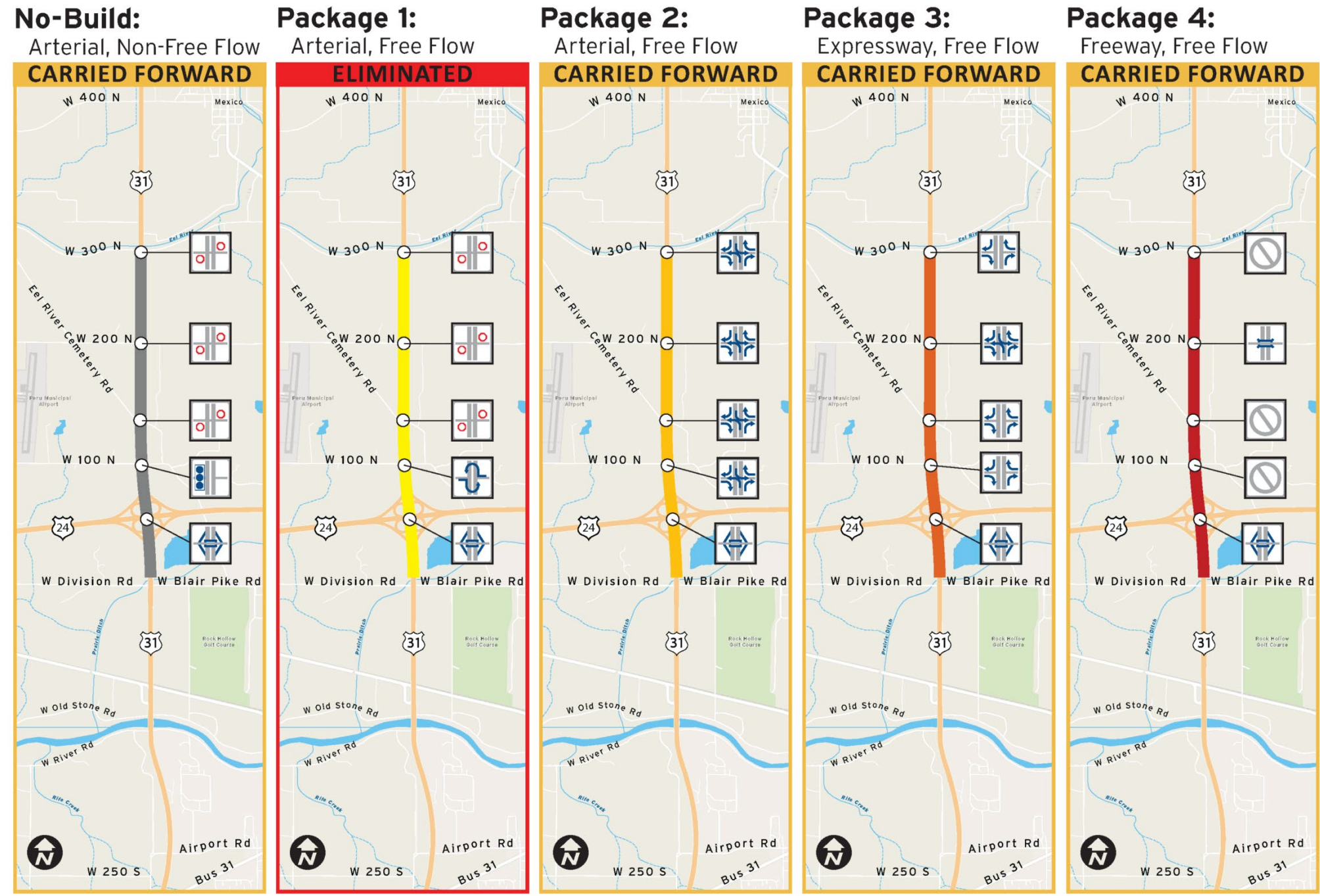
Table 4-1: Miami Central Planning Segment Improvement Packages

Improvement Package		No-Build	Package #1	Package #2	Package #3	Package #4	
US 31 Facility Type & Traffic Conditions		Arterial Non-Free Flow	Arterial Free Flow	Arterial Free Flow	Expressway Free Flow	Freeway Free Flow	
Characteristics		Higher Access to/from US 31 Lower Mobility along US 31 Lower Cost				Lower Access to/from US 31 Higher Mobility Along US 31 Higher Cost	
Miami Central	CR 300 N	TWSC	TWSC	Directional	RIRO	Closed	
	CR 200 N	TWSC	TWSC	Directional	Directional	Overpass	
	CR 425 W / Eel River Cemetery Rd	TWSC	TWSC	Directional	RIRO	Closed	
	CR 100 N	Signal	RCI	Directional	RIRO	Closed	
	US 24	Existing Interchange	Existing Interchange	Existing Interchange	Existing Interchange	Existing Interchange	
Commercial Drives		Full Access	Full Access	RIRO Only	No Access	No Access	
Residential Drives		Full Access	RIRO Only	RIRO Only	No Access	No Access	
Median Openings (Between Intersections)		Allowed	Allowed	Allowed	Not Allowed	Not Allowed	

Note: Primary intersections are indicated in bold text.

There are no existing driveways in this planning segment, which negates the need to consider an expressway lite facility.

Figure 4-2: Miami Central Planning Segment Improvement Packages



NOTE:
No driveways exist in this segment, negating the need for an Expressway Lite alternative.

○ = Intersection of Study

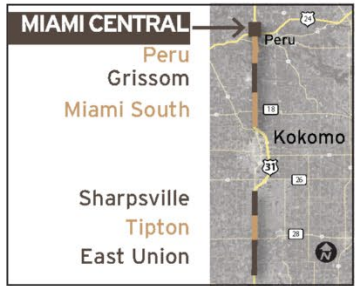
INTERSECTION TYPES:

- = Two-Way Stop Controlled Intersection
- = Directional Median Opening (RIRO + Left Turns from US 31)
- = Overpass
- = Right-In/Right-Out Intersection
- = Reduced Conflict Intersection (Unsignalized)
- = Interchange
- = Signal
- = Intersection Closed

ACCESS CONTROL METHODS:

- = MINIMAL ACCESS CONTROL, driveways have full access, median openings are provided
- = PARTIAL ACCESS, all residential driveways are RIRO, commercial driveways may have full access, select median openings provided
- = PARTIAL ACCESS, all driveways are RIRO, select median openings provided
- = LIMITED ACCESS, no driveway access or median openings

KEY MAP:



4.1.2 COMPARISON MATRIX

Table 4-2: Miami Central Planning Segment Comparison Matrix

	Measurement of Effectiveness	No-Build	Packages				
			#1	#2	#3	#4	
	US 31 Facility Type & Traffic Conditions	Arterial Non-Free Flow	Arterial Free Flow	Arterial Free Flow	Expressway Free Flow	Freeway Free Flow	
Purpose and Need	Safety	Total Conflict Points (number)	190	172	70	46	22
		Crossing Conflict Points (number)	102	82	22	10	6
		% Reduction in Crossing Conflict Points	0%	20%	78%	90%	94%
		Estimate of Crossing Crashes Prevented (20 yrs)	0.0	6.3	25.1	28.9	30.1
		Cost-Effectiveness Index (CEI)	N/A	4.9	0.8	0.7	0.8
	Mobility	Average Travel Time Along US 31 (min) During AM/PM Peak Hour	2.8	2.6	2.6	2.6	2.6
		Average Distance between US 31 Access Points (miles)	0.5	0.5	0.5	0.7	2.6
		Average Distance between US 31 Crossing Points (miles)	0.5	0.5	0.5	1.3	1.3
		Residential Driveways, RIRO/Full (number)	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0
		Commercial Driveways, RIRO/Full (number)	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0
		Field Access Driveways, RIRO/Full (number)	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0
		E-W Mobility Compared to No Build	N/A	SIMILAR	SIMILAR	DECREASED	GREATLY DECREASED
	Environmental Resources	Natural	NWI Wetlands (acres impacted)	0	0	0	0
Rivers and Streams (linear feet impacted)			0	0	0	7	71
Floodplain (acres impacted)			0	0	0	0	<0.1
Forested Areas (acres impacted)			0	<1	<1	<0.5	3
Cultural		Potential Impacts to Aboveground Resources (Yes/No)	NO	NO	NO	NO	NO
		Potential Impacts to Known Archaeological Sites	NO	NO	NO	NO	NO
		Cemeteries (number)	0	0	0	0	0
Community / Socioeconomic		Residential Relocations (number)	0	0	0	0	1
		Business Relocations (number)	0	0	0	0	0
		Total New Right-of-Way Acquisition (acres)	0	2	2	1	7
		Sensitive Communities (acres)	0	0	0	0	0
		Sensitive Communities (potential relocations)	0	0	0	0	0
		Potential Risk of Greater Impacts to Sensitive Communities	NO	NO	NO	NO	NO
		Farmland (acres impacted)	0	<0.5	<0.5	<0.5	4
		Farmland (Access Impacts, Yes/No)	NO	NO	NO	YES	YES
		Potential Impacts to Other Section 4(f) Resources	NO	NO	NO	NO	NO
Potential Hazardous Materials Sites (number)		0	1	2	2	2	
Cost Estimates	Estimated Construction Cost (2024 Dollars)	\$0	\$21M to \$29M	\$12M to \$18M	\$12M to \$18M	\$15M to \$21M	
	Estimated Right-of-Way Cost (2024 Dollars)	\$0	\$100K to \$300K	\$200K to \$300K	\$200K to \$300K	\$600K to \$900K	
	Estimated Total Package Cost (2024 Dollars)	\$0	\$26M to \$36M	\$15M to \$22M	\$15M to \$22M	\$19M to \$26M	
Study Goals	Economic Development	N/A	ENHANCES	GREATLY ENHANCES	ENHANCES	NEUTRAL	
	Transportation for All	N/A	NEUTRAL	NEUTRAL	NEUTRAL	NEUTRAL	
	Multi-Modal Access & Connections	N/A	NEUTRAL	NEUTRAL	NEUTRAL	NEUTRAL	
	Emerging Technologies	N/A	NEUTRAL	NEUTRAL	NEUTRAL	NEUTRAL	
	Fiscal & Environmental Practicality	N/A	LOW	MODERATE	MODERATE	MODERATE	
Level 3 Screening Result		CARRIED FORWARD	ELIMINATED	CARRIED FORWARD	CARRIED FORWARD	CARRIED FORWARD	

Note: Total package costs include soft costs (e.g., preliminary engineering, construction engineering, etc.), which are not included in the table above.

The assessments of these planning packages are described in the following sections, and all reference **Table 4-2**.

4.1.3 SAFETY ASSESSMENT

All packages are expected to improve safety over the No-Build alternative based on reductions in total conflict points, crossing conflict points, and estimates of crossing crashes prevented. Packages 2 through 4 are expected to prevent far more crashes than Package 1, with Package 4 edging out Package 3 as the best in this category.

The CEI of Packages 2, 3, and 4 are similar and more than five times better than the CEI of Package 1. While Package 3 provides a safety performance that nearly equals that of Package 4, it has a slightly lower cost due to allowing right-in/right-out access at multiple intersections.

4.1.4 MOBILITY ASSESSMENT

4.1.4.1 *Travel Time Along US 31*

The current travel time through the Miami Central Planning Segment is 2.8 minutes on average during the peak hours. Travel time in this segment is impeded only by the traffic signal at CR 100 N. Removal of this traffic signal, as represented in all packages, is expected to reduce the travel time by an average of 0.2 minutes (7%).

4.1.4.2 *Access Points & Crossing Points*

The spacing of access points is consistent with the No-Build conditions in Packages 1 through 3, while Package 4 increases this spacing more than fivefold as access to US 31 in this package is restricted to the US 24 interchange. The average distance between crossing points of US 31 is greatest in Packages 3 and 4 where east-west movement across US 31 is provided at only two locations in this planning segment. The average distances between crossing points in Packages 3 and 4 are nearly three times greater than the existing conditions as these packages provide only two locations to cross US 31.

4.1.4.3 *Driveway Impacts*

There are no existing driveways in this planning segment.

4.1.4.4 *East-West Mobility*

Packages 1 and 2, which both have regularly spaced median openings and no intersection closures, provide a level of east-west mobility that is similar to the No-Build condition. Package 3 includes median closures and conversion to right-in/right-out of multiple intersections, which decreases the east-west mobility for adjacent land uses and at the affected intersections. Package 4 includes the closure of all median openings and crossroads (except US 24), which greatly decreases the east-west mobility for adjacent land uses and for all east-west movements not currently accommodated at an interchange or overpass location.

4.1.5 ENVIRONMENTAL RESOURCES ASSESSMENT

4.1.5.1 *Natural Resources*

No NWI wetlands would be impacted by any of the packages. Packages 1 and 2 have no impacts to rivers/streams or floodplains. Packages 3 and 4 would impact approximately 7 and 71 linear feet of an unnamed tributary (UNT) to the Eel River, respectively. Package 3 would not impact floodplains. Package 4 would have less than 0.1 acre of floodplain impacts. Forested land impacts are less than an acre for Packages 1 and 2. Packages 3 and 4 would have less than 0.5 and 3 acres of forested land impacts, respectively.

4.1.5.2 *Cultural Resources*

No above-ground cultural resources would be impacted by any of the packages. A historic farm (103-507-30019) in the northeast quadrant of the US 24 interchange would not have direct impacts from realignment of the westbound US 24 to northbound US 31 ramp. There is a large, forested buffer between the interchange and the farm; therefore, visual impacts are also not anticipated. No direct or visual impacts to Spangler Farm (103-479-3500) are anticipated.

No known archaeological sites or cemeteries are contained within the Miami Central Planning Segment.

4.1.5.3 Community/Socioeconomic Impacts

Packages 1 and 2 would require approximately 2 acres of new right-of-way acquisition with no relocations. Package 3 would require no residential or business relocations and would require 1 acre of new right-of-way acquisition. Package 4 would require 1 residential relocation and no business relocations. Total new right-of-way acquisition for this package is 7 acres.

There are no sensitive communities located within or near this segment, though populations in areas such as Peru likely utilize US 24. With only minor changes under consideration at US 24, none of the packages are anticipated to have the potential risk of greater impacts to sensitive communities.

No farm field entrances exist within this segment. Packages 1 and 2 would require <0.5 acre of new right-of-way from farmland. Package 3 would impact less than 0.5 acre of farmland, and Package 4 would impact 4 acres of farmland. Packages 1 and 2 are not anticipated to impact access to farmland, while Package 3 would increase both delay at the intersections and travel time across the corridor for farm equipment. Package 4 could add substantial delays and limitations to farm equipment attempting to cross the corridor unless significant improvements were made to the local network. (Note: Impacts to the local roadway network are not included in this analysis.)

No other Section 4(f) resources are located within the segment. Each package would likely impact hazardous materials (HAZMAT) sites, with Package 1 impacting one site, and two sites each being impacted by Package 2, 3, and 4.

4.1.5.4 Public Involvement

Summary of Previous Public Comments

Prior to the Level 3 screening, the majority of stakeholder and public comments related to the Miami Central Planning Segment were centered around the intersection of US 31 and CR 100 N. Comments noted that the existing traffic signal at this intersection raises safety concerns and can introduce delay for drivers waiting to access US 31 at this location. Additional comments mentioned that several family-owned businesses that operate near the intersection rely on access to/from US 31 for their livelihood and sustainability.

Summary of Public Comments on the Level 3 Screening

The following summarizes the public comments received on the *Draft Level 3 Screening Report* related to the Miami Central Planning Segment:

- Support for reduced access at CR 300 N.
- Concerns with lack of access provided by an overpass at CR 200 N.
- Support for eliminating the traffic signal at CR 100 N.
- Concerns with reducing access at CR 100 N. Several comments mentioned the resulting impacts to the businesses that operate near the intersection and rely on access to/from US 31.

After considering the comments received, the study team made changes to one of the Improvement Packages in this planning segment. See **Section 2.4** for further information.

See **Appendix C** for the responses to all comments received during the public comment period on the *Draft Level 3 Screening Report*.

4.1.6 COST ASSESSMENT

Package 1 has the highest cost of all packages in this planning segment. This results from the lengthening of existing turn lanes to meet current design practices. Packages 2 and 3 have similar total costs and have low right-of-way costs. Package 4 has a higher cost than Packages 2 and 3 due to the overpass provided at CR 200 N.

4.1.7 GOALS ASSESSMENT

4.1.7.1 *Economic Development*

Packages 1 and 2 would provide minor improvements to travel time along US 31 while maintaining local mobility similar to existing conditions. Package 2 also provides substantial safety benefits. For these reasons, Packages 1 and 2 are rated as Enhances and Greatly Enhances, respectively. Package 3 received a rating of Enhances for providing safety benefits similar to those of Package 4 while maintaining access to developments at CR 100 N and CR 200 N. Package 4 provides the most safety benefits; however, the extensive loss of local mobility with implementation of full access control could negatively impact local businesses (including agribusiness) and locally planned developments, which results in a Neutral rating.

4.1.7.2 *Transportation for All*

No sensitive communities were identified in this planning segment. As a result, all packages are rated as Neutral.

4.1.7.3 *Multi-Modal Access & Connections*

There are no existing bicycle/pedestrian facilities in this planning segment. The Miami County Comprehensive Plan does not call for any such facilities in this planning segment. Opportunities exist to incorporate bicycle/pedestrian facility considerations into the preliminary design phase of any future projects in the study area. As a result, all packages are rated as Neutral.

4.1.7.4 *Emerging Technologies*

In general, none of the packages would impact the ability to implement autonomous and connected vehicles. Specific locations for EV infrastructure within this planning segment have not yet been identified. In general, packages with more control of access could impact the implementation of the INDOT EV Infrastructure Plan; however, additional information and coordination is needed to fully assess. As a result, all packages are rated as Neutral.

4.1.7.5 *Fiscal & Environmental Practicality*

All packages offer modest improvements to travel time along US 31. Although it has minimal environmental and community impacts, Package 1 is the least cost-effective from a safety standpoint and has the highest total package costs; it is rated Low for these reasons. Package 2 provides substantial safety benefits with minimal environmental and community impacts, and it is among the lowest-cost packages. It is rated Moderate. Packages 3 and 4 are among the most cost-effective packages as it relates to safety performance. These packages have marginally more environmental impacts than other packages with similar total package costs. Both are rated Moderate for these reasons.

4.1.8 RECOMMENDATIONS

Packages 1 and 2 are similar both in terms of intersection treatments and impacts. Both packages have relatively low environmental impacts, eliminate the traffic signal at CR 100 N and provide mobility similar to that of the No-Build. Both packages support multiple study goals. Package 2 has a better safety performance than Package 1 and is therefore favored over Package 1. Package 1 is the least cost-effective package by a wide margin and is eliminated from further consideration for this reason. Package 2 addresses the crash history of the CR 100 N intersection, provides for east-west mobility similar to that of the No-Build, has relatively low impacts to environmental resources and addresses multiple study goals. For these reasons, Package 2 is carried forward.

Package 3 provides a substantially higher safety benefit than Package 2 but provides for east-west mobility at only US 24. This package requires the least right-of-way acquisition and has marginally less environmental impacts than other packages. This package provides for east-west mobility at US 24 and provides access from both directions of US 31 to CR 200 N while providing only right-in/right-out access at all other existing at-grade intersections in the planning segment. This provides for some level of local mobility and results in less direct impact to existing developments. The lack of existing driveways in this segment limits the impact of this package and makes it more

favorable as compared to other packages. The cost of Package 3 is similar to Package 2. For these reasons, Package 3 is carried forward.

Package 4 provides a safety benefit slightly greater than that of Package 3 but has a higher cost. This package provides less east-west mobility than Package 3 as all existing at-grade intersections are disconnected from US 31. Package 4 does meet the safety and mobility needs and has similar total package costs to other packages. Given the role of US 31 in the regional and statewide transportation network, a change in facility type, such as that included in Package 4, may be considered in the future to achieve broader transportation goals and objectives. The tradeoffs between the potential benefits, impacts and costs would require further analysis in the future to determine if Package 4 is a reasonable solution to the planning segment's transportation needs. For these reasons, Package 4 is carried forward.

4.2 PERU PLANNING SEGMENT

4.2.1 IMPROVEMENT PACKAGES

Five Improvement Packages were evaluated for the Peru Planning Segment depicted in **Figure 4-3**. These packages, listed in **Table 4-3** and depicted in **Figure 4-4**, follow the methodology discussed in **Section 3.3**. Alternatives for minor intersections in each Improvement Package were selected based on a review of the adjacent land uses, consideration of improvements at adjacent intersections, and the guiding principles for access management listed in **Section 3.3**. The footprints of each of these alternatives are depicted in **Appendix A**.

4.2.1.1 Package 1

Package 1 replaces the existing traffic signal at Business 31 with a T-interchange, which eliminates the need for US 31 traffic to stop at this intersection. This interchange requires converting the Airport Road, CR 300 W, and CR 300 S / Maugans Road intersections to right-in/right-out access only to allow adequate distance for merging traffic from Business 31. No other intersection improvements are included in this package. The interchange at Business 31 aligns with the Miami County Comprehensive Plan. All residential and field access driveways in this package are converted to right-in/right-out access, while commercial driveways may remain as is.

4.2.1.2 Package 2

Package 2 builds upon Package 1 by providing improved access to the city of Peru via a Green-T intersection at Logansport Road, which provides a movement that does not exist today. All other intersections in Package 2 are identical to those of Package 1 with the exception of Sease Drive, which is a two-way stop-controlled intersection in Package 2. All residential, field access, and commercial driveways in this package are converted to right-in/right-out access.

4.2.1.3 Package 3

Package 3 represents an expressway lite facility in which all traffic signals are eliminated and driveway access to US 31 is allowed. Interchanges are provided at Business 31 (diamond) and Logansport Road (quadrant). The diamond interchange at Business 31 provides an opportunity to improve local connectivity across US 31 via a new connection to CR 300 W / Plothow Road. Closures of the Airport Road, CR 300 W, and CR 300 S / Maugans Road intersections are necessary to allow for merging and diverging of traffic to/from the interchange at Business 31. Access is provided via the new connection between CR 300 S and CR 300 W / Plothow Road, which connects to the western leg of the diamond interchange. An overpass is



provided at CR 400 south to facilitate east-west flow and maintain access to Pipe Creek Elementary school. The Sease Drive and Division Road / Blair Pike Road intersections are converted to a directional median opening to better align with access management guidelines. All driveways in this package are converted to right-in/right-out access. Select median openings between intersections are provided.

4.2.1.4 Package 4

Package 4 represents an expressway facility that provides a T-interchange at Business 31, a folded diamond at Logansport Road, closes the CR 300 W intersection, and provides an overpass at CR 400 S to facilitate east-west flow and to maintain access to Pipe Creek Elementary School. The intersections at CR 300 W, Airport Road, and Blair Pike Road / Division Road would be converted to right-in/right-out access, while Sease Drive's intersection would be realigned to the east to maintain access to the residential neighborhood. Alternative access for CR 300 W is created through a new connection south to CR 300 S, which is converted to right-in/right-out access only.

The overpass at CR 400 S does sever the connections between Pipe Creek Elementary and US 31 at CR 400 S, which forces bus traffic to divert to adjacent intersections to access US 31. All driveways and median openings between intersections are closed in this package.


The overpass at CR 400 S allows for the addition of trail connections, which aligns with the Miami County Comprehensive Plan. The Business 31 T-interchange aligns with the Miami County Comprehensive Plan. A gateway feature can be incorporated into this interchange to align with the comprehensive plan.

4.2.1.5 Package 5

Package 5 represents a freeway alternative in which access to US 31 is limited to interchanges located at Logansport Road (folded diamond) and Business 31 (diamond). Similar to Package 3, the diamond interchange at Business 31 provides an opportunity to improve local connectivity across US 31 via a new connection to CR 300 W / Plothow Road. Closures of the Airport Road, CR 300 W, and CR 300 S / Mougans Road intersections are necessary to allow for merging and diverging of traffic to/from the interchange at Business 31. Access is provided via the new connection between CR 300 S and CR 300 W / Plothow Road, which connects to the western leg of the diamond interchange. An overpass is provided at CR 400 S to facilitate east-west flow and to maintain access to the school. No driveway access to US 31 is permitted, and all median openings are closed.

The overpass at CR 400 S allows for the addition of trail connections, which aligns with the Miami County Comprehensive Plan. The Business 31 interchange aligns with the Miami County Comprehensive Plan, facilitates the future trail along Business 31, and can incorporate a gateway feature, which is included in the comprehensive plan.

Table 4-3: Peru Planning Segment Improvement Packages

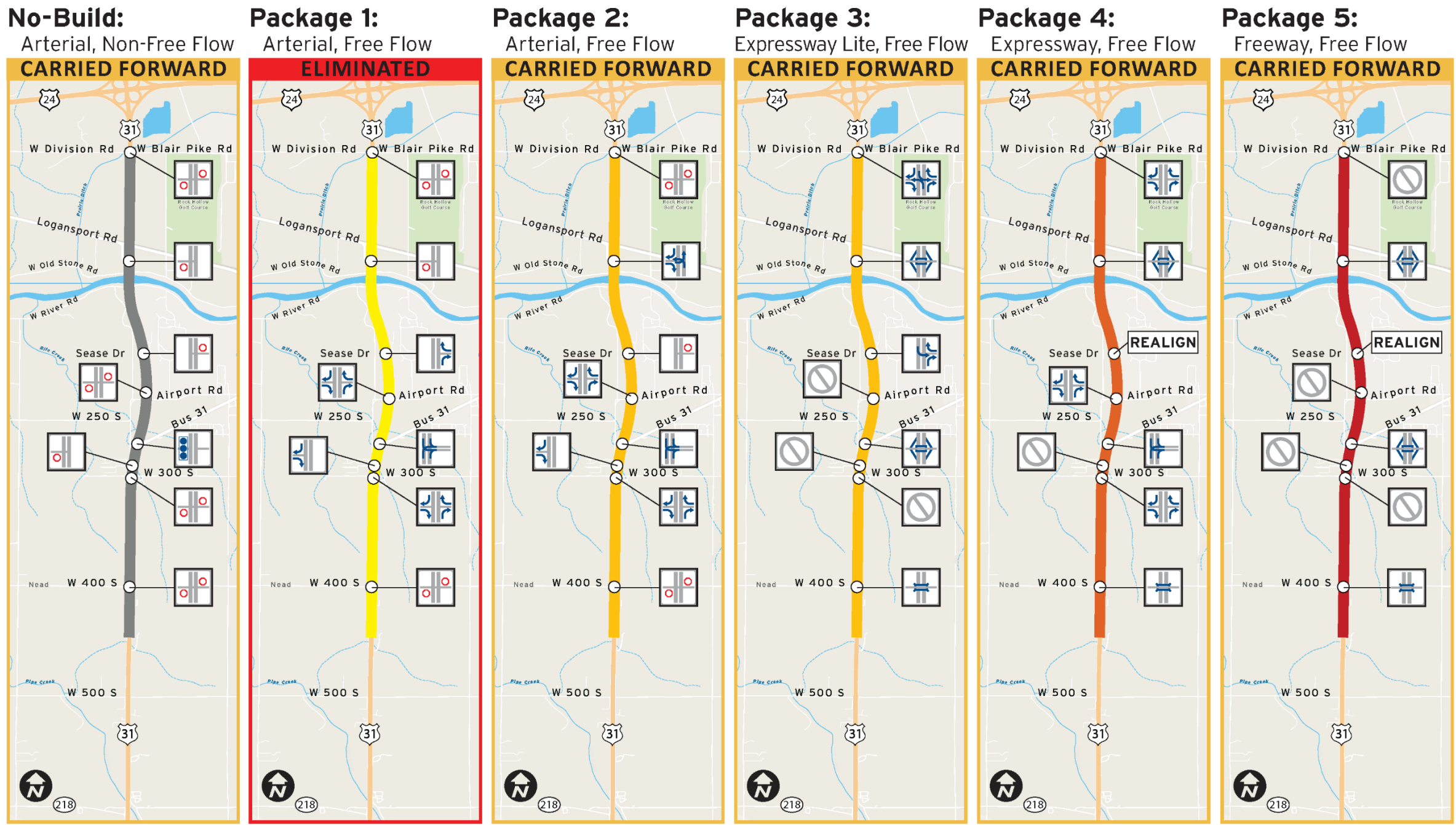
Improvement Package		No-Build	Package #1	Package #2	Package #3	Package #4	Package #5
US 31 Facility Type & Traffic Conditions		Arterial Non-Free Flow	Arterial Free Flow	Arterial Free Flow	Expressway Lite Free Flow	Expressway Free Flow	Freeway Free Flow
Characteristics		Higher Access to/from US 31 Lower Mobility along US 31 Lower Cost				Lower Access to/from US 31 Higher Mobility along US 31 Higher Cost	
Peru	W Blair Pike Rd / Division Rd	TWSC	TWSC	TWSC	Directional	RIRO	Closed
	W Logansport Rd	TWSC	TWSC	Unsignalized Green-T Intersection	Quadrant Interchange	Folded Diamond Interchange	Folded Diamond Interchange
	Sease Dr	TWSC	RIRO	TWSC	Directional	Realigned	Realigned
	W Airport Rd	TWSC	RIRO	RIRO	Closed	RIRO	Closed
	Business 31	Signal	T-Interchange	T-Interchange	Diamond Interchange	T-Interchange	Diamond Interchange
	CR 300 W	TWSC	RIRO	RIRO	Closed*	Closed**	Closed*
	CR 300 S / Maugans Rd	TWSC	RIRO	RIRO	Closed*	RIRO	Closed*
	CR 400 S	TWSC	TWSC	TWSC	Overpass	Overpass	Overpass
Commercial Drives		Full Access	Full Access	RIRO Only	RIRO Only	No Access	No Access
Residential Drives		Full Access	RIRO Only	RIRO Only	RIRO Only	No Access	No Access
Median Openings (Between Intersections)		Allowed	Allowed	Allowed	Allowed	None	None

Note: Primary intersections are indicated in bold text.

*Access provided via new connection between CR 300 S and CR 300 W / Plow Road, which connects to the western leg of the diamond interchange.

** Access provided via a new connection between CR 300 W and CR 300 S.

Figure 4-4: Peru Planning Segment Improvement Packages



○ = Intersection of Study

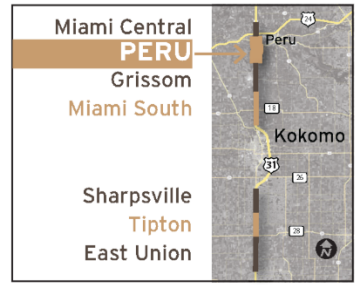
INTERSECTION TYPES:

= Stop Controlled Intersection	= Right-In/Right-Out Intersection	= Directional Median Opening (RIRO + Left Turn from US 31)	= Reduced Conflict Intersection (Unsignalized)	= Signal	= Green-T (Unsignalized)	= Overpass	= T-Interchange
						= Interchange	
						= Intersection Closed	

ACCESS CONTROL METHODS:

- = MINIMAL ACCESS CONTROL, driveways have full access, median openings are provided
- = PARTIAL ACCESS, all residential driveways are RIRO, commercial driveways may have full access, select median openings provided
- = PARTIAL ACCESS, all driveways are RIRO, select median openings provided
- = LIMITED ACCESS, no driveway access, no median openings

KEY MAP:



4.2.2 COMPARISON MATRIX

Table 4-4: Peru Planning Segment Comparison Matrix

		Measurement of Effectiveness	No Build	Package				
				#1	#2	#3	#4	#5
		US 31 Facility Type & Traffic Conditions	Arterial Non-Free Flow	Arterial Non-Free Flow	Arterial Free Flow	Expressway Lite Free Flow	Expressway Free Flow	Freeway Free Flow
Purpose and Need	Safety	Total Conflict Points (number)	336	149	156	68	41	44
		Crossing Conflict Points (number)	192	73	78	20	7	12
		% Reduction in Crossing Conflict Points	0%	62%	59%	90%	96%	94%
		Estimate of Crossing Crashes Prevented (20 yrs)	0.0	84.3	80.8	121.8	131.0	127.5
		Cost-Effectiveness Index (CEI)	N/A	0.6	1.0	1.6	1.5	1.6
	Mobility	Average Travel Time Along US 31 (min) During AM/PM Peak Hour	4.8	4.6	4.6	4.6	4.6	4.6
		Average Distance between US 31 Access Points (miles)	0.6	0.6	0.6	0.8	0.9	2.3
		Average Distance between US 31 Crossing Points (miles)	0.6	0.7	0.9	0.9	1.5	1.5
		Residential Driveways, RIRO/Full (number)	2 / 6	8 / 0	8 / 0	8 / 0	0 / 0	0 / 0
		Commercial Driveways, RIRO/Full (number)	1 / 1	1 / 1	1/1	2 / 0	0 / 0	0 / 0
		Field Access Driveways, RIRO/Full (number)	0 / 6	6 / 0	6 / 0	6 / 0	0 / 0	0 / 0
		E-W Mobility Compared to No Build	N/A	SIMILAR	SIMILAR	DECREASED	DECREASED	GREATLY DECREASED
	Environmental Resources	Natural	NWI Wetlands (acres impacted)	0	0	0	<0.1	<0.5
Rivers and Streams (linear feet impacted)			0	165	165	1,591	162	1,567
Floodplain (acres impacted)			0	<0.1	<0.1	<0.5	<1	2
Forested Areas (acres impacted)			0	2	1	12	10	13
Cultural		Potential Impacts to Aboveground Resources (Yes/No)	No	No	No	No	No	No
		Potential Impacts to Known Archaeological Sites	No	No	No	No	No	No
		Cemeteries (number)	0	0	0	0	0	0
Community / Socioeconomic		Residential Relocations (number)	0	3	3	12	22	27
		Business Relocations (number)	0	0	0	1	3	3
		Total New Right-of-Way Acquisition (acres)	0	7	4	14	36	40
		Sensitive Communities (acres)	0	1	1	7	7	7
		Sensitive Communities (potential relocations)	0	0	0	7	12	12
		Potential Risk of Greater Impacts to Sensitive Communities	No	No	No	Yes	Yes	Yes
		Farmland (acres impacted)	0	2	2	5	10	12
		Farmland (Access Impacts, Yes/No)	No	No	No	No	Yes	Yes
		Potential Impacts to Other Section 4(f) Resources	No	No	No	No	Yes	Yes
		Potential Hazardous Materials Sites (number)	0	3	3	5	3	6
Cost Estimates	Estimated Construction Cost (2024 Dollars)	\$0	\$35M to \$49M	\$55M to \$75M	\$135M to \$184M	\$130M to \$177M	\$130M to \$177M	
	Estimated Right-of-Way Cost (2024 Dollars)	\$0	\$1M to \$2M	\$1M to \$2M	\$4M to \$6M	\$7M to \$11M	\$15M to \$21M	
	Estimated Total Package Cost (2024 Dollars)	\$0	\$44M to \$61M	\$68M to \$93M	\$169M to \$230M	\$166M to \$226M	\$174M to \$236M	
Study Goals	Economic Development	N/A	ENHANCES	ENHANCES	ENHANCES	NEUTRAL	NEUTRAL	
	Transportation for All	N/A	ENHANCES	ENHANCES	ENHANCES	DIMINISHES	DIMINISHES	
	Multi-Modal Access & Connections	N/A	NEUTRAL	NEUTRAL	ENHANCES	ENHANCES	ENHANCES	
	Emerging Technologies	N/A	NEUTRAL	NEUTRAL	NEUTRAL	NEUTRAL	NEUTRAL	
	Fiscal & Environmental Practicality	N/A	HIGH	HIGH	MODERATE	LOW	LOW	
Level 3 Screening Result		CARRIED FORWARD	ELIMINATED	CARRIED FORWARD	CARRIED FORWARD	CARRIED FORWARD	CARRIED FORWARD	

Note: Total package costs include soft costs (e.g., preliminary engineering, construction engineering, etc.) which are not included in the table above.

The assessments of these planning packages, described in the following sections, all reference **Table 4-4**.

4.2.3 SAFETY ASSESSMENT

Package 1 reduces the lowest amount of crossing conflict points, which contributes to it having the least desirable CEI. Package 2, which provides a T-interchange at Business 31, provides a greater safety benefit at a higher cost yet is more cost-effective from a safety standpoint than Package 1. Packages 3, 4, and 5 reduce similar numbers of crossing crashes and have similar cost-effectiveness indices; however, in comparison, Package 2 is more cost-effective from a safety standpoint.

4.2.4 MOBILITY ASSESSMENT

4.2.4.1 *Travel Time Along US 31*

The current travel time through the Peru Planning Segment is 4.8 minutes on average during the peak hours. Travel time in this segment is impeded only by the traffic signal at Business 31. Removal of this traffic signal for both directions of US 31, as represented in all packages, is estimated to reduce the average travel time by 0.2 minutes (4%). This reduction in travel time alone does not justify the improvements.

4.2.4.2 *Access Points & Crossing Points*

Packages 1 and 2 provide access points to/from US 31 on average every 0.6 mile, Package 3 provides them on average every 0.8 mile, and Package 4 does so every 0.9 mile. The freeway alternative of Package 5 requires on average 2.3 miles of travel to reach an access point. On average, Package 1 provides a crossing point every 0.7 mile, Packages 2 and 3 every 0.9 mile, and Packages 4 and 5 every 1.5 miles.

4.2.4.3 *Driveway Impacts*

There are eight existing residential driveways in this planning segment, six of which have full access to US 31. All eight of these driveways will be kept or converted to right-in/right-out access only in Packages 1 through 3. They are closed entirely in Packages 4 and 5 to better align with current access management guidelines and facility types. The six farm field access driveways will have access modified to match that of residential driveways in each of the packages. Of the two existing commercial driveways in this planning segment, one is right-in/right-out and the other has full access. Both will remain as-is in Packages 1, will be converted to right-in/right-out access only in Packages 2 and 3, and closed in Packages 4 and 5.

4.2.4.4 *East-West Mobility*

Packages 1 and 2 provide east-west mobility that is like that of the No-Build scenario. Package 3 includes directional median openings, select U-turn locations, and intersection closures that will decrease east-west mobility as compared to the No-Build scenario. Package 4 includes no median openings between intersections and the closure or conversion of multiple intersections to right-in/right-out, which decreases the east-west mobility for adjacent land uses and at the affected intersections. Package 5 limits all east-west movements to two interchanges, which greatly decreases east-west mobility.

4.2.5 ENVIRONMENTAL RESOURCES ASSESSMENT

4.2.5.1 *Natural Resources*

No NWI wetlands would be impacted by Packages 1 and 2, and less than 0.1 acre would be impacted by Package 3. Packages 4 and 5 would impact less than 0.5 acre of NWI wetlands. Packages 1, 2, and 4 would have the least amount of impacts to rivers/streams (approximately 165 linear feet). Packages 3 and 5 have substantially more impacts to streams due to impacts to Rife Creek from the full interchange design at Business 31. Packages 1 and 2 would impact less than 0.1 acre of floodplain, while Packages 3 and 4 would impact less than one acre of floodplain, and Package 5 would have approximately 2 acres of floodplain impacts. Packages 1 and 2 would have 2 acres or less of forested land impacts, while Packages 3 through 5 would have between 10 and 13 acres of forested land impacts.

4.2.5.2 Cultural Resources

No above-ground or cultural resources would be impacted by any of the packages. No known archaeological sites or cemeteries are contained within the Peru Planning Segment.

4.2.5.3 Community/Socioeconomic Impacts

Packages 1 and 2 would each have 3 residential relocations, while requiring 7 and 4 acres of new right-of-way acquisition, respectively. Package 3 would have 12 residential and 1 business relocation and would require 14 acres of new right-of-way acquisition. Packages 4 and 5 have more substantial impacts, with 22 to 27 residential relocations, 3 business relocations, and total new right-of-way acquisition ranging from 36 to 40 acres.

Packages 1 and 2 would require approximately 1 acre of right-of-way acquisition from sensitive communities. Packages 3, 4, and 5 would require approximately 7 acres of right-of-way acquisition from sensitive communities. Packages 1 and 2 would not require relocations within those areas, while Package 3 would require 7, and Packages 4 and 5 would require 12 such relocations. Relocation and right-of-way acquisition impacts for Packages 1 and 2 do not appear to result in greater impacts to sensitive communities. However, relocations for Packages 3, 4, and 5 have the potential for greater impacts to sensitive communities. Packages 1, 2, and 3 would add some east-west delay, while Packages 4 and 5 would add substantial delays that could have greater impacts to sensitive communities. Furthermore, the removal of four of the six main access points (i.e., primary and secondary roadway connections) in Package 5 may also cause greater impacts to sensitive communities.

Six farm field entrances exist within this segment. Packages 1 through 3 would convert these to RIRO, while Packages 4 and 5 would close these entrances. Packages 1 and 2 would require approximately 2 acres of right-of-way acquisition from farmland. Package 3 would require approximately 5 acres of right-of-way acquisition from farmland, while Packages 4 and 5 would require acquisition of approximately 10 and 12 acres, respectively. Packages 1 through 3 are not anticipated to have substantial impacts to farmland access, while Package 4 would increase travel time across the corridor for farm equipment. Package 5 could add substantial delays and limitations to farm equipment attempting to cross the corridor and/or access agricultural parcels adjacent to US 31 unless significant improvements were made to the local network. (Note: Impacts to the local network are not included in this analysis.)

There is one recreational facility within the segment at CR 400 S, which is associated with Pipe Creek Elementary School. Packages 1 and 2 would maintain full access to this facility. Packages 3 through 5 would maintain access to CR 400 S while removing direct access to/from US 31.

Each package would impact HAZMAT sites, with Packages 1, 2, and 4 impacting three sites, Package 3 impacting five sites, and Package 5 impacting six sites.

4.2.5.4 Public Involvement

Summary of Previous Public Comments

Prior to the Level 3 screening, public comments related to the Peru Planning Segment were mostly focused on two primary intersections: US 31 & CR 400 S and US 31 & Business 31. At CR 400 S, feedback was related to mobility concerns, particularly because it is the primary access point for Pipe Creek Elementary School and is a critical crossing for school buses. Feedback also noted that Business 31 provides an important connection to US 31 for the residents of Peru. The study team also heard that Blair Pike Road provides important access to Dukes Memorial Hospital for emergency service providers and residents.

Summary of Public Comments on the Level 3 Screening

The following summarizes the public comments received on the *Draft Level 3 Screening Report* related to the Peru Planning Segment:

- General support for Improvement Package 3 (expressway lite).
- Several comments supporting increased access management in the planning segment.
- General support for reduced access at Airport Road.

After considering the comments received, no changes were made to the Improvement Packages in this planning segment.

See **Appendix C** for the responses to all comments received during the public comment period on the *Draft Level 3 Screening Report*.

4.2.6 COST ASSESSMENT

Packages 1 and 2 have right-of-way costs that are substantially lower than other packages, which contributes to these packages having total costs that are less than 40% of the costs of the other packages. Packages 3 and 4 have similar costs. Package 5 (freeway) is estimated to cost more than Packages 3 (expressway lite) and 4 (expressway).

4.2.7 GOALS ASSESSMENT

4.2.7.1 *Economic Development*

Packages 1 and 2 would provide improved safety and travel time along US 31 while maintaining local mobility similar to existing conditions. This results in a rating of Enhances for both packages. Package 3 provides substantial safety benefits but restricts left-turning movements; it receives a rating of Enhances. Packages 4 and 5 would provide substantial safety benefits, but local mobility and access would be negatively impacted by increasing levels of access control. This could negatively impact local businesses (including agribusiness) and locally planned developments, resulting in a Neutral rating for both packages.

4.2.7.2 *Transportation for All*

There are sensitive communities in this planning segment. Packages 1 and 2 offer positive safety and mobility benefits while minimizing the potential risk of greater impacts to these communities. Although some right-of-way acquisition is required with Packages 1 and 2, no relocations would be required from sensitive communities. Furthermore, they provide access and cross-corridor mobility similar to existing conditions. For these reasons, they are rated as Enhances. Package 3 increases the average distance between US 31 crossing points and has a potential risk of greater impacts to sensitive communities due to relocations and right-of-way impacts. However, a full interchange was provided in Package 3, which provides improved safety and connectivity to sensitive communities. Therefore, Package 3 is rated as Enhances. Packages 4 and 5 carry potential risk for greater impacts to sensitive communities due to even more relocations within those communities. For these reasons, they are rated as Diminishes.

4.2.7.3 *Multi-Modal Access & Connections*

There are no existing bicycle/pedestrian facilities in this planning segment. The Miami County Comprehensive Plan includes recommendations for trail connections on River Road, Business 31, and CR 400 S. No negative impacts are anticipated to the planned River Road trail connection with any Improvement Package. Each package would make changes to the US 31 intersections with Business 31 and CR 400 S that would include opportunities to incorporate bicycle/pedestrian facility considerations into the preliminary design phases of any future projects. Packages 1 and 2 have relatively minor improvements to Business 31 and CR 400 S. Therefore, they are rated as Neutral. Packages 3, 4, and 5 would include a grade-separated overpass at CR 400 S, which would enhance the ability of the planned trail connection on CR 400 S. Packages 3 and 5 would also include a diamond interchange at Business 31 that would provide an opportunity to improve local connectivity across US 31 via a new connection to CR 300 W. As a result, these packages are rated as Enhances.

4.2.7.4 *Emerging Technologies*

In general, none of the packages would impact the ability to implement autonomous and connected vehicles. Specific locations for EV infrastructure within this planning segment have not been identified. INDOT published its updated draft EV charging infrastructure deployment plan on June 18, 2024, for public review and comment. The plan does

not identify any EV charging infrastructure within this planning segment. As a result, all packages are rated as Neutral.

4.2.7.5 *Fiscal & Environmental Practicality*

All packages offer modest improvements to travel time along US 31. Package 1 is the most cost-effective, has relatively low environmental and community impacts, and is rated as High. Package 2 is among the most cost-effective as it relates to safety performance and has relatively minor impacts to community and natural resources. It also has one of the lowest total costs. For these reasons, it is rated as High. Packages 3 through 5 have relatively similar cost-effectiveness indices with increasing impacts to environmental and community resources. Package 3, which has notably less impacts than Packages 4 and 5, is rated Moderate. Packages 4 and 5 would result in the highest impacts to environmental and community resources without proportional safety and mobility benefits. As a result, they are rated Low.

4.2.8 RECOMMENDATIONS

Package 1, which provides an interchange at Business 31 and has relatively minor improvements at other study intersections, has a similar safety performance to Package 2; however, Package 1 would maintain the existing conditions at the Logansport Road intersection, which is less desirable from a safety perspective. For this reason, Package 1 is eliminated from further consideration.

Package 2 provides a similar level of access and mobility to existing conditions and is among the most cost-effective packages from a safety standpoint. Although Package 2 provides a substantially smaller safety benefit than Package 3, it also has a substantially lower cost. For these reasons, Package 2 is carried forward for further consideration.

While the cost of Package 3 is among the highest of all packages in this segment, this package does provide one of the largest safety benefits, improves mobility in the area of Business 31 while minimizing impacts in this area, improves safety for crossing US 31 at CR 400 S, retains all existing driveways along US 31, and meets several project goals. Package 3 is carried forward for these reasons.

Packages 4 and 5 offer marginal reductions to crossing conflicts as compared to Package 3, and both eliminate the traffic signal at Business 31. These packages pose the largest restrictions on east-west mobility, with Package 5 (freeway) restricting east-west movement to two interchanges and an overpass. Both packages eliminate direct access between Pipe Creek Elementary School and US 31; however, the overpass of these packages does reduce travel time and improve safety associated with crossing US 31 at CR 400 S. These packages have the largest environmental impacts with the potential risk of greater impacts to sensitive communities, which includes the relocation of up to 27 residences and 3 businesses. These packages also have total costs that are far more than those of Packages 1 and 2. Despite relatively higher impacts and costs, Packages 4 and 5 meet the safety and mobility needs. Given the role of US 31 in the regional and statewide transportation network, a change in facility type, such as that included in Packages 4 and 5, may be considered in the future to achieve broader transportation goals and objectives. The tradeoffs between the potential benefits, impacts, and costs would require further analysis in the future to determine if Packages 4 and 5 are reasonable solutions to the planning segment's transportation needs. For these reasons, Packages 4 and 5 are carried forward.

4.3 GRISSOM PLANNING SEGMENT

4.3.1 IMPROVEMENT PACKAGES

The alternatives advancing from the Level 2 screening process were organized into six Improvement Packages for the Grissom Planning Segment depicted in **Figure 4-5**. These packages, listed in **Table 4-5** and depicted in **Figure 4-6**, follow the methodology discussed in **Section 3.3**. Alternatives for minor intersections in each Improvement Package were selected based on a review of the adjacent land uses, consideration of improvements at adjacent intersections, and the guiding principles for access management listed in **Section 3.3**. The footprints of each of these alternatives are depicted in **Appendix A**.

4.3.1.1 Package 1

Package 1 replaces the existing traffic signals at SR 218 N with an RCI, which is expected to address the crash history and create free-flow conditions along US 31. The intersections of CR 800 S, SR 218 S, and CR 500 S also are converted to RCIs to address crash history. All other study intersections will remain two-way stop-controlled in this package. All commercial driveways will retain full access to US 31 while all residential driveways will be converted to a right-in/right-out configuration to align with INDOT access management guidelines. Median openings that are not at intersections are selectively closed to better align with INDOT access management guidelines.

4.3.1.2 Package 2

Package 2 provides an unsignalized Green-T intersection at SR 218 S. All other intersection types match those of Package 1. Driveway access for both commercial and residential driveways are limited to right-in/right-out access only. The spacing of median openings that are not located at intersections are closed to yield an average median opening spacing of 0.25 mile.

4.3.1.3 Package 3

The intersection types of CR 800 S, SR 218 S, SR 218 N, and CR 500 S all match those of Package 1. Median openings at all secondary intersections are changed to directional medians, with mainline left-turn lanes and right-in/right-out configuration for the side streets. All driveways, regardless of land use, utilize a right-in/right-out configuration, and the average median opening spacing is increased from approximately 0.25 to 0.5 mile to improve operations and safety.



4.3.1.4 Package 4

This package represents an expressway lite facility. An interchange is provided at CR 800 S to provide for east-west mobility and to provide access between US 31, the Grissom Aeroplex, and Maconaquah Schools. This interchange includes a local access road providing access to CR 850 S west of US 31. The SR 218 S intersection is converted to an unsignalized Green-T intersection, allowing for all movements. An interchange is also provided at SR 218 N to eliminate the existing traffic signal and improve safety. CR 500 S is converted to a directional median opening with mainline left-turn lanes and right-in/right-out access configuration. The Graber Drive intersection is closed, and all other intersections are converted to right-in/right-out only access. Driveway access to US 31 is allowed in this package, but all such access is converted to right-in/right-out access only. Median openings between intersections are provided at select locations.

4.3.1.5 Package 5

Package 5 represents an expressway facility in which no driveways are allowed and all median openings between intersections are closed. Like Package 4, this package provides a T-interchange only at SR 218 N. An RCI is provided at CR 800 S to maintain US 31 access, improve safety and provide for east-west mobility. Graber Drive is closed, and all other intersections are converted to right-in/right-out access only.

4.3.1.6 Package 6

Package 6 represents a freeway alternative in which access to US 31 is provided via interchanges located at CR 800 S and SR 218 N. The interchange at CR 800 S maintains access to CR 850 S west of US 31 via a new local access road. At the SR 218 N interchange, CR 600 S is realigned to create a fourth leg of the interchange, which facilitates east-west traffic flow and provides access to the town of Bunker Hill. Connecting CR 600 S to the interchange yields the potential for CR 600 S and a yet-to-be-identified route into Bunker Hill to become a state route while the existing portion of SR 218 between US 31 and Bunker Hill could be relinquished to the county. Improvements to CR 600 S and the north-south route connecting CR 600 N to Bunker Hill are expected but not included in this package. An overpass is provided at CR 500 S to facilitate east-west flow and to align with the Miami County Comprehensive Plan. All other intersections are closed in this package. No driveway access to US 31 is permitted, and all median openings are closed.

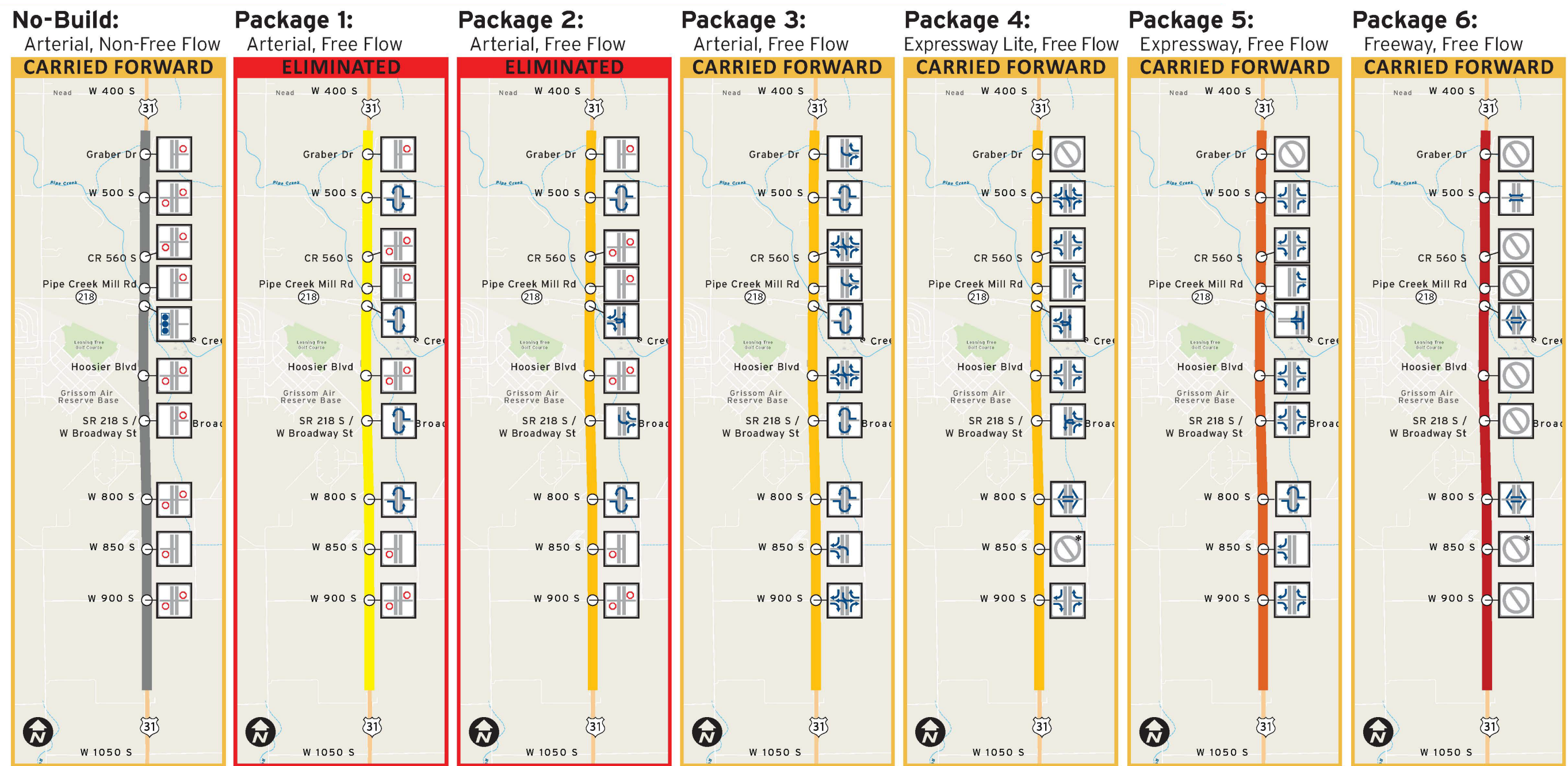
Table 4-5: Grissom Planning Segment Improvement Packages

Improvement Package		No-Build	Package #1	Package #2	Package #3	Package #4	Package #5	Package #6	
US 31 Facility Type & Traffic Conditions		Arterial Non-Free Flow	Arterial Free Flow	Arterial Free Flow	Arterial Free Flow	Expressway Lite Free Flow	Expressway Free Flow	Freeway Free Flow	
Characteristics		Higher Access to/from US 31 Lower Mobility along US 31 Lower Cost				Lower Access to/from US 31 Higher Mobility along US 31 Higher Cost			
Grissom	Graber Dr	TWSC	TWSC	TWSC	Directional	Closed	Closed	Closed	
	CR 500 S	TWSC	RCI	RCI	RCI	Directional	RIRO	Overpass	
	CR 560 S	TWSC	TWSC	TWSC	Directional	RIRO	RIRO	Closed	
	Pipe Creek Mill Rd	TWSC	TWSC	TWSC	Directional	RIRO	RIRO	Closed	
	SR 218 N	Signal	RCI	RCI	RCI	T-Interchange	T-Interchange	Diamond Interchange	
	Hoosier Blvd	TWSC	TWSC	TWSC	Directional	RIRO	RIRO	Closed	
	SR 218 S/W Broadway St	TWSC	RCI	Unsignalized Green-T Intersection	RCI	Unsignalized Green-T Intersection	RIRO	Closed	
	CR 800 S	TWSC	RCI	RCI	RCI	Diamond Interchange	RCI	Diamond Interchange	
	CR 850 S	TWSC	TWSC	TWSC	Directional	Closed*	RIRO	Closed*	
	CR 900 S	TWSC	TWSC	TWSC	Directional	RIRO	RIRO	Closed	
Commercial Drives		Full Access	Full Access	RIRO Only	RIRO Only	RIRO Only	No Access	No Access	
Residential Drives		Full Access	RIRO Only	RIRO Only	RIRO Only	RIRO Only	No Access	No Access	
Median Openings (Between Intersections)		Allowed	Allowed	Allowed	Allowed	None	None	None	

Note: Primary intersections are indicated in bold text.

* Access to CR 850 S west of US 31 to be provided via local access road between CR 850 S and CR 800 S

Figure 4-6: Grissom Planning Segment Improvement Packages



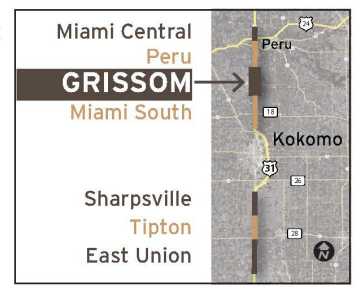
○ = Intersection of Study * Access to/from CR 850 S to be provided via interchange at US 31 & CR 800 S.

INTERSECTION TYPES:

ACCESS CONTROL METHODS:

- = MINIMAL ACCESS CONTROL, driveways have full access, median openings are provided
- = PARTIAL ACCESS, all residential driveways are RIRO, commercial driveways may have full access, select median openings provided
- = PARTIAL ACCESS, all driveways are RIRO, select median openings provided
- = PARTIAL ACCESS, no driveway access, no median openings
- = LIMITED ACCESS, no driveway access or median openings

KEY MAP:



4.3.2 COMPARISON MATRIX

Table 4-6: Grissom Planning Segment Comparison Matrix

		Measurement of Effectiveness	No Build	Package					
				#1	#2	#3	#4	#5	#6
		US 31 Facility Type & Traffic Conditions	Arterial Non-Free Flow	Arterial Free Flow	Arterial Free Flow	Arterial Free Flow	Expressway Lite Free Flow	Expressway Free Flow	Freeway Free Flow
Purpose and Need	Safety	Total Conflict Points (number)	420	348	335	168	68	59	44
		Crossing Conflict Points (number)	240	160	161	40	16	5	12
		% Reduction in Crossing Conflict Points	0%	33%	33%	83%	93%	98%	95%
		Estimate of Crossing Crashes Prevented (20 yrs)	0.0	93.3	92.2	233.3	261.3	274.2	266.0
		Cost-Effectiveness Index (CEI)	N/A	0.5	0.6	0.2	0.6	0.5	0.8
	Mobility	Average Travel Time Along US 31 (min) During AM/PM Peak Hour	5.2	4.9	4.9	4.9	4.9	4.9	4.9
		Average Distance between US 31 Access Points (miles)	0.5	0.5	0.5	0.5	0.5	0.5	4.9
		Average Distance between US 31 Crossing Points (miles)	0.5	0.5	0.5	0.5	1.2	2.5	2.5
		Residential Driveways, RIRO/Full (number)	0 / 12	12 / 0	12 / 0	12 / 0	12 / 0	0 / 0	0 / 0
		Commercial Driveways, RIRO/Full (number)	2 / 2	2 / 2	2 / 2	4 / 0	4 / 0	0 / 0	0 / 0
		Field Access Driveways, RIRO/Full (number)	1 / 3	4 / 0	4 / 0	4 / 0	4 / 0	0 / 0	0 / 0
		E-W Mobility Compared to No Build	N/A	SIMILAR	SIMILAR	SIMILAR	DECREASED	DECREASED	GREATLY DECREASED
	Environmental Resources	Natural	NWI Wetlands (acres impacted)	0	<0.5	<0.5	<0.5	<0.5	<0.5
Rivers and Streams (linear feet impacted)			0	33	0	32	469	281	2,045
Floodplain (acres impacted)			0	<0.1	<0.1	<0.1	<0.1	0	2
Forested Areas (acres impacted)			0	1	1	2	2	2	21
Cultural		Potential Impacts to Aboveground Resources (Yes/No)	NO	NO	NO	NO	NO	NO	NO
		Potential Impacts to Known Archaeological Sites	NO	NO	NO	NO	NO	NO	YES
		Cemeteries (number)	0	0	0	0	0	0	0
Community / Socioeconomic		Residential Relocations (number)	0	0	0	0	0	15	36
		Business Relocations (number)	0	0	0	0	4	2	7
		Total New Right-of-Way Acquisition (acres)	0	2	2	3	63	11	102
		Sensitive Communities (acres)	0	1	1	3	4	4	12
		Sensitive Communities (potential relocations)	0	0	0	0	0	15	36
		Potential Risk of Greater Impacts to Sensitive Communities	NO	NO	NO	NO	YES	YES	YES
		Farmland (acres impacted)	0	1	<0.5	<0.5	51	5	59
		Farmland (Access Impacts, Yes/No)	NO	NO	NO	NO	YES	YES	YES
		Potential Impacts to Other Section 4(f) Resources	NO	NO	NO	NO	NO	NO	NO
		Potential Hazardous Materials Sites (number)	0	4	4	4	8	7	10
Cost Estimates	Estimated Construction Cost (2024 Dollars)	\$0	\$31M to \$43M	\$35M to \$49M	\$34M to \$47M	\$95M to \$135M	\$82M to \$111M	\$141M to \$192M	
	Estimated Right-of-Way Cost (2024 Dollars)	\$0	\$300K to \$600K	\$300K to \$500K	\$400K to \$600K	\$2M to \$4M	\$6M to \$9M	\$13M to \$19M	
	Estimated Package Cost (2024 Dollars)	\$0	\$39M to \$53M	\$43M to \$60M	\$42M to \$58M	\$124M to \$168M	\$106M to \$144M	\$186M to \$252M	
Study Goals	Economic Development	N/A	ENHANCES	ENHANCES	GREATLY ENHANCES	ENHANCES	NEUTRAL	NEUTRAL	
	Transportation for All	N/A	ENHANCES	ENHANCES	ENHANCES	NEUTRAL	DIMINISHES	DIMINISHES	
	Multi-Modal Access & Connections	N/A	NEUTRAL	NEUTRAL	NEUTRAL	NEUTRAL	NEUTRAL	NEUTRAL	
	Emerging Technologies	N/A	NEUTRAL	NEUTRAL	NEUTRAL	NEUTRAL	NEUTRAL	NEUTRAL	
	Fiscal & Environmental Practicality	N/A	MODERATE	MODERATE	HIGH	LOW	LOW	LOW	
	Level 3 Screening Result	CARRIED FORWARD	ELIMINATED	ELIMINATED	CARRIED FORWARD	CARRIED FORWARD	CARRIED FORWARD	CARRIED FORWARD	

Note: Total package costs include soft costs (e.g., preliminary engineering, construction engineering, etc.) which are not included in the table above.

The assessments of these planning packages, described in the following sections, all reference **Table 4-6**.

4.3.3 SAFETY ASSESSMENT

All six packages are expected to improve safety over the No-Build option based on reductions in total conflict points, crossing conflict points, and estimated crossing crashes. Packages 1 and 2 prevent far fewer crossing crashes than other packages, yet the lower cost of these packages result in all packages having cost-effective indices that are comparable to higher cost packages. The amount of crossing crashes reduced by Packages 3, 4, and 5 are comparable to those of Package 6, yet the costs of these packages are lower than those of Package 6, which results in more favorable cost-effective ratios.

4.3.4 MOBILITY ASSESSMENT

4.3.4.1 *Travel Time Along US 31*

The existing traffic signal at the SR 218 N intersection creates on average 17 seconds of peak hour delay for motorists traveling along US 31. Intersection delay for US 31 traffic is eliminated entirely in all packages where an RCI or an interchange replaces the traffic signal at SR 218 N.

While removing the existing traffic signal positively impacts intersection delay, the total travel time through the corridor only marginally changes from the No-Build scenario. More specifically, the average travel time of 5.2 minutes under the No-Build scenario is reduced by only 0.3 minute, which is a 5% reduction in travel time. The same travel time reduction of 5% is achieved by replacing the signalized intersection at SR 218 N with an RCI as in Packages 1 through 3 or by replacing the signalized intersection with an interchange as in Packages 4 through 6.

4.3.4.2 *Access Points & Crossing Points*

Packages 1 through 5 provide access points to/from US 31 on average every 0.5 mile. Package 6 provides access points to/from US 31 on average every 4.9 miles. On average, Packages 1 through 3 have crossing points every 0.5 mile, Packages 4 every 1.2 miles, and Packages 5 and 6 every 2.5 miles.

4.3.4.3 *Driveway Impacts*

There are 12 existing residential driveways in this planning segment, each of which has full access to US 31. All 12 of these driveways will be converted to right-in/right-out access only in Packages 1 through 4 and be closed entirely in Packages 5 and 6 to better align with current access management guidelines and facility types. The four farm field access driveways will have access modified to match that of residential driveways in each of the packages. The four existing commercial driveways in this planning segment remain as is in Packages 1 and 2, convert to right-in/right-out access only in Packages 3 and 4, and close in Packages 5 and 6.

4.3.4.4 *East-West Mobility*

Packages 1 through 3, which both have regularly spaced median openings and no intersection closures, provide the best cross-corridor mobility with overall east-west mobility similar to that of the No-Build condition. Package 4 decreases east-west mobility by converting multiple intersections to right-in/right-out only access and limiting median U-turns to select locations. Package 5 also decreases east-west mobility by limiting multiple intersections to right-in/right-out only access and closing all median openings between intersections. Package 6 greatly decreases east-west mobility by closing multiple intersections and limiting east-west mobility to overpass and intersection locations.

4.3.5 ENVIRONMENTAL RESOURCES ASSESSMENT

4.3.5.1 *Natural Resources*

All packages would impact less than 0.5 acre of NWI wetlands. Package 2 has no impacts to rivers/streams. Packages 1 and 3 would impact less than 35 linear feet of Pipe Creek and UNTs to Pipe Creek. Packages 4, 5, and 6 have substantially more stream impacts, with 469 linear feet, 281 linear feet, and 2,045 linear feet of impacts, respectively, to Pipe Creek and UNTs to Pipe Creek. Packages 1 through 4 have less than a tenth of an acre of

floodplain impacts, while Package 6 has approximately 2 acres of impacts. Package 5 avoids impacts to floodplains. Forested land impacts range between just under 1 acre to 2 acres in Packages 1 through 5, while Package 6 would impact approximately 21 acres of forested land.

4.3.5.2 Cultural resources

No above-ground cultural resources would be impacted by any of the packages. The B-17G “Flying Fortress” is located within the Grissom Air Museum. The Terrell Jacobs Circus Winter Quarters was listed on the National Register of Historic Places; however, it has been demolished. An archaeological site has been documented within the segment. Improvement Package 6 has the potential to impact the site; however, additional investigations may be warranted for any projects that move forward in the area of the site.

There are no cemeteries within the Grissom Planning Segment.

4.3.5.3 Community/Socioeconomic Impacts

Packages 1 through 3 would require between 2 and 3 acres of new right-of-way. Package 4 would require approximately 63 acres, Package 5 would require 11 acres, and Package 6 would require 102 acres of new right-of-way. No relocations would be required for Packages 1 through 3. Package 4 retains driveway access to US 31 and would require no residential relocations and 4 business relocations. Packages 5 and 6 would require 15 and 36 residential relocations and 2 and 7 business relocations, respectively. Most of these relocations are within areas having sensitive communities.

Packages 1 through 5 would require between 1 and 4 acres of new right-of-way from sensitive communities. Package 6 would require 12 acres of new right-of-way from these communities. Packages 1 through 4 would not require relocations within these communities. Package 5 would require 15 relocations, and Package 6 would require 36 relocations within sensitive communities. The majority of the right-of-way and relocation impacts would affect sensitive communities; therefore, there is risk of impacts. Furthermore, the removal of seven of the 10 main access points in Package 6 may also cause impacts to sensitive communities.

Four farm field entrances exist within this segment. Packages 1 through 4 would convert these to RIRO only access, while Packages 5 and 6 would close these entrances. Packages 1 through 3 require 1 acre or less of new right-of-way from farmland, while Packages 4 through 6 would require 51, 5, and 59 acres, respectively. Packages 1 through 3 are not anticipated to have substantial impacts to access to farmland, while Packages 4 and 5 would increase travel time across the corridor for farm equipment. Package 6 could add substantial delays and limitations to farm equipment attempting to cross the corridor and/or access agricultural parcels adjacent to US 31 unless significant improvements were made to the local network. (Note: Impacts to the local roadway network are not included in this analysis.)

No other Section 4(f) resources would be impacted in this segment. Each package would impact HAZMAT sites, with Packages 1 through 3 impacting 4 sites, Package 4 impacting 8 sites, Package 5 impacting 7 sites, and Package 6 impacting 10 sites.

4.3.5.4 Public Involvement

Summary of Previous Public Comments

Prior to the Level 3 screening, stakeholder and public feedback from the Grissom Planning Segment focused on two intersections: US 31 and CR 800 S and US 31 and SR 218 N. Feedback associated with these two intersections was concentrated around safety and local mobility concerns, especially for emergency service providers, school buses, and agricultural equipment. Public comments note that CR 800 S provides critical access to the Miami Correctional Facility, the Grissom Aeroplex, and the Grissom Air Reserve Base, which brings heavy traffic to the area for training weekends. Removal of access at CR 800 S in Package 6 could have significant impacts to the school district and these facilities. The study team also heard about safety concerns at US 31 and Hoosier Boulevard, as well as from local business owners in the area who said that access to their businesses from US 31 is vital to their future sustainability.

Summary of Public Comments on the Level 3 Screening

The following summarizes the public comments received on the *Draft Level 3 Screening Report* related to the Grissom Planning Segment:

- Concerns regarding reduced access and cross-corridor mobility at CR 500 S.
- Concerns regarding reduced access at Hoosier Boulevard.
- Concerns with reduced access at CR 800 S.

After considering the comments received, the study team made changes to two of the Improvement Packages in this planning segment. See **Section 2.4** for further information.

See **Appendix C** for the responses to all comments received during the public comment period on the *Draft Level 3 Screening Report*.

4.3.6 COST ASSESSMENT

Packages 1 through 3 have similar total costs that are the lowest of all packages considered. Packages 4 and 5 have higher total costs that are substantially higher than those of Packages 1 through 3 due to the interchanges at SR 218 N and CR 800 S.

Package 6, which creates a limited access freeway, requires acquisition of numerous parcels due to lack of access to US 31 and to accommodate interchanges and overpasses included in this package. This contributes to the cost of Package 6 being approximately 75% higher than Package 5.

4.3.7 GOALS ASSESSMENT

4.3.7.1 Economic Development

Packages 1 through 3 would provide improved travel time along US 31 while maintaining local mobility that would be similar to existing conditions. Package 3 provides substantial safety benefits while maintaining local access that is similar to existing conditions. For these reasons, Packages 1 and 2 are rated as Enhances while Package 3 is rated Greatly Enhances. Package 4 provides safety benefits that are considered to outweigh the loss in local mobility from increased control of access. As a result, it is also rated as Enhances. Packages 5 and 6 would provide safety benefits, but local mobility and access would be negatively impacted by increasing levels of access control. This could negatively impact local businesses (including farming operations and agribusiness) and locally planned developments, which results in a Neutral rating for both packages.

4.3.7.2 Transportation for All

There are sensitive communities in this planning segment. Packages 1 through 3 offer positive safety and mobility benefits while minimizing the risk of greater impacts to those communities. Although some right-of-way acquisition is required with Packages 1 through 3, they provide access and cross-corridor mobility similar to the existing conditions. As a result, they received an Enhances rating. Package 4 has some right-of-way acquisition that would impact sensitive communities; however, no relocations would occur and the amount of new right-of-way required is not anticipated to create the risk of greater impacts to sensitive communities. As a result, Improvement Package 4 is rated Neutral. Packages 5 and 6 have the risk for greater impacts to sensitive communities, which results in a rating of Diminishes.

4.3.7.3 Multi-Modal Access & Connections

There are no existing bicycle/pedestrian facilities in this planning segment. The Miami County Comprehensive Plan includes a recommendation for a planned trail utilizing the abandoned Conrail line, which crosses US 31 via a grade separation. No negative impacts are expected to the planned trail with any Improvement Package. Opportunities exist to incorporate bicycle/pedestrian facility considerations into the preliminary design phase of any future projects in the study area. As a result, all packages are rated Neutral.

4.3.7.4 *Emerging Technologies*

In general, none of the packages would impact the ability to implement autonomous and connected vehicles. Specific locations for EV infrastructure within this planning segment have not yet been identified. INDOT published its updated draft EV charging infrastructure deployment plan on June 18, 2024, for public review and comment. The plan does not identify any EV charging infrastructure within this planning segment. As a result, all packages are rated Neutral.

4.3.7.5 *Fiscal & Environmental Practicality*

All packages offer modest improvements to travel time along US 31. Improvement Package 3 is the most cost-effective package as it relates to safety performance. It also has relatively low environmental and community impacts. These factors result in a rating of High. Improvement Packages 1, 2, and 4 have good cost-effectiveness as it relates to safety; however, impacts to community and environmental resources increase with increased access control and more substantive types of improvements, such as interchanges and overpasses. Packages 4 through 6 would result in the highest impacts to environmental and community resources without proportional safety and mobility benefits, which results in a rating of Low for each package.

4.3.8 RECOMMENDATIONS

Packages 1 through 3 have the lowest impacts and costs and achieve similar study goals. These packages provide east-west mobility that is similar to that of the No-Build scenario and improve mobility along US 31 by eliminating the existing signalized intersection. Packages 1 and 2 have the lowest potential safety benefits of the packages considered. Their costs are also relatively similar to Package 3; however, Package 3 has substantially higher safety benefits. For this reason, Packages 1 and 2 are eliminated from further consideration.

In addition to its safety benefits, Package 3 is the most cost-effective package from a safety standpoint, maintains existing driveway connections, is among the least impactful to environmental resources, has one of the lowest total package costs, and best achieves the study goals. For these reasons, Package 3 is carried forward.

Package 4 provides increased safety benefits over Package 3; however, its costs are substantially higher due to the inclusion of interchanges at SR 218 N and CR 800 S. Despite these increased costs, its cost-effectiveness from a safety standpoint is similar to Packages 1 and 2, which include more modest types of improvements. Package 4 would also maintain residential and commercial driveway access via right-in/right-out only access, which results in notably lower relocations than Packages 5 and 6. For these reasons, Improvement Package 4 is carried forward.

Package 5 provides both safety and marginal travel time benefits but decreases east-west mobility. Package 5 also requires substantial right-of-way and relocations and poses a risk of greater impacts to sensitive communities. However, it would require substantially fewer relocations than Package 6 and costs approximately 60% less.

In Package 6, the cost and impacts of providing a full interchange at SR 218 N and connecting it to CR 600 S greatly outweigh the benefits of this improvement. Package 6 does provide safety and marginal travel time benefits; however, it also has substantially greater potential impacts to sensitive communities and natural resources than Package 5. Package 6 requires right-of-way acquisition in excess of \$13 million while displacing more residences and businesses than all other packages.

Packages 5 and 6 do meet the safety and mobility needs. Given the role of US 31 in the regional and statewide transportation network, a change in facility type, such as that included in Packages 5 and 6, may be considered in the future to achieve broader transportation goals and objectives. The tradeoffs between the potential benefits, impacts, and costs would require further analysis in the future to determine if Packages 5 and 6 are reasonable solutions to the planning segment's identified transportation needs. For these reasons, Packages 5 and 6 are carried forward.

4.4 MIAMI SOUTH PLANNING SEGMENT

4.4.1 IMPROVEMENT PACKAGES

The alternatives advancing from the Level 2 screening process were organized into five Improvement Packages for the Miami South Planning Segment, depicted in **Figure 4-7**. These packages, listed in **Table 4-7** and depicted in **Figure 4-8**, follow the methodology discussed in **Section 3.3**. Alternatives for minor intersections in each Improvement Package were selected based on a review of the adjacent land uses, consideration of improvements at adjacent intersections, and the guiding principles for access management listed in **Section 3.3**. The footprints of each of these alternatives are depicted in **Appendix A**.

4.4.1.1 Package 1

Package 1 replaces the existing traffic signal at SR 18 with an RCI, which is expected to address the crash history and to create free-flow conditions along US 31. The Ida Drive intersection is converted to right-in/right-out access to better align with access management guidelines. All other study intersections in this package remain two-way stop-controlled. All commercial driveways will retain their current level of access to US 31, while all residential and field access driveways will be converted to a right-in/right-out configuration. Median openings that are not at intersections are selectively closed to better align with INDOT access management guidelines.

4.4.1.2 Package 2

Package 2 builds upon Package 1 by adding an RCI at CR 1050 S / Fulton Street to maintain access to the unincorporated community of Miami and improve safety at this intersection. All other intersections, except SR 18 and Ida Drive, are converted to directional median openings in which left turns are allowed from US 31, but side streets are restricted to right-in/right-out access only.

4.4.1.3 Package 3

Package 3 represents an expressway lite facility. An interchange is provided at SR 18, and overpasses are provided at CR 600 N and CR 1050 S. The interchange at SR 18 and the overpass at CR 600 N align with the Miami County Comprehensive Plan. Nancy Drive and Apperson Way Lane are closed to align with access management guidelines. All other intersections are converted to right-in/right-out access only. All driveways are converted to right-in/right-out access only. Select median openings between intersections are provided.




4.4.1.4 Package 4

Package 4 consists of intersection improvements that are identical to that of Package 3. The difference in these two packages is that Package 4 does not allow driveway connections to US 31, which is consistent with an expressway facility. No median openings between intersections are provided.

4.4.1.5 Package 5

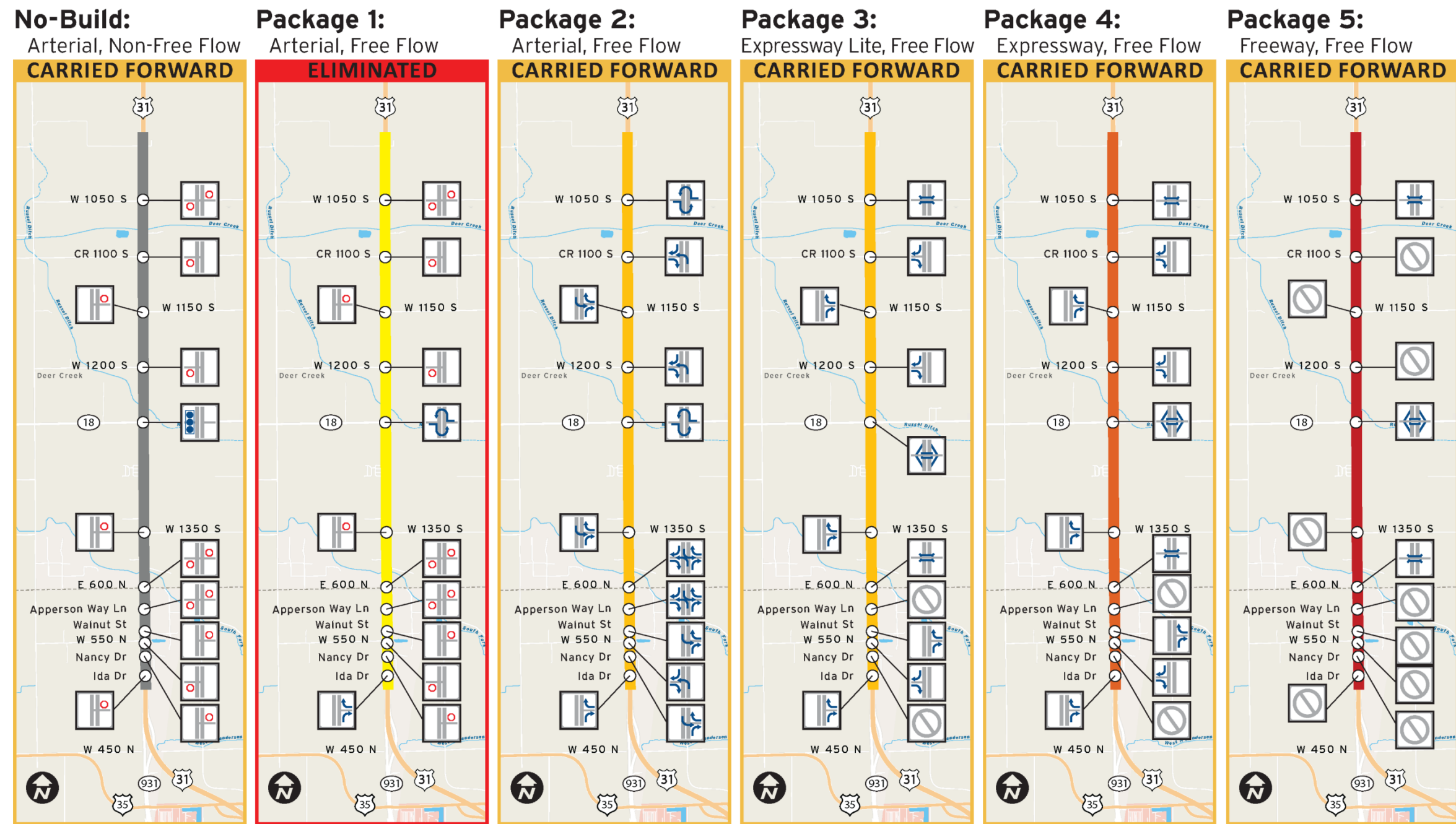
Package 5 represents a freeway alternative in which access to US 31 is limited to an interchange located at SR 18. Like Package 3, an overpass is provided at CR 600 N. The interchange at SR 18 and the overpass at CR 600 N align with the Miami Comprehensive Plan. An overpass is also provided at CR 1050 S / Fulton Street to facilitate east-west flow. No driveway access to US 31 is permitted, and all median openings are closed.

Table 4-7: Miami South Planning Segment Improvement Packages

Improvement Package		No-Build	Package #1	Package #2	Package #3	Package #4	Package #5
US 31 Facility Type & Traffic Conditions		Arterial Non-Free Flow	Arterial Free Flow	Arterial Free Flow	Expressway Lite Free Flow	Expressway Free Flow	Freeway Free Flow
Characteristics		Higher Access to/from US 31 Lower Mobility along US 31 Lower Cost				Lower Access to/from US 31 Higher Mobility along US 31 Higher Cost	
Miami South	CR 1050 S / Fulton St	TWSC	TWSC	RCI	Overpass	Overpass	Overpass
	CR 1100 S	TWSC	TWSC	Directional	RIRO	RIRO	Closed
	CR 1150 S	TWSC	TWSC	Directional	RIRO	RIRO	Closed
	CR 1200 S	TWSC	TWSC	Directional	RIRO	RIRO	Closed
	SR 18	Signal	RCI	RCI	Folded Diamond Interchange	Folded Diamond Interchange	Folded Diamond Interchange
	CR 1350 S	TWSC	TWSC	Directional	RIRO	RIRO	Closed
	CR 600 N	TWSC	TWSC	Directional	Overpass	Overpass	Overpass
	Apperson Way Ln	TWSC	TWSC	Directional	Closed	Closed	Closed
	Walnut St / Cassville Rd	TWSC	TWSC	Directional	RIRO	RIRO	Closed
	CR 550 N	TWSC	TWSC	Directional	RIRO	RIRO	Closed
	Nancy Dr	TWSC	TWSC	Directional	Closed	Closed	Closed
	Ida Dr	TWSC	RIRO	RIRO	RIRO	RIRO	Closed
Commercial Drives		Full Access	Full Access	RIRO Only	RIRO Only	No Access	No Access
Residential Drives		Full Access	RIRO Only	RIRO Only	RIRO Only	No Access	No Access
Median Openings (Between Intersections)		Allowed	Allowed	Allowed	None	None	None

Note: Primary intersections are indicated in bold text.

Figure 4-8: Miami South Planning Segment Improvement Packages



○ = Intersection of Study

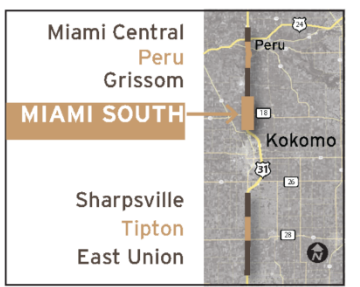
INTERSECTION TYPES:

<p> = Intersection Closed</p>			

ACCESS CONTROL METHODS:

- = MINIMAL ACCESS CONTROL, driveways have full access, median openings are provided
- = PARTIAL ACCESS, all residential driveways are RIRO, commercial driveways may have full access, select median openings provided
- = PARTIAL ACCESS, all driveways are RIRO, select median openings provided
- = LIMITED ACCESS, no driveway access or median openings

KEY MAP:



4.4.2 COMPARISON MATRIX

Table 4-8: Miami South Planning Segment Comparison Matrix

		Measurement of Effectiveness	No Build	Package				
				#1	#2	#3	#4	#5
		US 31 Facility Type & Traffic Conditions	Arterial Non-Free Flow	Arterial Free Flow	Arterial Free Flow	Expressway Lite Free Flow	Expressway Free Flow	Freeway Free Flow
Purpose and Need	Safety	Total Conflict Points (number)	504	448	160	50	50	22
		Crossing Conflict Points (number)	288	244	44	6	6	6
		% Reduction in Crossing Conflict Points	0%	15%	85%	98%	98%	98%
		Estimate of Crossing Crashes Prevented (20 yrs)	0.0	22.6	125.4	144.9	144.9	144.9
		Cost-Effectiveness Index (CEI)	N/A	1.1	0.2	0.8	0.8	0.8
	Mobility	Average Travel Time Along US 31 (min) During AM/PM Peak Hour	5.9	5.6	5.6	5.6	5.6	5.6
		Average Distance between US 31 Access Points (miles)	0.5	0.5	0.5	0.6	0.7	5.6
		Average Distance between US 31 Crossing Points (miles)	0.5	0.5	0.5	1.1	1.9	1.9
		Residential Driveways, RIRO/Full (number)	0 / 8	8 / 0	8 / 0	8 / 0	0 / 0	0 / 0
		Commercial Driveways, RIRO/Full (number)	3 / 1	3 / 1	3 / 1	4 / 0	0 / 0	0 / 0
		Field Access Driveways, RIRO/Full (number)	0 / 2	2 / 0	2 / 0	2 / 0	0 / 0	0 / 0
		E-W Mobility Compared to No Build	N/A	SIMILAR	SIMILAR	DECREASED	DECREASED	GREATLY DECREASED
	Environmental Resources	Natural	NWI Wetlands (acres impacted)	0	0	0	<0.1	<0.1
Rivers and Streams (linear feet impacted)			0	56	56	196	196	195
Floodplain (acres impacted)			0	0	0	0	0	0
Forested Areas (acres impacted)			0	<0.5	<0.5	1	1	1
Cultural		Potential Impacts to Aboveground Resources (Yes/No)	NO	YES (VISUAL)	YES (VISUAL)	YES (VISUAL)	YES (VISUAL)	YES (VISUAL)
		Potential Impacts to Known Archaeological Sites	NO	NO	NO	NO	NO	NO
		Cemeteries (number)	0	1	1	1	1	1
Community / Socioeconomic		Residential Relocations (number)	0	0	0	0	116	138
		Business Relocations (number)	0	0	0	0	3	4
		Total New Right-of-Way Acquisition (acres)	0	3	4	42	71	56
		Sensitive Communities (acres)	0	3	4	7	41	41
		Sensitive Communities (potential relocations)	0	0	0	0	113	115
		Potential Risk of Greater Impacts to Sensitive Communities	NO	NO	NO	NO	YES	YES
		Farmland (acres impacted)	0	1	1	41	41	41
		Farmland (Access Impacts, Yes/No)	NO	NO	NO	NO	YES	YES
		Potential Impacts to Other Section 4(f) Resources	NO	NO	NO	NO	NO	NO
Potential Hazardous Materials Sites (number)		0	1	1	1	4	4	
Cost Estimates	Estimated Construction Cost (2024 Dollars)	\$0	\$16M to \$23M	\$17M to \$24M	\$76M to \$104M	\$76M to \$104M	\$74M to \$101M	
	Estimated Right-of-Way Cost (2024 Dollars)	\$0	\$100K to \$200K	\$100K to \$200K	\$1M to \$2M	\$7M to \$11M	\$12M to \$17M	
	Estimated Package Cost (2024 Dollars)	\$0	\$20M to \$28M	\$20M to \$29M	\$94M to \$128M	\$100M to \$137M	\$103M to \$140M	
Study Goals	Economic Development	N/A	ENHANCES	ENHANCES	ENHANCES	ENHANCES	NEUTRAL	
	Transportation for All	N/A	ENHANCES	ENHANCES	ENHANCES	DIMINISHES	DIMINISHES	
	Multi-Modal Access & Connections	N/A	NEUTRAL	NEUTRAL	NEUTRAL	NEUTRAL	NEUTRAL	
	Emerging Technologies	N/A	NEUTRAL	NEUTRAL	NEUTRAL	NEUTRAL	NEUTRAL	
	Fiscal & Environmental Practicality	N/A	MODERATE	HIGH	LOW	LOW	LOW	
Level 3 Screening Result		CARRIED FORWARD	ELIMINATED	CARRIED FORWARD	CARRIED FORWARD	CARRIED FORWARD	CARRIED FORWARD	

Note: Total package costs include soft costs (e.g., preliminary engineering, construction engineering, etc.) which are not included in the table above.

The assessments of these planning packages, described in the following sections, all reference **Table 4-8**.

4.4.3 SAFETY ASSESSMENT

The potential interchange at SR 18 in Packages 3 through 5 is expected to prevent six times as many crashes as Package 1, which has an RCI at that location. This safety benefit is offset by the relatively high cost of the interchange, while the cost-effective indices of Packages 3 through 5 are among the largest of this planning segment.

Package 2, which also has an RCI at SR 18, yields a similar safety benefit to that of Packages 3, 4, and 5 at a much lower cost and, therefore, has the best cost-effectiveness index of all packages in this planning segment.

4.4.4 MOBILITY ASSESSMENT

4.4.4.1 *Travel Time Along US 31*

The existing traffic signal at the SR 18 intersection is the only location where US 31 traffic flow is impeded in this planning segment. Removal of this traffic signal reduces travel time by an average of 0.3 minute (5%). This travel time savings is identical for all packages.

4.4.4.2 *Access Points & Crossing Points*

Packages 1 through 4 provide access points to/from US 31 on average every 0.5 to 0.7 mile. Package 5 provides access points to/from US 31 on average every 5.6 miles. On average, Packages 1 and 2 have crossing points every 0.5 mile, Package 3 every 1.1 miles, and Packages 4 and 5 every 1.9 miles.

4.4.4.3 *Driveway Impacts*

There are eight residential driveways and two field access drives in this planning segment, all of which currently have full access to US 31. All of these driveways will be converted to right-in/right-out only access in Packages 1 through 3, and all such driveways will be closed in Packages 4 and 5. The four existing commercial driveways in this planning segment maintain their current level of access in Packages 1 and 2, are restricted to right-in/right-out access in Package 3, and are closed in Packages 4 and 5.

4.4.4.4 *East-West Mobility*

Packages 1 and 2, which both have regularly spaced median openings and no intersection closures, provide the best cross-corridor mobility with overall east-west mobility similar to that of the No-Build condition. Packages 3 and 4 include intersection and median closures, and conversion of multiple intersections to right-in/right-out access, which decreases the east-west mobility for adjacent land uses and at the affected intersections. Package 5 includes the closure of all median openings and crossroads (except CR 600 N, SR 18, and CR 1050 S), which greatly decreases east-west mobility.

4.4.5 ENVIRONMENTAL RESOURCES ASSESSMENT

4.4.5.1 *Natural Resources*

No NWI wetlands would be impacted by Packages 1 and 2, while Packages 3 through 5 would impact less than 0.1 acre of NWI wetlands. Packages 1 and 2 would have 56 linear feet of impacts to Russell Ditch, while Packages 3 through 5 would each impact approximately 195 linear feet of Russell Ditch. None of the packages would have floodplain impacts. All packages would have 1 acre or less of forested impacts.

4.4.5.2 *Cultural resources*

A historic farm (County Survey Site ID: 103-230-65030) is within the southwest quadrant of US 31 and SR 18. While alternatives were modified during the Level 2 screening to remove any direct impacts to this farm, visual impacts may occur. No other above-ground cultural resources are anticipated to be impacted by any of the packages.

There are no known archaeological sites within the Miami South Planning Segment. There is one cemetery within the Miami South Planning Segment. Access to this cemetery is altered in all packages; however, none of the packages are expected to require land acquisition from the cemetery.

4.4.5.3 Community/Socioeconomic Impacts

Packages 1 and 2 would require 3 to 4 acres of new right-of-way. Packages 3 through 5 would require substantially more right-of-way (42, 71, and 56 acres, respectively). Packages 1 through 3 would require 0 residential relocations and 0 business relocations. Packages 4 and 5 would require 116 to 138 residential relocations. Packages 4 and 5 would have three and four business relocations, respectively.

Packages 1 through 3 would require between 3 and 7 acres of new right-of-way from sensitive communities, while Packages 4 and 5 would require 41 acres of new right-of-way from them. Packages 1 through 3 would not require relocations within these areas. An access driveway is included in Package 3 to avoid impacts to Maple Lawn Village mobile home park. Packages 4 and 5 would require 113 to 115 relocations within sensitive communities. Although most of the right-of-way impacts in Packages 1 and 2 are within these areas, impacts were minimized in Level 2 screening and the overall safety benefits would be substantial for all communities. Therefore, Packages 1 through 3 are not anticipated to result in greater impacts to sensitive communities. The right-of-way and relocation impacts for Packages 4 and 5 may be greater on sensitive communities, and further analysis would be required during project development. The removal of nine of the 12 main access points in Package 5 may also cause greater impacts to sensitive communities.

Two farm field entrances exist within this segment. Packages 1 through 3 would convert these to RIRO, while Packages 4 and 5 would close these entrances. Packages 1 and 2 would require approximately 1 acre of new right-of-way from farmland, while Package 3 through 5 would require 35 to 41 acres. Packages 1 through 3 are not anticipated to have substantial impacts to access to farmland, while Package 4 would increase travel time across the corridor for farm equipment. Package 5 could add substantial delays and limitations to farm equipment attempting to cross the corridor and/or access agricultural parcels adjacent to US 31 unless significant improvements were made to the local network. (Note: Impacts to the local roadway network are not included in this analysis.)

No other Section 4(f) resources would be impacted in this segment. Each package would impact HAZMAT sites, with Packages 1, 2, and 3 impacting one site and Packages 4 and 5 impacting four sites.

4.4.5.4 Public Involvement

Summary of Previous Public Comments

Prior to the Level 3 screening, public comments related to the Miami South Planning Segment were primarily focused on the primary intersection of US 31 and SR 18, as well as the secondary intersection of US 31 and CR 600 N. Specific stakeholder feedback pointed to the safety concerns around the two-way stop-controlled configuration of the US 31 and CR 600 N intersection, red light running at the US 31 and SR 18 intersection, and the lack of turn lanes at US 31 and SR 18 intersection. Additionally, it was noted several times that SR 18 is an important east/westbound connector for the agricultural community in Miami County.

Summary of Public Comments on the Level 3 Screening

The following summarizes the public comments received on the *Draft Level 3 Screening Report* related to the Miami South Planning Segment:

- Concerns regarding reduced access and cross-corridor mobility at SR 18.
- General support for Improvement Package 3 (expressway lite).
- Concerns regarding RCIs to safely accommodate large trucks and farm equipment.

After considering the comments received, the study team made no changes to the Improvement Packages in this planning segment.

See **Appendix C** for the responses to all comments received during the public comment period on the *Draft Level 3 Screening Report*.

4.4.6 COST ASSESSMENT

The difference in total costs between Packages 1 and 2 is negligible. The total cost of Packages 3 through 5 is approximately four to five times higher than Packages 1 and 2. Packages 4 and 5 have higher right-of-way acquisition costs due to the increased level of access control, which requires acquisition of all parcels that currently have driveway access to US 31.

4.4.7 GOALS ASSESSMENT

4.4.7.1 *Economic Development*

Packages 1 and 2 would provide improved travel time along US 31 while maintaining local mobility that would be similar to existing conditions. Packages 3 and 4 provide safety benefits that are considered to outweigh the loss in local mobility. For these reasons, Packages 1 through 4 are rated as Enhances. Package 5 would provide safety benefits, but local mobility and access would be negatively impacted by increasing levels of access control. This could negatively impact local businesses (including agribusiness) and locally planned developments, which results in a Neutral rating.

4.4.7.2 *Transportation for All*

There are sensitive communities in this planning segment. Packages 1 through 3 offer positive safety and mobility benefits while minimizing the risk of impacts on sensitive communities. Although some right-of-way acquisition is required with Packages 1 through 3, they provide access and cross-corridor mobility similar to existing conditions. For these reasons, they are rated as Enhances. Packages 4 and 5 have the risk for greater impacts on sensitive communities. As a result, they are rated as Diminishes.

4.4.7.3 *Multi-Modal Access & Connections*

There are no existing bicycle/pedestrian facilities in this planning segment. The Miami County Comprehensive Plan includes no recommendations for bicycle/pedestrian facilities in this planning segment. Opportunities exist to incorporate bicycle/pedestrian facility considerations into the preliminary design phase of any future project in the study area. As a result, all packages are rated Neutral.

4.4.7.4 *Emerging Technologies*

In general, none of the packages would impact the ability to implement autonomous and connected vehicles. Specific locations for EV infrastructure within this planning segment have not yet been identified. INDOT published its updated draft EV charging infrastructure deployment plan on June 18, 2024, for public review and comment. The plan does not identify any EV charging infrastructure within this planning segment. As a result, all packages are rated as Neutral.

4.4.7.5 *Fiscal & Environmental Practicality*

All packages offer modest improvements to travel time along US 31. Although Package 1 is the least cost-effective from a safety standpoint, it would result in relatively lower environmental and community impacts. As a result, it is rated Moderate. Package 2 is the most cost-effective package as related to safety performance; however, all packages provide favorable CEI values. Improvement Package 2 also has relatively low environmental and community impacts, resulting in a High rating. Packages 3, 4, and 5 would result in higher impacts to environmental and community resources without proportional safety and mobility benefits. As a result, Packages 3, 4, and 5 are rated Low.

4.4.8 RECOMMENDATIONS

Packages 1 and 2 differ only in terms of the level of access granted at crossroads, with Package 2 converting full median openings at secondary intersections to directional median openings. This results in Package 2 having a higher

safety benefit, with mobility, impacts, costs, and goals supported being like that of Package 1. For these reasons, Package 1 was eliminated from further evaluation.

Package 2 represents the most cost-effective safety improvement. The RCIs of this package result in a free-flow facility that provides high levels of east-west mobility, has the most favorable CEI value, minimizes impacts and yields total package costs that are among the lowest of all packages considered. For these reasons, Package 2 is carried forward.

Package 3 contains no RCIs, provides multiple grade separations, and yields a free-flow facility that maintains all existing access points. Package 3 provides the largest safety benefit, a favorable CEI value, and mobility both along and across the study area. Package 3 is carried forward for these reasons.

Packages 4 and 5, which provide an interchange at SR 18, provide safety benefits and travel times along US 31 that are comparable to those of Packages 2 and 3. Packages 4 and 5 have decreased east-west mobility resulting from median closures and higher environmental and community impacts than other packages. These packages require relocation of more than 100 residences, many of which are in sensitive communities, and have larger potential risk of impacts. Packages 4 and 5 have total costs that are approximately four to five times that of Package 2 with a safety benefit that is marginally better. Packages 4 and 5 meet the safety and mobility needs in the planning segment. Given the role of US 31 in the regional and statewide transportation network, a change in facility type, such as that included in Packages 4 and 5, may be considered in the future to achieve broader transportation goals and objectives. The tradeoffs between the potential benefits, impacts, and costs would require further analysis in the future to determine if Packages 4 and 5 are reasonable solutions to the planning segment's transportation needs. For these reasons, Packages 4 and 5 are carried forward.

4.5 SHARPSVILLE PLANNING SEGMENT

4.5.1 IMPROVEMENT PACKAGES

Five Improvement Packages were created for the Sharpsville Planning Segment depicted in **Figure 4-9** using the alternatives advancing from the Level 2 screening process. These packages, listed in **Table 4-9** and depicted in **Figure 4-10**, follow the methodology discussed in **Section 3.3**. Alternatives for minor intersections in each Improvement Package were selected based on a review of the adjacent land uses, consideration of improvements at adjacent intersections, and the guiding principles for access management listed in **Section 3.3**. The footprints of each of these alternatives are depicted in **Appendix A**.

Although an interchange alternative for the CR 550 N intersection passed the Level 2 screening, it was eliminated from further consideration in Level 3 due to interchange spacing guidelines. This intersection is in a rural area. Therefore, it would be too close to the existing interchange at SR 931 (approximately 1 mile). Access to/from US 31 at this intersection was noted as a potential concern for the town of Sharpsville, which may contain sensitive communities; therefore, the study team developed and analyzed a system interchange with SR 931 using collector-distributor roads to address the potential safety and operational issues associated with closely spaced interchanges. However, due to high potential impacts and costs, this alternative was eliminated from further consideration. For these reasons, an interchange at CR 550 N was not included as part of the Improvement Packages for the Sharpsville Planning Segment. All Improvement Packages maintain the existing overpass at CR 600 N.



4.5.1.1 Package 1

Package 1 provides an RCI at the CR 550 N intersection to improve safety for movements to/from Sharpsville. All other study intersections in this package remain two-way stop-controlled. All residential and field access driveways will be converted to right-in/right-out access only. Median openings that are not at intersections are provided at an approximate spacing of one-quarter mile.

4.5.1.2 Package 2

Package 2 builds upon Package 1 by converting all intersections except CR 300 N and CR 550 N to directional median openings to allow only left turns from US 31 and right-in/right-out access to/from the crossroad. All residential and field access driveways will be right-in/right-out access only, and median openings that are not at intersections are provided at an approximate spacing of every 0.5 mile. An overpass at CR 300 N accommodates agricultural equipment usage and east-west mobility in the Sharpsville area.

4.5.1.3 Package 3

Package 3 represents an expressway lite facility in which east-west traffic flow is maintained at CR 300 N and CR 600 N where overpasses are provided. This package also maintains access from US 31 S to Sharpsville by providing a directional median opening at CR 550 N. All other intersections in this package and all driveways are limited to right-in/right-out access. Select median openings between intersections are provided.


4.5.1.4 Package 4

Package 4, which represents an expressway alternative in which no driveway access to/from US 31 is allowed. No median openings between intersections are provided. East-west mobility across US 31 is provided via overpasses at CR 300 N and CR 600 N. All intersections in this package are restricted to right-in/right out access.

4.5.1.5 Package 5

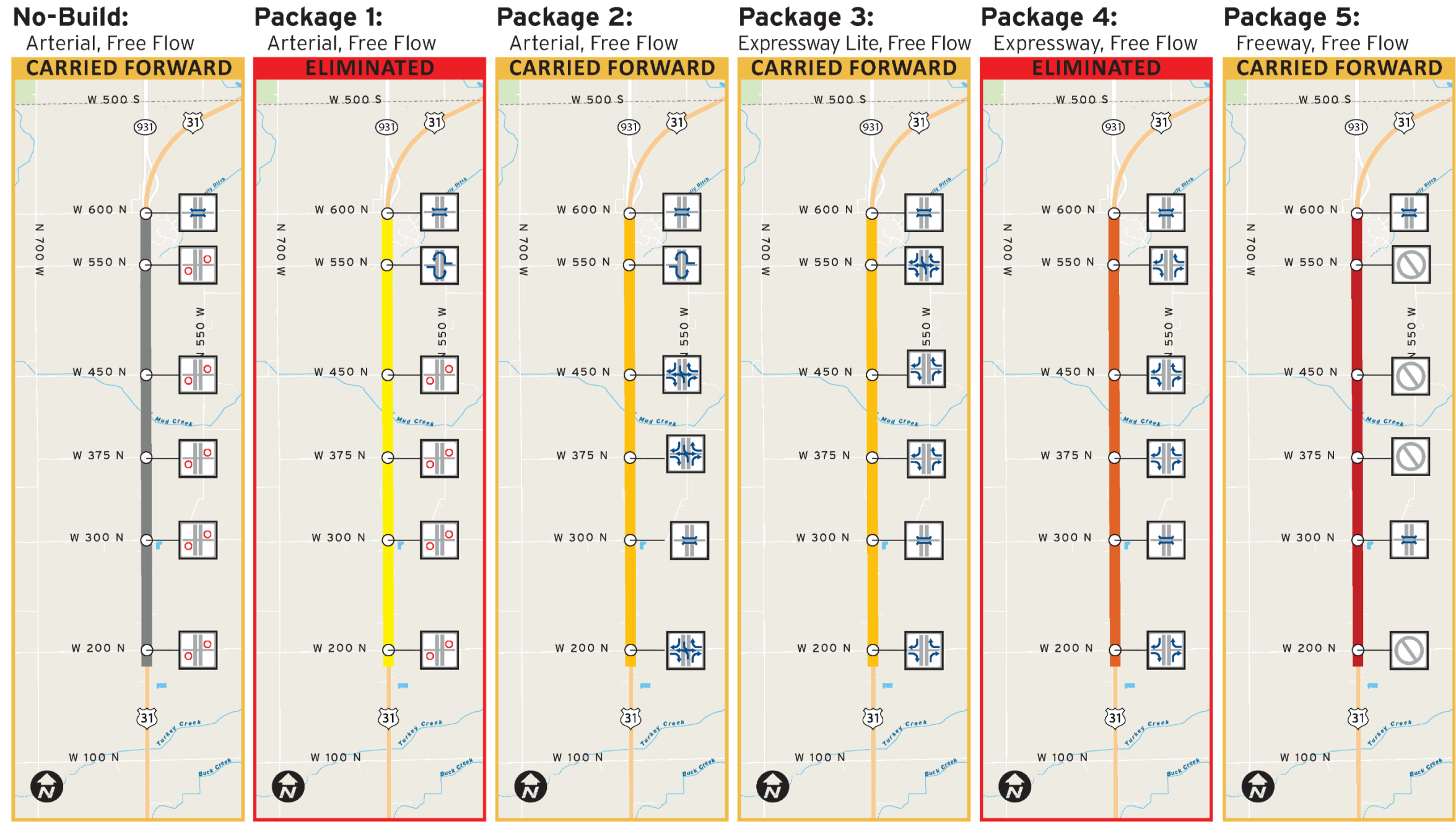
Package 5 represents a freeway alternative in which access to US 31 is not provided within this planning segment. An interchange at CR 550 N, which was considered in the Level 2 Screening, is not included in any package as this interchange violates INDOT's 3-mile interchange spacing guideline for this study. Package 5 does provide for movements across US 31 via an overpass provided at CR 300 N. This overpass location aligns with the Tipton County Comprehensive Plan. All other intersections in this package are closed, as are all driveways and all median openings.

Table 4-9: Sharpsville Planning Segment Improvement Packages

Improvement Package		No-Build	Package #1	Package #2	Package #3	Package #4	Package #5
US 31 Facility Type & Traffic Conditions		Arterial Free Flow	Arterial Free Flow	Arterial Free Flow	Expressway Lite Free Flow	Expressway Free Flow	Freeway Free Flow
Characteristics		Higher Access to/from US 31 Lower Mobility along US 31 Lower Cost				Lower Access to/from US 31 Higher Mobility along US 31 Higher Cost	
Sharpsville	CR 600 N	Existing Overpass	Existing Overpass	Existing Overpass	Existing Overpass	Existing Overpass	Existing Overpass
	CR 550 N	TWSC	RCI	RCI	Directional	RIRO	Closed
	CR 450 N	TWSC	TWSC	Directional	RIRO	RIRO	Closed
	CR 375 N	TWSC	TWSC	Directional	RIRO	RIRO	Closed
	CR 300 N	TWSC	TWSC	Overpass	Overpass	Overpass	Overpass
	CR 200 N	TWSC	TWSC	Directional	RIRO	RIRO	Closed
Commercial Drives		Full Access	Full Access	RIRO Only	RIRO Only	No Access	No Access
Residential Drives		Full Access	RIRO Only	RIRO Only	RIRO Only	No Access	No Access
Median Openings (Between Intersections)		Allowed	Allowed	Allowed	None	None	None

Note: Primary intersections are indicated in bold text.
There are no existing commercial driveways in this planning segment.

Figure 4-10: Sharpsville Planning Segment Improvement Packages



○ = Intersection of Study

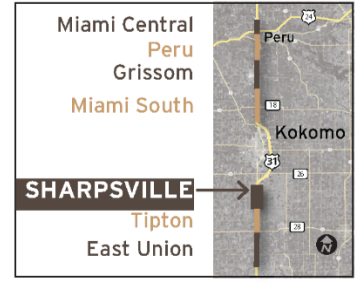
INTERSECTION TYPES:

- | | | | | | |
|--|--|--|---|--|-----------------------|
| | = Two-Way Stop Controlled Intersection | | = Directional Median Opening (RIRO + Left Turns from US 31) | | = Overpass |
| | = Right-In/Right-Out Intersection | | = Reduced Conflict Intersection (Unsignalized) | | = Interchange |
| | = Signal | | = Green-T (Unsignalized) | | = Intersection Closed |

ACCESS CONTROL METHODS:

- = MINIMAL ACCESS CONTROL, driveways have full access, median openings are provided
- = PARTIAL ACCESS, all residential driveways are RIRO, commercial driveways may have full access, select median openings provided
- = PARTIAL ACCESS, all driveways are RIRO, select median openings provided
- = PARTIAL ACCESS, no driveway access, no median openings
- = LIMITED ACCESS, no driveway access or median openings

KEY MAP:



4.5.2 COMPARISON MATRIX

Table 4-10: Sharpsville Planning Segment Comparison Matrix

		Measurement of Effectiveness	No-Build	Package				
				#1	#2	#3	#4	#5
		US 31 Facility Type & Traffic Conditions	Arterial Free Flow	Arterial Free Flow	Arterial Free Flow	Expressway Lite Free Flow	Expressway Free Flow	Freeway Free Flow
Purpose and Need	Safety	Total Conflict Points (number)	210	192	60	24	16	0
		Crossing Conflict Points (number)	120	100	16	4	0	0
		% Reduction in Crossing Conflict Points	0%	17%	87%	97%	100%	100%
		Estimate of Crossing Crashes Prevented (20 yrs)	0.0	4.0	20.8	23.2	24.0	24.0
		Cost-Effectiveness Index (CEI)	N/A	8.0	1.7	1.3	1.3	1.1
	Mobility	Average Travel Time Along US 31 (min) During AM/PM Peak Hour	4.1	4.1	4.1	4.1	4.1	4.1
		Average Distance between US 31 Access Points (miles)	0.7	0.7	0.7	0.8	0.8	0.8
		Average Distance between US 31 Crossing Points (miles)	0.7	0.7	0.7	1.4	2.1	4.1
		Residential Driveways, RIRO/Full (number)	7 / 4	11 / 0	11 / 0	11 / 0	0 / 0	0 / 0
		Commercial Driveways, RIRO/Full (number)	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0
		Field Access Driveways, RIRO/Full (number)	0 / 6	6 / 0	6 / 0	6 / 0	0 / 0	0 / 0
		E-W Mobility Compared to No Build	N/A	SIMILAR	SIMILAR	DECREASED	DECREASED	GREATLY DECREASED
	Environmental Resources	Natural	NWI Wetlands (acres impacted)	0	0	0	0	0
Rivers and Streams (linear feet impacted)			0	94	16	16	16	94
Floodplain (acres impacted)			0	0	0	0	0	0
Forested Areas (acres impacted)			0	<0.5	<1	<1	<1	<1
Cultural		Potential Impacts to Aboveground Resources (Yes/No)	NO	YES (VISUAL)	YES (VISUAL)	NO	NO	YES (DIRECT AND VISUAL)
		Potential Impacts to Known Archaeological Sites	NO	NO	NO	NO	NO	NO
		Cemeteries (number)	0	0	0	0	0	0
Community / Socioeconomic		Residential Relocations (number)	0	0	4	4	9	9
		Business Relocations (number)	0	0	1	1	1	1
		Total New Right-of-Way Acquisition (acres)	0	1	7	8	12	12
		Sensitive Communities (acres)	0	0	0	0	0	<0.5
		Sensitive Communities (potential relocations)	0	0	0	0	0	0
		Potential Risk of Greater Impacts to Sensitive Communities	NO	NO	NO	NO	NO	YES
		Farmland (acres impacted)	0	1	3	3	3	9
		Farmland (Access Impacts, Yes/No)	NO	NO	NO	NO	NO	YES
		Potential Impacts to Other Section 4(f) Resources	NO	NO	NO	NO	NO	NO
		Potential Hazardous Materials Sites (number)	0	0	0	0	0	0
Cost Estimates	Estimated Construction Cost (2024 Dollars)	\$0	\$22M to \$31M	\$22M to \$31M	\$18M to \$25M	\$18M to \$25M	\$14M to \$20M	
	Estimated Right-of-Way Cost (2024 Dollars)	\$0	\$190K to \$260K	\$1M to \$3M	\$1M to \$3M	\$4M to \$6M	\$4M to \$6M	
	Estimated Total Package Cost (2024 Dollars)	\$0	\$27M to \$37M	\$29M to \$40M	\$24M to \$33M	\$26M to \$36M	\$21M to \$30M	
Study Goals	Economic Development	N/A	ENHANCES	GREATLY ENHANCES	NEUTRAL	NEUTRAL	NEUTRAL	
	Transportation for All	N/A	NEUTRAL	NEUTRAL	NEUTRAL	NEUTRAL	DIMINISHES	
	Multi-Modal Access & Connections	N/A	NEUTRAL	NEUTRAL	NEUTRAL	NEUTRAL	NEUTRAL	
	Emerging Technologies	N/A	NEUTRAL	NEUTRAL	NEUTRAL	NEUTRAL	NEUTRAL	
	Fiscal & Environmental Practicality	N/A	LOW	HIGH	MODERATE	MODERATE	LOW	
Level 3 Screening Result		CARRIED FORWARD	ELIMINATED	CARRIED FORWARD	CARRIED FORWARD	ELIMINATED	CARRIED FORWARD	

Note: Total package costs include soft costs (e.g., preliminary engineering, construction engineering, etc.) which are not included in the table above.

The assessments of these planning packages, described in the following sections, all reference **Table 4-10**.

4.5.3 SAFETY ASSESSMENT

Packages that are estimated to prevent the largest amount of crossing crashes are those that eliminate crossing movements at the secondary intersections (Packages 3 through 5). Packages 3, 4, and 5 have the largest safety benefit, while Package 2 provides 87% of the safety benefit provided by these packages. Package 5 was found to be the most cost-effective from a safety perspective; however, Packages 2, 3, and 4 are also considered to be cost-effective.

4.5.4 MOBILITY ASSESSMENT

4.5.4.1 *Travel Time Along US 31*

This planning segment provides for free-flowing traffic in the existing conditions as no traffic signals exist in this portion of US 31. All packages maintain free-flow conditions, and as such, all packages are expected to have the same travel time along US 31 as that of the No-Build scenario.

4.5.4.2 *Access Points & Crossing Points*

Packages 1 and 2 provide access points to/from US 31 on average every 0.7 mile, while Packages 3, 4, and 5 provide access points to/from US 31 on average every 0.8 mile. On average, Packages 1 and 2 have crossing points every 0.7 mile, while Packages 3 through 5 provide crossing points every 1.4 miles, 2.1 miles, and 4.1 miles, respectively.

4.5.4.3 *Driveway Impacts*

There are 11 residential driveways and six field access drives in this planning segment, a majority of which currently have full access to US 31. All of these driveways will be converted to right-in/right-out only access in Packages 1 through 3, and all such driveways will be closed in Packages 4 and 5.

4.5.4.4 *East-West Mobility*

Packages 1 and 2, which both have regularly spaced median openings and no intersection closures, provide the best cross-corridor mobility with overall east-west mobility like that of the No-Build condition. Packages 3 and 4 include median closures and conversion to right-in/right-out of multiple intersections, which decreases the east-west mobility for adjacent land uses and at the affected intersections. Package 4 poses greater restrictions in access along the corridor and therefore has a larger average distance between crossing points. Package 5 includes the closure of all median openings and crossroads (except the overpasses at CR 300 N and CR 600 N), which greatly decreases the overall east-west mobility.

4.5.5 ENVIRONMENTAL RESOURCES ASSESSMENT

4.5.5.1 *Natural Resources*

No NWI wetlands or floodplains would be impacted by any of the packages. Packages 2, 3, and 4 would impact 16 linear feet of Kelly West Ditch, while Packages 1 and 5 would impact 94 linear feet of Kelly West Ditch. All packages would impact less than 1 acre of forest.

4.5.5.2 *Cultural Resources*

The Kelley House (County Survey Site ID: 159-323-11005) is located in the northwest quadrant of US 31 and CR 550 N. While alternatives were modified during the Level 2 screening to avoid or minimize any direct impacts to this farm, visual impacts may occur in Packages 1 and 2. Packages 3 and 4 will limit access at CR 550 N but will retain essentially the same existing footprint of the intersection and is not anticipated to have visual impacts. Package 5, which will eliminate access to US 31 at CR 550 N, could have both direct and visual impacts. No other above-ground cultural resources are anticipated to be impacted by any of the packages.

There are no cemeteries or known archaeological resources present within the Sharpsville Planning Segment.

4.5.5.3 Community/Socioeconomic Impacts

Packages 1, 2 and 3 would require approximately 1 acre, 7 acres, and 8 acres of new right-of-way, respectively. Package 1 would require no residential or business relocations. Package 2 and Package 3 would require 4 residential relocations and 1 business relocation, respectively. Package 4 would require approximately 12 acres of new right-of-way, 9 residential relocations, and one business relocation. Package 5 would require approximately 12 acres of new right-of-way, 9 residential relocations, and one business relocation.

Data from the US Census Bureau did not identify any sensitive communities located directly within this planning segment; however, stakeholder outreach identified sensitive communities within the town of Sharpsville. Packages 1 through 4 would not require new right-of-way from these communities, while Package 5 would require less than 0.5 acre. None of the packages would require relocations from these groups. Packages 1 and 2 are not anticipated to have impacts on sensitive communities. However, public and stakeholder outreach noted that closing the CR 550 N intersection would impact the town of Sharpsville, which was impacted from previous improvements on US 31 that reduced access to the town. Package 5 could have a greater impact to sensitive communities due to a full closure of the CR 550 N intersection.

Six farm field entrances exist within this segment. Packages 1, 2, and 3 would convert these to RIRO, while Packages 4 and 5 would close these entrances. Package 1 would require 1 acre of new right-of-way from farmland, while Packages 2, 3, and 4 would require 3 acres, and Package 5 would require 9 acres. Package 1 is not anticipated to have substantial impacts to access to farmland as access remains essentially the same as the no-build condition. Packages 2, 3, and 4 are not expected to have substantial impacts to farmland access as overpasses are provided at three-mile spacing intervals. Package 5 could add substantial delays and limitations to farm equipment attempting to cross the corridor and/or access agricultural parcels adjacent to US 31 unless significant improvements were made to the local network. (Note: Impacts to the local roadway network are not included in this analysis.)

No other Section 4(f) resources would be impacted by any of the packages. None of the packages would impact any HAZMAT sites.

4.5.5.4 Public Involvement

Summary of Previous Public Comments

Prior to the Level 3 screening, most of the public comments received related to the Sharpsville Planning Segment were focused on the US 31 and CR 550 N primary intersection. The most prevalent comments focused on safety concerns, access considerations to/from the town of Sharpsville, and local mobility challenges for school buses, emergency service providers, and agricultural equipment at this location. Other comments noted additional overpasses in this planning segment would benefit farmers who operate on both the east and west side of US 31. An overpass is included at CR 300 N in Package 5.

Summary of Public Comments on the Level 3 Screening

The following summarizes the public comments received on the *Draft Level 3 Screening Report* related to the Sharpsville Planning Segment:

- Concerns regarding loss of cross-corridor mobility.
- Concerns regarding loss of access to/from US 31, particularly at CR 550 N.
- Concerns regarding RCIs and U-turn movements to safely accommodate large trucks and farm equipment.
- Support for an overpass at CR 300 N.

After considering the comments received, the study team made changes to three of the Improvement Packages in this planning segment. See **Section 2.3** for further information.

See **Appendix C** for the responses to all comments received during the public comment period on the *Draft Level 3 Screening Report*.

4.5.6 COST ASSESSMENT

The total costs of Packages 1 through 5 are relatively similar. Package 1 has little right-of-way cost, with substantial costs in intersection improvements such as adding or lengthening turn lanes. Packages 4 and 5 have the highest right-of-way costs as parcels with access to US 31 must be purchased. The cost to close or restrict access at intersections in Package 5 requires fewer construction dollars than the intersection improvements in Packages 1 through 4.

4.5.7 GOALS ASSESSMENT

4.5.7.1 *Economic Development*

No improvements to travel time on US 31 are anticipated with any of the Improvement Packages. Package 1 provides modest safety benefits, while maintaining local mobility that is like existing conditions. For these reasons, it is rated as Enhances. Package 2 provides that same level of local mobility but includes more substantive safety benefits, which results in a rating of Greatly Enhances. Improvement Package 3 also provides substantive safety benefits, but local mobility would be impacted through reduction in crossing points. This results in a rating of Neutral. Packages 4 and 5 would provide substantive safety benefits but local mobility and access would be negatively impacted by increasing levels of access control. This could negatively impact local businesses (including agribusiness) and locally planned developments, which results in a Neutral rating for both packages.

4.5.7.2 *Transportation for All*

There are sensitive communities associated with the town of Sharpsville. As stated above, Packages 3 through 5 reduce or eliminate access between US 31 and Sharpsville at CR 550 N. Although access to US 31 for this community is provided at the US 31 and SR 26 interchange, this could result in increased travel costs, which could be considered a greater impact to sensitive communities. Packages 1 through 4 provide some level of access at CR 550 N. For these reasons, they are rated as Neutral. Package 5 is rated as Diminishes due to the closure of the CR 550 N intersection.

4.5.7.3 *Multi-Modal Access & Connections*

There are no existing bicycle/pedestrian facilities in this planning segment. The Draft Tipton County Bicycle and Pedestrian Master Plan recommends shared roadway facilities on CR 600 N (crossing US 31) and CR 550 N (east of US 31). The potential changes to CR 550 N would not impact this plan and would include opportunities to incorporate bicycle/pedestrian facility considerations into the preliminary design phase of any future projects at that location. CR 600 N is an existing overpass that would not be impacted by the packages. As a result, all packages are rated as Neutral.

4.5.7.4 *Emerging Technologies*

In general, none of the packages would impact the ability to implement autonomous and connected vehicles. Specific locations for EV infrastructure within this planning segment have not yet been identified. INDOT published its updated draft EV charging infrastructure deployment plan on June 18, 2024, for public review and comment. The plan does not identify any EV charging infrastructure within this planning segment. As a result, all packages are rated as Neutral.

4.5.7.5 *Fiscal & Environmental Practicality*

No improvements to travel time on US 31 are anticipated with any of the packages. Although Package 1 is the least cost-effective from a safety standpoint, it would result in relatively lower environmental and community impacts. As a result, it is rated Low. Package 2 has relatively low environmental and community impacts as well as a moderate cost-effectiveness index, which results in a High rating. Packages 3 and 4 are among the most cost-effective packages as it relates to safety performance; however, they both would have higher environmental and community impacts than Package 2. For these reasons, Packages 3 and 4 were rated as Moderate. Package 5 is more cost-effective from a safety standpoint; however, it would result in the highest impacts to environmental and community resources, which results in a rating of Low.

4.5.8 RECOMMENDATIONS

Packages 1 and 2 differ only in terms of the level of access granted at crossroads, with Package 2 converting full median openings at secondary intersections to directional median openings. This results in Package 2 having a higher safety benefit, with mobility, impacts, costs, and goals supported being like that of Package 1. For these reasons, Package 1 is eliminated from further evaluation.

Package 2 best achieves study goals, represents one of the most cost-effective safety improvements, provides mobility similar to that of the existing conditions, maintains driveway access and has relatively low environmental and community impacts. For these reasons, Package 2 is carried forward.

Package 3 provides a directional median opening at CR 550 N, providing access from southbound US 31 to Sharpsville and restricts all other intersections except CR 300 N to right-in/right-out only access. This package is also cost-effective from a safety standpoint and does meet the safety and mobility needs. For these reasons, Package 3 is carried forward.

Package 4 provides mobility and safety benefits similar to Package 3; however, it results in higher right-of-way costs resulting from eliminating all residential driveways. As such, Package 4 is eliminated from further consideration.

Package 5 provides an overpass at CR 300 N and closes all other intersections in this planning segment. This eliminates access to/from Sharpsville at CR 550 N. This package has the largest impacts to community and environmental resources, but it does meet the safety and mobility needs. Given the role of US 31 in the regional and statewide transportation network, a change in facility type, such as that included in Package 5, may be considered in the future to achieve broader transportation goals and objectives. The tradeoffs between the potential benefits, impacts, and costs would require further analysis in the future to determine if Package 5 is a reasonable solution to the planning segment's transportation needs. For these reasons, Package 5 is carried forward.

4.6 TIPTON PLANNING SEGMENT

4.6.1 IMPROVEMENT PACKAGES

The alternatives advancing from the Level 2 screening process were organized into six Improvement Packages for the Tipton Planning Segment, depicted in **Figure 4-11**. These packages, listed in **Table 4-11** and depicted in **Figure 4-12**, follow the methodology discussed in **Section 3.3**. Alternatives for secondary intersections in each Improvement Package were selected based on a review of the adjacent land uses, consideration of improvements at adjacent intersections, and the guiding principles for access management listed in **Section 3.3**. The footprints of each of these alternatives are depicted in **Appendix A**.

The Tipton County Comprehensive Plan calls for an interchange at Division Road. Packages 4, 5, and 6 align with this plan. All packages retain the existing interchange at SR 28 and the existing overpass at CR 100 S.

Division Road between US 31 and SR 19 was designated as SR 28 in spring 2024, as most of SR 28 between US 31 and SR 19 was relinquished to the county. These changes were necessary to divert truck traffic away from downtown Tipton. SR 28 west of US 31 remains unchanged.

4.6.1.1 Package 1

Package 1 replaces the existing traffic signal at Division Road with an RCI. All residential and farm access driveways are converted to right-in/right-out access only.

4.6.1.2 Package 2

Package 2 builds upon Package 1 by converting all driveways to right-in/right-out access only. All other intersection modifications are identical to Package 1.

4.6.1.3 Package 3

Package 3 limits movements at CR 100 N via a directional median opening but is otherwise identical to Package 2.

4.6.1.4 Package 4

Package 4 represents an expressway lite alternative in which all driveways along US 31 are restricted to right-in/right-out access and select median openings between intersections are provided. An interchange is provided at Division Road, and access at the CR 100 N intersection is restricted to right-in/right-out access. All other intersection modifications are identical to those of Package 3.

4.6.1.5 Package 5


Package 5 provides for the same intersection improvements as Package 4, but it eliminates all driveways and no median openings between intersections are provided.



4.6.1.6 Package 6

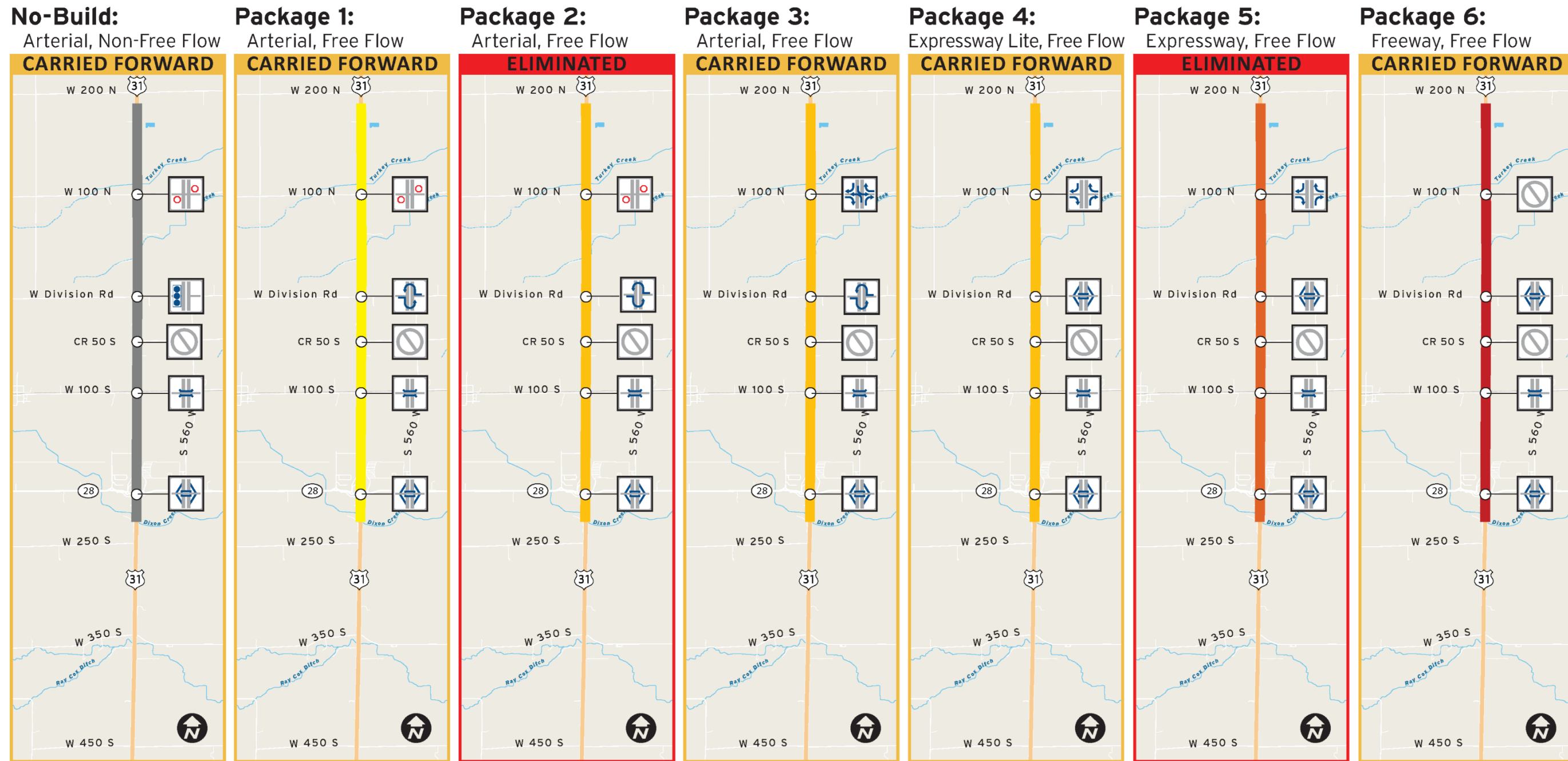
Package 6 represents a freeway alternative in which access to US 31 is limited to interchanges located at Division Road and SR 28. All other intersections are closed, as are all driveways and all median openings.

Table 4-11: Tipton Planning Segment Improvement Packages

Improvement Package		No-Build	Package #1	Package #2	Package #3	Package #4	Package #5	Package #6
US 31 Facility Type & Traffic Conditions		Arterial Non-Free Flow	Arterial Free Flow	Arterial Free Flow	Arterial Free Flow	Expressway Lite Free Flow	Expressway Free Flow	Freeway Free Flow
Characteristics		Higher Access to/from US 31 Lower Mobility along US 31 Lower Cost						Lower Access to/from US 31 Higher Mobility along US 31 Higher Cost
Tipton	CR 100 N	TWSC	TWSC	TWSC	Directional	RIRO	RIRO	Closed
	Division Rd	Signal	RCI	RCI	RCI	Quadrant Interchange	Quadrant Interchange	Quadrant Interchange
	CR 50 S	Closed	Closed	Closed	Closed	Closed	Closed	Closed
	CR 100 S	Existing Overpass	Existing Overpass	Existing Overpass	Existing Overpass	Existing Overpass	Existing Overpass	Existing Overpass
	SR 28	Existing Interchange	Existing Interchange	Existing Interchange	Existing Interchange	Existing Interchange	Existing Interchange	Existing Interchange
Commercial Drives		Full Access	Full Access	RIRO Only	RIRO Only	RIRO Only	No Access	No Access
Residential Drives		Full Access	RIRO Only	RIRO Only	RIRO Only	RIRO Only	No Access	No Access
Median Openings (Between Intersections)		Allowed	Allowed	Allowed	Allowed	None	None	None

Note: Primary intersections are indicated in bold text.
 There are no existing commercial driveways in this planning segment.

Figure 4-12: Tipton Planning Segment Improvement Packages



○ = Intersection of Study

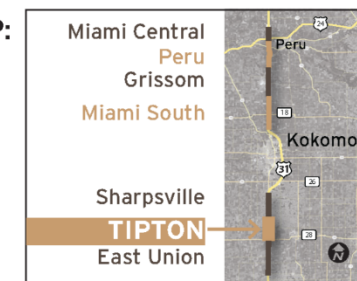
INTERSECTION TYPES:

- = Two-Way Stop Controlled Intersection
- = Directional Median Opening (RIRO + Left Turns from US 31)
- = Overpass
- = Right-In/Right-Out Intersection
- = Reduced Conflict Intersection (Unsignalized)
- = Interchange
- = Signal
- = Intersection Closed

ACCESS CONTROL METHODS:

- = MINIMAL ACCESS CONTROL, driveways have full access, median openings are provided
- = PARTIAL ACCESS, all residential driveways are RIRO, commercial driveways may have full access, select median openings provided
- = PARTIAL ACCESS, all driveways are RIRO, select median openings provided
- = PARTIAL ACCESS, no driveway access, no median openings
- = LIMITED ACCESS, no driveway access or median openings

KEY MAP:



4.6.2 COMPARISON MATRIX

Table 4-12: Tipton Planning Segment Comparison Matrix

		Measurement of Effectiveness	No Build	Package					
				#1	#2	#3	#4	#5	#6
		US 31 Facility Type & Traffic Conditions	Arterial Non-Free Flow	Arterial Free Flow	Arterial Free Flow	Arterial Free Flow	Expressway Lite Free Flow	Expressway Free Flow	Freeway Free Flow
Purpose and Need	Safety	Total Conflict Points (number)	106	88	88	58	48	48	44
		Crossing Conflict Points (number)	54	34	34	14	12	12	12
		% Reduction in Crossing Conflict Points	0%	37%	37%	74%	78%	78%	78%
		Estimate of Crossing Crashes Prevented (20 yrs)	0.0	31.1	31.1	62.2	65.3	65.3	65.3
		Cost-Effectiveness Index (CEI)	N/A	0.4	0.4	0.2	0.6	0.8	0.8
	Mobility	Average Travel Time Along US 31 (min) During AM/PM Peak Hour	4.3	4.1	4.1	4.1	4.1	4.1	4.1
		Average Distance between US 31 Access Points (miles)	1.0	1.0	1.0	1.0	1.0	1.0	1.4
		Average Distance between US 31 Crossing Points (miles)	1.0	1.0	1.0	1.0	1.4	1.4	1.4
		Residential Driveways, RIRO/Full (number)	14 / 8	22 / 0	22 / 0	22 / 0	22 / 0	0 / 0	0 / 0
		Commercial Driveways, RIRO/Full (number)	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0
		Field Access Driveways, RIRO/Full (number)	2 / 4	6 / 0	6 / 0	6 / 0	6 / 0	0 / 0	0 / 0
		E-W Mobility Compared to No Build	N/A	SIMILAR	SIMILAR	SIMILAR	DECREASED	DECREASED	GREATLY DECREASED
	Environmental Resources	Natural	NWI Wetlands (acres impacted)	0	0	0	0	0	0
Rivers and Streams (linear feet impacted)			0	0	0	0	0	0	0
Floodplain (acres impacted)			0	0	0	0	0	0	0
Forested Areas (acres impacted)			0	<0.5	<0.5	<0.5	1	1	2
Cultural		Potential Impacts to Aboveground Resources (Yes/No)	NO	NO	NO	NO	NO	NO	NO
		Potential Impacts to Known Archaeological Sites	NO	NO	NO	NO	NO	NO	NO
		Cemeteries (number)	0	0	0	0	0	0	0
Community / Socioeconomic		Residential Relocations (number)	0	0	0	0	5	17	17
		Business Relocations (number)	0	0	0	0	0	0	0
		Total New Right-of-Way Acquisition (acres)	0	3	2	2	26	38	38
		Sensitive Communities (acres)	0	3	2	2	8	26	26
		Sensitive Communities (potential relocations)	0	0	0	0	5	17	17
		Potential Risk of Greater Impacts to Sensitive Communities	NO	NO	NO	NO	YES	YES	YES
		Farmland (acres impacted)	0	1	2	2	2	20	20
	Farmland (Access Impacts, Yes/No)	NO	NO	NO	NO	NO	YES	YES	
	Potential Impacts to Other Section 4(f) Resources	NO	NO	NO	NO	NO	NO	NO	
Potential Hazardous Materials Sites (number)	0	0	0	0	0	0	0		
Cost Estimates	Estimated Construction Cost (2024 Dollars)	\$0	\$7M to \$10M	\$7M to \$10M	\$7M to \$10M	\$27M to \$38M	\$27M to \$38M	\$27M to \$38M	
	Estimated Right-of-Way Cost (2024 Dollars)	\$0	\$300K to \$500K	\$300K to \$500K	\$200K to \$300K	\$2M to \$3M	\$7M to \$11M	\$7M to \$11M	
	Estimated Total Package Cost (2024 Dollars)	\$0	\$9M to \$13M	\$9M to \$13M	\$8M to \$13M	\$35M to \$49M	\$41M to \$56M	\$41M to \$57M	
Study Goals	Economic Development	N/A	ENHANCES	ENHANCES	GREATLY ENHANCES	ENHANCES	NEUTRAL	NEUTRAL	
	Transportation for All	N/A	NEUTRAL	NEUTRAL	NEUTRAL	DIMINISHES	DIMINISHES	DIMINISHES	
	Multi-Modal Access & Connections	N/A	NEUTRAL	NEUTRAL	NEUTRAL	NEUTRAL	NEUTRAL	NEUTRAL	
	Emerging Technologies	N/A	NEUTRAL	NEUTRAL	NEUTRAL	NEUTRAL	NEUTRAL	NEUTRAL	
	Fiscal & Environmental Practicality	N/A	LOW	LOW	MODERATE	MODERATE	LOW	LOW	
Level 3 Screening Result		CARRIED FORWARD	CARRIED FORWARD	ELIMINATED	CARRIED FORWARD	CARRIED FORWARD	ELIMINATED	CARRIED FORWARD	

Note: Total package costs include soft costs (e.g., preliminary engineering, construction engineering, etc.) which are not included in the table above.

The assessments of these planning packages, described in the following sections, all reference **Table 4-12**.

4.6.3 SAFETY ASSESSMENT

The potential interchanges at Division Road in Packages 4, 5, and 6 are expected to prevent the largest amount of crossing crashes. Package 3 provides safety benefits that are nearly equivalent to those of Packages 4, 5, and 6 but has a substantially lower package cost, which results in the most favorable cost-effective index among the packages considered.

4.6.4 MOBILITY ASSESSMENT

4.6.4.1 *Travel Time Along US 31*

Eliminating the traffic signal at Division Road is expected to improve travel time along US 31 by an average of 0.2 minute (4%), as reflected in all packages. The RCI of Packages 1, 2, and 3 yield the same travel time benefit as that of the interchanges in Packages 5 and 6.

4.6.4.2 *Access Points & Crossing Points*

Packages 1 through 5 provide the same number of access points to/from US 31 as the No-Build condition, with average access spacing of 1 mile. Package 6 provides access points to/from US 31 on average every 1.4 miles. On average, Packages 1 through 3 have crossing points every 1 mile (same as the No-Build condition) and Packages 4 through 6 every 1.4 miles.

4.6.4.3 *Driveway Impacts*

There are 22 residential driveways and six field access drives in this planning segment, all of which would be converted to right-in/right-out only access in Packages 1 through 4 and closed in Packages 5 and 6. Recent construction activities on this segment have restricted access at some of these 22 driveways.

4.6.4.4 *East-West Mobility*

Packages 1 through 3, which have regularly spaced median openings and no intersection closures, provide overall east-west mobility like that of the No-Build condition. Packages 4 and 5 include median closures and conversion to right-in/right-out of the CR 100 N intersection, which decreases the east-west mobility. Package 6 includes the closure of all median openings and crossroads (except SR 28, CR 100 S, and Division Road), which greatly decreases the east-west mobility in the planning segment.

4.6.5 ENVIRONMENTAL RESOURCES ASSESSMENT

4.6.5.1 *Natural Resources*

No NWI wetlands, rivers/streams, or floodplains would be impacted by any of the packages. Packages 1, 2, and 3 would impact less than 0.5 acre of forest, while Packages 3 and 4 would impact 1 acre, and Package 6 would impact 2 acres, respectively.

4.6.5.2 *Cultural Resources*

Hopewell Methodist Church (County Survey Site ID: 159-309-20021) is in the northeast quadrant of US 31 and CR 100 N. None of the packages are anticipated to have direct or visual impacts to the church. No other above-ground cultural resources would be impacted by any of the packages. There are no known archaeological sites or cemeteries within the Tipton Planning Segment.

4.6.5.3 *Community/Socioeconomic Impacts*

Packages 1 through 3 would require approximately 2 to 3 acres of new right-of-way with zero relocations. Package 4 would require 26 acres of new right-of-way and 5 residential relocations. Packages 5 and 6 would require 38 acres of new right-of-way with 17 residential relocations. No business relocations are required for any of the packages.

Packages 1, 2, and 3 would require 2 to 3 acres of new right-of-way from sensitive communities, while Package 4 would require 8 acres of new right-of-way within these areas. Packages 5 and 6 would require 26 acres of new right-

of-way from sensitive communities. Packages 1, 2, and 3 would not require relocations within sensitive communities, while Package 4 would require 5 relocations and Packages 5 and 6 would require 17 relocations within these areas. All new required right-of-way would be acquired from sensitive communities. Additionally, all residential relocations would occur within sensitive communities. The right-of-way impacts in Packages 1 through 3 have been minimized and do not have significant impacts to residential areas. Furthermore, the safety benefits would provide positive impacts for the sensitive communities. Packages 4 through 6 have significant right-of-way and relocation requirements within sensitive communities. Therefore, Packages 1 through 3 are not anticipated to have the risk of greater impacts on sensitive communities. On the other hand, Packages 4 through 6 may have greater impacts on sensitive communities.

Six farm field entrances exist within this segment. Packages 1, 2, 3, and 4 would require up to 2 acres of new right-of-way from farmland. Packages 5 and 6 would require 20 acres of farmland acquisition. Packages 1 through 4 are not anticipated to have substantial impacts to access to farmland, while Packages 5 and 6 would increase travel time across the corridor for farm equipment. Package 6 could add substantial delays and limitations to farm equipment attempting to cross the corridor and/or access agricultural parcels adjacent to US 31 unless significant improvements were made to the local network. (Note: Impacts to the local roadway network are not included in this analysis.)

No other Section 4(f) resources or HAZMAT sites would be impacted by any of the packages.

4.6.5.4 Public Involvement

Summary of Previous Public Comments

Prior to the Level 3 screening, the majority of public and stakeholder comments received focused on the US 31 and Division Road intersection and were specifically related to economic development opportunities, safety concerns, and local mobility for school buses, emergency service providers, and agricultural equipment. The study team also heard about Division Road's vital role as the truck route through Tipton County. A portion of the public comments received noted that the current configuration of the intersection limits the free-flow conditions found on US 31 to the south of this location; however, numerous comments stressed that Division Road is a critical access point connecting the east and west sides of Tipton County.

Summary of Public Comments on the Level 3 Screening

The following summarizes the public comments received on the *Draft Level 3 Screening Report* related to the Tipton Planning Segment:

- Concerns regarding maintaining access and cross-corridor mobility at Division Road.
- General support for Improvement Package 4 (expressway lite).
- Concerns regarding RCIs to safely accommodate large trucks and farm equipment.
- General support for removal of the traffic signal at Division Road.

After considering the comments received, the study team made no changes to the Improvement Packages in this planning segment.

See **Appendix C** for the responses to all comments received during the public comment period on the *Draft Level 3 Screening Report*.

4.6.6 COST ASSESSMENT

Packages 1 through 3 represent the lowest-cost packages and require the least amount of right-of-way acquisition. Packages 4, 5, and 6 have substantially higher costs, with Packages 5 and 6 including substantial right-of-way acquisition along the corridor as driveway access is eliminated in these packages.

4.6.7 GOALS ASSESSMENT

4.6.7.1 *Economic Development*

All packages would provide modest improvements to travel time along US 31. Packages 1 through 4 would provide safety benefits while maintaining local mobility via right-in/right-out driveway connections and select median openings. As a result, Packages 1, 2, and 4 were rated as Enhances, while Package 3 was rated as Greatly Enhances due to its significant safety benefits and ability to maintain local mobility and access. Package 3 Packages 5 and 6 would provide safety benefits similar to Package 4, but local mobility and access would be negatively impacted by increasing levels of access control. This could negatively impact local businesses (including agribusiness) and locally planned developments, which results in a Neutral rating for both packages.

4.6.7.2 *Transportation for All*

There are sensitive communities in this planning segment. Packages 1 through 3 offer positive safety and mobility benefits with minor new right-of-way acquisition and no relocations in areas with sensitive communities. For these reasons, Packages 1 through 3 are rated as Neutral. The same situation exists for Packages 4 through 6. Additionally, these packages would also require relocations – the majority of which are located within areas of sensitive communities. This combined with the anticipated negative impacts to local mobility to result in a rating of Diminishes for Packages 4 through. 6.

4.6.7.3 *Multi-Modal Access & Connections*

There are no existing bicycle/pedestrian facilities in this planning segment. The Draft Tipton County Bicycle and Pedestrian Master Plan recommends shared roadway facilities on CR 100 S (crossing US 31). It also recommends a multi-use trail on SR 28 (crossing US 31). No negative impacts are anticipated to the planned facilities with any package. A grade separation of the Norfolk Southern Railroad and CR 100 S was completed as part of a separate INDOT project. No substantive changes are expected for the SR 28 interchange as part of any package. Opportunities exist to incorporate bicycle/pedestrian facility considerations into the preliminary design phase of any future projects in the study area. As a result, all packages are rated as Neutral.

4.6.7.4 *Emerging Technologies*

INDOT published its updated draft EV charging infrastructure deployment plan on June 18, 2024, for public review and comment. The plan indicates that a charging site was selected at the US 31/SR 28 interchange as part of the first round of funding opportunities. No substantive changes or improvements, including changes in access, are being considered at the US 31/SR 28 interchange as part of any package. As a result, all packages are rated as Neutral.

4.6.7.5 *Fiscal & Environmental Practicality*

All packages offer modest improvements to travel time along US 31. Packages 1 through 3 are the most cost-effective packages as it relates to safety performance. They also have relatively low environmental and community impacts. Package 3 has more potential safety benefits than Packages 1 and 2. For these reasons, Packages 1 and 2 are rated as Low, while Package 3 is rated as Moderate. Package 4 would result in more community and environmental impacts, which results in a Moderate rating. Although Packages 5 and 6 have moderate cost-effectiveness, they have the highest environmental and community impacts while providing similar safety benefits to Packages 3 and 4. As a result, they are rated Low.

4.6.8 RECOMMENDATIONS

Package 1, which provides an RCI at Division Road, has among the lowest costs and least amount of environmental impacts. This package requires no relocations and meets both the safety and mobility needs of the study. Package 1 is carried forward.

Packages 2 and 3 differ only by the median opening treatment at CR 100 N. The directional median treatment of Package 3 yields a larger reduction in crossing crashes and yields similar cross-corridor mobility. Additionally, Package 2 is identical to Package 1 because there are no commercial driveways in this planning segment. For these reasons, Package 2 is eliminated from further evaluation.

Package 3 provides east-west mobility similar to that of the No-Build, is the most cost-effective safety improvement that addresses the crash history of the intersection, retains access to the residential parcels and farm fields along the corridor, and has impacts that are among the lowest of all packages. For these reasons, Package 3 is carried forward.

Package 4 provides an interchange at Division Road, which addresses the crash history of the intersection and provides for east-west mobility that is similar to the No-Build condition. Package 4 also has a favorable CEI value. For these reasons, Package 4 is carried forward.

The only difference between Packages 5 and 6 is that Package 5 provides access to/from US 31 at CR 100 N. This difference did not result in a significant difference in the screening results between these two packages, and access to/from US 31 at CR 100 N is provided in Packages 1 through 3. As such, Package 5 is eliminated from further consideration.

Despite having the largest impacts to environmental resources and producing safety and mobility levels that are matched or exceeded by other packages, Package 6 does meet the safety and mobility needs. Given the role of US 31 in the regional and statewide transportation network, a change in facility type, such as that included in Package 6, may be considered in the future to achieve broader transportation goals and objectives. The tradeoffs between the potential benefits, impacts and costs would require further analysis in the future to determine if Package 6 is a reasonable solution to the planning segment's identified transportation needs. For these reasons, Package 6 is carried forward.

4.7 EAST UNION PLANNING SEGMENT

4.7.1 IMPROVEMENT PACKAGES

Five Improvement Packages were created for the East Union Planning Segment depicted in **Figure 4-13** using the alternatives advancing from the Level 2 screening process. These packages, listed in **Table 4-13** and depicted in **Figure 4-14**, follow the methodology discussed in **Section 3.3**. Alternatives for minor intersections in each Improvement Package were selected based on a review of the adjacent land uses, consideration of improvements at adjacent intersections, and the guiding principles for access management listed in **Section 3.3**. The footprints of each of these alternatives are depicted in **Appendix A**.

The Tipton County Comprehensive Plan includes an overpass at CR 450 S, which is not included in any package described below as the need for this overpass was not identified by this PEL study. The Hamilton County Comprehensive Plan does not include any recommendations for US 31 within the East Union Planning Segment limits.

Although an interchange alternative for the 296th Street intersection passed the Level 2 screening, it was eliminated from further consideration in Level 3 due to interchange spacing guidelines. This intersection is in a rural area. Therefore, it would be too close to the existing interchange at 276th Street (approximately 1.9 miles). For these reasons, an interchange alternative at 296th Street was not included as part of the Improvement Packages for the East Union Planning Segment.

4.7.1.1 Package 1

Package 1 closes the intersection of 281st Street and restricts 286th Street to right-in/right-out access only. Residential and field access drives are converted to right-in/right-out access. Commercial driveways remain as-is. Residential driveways are limited to right-in/right-out access only.



4.7.1.2 Package 2

Package 2 builds upon Package 1 by providing an RCI at 296th Street to improve safety and maintain access to the town of Atlanta. Intersections to the north of 296th Street have directional median openings, allowing left turns only from US 31. The exception to this is CR 500 S where an overpass is provided to facilitate the movement of agricultural equipment across US 31. All driveways are limited to right-in-right out access only.

4.7.1.3 Package 3

Package 3 is an expressway lite alternative that provides a directional median opening at 296th Street accommodating left-turn movements and right-in/right out access. An overpass is provided at CR 500 S to facilitate the movement of agricultural equipment across US 31. All driveways are limited to right-in/right-out access only. Select median openings are provided between intersections.


4.7.1.4 Package 4

Package 4 also represents an expressway alternative in which driveways connecting to US 31 are prohibited. No median openings between intersections are provided. An RCI is provided at 296th Street to provide access to/from Atlanta. All other intersection improvements are identical to those of Package 3. No overpass is provided at CR 500 S as agricultural equipment crossing US 31 can be accommodated at the RCI considered at 296th Street.

4.7.1.5 Package 5

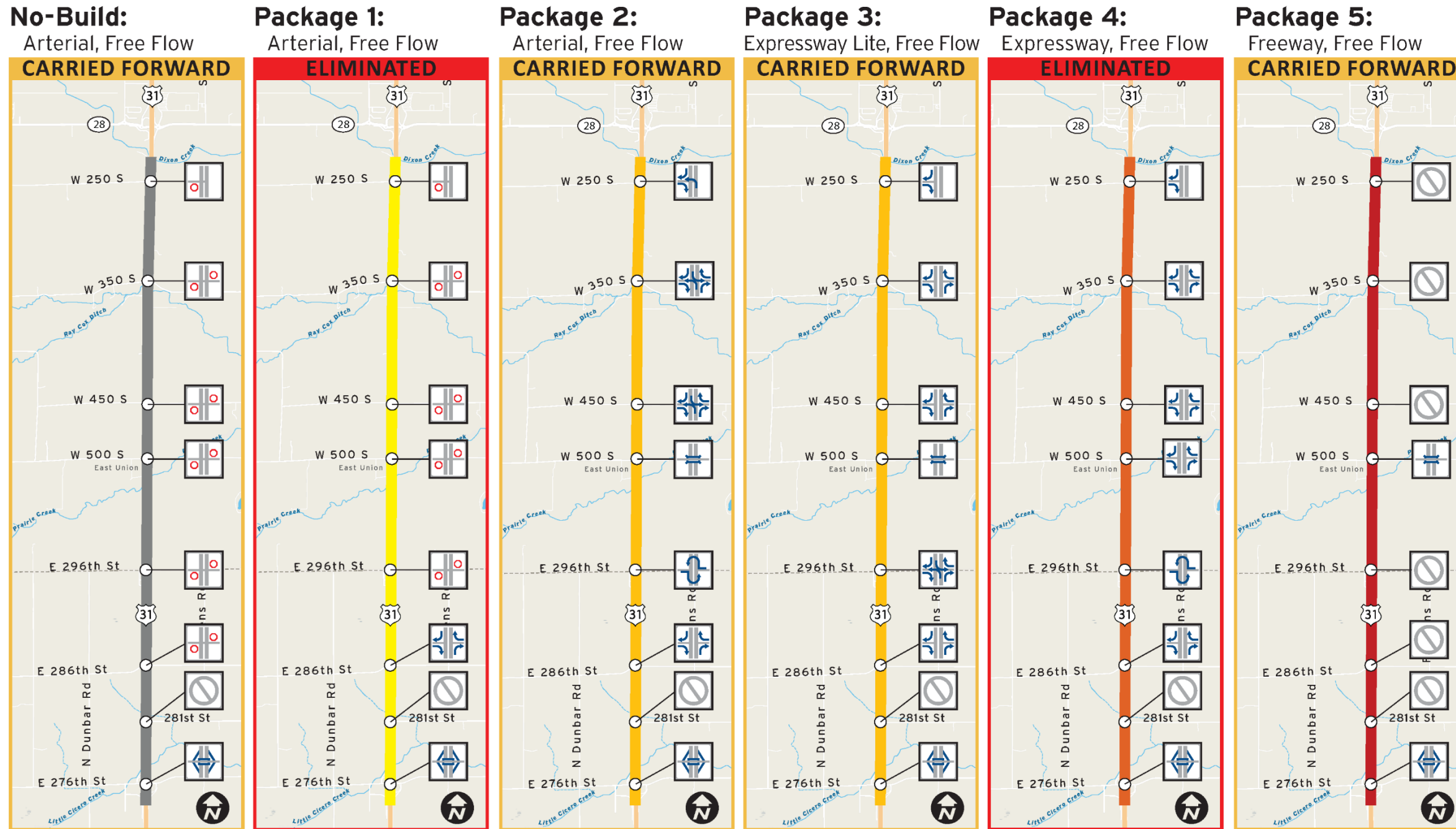
Package 5 represents a freeway alternative in which access to US 31 is limited to the interchange at 276th Street. No interchange is provided at 296th Street due to interchange spacing guidelines. An overpass is provided at CR 500 S to facilitate the movement of agricultural equipment across US 31. All other intersections are closed, as are all driveways and all median openings.

Table 4-13: East Union Planning Segment Improvement Packages

Improvement Package		No-Build	Package #1	Package #2	Package #3	Package #4	Package #5
US 31 Facility Type & Traffic Conditions		Arterial Free Flow	Arterial Free Flow	Arterial Free Flow	Expressway Lite Free Flow	Expressway Free Flow	Freeway Free Flow
Characteristics		Higher Access to/from US 31 Lower Mobility along US 31 Lower Cost				Lower Access to/from US 31 Higher Mobility along US 31 Higher Cost	
East Union	CR 250 S	TWSC	TWSC	Directional	RIRO	RIRO	Closed
	CR 350 S	TWSC	TWSC	Directional	RIRO	RIRO	Closed
	CR 450 S	TWSC	TWSC	Directional	RIRO	RIRO	Closed
	CR 500 S	TWSC	TWSC	Overpass	Overpass	RIRO	Overpass
	296th St	TWSC	TWSC	RCI	Directional	RCI	Closed
	286th St	TWSC	RIRO	RIRO	RIRO	RIRO	Closed
	281st St	TWSC	Closed	Closed	Closed	Closed	Closed
	276th St	Existing Interchange	Existing Interchange	Existing Interchange	Existing Interchange	Existing Interchange	Existing Interchange
Commercial Drives		Full Access	Full Access	RIRO Only	RIRO Only	No Access	No Access
Residential Drives		Full Access	RIRO Only	RIRO Only	RIRO Only	No Access	No Access
Median Openings (Between Intersections)		Allowed	Allowed	Allowed	Allowed	None	None

Note: Primary intersections are indicated in bold text.

Figure 4-14: East Union Planning Segment Improvement Packages



○ = Intersection of Study

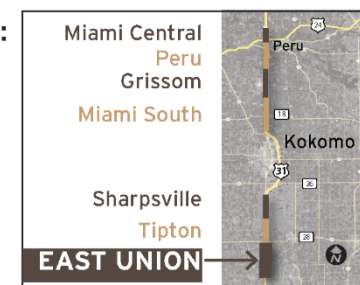
INTERSECTION TYPES:

	= Stop Controlled Intersection		= Reduced Conflict Intersection (Unsignalized)		= Overpass
	= Right-In/Right-Out Intersection		= Signal		= Interchange
	= Directional Median Opening (RIRO + Left Turn from US 31)		= Green-T (Unsignalized)		= Intersection Closed

ACCESS CONTROL METHODS:

- = MINIMAL ACCESS CONTROL, driveways have full access, median openings are provided
- = PARTIAL ACCESS, all residential driveways are RIRO, commercial driveways may have full access, select median openings provided
- = PARTIAL ACCESS, all driveways are RIRO, select median openings provided
- = PARTIAL ACCESS, no driveway access, no median openings
- = LIMITED ACCESS, no driveway access or median openings

KEY MAP:



4.7.2 COMPARISON MATRIX

Table 4-14: East Union Planning Segment Comparison Matrix

		Measurement of Effectiveness	No Build	Package				
				#1	#2	#3	#4	#5
		US 31 Facility Type & Traffic Conditions	Arterial Free Flow	Arterial Free Flow	Arterial Free Flow	Expressway Lite Free Flow	Expressway Free Flow	Freeway Free Flow
Purpose and Need	Safety	Total Conflict Points (number)	274	236	86	50	66	22
		Crossing Conflict Points (number)	150	126	22	10	10	6
		% Reduction in Crossing Conflict Points	0%	16%	85%	93%	93%	96%
		Estimate of Crossing Crashes Prevented (20 yrs)	0.0	12.8	68.3	74.7	74.7	76.8
		Cost-Effectiveness Index (CEI)	N/A	1.4	0.4	0.2	0.2	0.2
	Mobility	Average Travel Time Along US 31 (min) During AM/PM Peak Hour	5.6	5.6	5.6	5.6	5.6	5.6
		Average Distance between US 31 Access Points (miles)	0.7	0.8	0.8	0.8	0.8	5.6
		Average Distance between US 31 Crossing Points (miles)	0.7	0.9	0.9	2.8	2.8	5.6
		Residential Driveways, RIRO/Full (number)	2 / 12	14 / 0	14 / 0	14 / 0	0 / 0	0 / 0
		Commercial Driveways, RIRO/Full (number)	3 / 2	3 / 2	5 / 0	5 / 0	0 / 0	0 / 0
		Field Access Driveways, RIRO/Full (number)	4 / 7	11 / 0	11 / 0	11 / 0	0 / 0	0 / 0
		E-W Mobility Compared to No Build	N/A	SIMILAR	SIMILAR	DECREASED	DECREASED	GREATLY DECREASED
	Environmental Resources	Natural	NWI Wetlands (acres impacted)	0	<0.1	<0.1	0	0
Rivers and Streams (linear feet impacted)			0	7	7	0	0	0
Floodplain (acres impacted)			0	<0.1	1	1	0	1
Forested Areas (acres impacted)			0	<0.5	9	2	<0.5	8
Cultural		Potential Impacts to Aboveground Resources (Yes/No)	NO	NO	NO	NO	NO	NO
		Potential Impacts to Known Archaeological Sites	NO	NO	NO	NO	NO	NO
		Cemeteries (number)	0	1	1	1	1	1
Community / Socioeconomic		Residential Relocations (number)	0	0	1	1	13	14
		Business Relocations (number)	0	0	0	0	0	0
		Total New Right-of-Way Acquisition (acres)	0	3	10	10	3	23
		Sensitive Communities (acres)	0	2	5	4	1	5
		Sensitive Communities (potential relocations)	0	0	0	0	8	8
		Potential Risk of Greater Impacts to Sensitive Communities	NO	NO	NO	NO	YES	YES
		Farmland (acres impacted)	0	2	10	2	1	10
		Farmland (Access Impacts, Yes/No)	NO	NO	NO	NO	YES	YES
		Potential Impacts to Other Section 4(f) Resources	NO	NO	NO	NO	NO	YES
Potential Hazardous Materials Sites (number)		0	1	2	0	0	0	
Cost Estimates	Estimated Construction Cost (2024 Dollars)	\$0	\$12M to \$17M	\$16M to \$23M	\$11M to \$16M	\$4M to \$7M	\$7M to \$10M	
	Estimated Right-of-Way Cost (2024 Dollars)	\$0	\$300K to \$500K	\$900K to \$2M	\$900K to \$2M	\$5M to \$8M	\$5M to \$8M	
	Estimated Total Package Cost (2024 Dollars)	\$0	\$15M to \$21M	\$21M to \$30M	\$15M to \$21M	\$11M to \$16M	\$14M to \$20M	
Study Goals	Economic Development	N/A	ENHANCES	GREATLY ENHANCES	NEUTRAL	NEUTRAL	DIMINISHES	
	Transportation for All	N/A	NEUTRAL	ENHANCES	NEUTRAL	DIMINISHES	DIMINISHES	
	Multi-Modal Access & Connections	N/A	NEUTRAL	NEUTRAL	DIMINISHES	NEUTRAL	DIMINISHES	
	Emerging Technologies	N/A	NEUTRAL	NEUTRAL	NEUTRAL	NEUTRAL	NEUTRAL	
	Fiscal & Environmental Practicality	N/A	MODERATE	MODERATE	MODERATE	LOW	LOW	
Level 3 Screening Result		CARRIED FORWARD	ELIMINATED	CARRIED FORWARD	CARRIED FORWARD	ELIMINATED	CARRIED FORWARD	

Note: Total package costs include soft costs (e.g., preliminary engineering, construction engineering, etc.) which are not included in the table above.

The assessments of these planning packages, described in the following sections, all reference **Table 4-14**.

4.7.3 SAFETY ASSESSMENT

Packages 2 through 5 have favorable and similar cost-effective indices. The safety benefits of these packages are similar, and all of them greatly exceed those of Package 1.

4.7.4 MOBILITY ASSESSMENT

4.7.4.1 *Travel Time Along US 31*

This planning segment currently has no intersections that impede travel time along US 31. All packages maintain the existing free-flow conditions with an average peak travel time of 5.6 minutes.

4.7.4.2 *Access Points & Crossing Points*

Packages 1 through 4 provide access points to/from US 31 at average spacing of 0.8 mile. Package 5, which closes all at-grade intersections, increases this average spacing of access points to 5.6 miles. On average, Packages 1 and 2 have crossing points every 0.9 mile (similar to the No-Build condition), Packages 3 and 4 every 2.8 miles, and Package 5 every 5.6 miles.

4.7.4.3 *Driveway Impacts*

There are 14 residential and field access driveways that will be converted to right-in/right-out access in Packages 1, 2, and 3. The 5 commercial driveways would remain as they are in Package 1 but would become right-in/right-out in Packages 2 and 3. All driveways would be closed in Packages 4 and 5.

4.7.4.4 *East-West Mobility*

Packages 1 and 2, which have regularly spaced median openings and only one intersection closure, provide the best cross-corridor mobility with overall east-west mobility similar to that of the No-Build condition. Package 3 includes median closures, which decreases the east-west mobility for adjacent land uses and at the affected intersections. Package 4 improves east-west mobility by providing an RCI at 296th Street, but it still has decreased east-west mobility as compared to existing conditions. Package 5 includes the closure of all median openings and crossroads (except 276th Street), which greatly decreases the east-west mobility for adjacent land uses and for all east-west movements not currently at a potential interchange location.

4.7.5 ENVIRONMENTAL RESOURCES ASSESSMENT

4.7.5.1 *Natural Resources*

Packages 1 and 2 would have less than 0.1 acre of impacts to NWI wetlands, while Packages 3, 4, and 5 would not impact NWI wetlands. Package 1 would impact approximately 7 feet of Prairie Creek and less than 0.1 acre of its floodplain and Package 2 would impact 7 feet of Prairie Creek and 1 acre of its floodplain. Packages 3 through 5 would not directly impact streams or rivers. Packages 3 and 5 would impact 1 acre of floodplain. Packages 1 and 4 would have less than 0.5 acre of forested impacts, while Packages 2, 3, and 5 would have an impact on 9, 2, and 8 acres, respectively, of forested land.

4.7.5.2 *Cultural Resources*

No above-ground cultural resources or known archaeological sites would be impacted by any of the packages. East Union Cemetery is in the southwest quadrant of the 296th Street intersection. This cemetery has one driveway to US 31 that would be restricted to right-in/right-out access in Packages 1 and 2 and closed in all other packages. Access to the cemetery is currently provided from 296th Street, which remains in all packages. Retaining walls may be necessary to avoid any direct impacts to the cemetery.

4.7.5.3 *Community/Socioeconomic Impacts*

Packages 1 and 4 would require 3 acres of new right-of-way. Packages 2 and 3 would require 10 acres of new right-of-way, and Package 5 would require 23 acres of new right-of-way. No residential or business relocations would be

required for Package 1. Packages 2 and 3 would require one residential relocation and zero business relocations. Packages 4 and 5 would each require 13 and 14 residential relocations, respectively, and zero business relocations.

All packages would require new right-of way from sensitive communities. Packages 1, 2, and 3 would not require relocations within sensitive communities, while Packages 4 and 5 would require 8 relocations within them. Packages 4 and 5 would decrease east-west mobility through increased access control, which could have greater impacts to sensitive communities. Furthermore, the removal of seven of the eight main access points in Package 5 could also result in greater impacts to sensitive communities.

Eleven farm field entrances exist within this segment. Packages 1, 2, and 3 would convert these to right-in/right-out access only, while Packages 4 and 5 would close these entrances. All packages would require new right-of-way from farmland. Packages 1, 3, and 4 would require 2 acres or less of farmland, while Packages 2 and 5 would each impact 10 acres of farmland. Packages 4 and 5 could add substantial delays and limitations to farm equipment attempting to cross the corridor and/or access agricultural parcels adjacent to US 31 unless significant improvements were made to the local network. (Note: Impacts to the local roadway network are not included in this analysis.)

There is a planned trail at the intersection of US 31 and 296th Street. Construction could have temporary impacts to this trail, if it was built prior to a project being programmed. Packages 1 through 4 are not anticipated to have any permanent impacts to a trail. Package 5 could likely avoid impacts, though the Section 4(f) process would need to be coordinated with the Officials with Jurisdiction to ensure nothing more than a *de minimis* impact occurs. None of the packages support an at-grade trail crossing of US 31.

Package 1 would impact one known HAZMAT site, Package 2 would impact two HAZMAT sites, and Packages 3 through 5 would not impact HAZMAT sites.

4.7.5.4 Public Involvement

Summary of Previous Public Comments

Prior to the Level 3 screening, public comments related to the East Union Planning Segment focused primarily on the two primary intersections within it: US 31 and 276th Street and US 31 and 296th Street. While those comments covered a variety of topics, most discussed redevelopment opportunities and local mobility concerns, especially for agricultural vehicles. Specifically, it was noted that limiting access on US 31 between 296th Street and SR 28 would create additional travel time for farm equipment to safely cross US 31.

Summary of Public Comments on the Level 3 Screening

The following summarizes the public comments received on the *Draft Level 3 Screening Report* related to the Miami Central Planning Segment:

- General concerns regarding cross-corridor mobility.
- Concerns regarding reduced access at 296th Street.
- Concerns regarding RCIs and U-turn movements to safely accommodate large trucks and farm equipment.

After considering the comments received, the study team made changes to three of the Improvement Packages in this planning segment. See **Section 2.4** for further information.

See **Appendix C** for the responses to all comments received during the public comment period on the *Draft Level 3 Screening Report*.

4.7.6 COST ASSESSMENT

The right-of-way acquisition costs of Packages 4 and 5 represent a large portion of the project costs, as these packages require relocation of multiple residences due to loss of access. Packages 1, 2, and 3 require one residential relocation or less, have substantially smaller right-of-way costs, and spend a large majority of the total project costs to improve safety of the at-grade intersections in this planning segment.

4.7.7 GOALS ASSESSMENT

4.7.7.1 *Economic Development*

No improvements to travel time on US 31 are anticipated with any of the Improvement Packages. Improvement Package 1 provides modest safety benefits, while maintaining local mobility similar to existing conditions. As a result, it is rated Enhances. Package 2 provides the same level of local mobility but includes more substantive safety benefits, which results in a rating of Greatly Enhances. Package 3 also provides substantive safety benefits, but local mobility would be impacted through reduction in crossing points. For this reason, it is rated as Neutral. Package 4 would provide substantive safety benefits, but local mobility and access would be negatively impacted by increasing levels of access control. This could negatively impact local businesses (including agribusiness) and locally planned developments, which results in a Neutral rating for the package. Package 5 eliminates all access to the planning segment except that provided at 276th Street. This is expected to severely limit the ability to develop the parcels adjacent to this planning segment while providing no mobility benefit along US 31 and is therefore rated as Diminishes.

4.7.7.2 *Transportation for All*

There are sensitive communities in this planning segment. Packages 1 and 2 offer positive safety and mobility benefits, as well as no risk of greater impacts to sensitive communities. Both packages maintain local mobility similar to existing conditions. Package 2 has substantial additional safety benefits as compared to Package 1. For these reasons, Package 1 is rated as Enhances and Package 2 is rated Greatly Enhances. Packages 4 and 5 include risks of greater impacts to sensitive communities. However, Package 3 has substantive safety benefits with relatively lower environmental and community impacts. As a result, it was rated as Neutral, while Packages 4 and 5 were rated as Diminishes.

4.7.7.3 *Multi-Modal Access & Connections*

There are no existing bicycle/pedestrian facilities in this planning segment. The Hamilton County GIS indicates a planned trail on 296th Street that crosses US 31. Each package would make changes to the US 31/296th Street intersection that would include opportunities to incorporate bicycle/pedestrian facility considerations into the preliminary design phase of any future projects at that location. Packages 1, 2, and 4, would maintain the ability to cross US 31 via a stop-controlled intersection or an RCI, which supports the planned trail. For these reasons, they are rated as Neutral. Packages 3 and 5, however, would result in 296th Street being a directional intersection or closed, which could diminish the ability for a planned trail to cross US 31 at this location.

4.7.7.4 *Emerging Technologies*

In general, none of the packages would impact the ability to implement autonomous and connected vehicles. Specific locations for EV infrastructure within this planning segment have not yet been identified. INDOT published its updated draft EV charging infrastructure deployment plan on June 18, 2024, for public review and comment. The plan does not identify any EV charging infrastructure within this planning segment. As a result, all packages are rated as Neutral.

4.7.7.5 *Fiscal & Environmental Practicality*

No improvements to travel time on US 31 are anticipated with any of the packages. Packages 2 through 5 are highly cost-effective from a safety standpoint. Package 2 also has relatively minor environmental and community impacts and is therefore rated as Moderate. Package 1 offers lower safety benefits with lower environmental and community impacts as compared to Packages 2 and 3. Therefore, it is rated as Moderate. Package 3 is tied for the most cost-effective package from a safety standpoint and has relatively minor impacts. It is rated as Moderate. Although Packages 4 and 5 are also rated the most cost-effective, these packages have the highest environmental and community impacts of all packages in this planning segment, which results in a rating of Low.

4.7.8 RECOMMENDATIONS

The Package 1 intersections differ from the No-Build condition only at 281st and 286th streets. Both intersections are planned to be reconstructed as part of the interchange project underway at 276th Street, with 281st Street planned for closure and 286th Street planned to be made right-in/right-out. For this reason, Package 1 is eliminated from consideration in this study since it will effectively be the No-Build condition once construction of the 276th Street interchange is complete.

Packages 2 and 3 differ by the level of access provided to US 31. Package 3 restricts access more than Package 2. Both packages retain driveway access to US 31, are cost-effective from a safety standpoint, and support several study goals. For these reasons, Packages 2 and 3 are both carried forward.

Package 4 provides intersection improvements that are similar to Packages 2 and 3; however, Package 4 would require residential relocations due to closure of existing driveway access. This results in a right-of-way cost that ties Package 5 as the highest in this planning segment. Package 4 also provides slightly less safety benefits. For these reasons, Package 4 is eliminated from further consideration.

Package 5 eliminates access at 296th Street and converts US 31 to a limited-access facility. This results in a right-of-way cost that ties Package 4 for the highest in this planning segment. Package 5 has a large impact to environmental resources, provides only a marginal safety benefit over that of other packages, and greatly decreases east-west mobility when compared to the No-Build scenario. This package does meet the safety need of the study. Additionally, the segment of US 31 immediately to the south is a limited-access facility, which suggests that Package 5 may be appropriate for this planning segment. Given the role of US 31 in the regional and statewide transportation network, a change in facility type such as that included in Package 5 may be considered in the future to achieve broader transportation goals and objectives. The tradeoffs between the potential benefits, impacts, and costs would require further analysis in the future to determine if Package 5 is a reasonable solution to the planning segment's transportation needs. For these reasons, Package 5 is carried forward.

5 NEXT STEPS

Cohesive packages based on certain access management strategies are presented in this document to show potential interoperability between intersections and to be able to assess potential impacts relative to each other. Improvement Packages are not intended to be completely rigid and improvements from different packages could be mixed and matched in future studies.

At this time, no decisions have been made about the future of US 31, and no projects related to the PEL study have been funded by INDOT. A stated goal of the PEL process is the identification of a range of reasonable alternatives. Given the needs identified within the study area, a reasonable alternative could consist of improvements at a single intersection; it could also consist of improvements at multiple intersections and/or the roadway sections in between them (i.e., access management). Depending on multiple factors, including statewide priorities and funding availability, improvements considered as part of this PEL study could be combined in different ways in the future to address the identified transportation needs and support the goals of the study area.

It is possible that Improvement Packages could be mixed and matched across planning segments in the future. This means that access management strategies could vary throughout the study area; however, as part of that decision-making process (which may occur after this PEL study), an assessment will be completed to consider factors such as driver expectation and continuity across the planning segments, as well as the relationship and potential impacts upon other intersections and/or planning segments.

Additionally, one of the purposes of completing a PEL study is the early identification of potential issues that would require further consideration. These will be documented in the final PEL Study Report at the end of this study. Additional details and evaluation required to assist in selection of a preferred alternative would typically be completed during the NEPA process, which occurs during INDOT's traditional project development process for projects utilizing federal funds or requiring federal approvals.

5.1 FUTURE VISION

Based on the work completed as part of the ProPEL US 31 South study, INDOT's long-term vision is to upgrade US 31 in the study area to a free-flow facility, which is a road without traffic signals, stop signs, or yield signs for the mainline traffic. There are varying types of free-flow facilities, ranging from freeways – which have full control of access – to facilities that have no or partial control of access. The ProPEL US 31 South study found achieving this long-term vision was feasible; however, there are tradeoffs to consider and uncertainties that would impact the implementation timeline.

Tradeoffs to consider include:

- Higher costs;
- Higher community and environmental impacts; and
- Potentially severe impacts to local communities and businesses due to the loss of access to/from US 31; as well as reduced mobility across it.

Uncertainties impacting the implementation timeline include:

- Policy decisions of elected officials and agency leaders;
- Statewide transportation priorities; and
- Transportation funding.

Given these tradeoffs and uncertainties, the ProPEL US 31 South study considered a range of improvements that provide INDOT with the flexibility needed to incrementally move toward a long-term vision of a free-flow facility

through a series of improvements over time to address the identified transportation needs. The improvements include more immediate, lower-cost improvements as well as higher-cost improvements that require funding beyond what is currently available.

Due to the identified uncertainties, the study concludes that implementation of an entirely free-flow facility on US 31 in the study area will likely extend beyond the study's planning horizon of 2045. In the interim, the study provides INDOT with a flexible guide to incrementally upgrade US 31 in the study area to a free-flow facility.

5.2 PEL STUDY REPORT

This PEL study is being conducted in accordance with FHWA's PEL program, which was established to help transportation planning agencies develop a collaborative, integrated, and seamless decision-making process that minimizes duplication of efforts between early (i.e., pre-NEPA) transportation planning studies and the NEPA process. The overall goal of this PEL study was to complete planning products such as the purpose and need statement and to develop, analyze, and screen a range of reasonable alternatives in a NEPA-compliant manner. As such, when the NEPA process is initiated, these planning products can be incorporated via reference, and the information can be used to develop and inform future projects and NEPA studies as is appropriate under planning regulations (23 CFR 450). These planning products can minimize the need for rework and provide a seamless transition between the PEL study and future NEPA studies.

The final step of the ProPEL US 31 South study will be the development and publication of the PEL Study Report, which will include completion of the FHWA PEL Questionnaire. Like all other planning products for the study, the PEL Study Report will be made available for agency and public review. The PEL Study Report is expected to be published in 2025. INDOT will determine the appropriate public involvement methods depending on if/what new information is presented in the PEL Study Report. If no new information is presented, INDOT may use other ways to engage stakeholders and the public rather than conducting formal in-person public information meetings.